



OMAE 2016

Busan, Korea

35th International Conference on Ocean, Offshore and Arctic Engineering

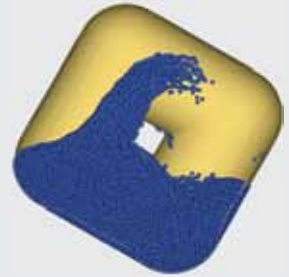
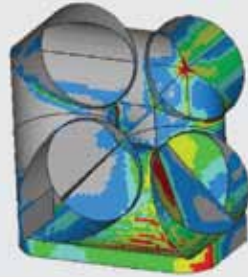
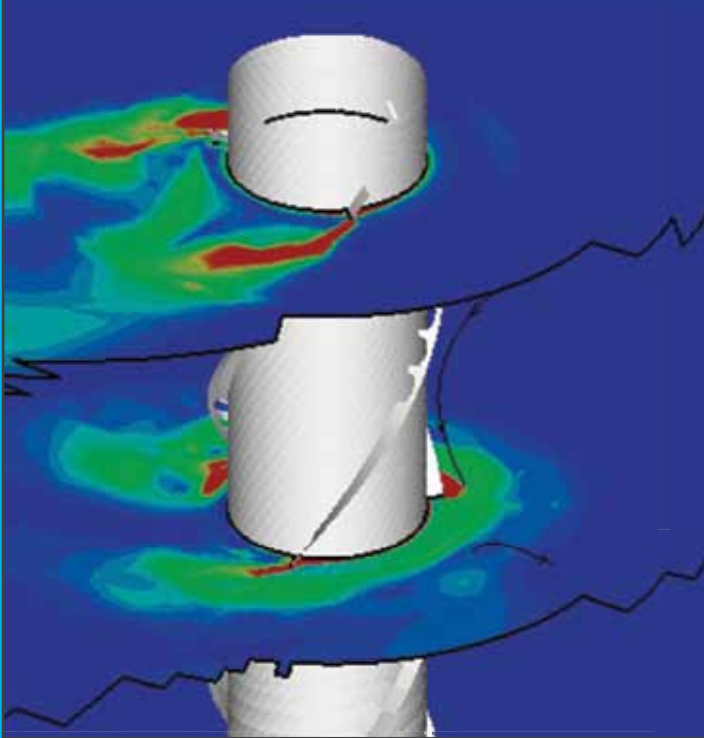
Busan, Korea, June 19–24, 2016

Hosted by:



선박해양플랜트기술연구원
THE KOREA SHIP AND OFFSHORE RESEARCH INSTITUTE





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TABLE OF CONTENTS

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Program at a Glance.....	2	DETAILED PROGRAM:	Technical Tour.....	81
Busan Exhibition & Convention Center Floor Plan.....	4	Honoring Symposia.....	OMAE 2017.....	82
BEXCO and Area Map.....	5	Saturday, June 18.....	Outreach for Engineers.....	84
Welcome.....	6	Sunday, June 19.....	Listing of Committees & Topic Organizers.....	86
Attendee Information.....	12	Monday, June 20.....	Past & Future OMAE Conferences & Chairs.....	90
Social Events.....	18	Tuesday, June 21.....	Author Index.....	92
Sponsors & Exhibitors.....	20	Wednesday, June 22.....	Session Index.....	103
		Thursday, June 23.....		

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PROGRAM AT A GLANCE

Saturday, June 18 (pg 28)

Short Courses

- **Global Marine Technology Trends 2030**
08:30 – 12:00
Room 101, 1st Floor, Convention Hall
- **Subsea Pipelines**
09:00 – 16:00
Room 102, 1st Floor, Convention Hall

Outreach Team Building Exercise

17:00 – 19:00
Room 101, 1st Floor, Convention Hall

Outreach Welcome Dinner

19:00
Off-site

Sunday, June 19 (pg 29)

Outreach Welcome & Introductions Industry Presentations

08:00 – 17:00
Room 101, 1st Floor, Convention Hall

Short Courses

- **Fundamentals of Deepwater Riser & Flexible Pipe Engineering**
08:00 – 17:00
Room 102, 1st Floor, Convention Hall
- **Hydrodynamics for Renewable Energy Device**
09:00 – 16:00
Room 103, 1st Floor, Convention Hall
- **Design Analysis and Design for Offshore Structures**
09:00 – 17:00
Room 104, 1st Floor, Convention Hall
- **Modern Well Design**
09:00 – 17:00
Room 105, 1st Floor, Convention Hall

Welcome Reception

18:30 – 21:30
Busan Cinema Centre, 120 Suyeong
Gangbyeon-daero, Busan 612-020

Monday, June 20 (pg 31)

Opening Ceremony and Keynote Plenaries

08:30 – 10:00
Grand Ballroom, 3rd Floor, Convention Hall

Welcome and Opening Remarks from:

Conference Chair
Technical Program Chair
OOAE Division Chair
Mayor of Busan Metropolitan City

Keynote Plenary One:

Standardization for Oil & Gas Industry
Mr. Dae-Young Park, *Chairman of the Korea Offshore & Shipbuilding Association; President of Samsung Heavy Industries*

Refreshment Break 10:00 – 10:30

Lobby, 2nd Floor, Convention Hall

Keynote Plenaries (Continued) 10:30 – 12:00

Grand Ballroom, 3rd Floor, Convention Hall

Keynote Plenary Two:

Green Wave – Challenges or Opportunities for Maritime Industry?
Mr. Bum Shik Park, *Chairman and CEO of The Korean Register of Shipping*

Keynote Plenary Three:

Global Marine Technology Trends 2030
Mr. Jim Smith, *Regional Manager North Asia, Lloyd's Register Marine and Offshore*

Keynote Plenary Four:

A New Reality – The Outlook for the Oil and Gas Industry in 2016
Mr. Arthur William Stoddart, *Regional Manager, DNV GL Oil & Gas Region Greater China, Korea & Japan*

Opening Lunch 12:00 – 13:30

Grand Ballroom, 3rd Floor, Convention Hall

Concurrent Sessions 13:30 – 15:00

OFT 1-1-1 Spars, FPSO and Semi-Subs
SSR 2-1-1 Abnormal or Rogue Waves
SSR 2-3-1 Probabilistic Response Models I
MAT 3-6-1 Advances in Welding and Inspection
PRS 4-1-1 Flexible Pipes I
PRS 4-5-1 Flow Assurance
OSU 5-1-1 New Concepts for Ocean Space Utilization
OE 6-1-1 Advanced Ship Hydromechanics and Marine Technology I
CFDIV 8-1-1 Ship Motions
ORE 9-1-1 Bottom-fixed Offshore Wind Turbines – I
PT 11-5-1 Petroleum Reservoir Engineering and Management

Refreshment Break 15:00 – 15:30

Lobby, 2nd Floor, Convention Hall

Concurrent Sessions 15:30 – 17:00

OFT 1-1-2 TLPs
SSR 2-2-1 Probabilistic and Spectral Wave Models
SSR 2-3-2 Probabilistic Response Models II
MAT 3-4-1 Materials Performance in Sour Environment
PRS 4-1-2 Flexible Pipes II
PRS 4-4-1 Subsea Systems
OSU 5-3-1 Deepsea Mining and Underwater Development Technology
OE 6-1-2 Advanced Ship Hydromechanics and Marine Technology II
CFDIV 8-3-1 Risers and Pipelines I
ORE 9-2-1 Modeling of Arrays
PT 11-8-1 Unconventional Reservoirs: Production, Well Control and Injection

Tuesday, June 21 (pg 39)

Concurrent Sessions 08:30 – 10:00

OFT 1-1-3 Semi-Subs
OFT 1-3-1 Non-linear Wave and Wave Effects
SSR 2-11-1 Ultimate Strength I
SSR 2-5-1 Reliability of Marine Structures I
MAT 3-4-2 Materials Performance in Challenging Environment
PRS 4-1-3 Flexible Pipes III
OSU 5-5-1 Floating Systems for Renewable Energy I
OE 6-1-3 Advanced Ship Hydromechanics and Marine Tech. III
OE 6-12-1 Ocean Engineering Technology
OE 6-8-1 Fluid-Structure, Multi-body and Wave-body Interaction I
PAS 7-3-1 Structures in Ice
CFDIV 8-1-2 Ship Propulsion and Manoeuvring
CFDIV 8-3-2 Risers and Pipelines II
ORE 9-1-2 Resource Assessment and Wind Farm Optimization
PT 11-7-1 Well Drilling Fluids and Hydraulics – I
NJS 12-1-1 Structural Response I

Refreshment Break 10:00 – 10:30

Lobby, 2nd Floor, Convention Hall

Concurrent Sessions 10:30 – 12:00

OFT 1-1-5 Fixed Structures and Jack-up Rigs
OFT 1-3-4 Numerical Methods and Experiments
SSR 2-11-2 Ultimate Strength II
SSR 2-5-2 Reliability of Marine Structures II
MAT 3-3-1 Integrity Management and Life Extension
PRS 4-1-4 Flexible Pipes IV
OSU 5-5-2 Floating Systems for Renewable Energy II
OE 6-1-4 Advanced Ship Hydromechanics and Marine Tech. IV
OE 6-3-1 Model Tests I
OE 6-8-2 Fluid-Structure, Multi-body and Wave-body Interaction II
PAS 7-2-1 Arctic Sea Transportation
CFDIV 8-1-3 Floating Systems I
CFDIV 8-3-3 Risers and Pipelines III
ORE 9-2-2 Model Tests, New Concepts and Designs
PT 11-7-2 Well Drilling Fluids and Hydraulics – II
NJS 12-1-2 Structural Response II
YUS 13-1-1 Idealized Structural Unit Method

Awards Lunch 12:00 – 13:30

Grand Ballroom, 3rd Floor, Convention Hall

Concurrent Sessions 13:30 – 15:00

OFT 1-2-1 Mooring System Design and Analysis
OFT 1-3-5 Computational Fluid Dynamics and Wave-Current Interaction
SSR 2-11-3 Ultimate Strength III
SSR 2-5-3 Reliability of Marine Structures III
MAT 3-1-1 Fracture Assessment and Control
PRS 4-1-6 Flexible Pipes V
OSU 5-6-1 High Tide and Tsunamis
OE 6-1-5 Advanced Ship Hydromechanics and Marine Tech. V
OE 6-3-2 Model Tests II
OE 6-8-3 Fluid-Structure, Multi-body and Wave-body Interaction III
PAS 7-4-1 Vessels in Ice and Oil Spills
CFDIV 8-1-4 Floating Systems II
CFDIV 8-3-4 Risers and Pipelines IV
ORE 9-1-3 FOWT Modeling and Analysis
PT 11-7-3 Well Drilling Hydraulics and Mechanics
NJS 12-6-1 Impact and Blast Effects with Fluid Interaction 1
YUS 13-2-1 Ultimate Strength and Progressive Collapse

Refreshment Break 15:00 – 15:30

Lobby, 2nd Floor, Convention Hall

Concurrent Sessions 15:30 – 17:00

OFT 1-2-2 Dynamic Positioning and Model Tests
SSR 2-11-4 Ultimate Strength IV
SSR 2-7-1 Reliability of Mooring and Riser Systems
MAT 3-5-1 Fatigue Strength and Evaluation
PRS 4-1-7 Umbilicals and Cables I
OSU 5-7-1 Environmental Assessment and Ecosystem
OE 6-1-6 Advanced Ship Hydromechanics and Marine Technology VI
OE 6-6-1 Unsteady Hydrodynamics, Vibrations, Acoustics, and Propulsion
OE 6-8-4 Fluid-Structure, Multi-body and Wave-body Interaction IV
PAS 7-11-1 Ice Model Tests and Structure-Ice-Interactions
CFDIV 8-1-5 VIM & VIV
CFDIV 8-4-2 VIV Suppression and Control
ORE 9-3-1 Concepts, Model Tests and Analysis
PT 11-1-1 General Petroleum Technology
NJS 12-2-1 Dynamic Behaviour I
YUS 13-3-1 Idealized Structural Units

Wednesday, June 22 (pg 56)

Concurrent Sessions 08:30 – 10:00

OFT 1-3-6 FLNG/FPZO
 SSR 2-12-1 Structural Analysis and Optimization I
 SSR 2-4-1 Fracture and Fatigue Reliability I
 MAT 3-2-1 Fatigue Performance and Testing
 PRS 4-1-8 Umbilicals and Cables II
 OE 6-2-1 Wave Mechanics and Wave Effects I
 OE 6-5-1 Advanced Underwater Vehicles and Design Tech. I
 OE 6-8-5 Fluid-Structure, Multi-body and Wave-body Interaction V
 PAS 7-12-1 Numerical Ice Modeling I
 CFDVIV 8-2-1 Free Surface Flows-I
 CFDVIV 8-5-1 Physics of Gap and Seabed Proximity
 ORE 9-1-4 Design and Control
 OG 10-1-1 Fluid-Soil-Structure Interaction
 PT 11-3-1 Coalbed Methane and CO₂ Sequestration
 NJS 12-4-1 Lightweight Materials and Structures I
 YUS 13-4-1 Computational Welding Mechanics

Refreshment Break 10:00 – 10:30
 Lobby, 2nd Floor, Convention Hall

Concurrent Sessions 10:30 – 12:00

OFT 1-3-8 Platform/Ship Motions
 SSR 2-12-2 Structural Analysis and Optimization II
 SSR 2-4-2 Fracture and Fatigue Reliability II
 MAT 3-8-1 Residual Stresses – Measurement and Analysis
 PRS 4-3-1 Bending and Reeling
 OE 6-2-2 Wave Mechanics and Wave Effects II
 OE 6-5-2 Advanced Underwater Vehicles and Design Tech. II
 OE 6-8-6 Fluid-Structure, Multi-body and Wave-body Interaction VI
 PAS 7-12-2 Numerical Ice Modeling II
 CFDVIV 8-2-2 Free Surface Flows – II
 CFDVIV 8-5-2 Modeling of Fluid-Structure Interaction and VIV Suppression
 ORE 9-2-3 Practical Aspects
 OG 10-2-1 Anchors and Pile Foundations
 PT 11-3-2 Gas Hydrates
 NJS 12-1-3 Structural Response III
 YUS 13-5-1 Inherent Strain/Deformation Methods

Wednesday Lunch 12:00 – 13:30
 Grand Ballroom, 3rd Floor, Convention Hall

Concurrent Sessions 13:30 – 15:00

OFT 1-4-1 Model Testing & Numerical Simulations
 SSR 2-10-1 Collision and Crashworthiness I
 SSR 2-4-3 Fracture and Fatigue Reliability III
 MAT 3-10-1 Advances in Materials Technology
 PRS 4-3-2 Buckling and Collapse
 OE 6-2-3 Wave Mechanics and Wave Effects III
 OE 6-8-7 Fluid-Structure, Multi-body and Wave-body Interaction VII
 PAS 7-13-1 Structure-Ice-Interaction I
 CFDVIV 8-2-3 Free Surface Flows – III
 CFDVIV 8-5-3 Verification, Validation and Uncertainty Quantification
 ORE 9-1-5 Model Testing and Simulation
 ORE 9-3-2 Vertical Axis Systems
 OG 10-3-1 Bucket Foundations and Suction Caissons
 PT 11-10-1 Innovations in Drilling, Production and Transport
 NJS 12-1-4 Structural Response IV
 YUS 13-6-1 Welding Residual Stresses and Distortion

Refreshment Break 15:00 – 15:30
 Lobby, 2nd Floor, Convention Hall

Concurrent Sessions 15:30 – 17:00

OFT 1-4-4 Fatigue
 SSR 2-10-2 Collision and Crashworthiness II
 SSR 2-8-1 Reliability of Renewable Energy Systems
 PRS 4-3-4 Fatigue and Fracture
 OE 6-7-1 Computational Mechanics and Design Applications
 PAS 7-13-2 Structure-Ice-Interactions II
 CFDVIV 8-4-1 Cylinder VIV
 CFDVIV 8-5-4 Bluff Body Flows and Turbulence Modeling
 ORE 9-2-4 Prediction Tools
 ORE 9-3-3 Site and Environmental Assessment
 OG 10-4-1 Spudcans and Pipelines
 PT 11-11-1 Petroleum Production System Design and Operation
 NJS 12-1-5 Structural Response V

Conference Banquet 18:30 – 22:00
 Grand Ballroom, 3rd Floor, Convention Hall

Thursday, June 23 (pg 72)

Outreach Breakfast / Feedback Session 07:30 – 09:00
 Room 207, 2nd Floor, Convention Hall

Concurrent Sessions 08:30 – 10:00

OFT 1-6-2 Vessel Motions and Sloshing
 SSR 2-13-1 Risk Analysis and Management I
 SSR 2-9-1 Extreme Loading and Responses I
 PRS 4-2-1 Rigid Riser I
 PRS 4-3-5 Impact
 OE 6-14-1 Coastal Engineering I
 OE 6-9-1 Marine Environment and Very Large Structures I
 CFDVIV 8-3-5 Risers and Pipelines V
 CFDVIV 8-5-5 High Re Workshop I
 ORE 9-1-6 Bottom Fixed Offshore Wind Turbines – II
 PT 11-6-1 EOR and Reservoir Evaluation (Technical Session)

Refreshment Break 10:00 – 10:30
 Lobby, 2nd Floor, Convention Hall

Concurrent Sessions 10:30 – 12:00

OFT 1-4-6 Design Tools
 SSR 2-13-2 Risk Analysis and Management II
 SSR 2-9-2 Extreme Loading and Responses II
 PRS 4-2-2 Rigid Riser II
 PRS 4-3-6 Pipe-Soil Interaction
 OE 6-14-2 Coastal Engineering II
 OE 6-9-2 Marine Environment and Very Large Structures II
 CFDVIV 8-4-3 Interference, Proximity and Geometry Effects
 CFDVIV 8-5-6 High Re Workshop II
 ORE 9-2-5 Concepts and Optimization
 PT 11-6-2 Fluid Transport and Simulation

Technical Session Organizers' Lunch 12:00 – 13:30
 Grand Ballroom, 3rd Floor, Convention Hall

Concurrent Sessions 13:30 – 15:00

OFT 1-4-5 Platform/Ship Motions and Design Optimisations
 SSR 2-13-3 Risk Analysis and Management III
 SSR 2-9-3 Extreme Loading and Responses III
 PRS 4-2-3 Rigid Riser III
 PRS 4-3-7 Leak Detection Systems
 OE 6-11-1 Offshore Industry: Structures and Design
 OE 6-14-3 Coastal Engineering III
 ORE 9-1-7 VAWTs and New FOWT Systems
 PT 11-4-1 Petroleum Production Systems Design and Analysis

Farewell Reception 15:00 – 17:30
 Room 205, 2nd Floor, Convention Hall

Friday, June 24 (pg 81)

Technical Tour – Vist to Samsung Heavy Industries and The Korea Ship and Offshore Research Institute (KOSORI)
 See page 81 for a description of the Technical Tour.

Wi Fi Network:
 Bexco Free Zone
 No password required



Registration

Lobby, 1st Floor, Convention Hall
 Sunday, June 19 13:00 – 18:00
 Monday, June 20 07:00 – 17:00
 Tuesday, June 21 08:00 – 17:00
 Wednesday, June 22 08:00 – 17:00
 Thursday, June 23 08:00 – 17:00

Exhibition Hours

Lobby, 2nd Floor, Convention Hall
 Monday, June 20 10:00 – 17:00
 Tuesday, June 21 08:30 – 17:00
 Wednesday, June 22 08:30 – 17:00
 Thursday, June 23 08:30 – 10:30

Daily Program Handout

An updated daily program handout will be available at the Registration Desk the mornings of Tuesday, Wednesday and Thursday. The handout will incorporate any last minute program changes and show the time-synchronized order of presentations in each session for that day. You can use this handout as a general reference and to easily plan your personal attendance schedule for the day. The program changes will also be updated on the ASME Event Connect App.

KEY TO SYMPOSIUM ABBREVIATIONS

CFDVIV CFD and VIV
 MAT Materials Technology
 OE Ocean Engineering
 OG Offshore Geotechnics
 ORE Ocean Renewable Energy
 OFT Offshore Technology
 OSU Ocean Space Utilization
 PAS Polar and Arctic Sciences Technology
 PRS Pipelines, Risers and Subsea Systems
 PT Petroleum Technology
 SSR Structures, Safety and Reliability
 NJS Prof. Norman Jones Honoring Symposium on Impact Engineering
 YUS Prof. Yukio Ueda Honoring Symposium on Idealized Nonlinear Mechanics for Welding and Strength of Structures

See Detailed Program starting on page 31 for concurrent session room locations.

Busan Exhibition & Convention Center (BEXCO)

#55 APEC-ro, Haeundae-gu, Busan, 48060

Phone: 82+51-740-7300

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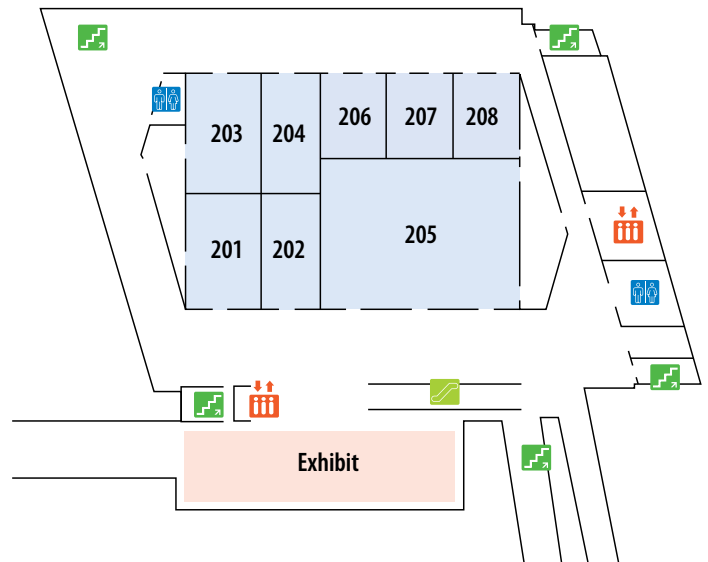
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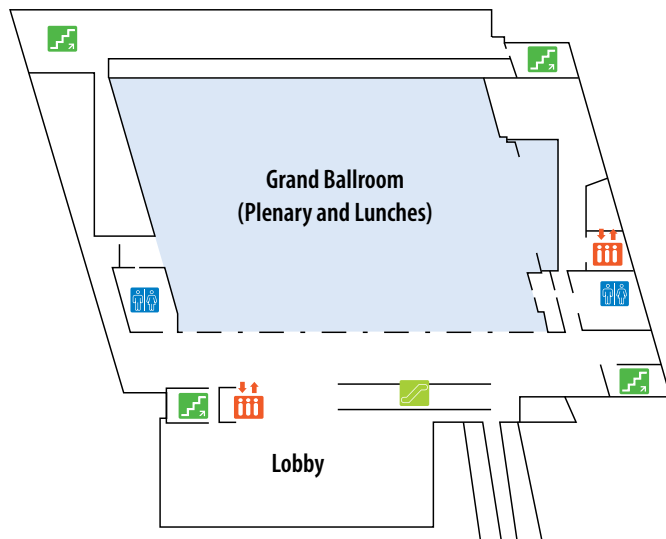


- Washrooms
- Escalator
- Stairs
- Elevators

2ND FLOOR



3RD FLOOR



BEXCO and Area Map



Walking route from Haeundae Centum Hotel and BEXCO to Busan Cinema Center (approx. 800 m) 200 m

- 1 BEXCO: Convention Hall** (Conference Venue)
 #55 APEC-ro, Haeundae-gu, Busan, 48060, Korea
 부산본사 부산광역시 해운대구 APEC로 55
- 3 Haeundae Centum Hotel** (Conference Hotel)
 20, 3-ro, Haeundae-gu, Busan 48060, Korea
 (48060) 부산광역시 해운대구 센텀3로 20, 해운대 센텀호텔
- 2 Busan Cinema Center** (Welcome Reception)
 120 Suyeong Gangbyeon-daero, Haeundae-gu, Busan 48058, Korea
 (48058) 부산광역시 해운대구 수영강변대로 120, 영화의전당
- 4 Shinsegae Centum City Department Store**
 35 Centumnam-daero, Haeundae-gu, Busan
 부산광역시 해운대구 센텀남대로 35 (우동)



Welcome from the Conference Chair

Prof. Jeom Kee Paik

I'm very pleased to welcome you to participate in the 35th International Conference on Ocean, Offshore, and Arctic Engineering (OMAE) at Busan, June 19 – 24, 2016. In the long history of OMAE, it is the first time this conference has been held in Korea which is known worldwide for its use of leading-edge technology in shipbuilding and offshore industries.

The highly successful OMAE series is regarded today by the ocean and offshore community as a major forum for the discussion and dissemination of knowledge and for the mutual exchange of ideas in all areas of research, development, design, and innovation in the field. I feel honored to have the opportunity to welcome you to the conference in Korea. While at the conference, you will have the opportunity to visit the world's largest and best shipyard / offshore construction yard and test facilities.

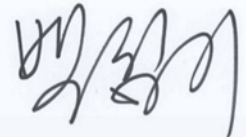
Situated on the south-eastern tip of the Korean Peninsula, Busan is Korea's second largest metropolis, the largest seaport in Korea, and the world's fifth busiest seaport in terms of cargo tonnage, shipping, and transportation. This harbor city's proximity to the Korean Straits and Japan also creates multiple opportunities for tourism and commerce. These intercultural currents have shaped Busan into a truly international city with its own distinctive character.

Busan's stunning natural environment is a harmonious blend of mountains, rivers, and the ocean. Its superb beaches and scenic cliffs will add colors and scents to your stay in the city. I believe that Busan is a good destination for those seeking a more laid back atmosphere, where you can find splendid nature and vibrant urban life at the same time. Furthermore, Busan's busy port gives the city an international flavor, with sailors from

around the world passing through and a growing number of tourists from every corner of the world.

Finally, I like to acknowledge all people and organizations including OMAE Division Committee members, sponsors, exhibitors, symposia coordinators, topic organizers, session chairs, reviewers, scientific committee members, media supporters, Sea to Sky Meeting Management staff members, ASME staff members, local organizing and advisory committee members, and volunteers who are dedicated to the success of the conference. Special thanks go to Dr. Charles Smith, Technical Program Chair, for his excellent job.

I hope that you have the opportunity to acquire valuable technical knowledge and insights while enjoying the memorable sights and sounds of Busan, a city by the ocean.



—Prof. Dr. Jeom Kee Paik,
DHC(ULG), FRINA, FSNAME

Conference Chair, OMAE 2016
Department of Naval Architecture and Ocean Engineering;
The Korea Ship and Offshore Research Institute
(The Lloyd's Register Foundation Research
Centre of Excellence) at Pusan National University;
Department of Mechanical Engineering at
University College London





Dr. Charles Smith

Welcome from the Technical Program Chair

As the Technical Program Chair, it is indeed an honor and a pleasure to welcome you to the 35th International Conference on Offshore Mechanics and Arctic Engineering and to the great city of Busan. This is actually my second trip to Busan this year and I think you will, as I did, find the city with its beautiful architecture, outstanding conference facilities, great restaurants and extremely friendly people an excellent venue to hold OMAE 2016.

This year's technical program is composed of over 680 peer reviewed papers covering an extensive range of topics relative to ocean, offshore and arctic engineering. You will find a broad scope of engaging presentations showcasing these recent advances as well as having the opportunity to meet and network with numerous researchers, engineers, technicians, managers, faculty members and students from every part of the globe.

The core of the OMAE Conference is provided by the standing eleven Technical Symposia. In addition, this year the Conference will also host two special symposia: the Prof. Norman Jones Honoring Symposium on Impact Engineering and the Prof. Yukio Ueda Honoring Symposium on Idealized Nonlinear Mechanics for Welding and Strength of Structures. Both individuals have been leading researchers within their field of study and I am sure that the presentations in their honor will be most rewarding. Also, in conjunction with the Conference, we have offered a number of short courses on relevant technical topics as well as an Outreach for Engineers Forum. Both initiatives are to support the Conference's objectives for continuing education and to attract students and young professionals.

I would like to provide a very special thank you to the Conference Chair, Professor Jeom Kee Paik (Pusan National University) for his outstanding work and leadership in organizing OMAE 2016. It was through his dedication and efforts that made this event possible in the City of Busan. Likewise, it is very important to acknowledge the contribution made by the many volunteers who served on the Local Organizing Committee and who worked so diligently to make this OMAE Conference a true success.

Special thanks are also due to the Symposia Coordinators, Topic Organizers, Session Chairs and Reviewers who committed time and effort to ensure the excellence of their respective technical sessions. The dedication and professional support of the staffs from the BEXCO, Sea to Sky Meeting Management and ASME are greatly appreciated and were vital to the success of the Conference. Finally, I would like to congratulate all authors and attendees for their time and contributions to make this a most memorable event.

Again, I wish to thank all those who made a contribution to OMAE 2016 and I hope you all have a pleasurable and rewarding conference and visit to the vibrant City of Busan.

A handwritten signature in blue ink that reads "Charles E. Smith".

—Dr. Charles E. Smith, D. Sc., P.E., FASME
Technical Program Chair, OMAE2016
Senior Technical Advisor (Arctic Engineering)
Private Consultant





Dr. Dominique Roddier

Welcome from the OOAE Division

On behalf of the Ocean, Offshore and Arctic Engineering (OOAE) Division of the American Society of Mechanical Engineers (ASME), I would like to extend to all of you a heartfelt welcome to the 35th International Conference on Offshore Mechanics and Arctic Engineering (OMAE 2016) and to the fabulous city of Busan. This remarkable city is the cultural, educational and economic center of the region, and I sincerely hope you will find the time to also enjoy the wonders of Korea, including reading some of Choi Chiwon's poetry in Haeundae, the region's largest and most breathtaking beach. If you are the adventurous type, do not miss trying the sea eel or the swellfish (Gumsu-bok-guk restaurant in Haeundae).

I hope you will also join me in congratulating this year's Conference Chair, Professor Jeom Kee Paik for the tremendous work he and his team put into making this year's conference a formidable success. With the worldwide economic challenges we currently face, his leadership is inspirational. Please introduce yourself and say hello if you have the opportunity to meet him. I would like to thank all of you; attendees, authors and volunteers for the many hours of effort spent writing papers, reviewing manuscripts and shaping this year's event into another commendable accomplishment.

The primary objective of the OOAE Division is to promote technological progresses and international cooperation in ocean, offshore and arctic engineering, and to advocate the recovery of natural resources without compromising safety, environmental and economic successes. This is achieved while encouraging young professionals and engineers to join the OOAE community. The major activity of the OOAE Division is to foster the annual OMAE conference. It is an international forum for engineers, researchers, technical specialists and students in the fields of ocean, offshore and arctic engineering to meet and exchange ideas on recent scientific and technological advances with professionals worldwide. Attendees represent professional leaders from major engineering companies, offshore oil and gas operators, ocean renewable energy enthusiasts, premier educational institutions and government agencies. These individuals are involved in all aspects of ocean, offshore and arctic engineering from the development of new technologies to furthering existing know-how and reducing environmental impact, with a steadfast focus on reducing risk and increasing individual safety.

The OMAE Conference is widely recognized as the preeminent international technical forum addressing ocean,

offshore and arctic topics and has enjoyed a steady growth in attendance and technical content over the last decade. Even with the continuing down turn in the oil and gas industry, over 680 technical presentations in 170 technical sessions will be held during the week. I hope you get the opportunity to listen to some of the inspiring presentations in the two honoring symposia. In addition, the OMAE Conference will host six short courses (including a few new ones) as well as the prevalent student outreach program. Initiatives such as these help support the OOAE Division's objectives of continuing education and the desire to attract students and young professionals to our community.

I would like to present a special acknowledgment to new and returning sponsors and exhibitors for their financial support. Without this support, the OMAE Conference would not be of the breadth and quality that it has grown to be. Thank you! It is also very important to acknowledge the contribution made by the scores of volunteers who served on the Local Organizing and Advisory Committees and who worked so diligently to make this OMAE Conference a true success.

Finally, I would like to finish with a very special and heartfelt "thank you" to the OMAE 2016 Conference Technical Chair: Dr. Charles Smith, for his exceptional leadership in organizing this year's technical program. Special thanks are also due to the Symposia Coordinators, Topic Organizers, Session Chairs and Reviewers who worked tirelessly under Dr. Smith's leadership and committed time and effort to ensure the excellence of their respective technical sessions. I would also like to express my sincere gratitude to the OOAE division committee members which, year after year work tirelessly to ensure that OMAE stays very relevant and of exemplary quality. It has been an amazing experience to be part of this exceptional group, and an honor to lead it this year. The dedication and professional support of the staffs from both Sea to Sky Meeting Management and ASME are vital to the success of OMAE Conferences and are kindly acknowledged here.

Again, I wish to thank everyone who is attending or who has made a contribution to OMAE 2016 and I wish you all a very productive conference and an amazing time in Busan.

—Dominique Roddier, Ph.D.
CTO, Principle Power
2016 Chair, OOAE Division of ASME



Welcome from the Mayor of Busan

Dr. Byung-soo Suh, Mayor

Congratulations on the opening of the 35th International Conference on Ocean, Offshore & Arctic Engineering (OMAE 2016), the world's largest conference on offshore engineering. I would like to extend my warmest welcome and gratitude to participants visiting our beautiful marine city Busan.

Busan is a logistics hub serving North East Asia, equipped with world-class port infrastructure. We are putting every effort to make Busan a world-best city for shipbuilding and offshore plants by establishing a specialized shipbuilding and offshore plant R&D zone in the hinterland of Busan New Port.

Leveraging its geopolitical merit of being in the Arctic sea route, the city is aiming to become a base point for the Arctic area. By establishing a marine R&D cluster in the Dongsam district and a new marine industry cluster in North port, we are establishing a cooperative system connecting academia, industry, institutes and the public sector. We are also making efforts to identify and foster new marine industries by incorporating advanced technologies into the fields of marine energy, offshore plants, marine biology, maritime finance and marine resources.

Busan has successfully hosted large-scale international conferences and the city has plenty of tourist attractions as an international tourist city. Against this backdrop, it is all the more meaningful that Busan hosts OMAE 2016 and I look forward to sharing greater inspiration about marine engineering and polar research.

I would like to thank ASME, KOSORI, and various organizations who sponsored and prepared for OMAE 2016. I wish all of you fruitful outcomes.

I hope you fully enjoy the city's beautiful nature, feel the passion of our citizens and make wonderful memories during your stay in Busan.

Once again, welcome to Busan and I wish all of you health and success.

Thank you.

Sincerely,

—Dr. Byung-soo Suh

Mayor of Busan Metropolitan City



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Busan is a leading city for Marine Science and Technology aiming to be a marine hub of Northeast Asia in the 21st century.

Busan, the second largest city in Korea and a gateway to the world, has a population of 3.6 million. With its warm climate and beautiful environment, Busan is cultivated by its citizens with passion and affection. Since the Korean War, Busan has repeatedly made remarkable development and has grown into a mecca of maritime logistics with world-class super ports, as well as becoming a gateway city to the Eurasian continent connected with the world. In addition, Busan stands shoulder to shoulder with many famous cities all over the world through the successful hosting of various international events. Also, it is a tourism city that people from all over the world continuously visit. In particular, Busan is constructing industrial systems that will lead the future—such as movies, visual contents, and finance—thus leaping toward becoming a city of affluence and a green city that always thinks of the environment.



Attendee Information

Registration

The Registration Desk is located on the 1st Floor Lobby, Convention Hall of BEXCO, and is open during the following hours:

Sunday, June 19:	13:00 – 18:00
Monday, June 20:	07:00 – 17:00
Tuesday, June 21:	08:00 – 17:00
Wednesday, June 22:	08:00 – 17:00
Thursday, June 23:	08:00 – 17:00

Name Badges

In addition to being a means of identification to colleagues, you are required to wear your name badge for admission to conference sessions and events. Room monitors will check name badges before allowing anyone into the session or event. Replacement badges are available at the Registration Desk at a cost of \$25 per badge. Attendees who have paid the author/member, non-member or student registration fee are entitled to admission to all conference sessions, daily refreshment breaks, the Welcome Reception, the Exhibition, the four Lunches, the Conference Banquet and the Farewell Reception. These attendees will also receive a conference bag, a program and a Conference DVD.

Daily Registration: Attendees who have paid the one-day registration fee qualify for the badge representing the day they have selected to attend. Attendees wearing this badge are entitled to the following on the day they have selected to attend: admission to conference sessions, refreshment breaks, the Exhibition, food and beverage served on the specified day, excluding the Conference Banquet. Daily attendees will also receive a conference bag, a program and a Conference DVD.

Accompanying Person: Guests who have registered as an accompanying person qualify for this badge and are entitled to admission to the Welcome Reception, the Conference Banquet and a special sightseeing tour on Monday.

Exhibitors: Exhibit staff has access to the Exhibition and may participate in the Welcome Reception, the four Lunches, the Conference Banquet, and the Farewell Reception. One representative from each exhibiting company is permitted to attend conference sessions.

Technical Tour and Social Events: Pre-purchased tickets for the technical tour and social events are provided with your name badge.



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ASME Event Connect

The ASME Event Connect App allows you to plan and build your personalized schedule for the conference. Simply search for ASME Event Connect in the app store of your choice.

Author Presentations

If you are a Presenter, please be in the session room 30 minutes prior to the start of the first presentation of your session in order to upload your presentation. You may also upload your presentation anytime prior to your talk on the computer in your session room.

Conference Evaluation

Our aim is to deliver a conference that is an enjoyable and educational experience. We rely on your full and honest feedback to improve future conferences. An online survey will be emailed to you following the conference and we appreciate your time and assistance in completing the survey and providing your feedback.

Dietary Requirements

If you advised the Conference Secretariat of your special dietary needs during the registration process, dietary tickets for each Lunch (Monday, Tuesday, Wednesday and Thursday) and the Conference Banquet have been included in your registration envelope if necessary. If you have not advised the Conference Secretariat of your special dietary needs, please advise the staff at the Registration Desk before 18:00 on Sunday, June 19.

First Aid

For first aid assistance, please go to the Registration Desk (1st Floor Lobby, Convention Hall) or the BEXCO Hall Manager's Office, located in room 251, 2nd Floor, Convention Hall. For non-urgent medical care the "Namsan Clinic" is located at 25 Centum Dream World, Centum 2-ro, Haeundae-gu (approximately 3 minutes by foot). The nearest general hospital is the Inje University Haeundae Paik Hospital, located at 875, Haeun-daero, Haeundae-gu (approximately 15 minutes by car).

Internet

Free Wi Fi internet is offered. The network name is "Bexco Free Zone", no password is required.

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At a time when the preservation of our precious environment is crucial, switching to newer, safer, greener technology and techniques in the maritime and offshore industries is crucial, too. Harnessing knowledge and experience gained from over 110 years as an international classification society, ClassNK offers support through the pursuit of technical innovation and dedicates its efforts to safer seas and preserving the environment. Learn more about ClassNK's activities for the future at www.classnk.com

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Common Phrases

English	Korean	Pronunciation
Hello/Goodbye (also Good morning/ afternoon/evening)	안녕하세요	An-nyeong-ha-se-yo
My name is ____	저는 ____ 입니다	Chonun ____ imnida
Thank you	감사합니다	Kam-sa-ham-ni-da
Yes	네	Ne
No	아니요	Aniyo
Nice to meet you	반갑습니다	Ban-gap-sum-ni-da
Excuse me/Just a moment	- 잠시만요	Jam-shi-man-yo
I'm sorry	최성합니다/미안합니다	Chway-seong-ham-ni-da/Mi-an-ham-ni-da
This one/This thing	이것	i-geo
Where is the bathroom?	화장실 어디예요?	Ha-dong-shee?
Beer	맥주 / 소주	Maek-ju / So-ju
How much is it?	얼마예요	ol-ma-ye-yo
Do you speak English?	영어를 할수 있어요?	Yeongeorul halsu isseoyo?
I can't speak Korean well	한국말 잘 못해요	Han-guk-mal jal mot-hae-yo



Lost & Found

Should you lose or misplace an item, please go to the Registration Desk for assistance or inquire at the Hall Manager's Office, located in room 251, 2nd Floor, Convention Hall. The Hall Manager's office is open from 9:00am to 6:00pm.

Meeting Room Protocol

Every effort will be made to ensure that all sessions start and end on time. Presenters and attendees are all asked to work together to achieve this. This may mean having to cut short a valuable discussion; however, conference organizers request your cooperation for the benefit of all attendees. Please turn your cell phone and other noise making devices off or set to vibrate.



Smoking

Smoking is not permitted within any of the conference venues. Smoking 'Booths' are located outside the Busan Exhibition & Convention Center.

Sightseeing Tours

Busan City Tour Bus offers a convenient Hop On – Hop Off city tour experience in an open top bus. The City Tour Bus follows the three main public transportation lines; Red Line, Green Line and Blue Line all for the price of a one-day pass. You can hop off at any point along the route to visit tourist attractions and hop on to go to your next stop. For more information download the BUTI Smart App (see below) or visit www.bto.or.kr/eng.

Tipping Etiquette

Tipping is not a part of Korean customs nor is it expected anywhere. Taxi drivers don't expect tips, but do appreciate if you let them keep the change. Refusal to accept a tip is not an act of disrespect.

Common Korean Etiquette

- Take your shoes off at the door when entering any residence, temple, or guesthouse.
- A short bow—essentially a nod—is the most respectful greeting.
- Give and receive any object using both hands.
- Don't touch food with your fingers—except when wrapping ssam.
- Don't leave your chopsticks or spoon sticking up from your bowl of rice.
- Use a spoon to eat rice.
- Place chopsticks and spoon back in their original position at the end of the meal.

BUTI Smart App

BUTI Smart Guide is a mobile application by Busan City Tour and the Busan Tourism Organization. It provides information in English, Korean, Japanese and Chinese on popular tourism attractions, tours, restaurants, shopping and public transportation. It also offers basic conversation phrases for foreigners. To download the BUTI Smart App scan the QR code below or search for "BUTI" in your app store.

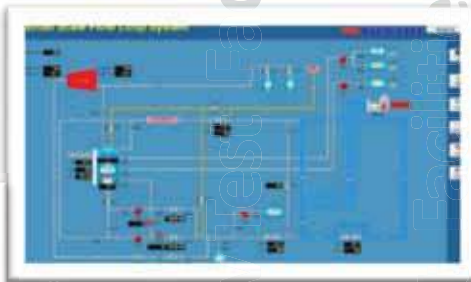


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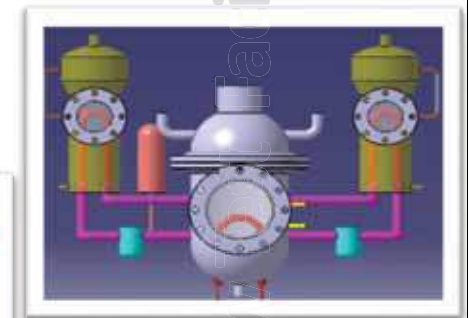


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Busan Cinema Centre

Social Events

Welcome Reception

Date: Sunday, June 19

Time: 18:30 – 21:00

Location: Busan Cinema Centre, 120 Suyeong Gangbyeon-daero, Busan 612-020

Join us for appetizers and drinks while enjoying traditional Korean drumming and dance performances and the stunning architecture of the Busan Cinema Center. The center's 'Big Roof' is the largest roof in the world (2.6 times larger than a soccer field) and comes complete with 42,600 LED lights, which promise an unforgettable setting for the opening of the OMAE 2016 Conference.

Walking Directions: From BEXCO go Northeast on Centum 3-ro,

turn left on Centum 5-ro, follow Centum 5 for one block. Walking time is approximately 10 – 15 minutes.

Lunches

Dates: Monday, June 20 to Thursday, June 23

Time: 12:00 – 13:30

Location: Grand Ballroom, 3rd Floor, Convention Hall
Lunches will be provided from Monday to Thursday and are open to all attendees where lunch is included in their fee.

Monday: Opening Lunch

Tuesday: Awards Lunch

Wednesday: Lunch

Thursday: Technical Session Organizers' Lunch

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Conference Banquet

Date: Wednesday, June 22

Time: 18:30 – 22:00

Location: Grand Ballroom, 3rd Floor, Convention Hall
On Wednesday evening the conference banquet will be held at BEXCO. Immerse yourself in the Korean experience throughout the evening while enjoying traditional Korean cuisine and entertainment. A lucky draw will be held by KOSORI at the end of the evening.

Farewell Reception

Date: Thursday, June 23

Time: 15:00 – 17:30

Location: Room 205, 2nd Floor, Convention Hall
Celebrate the conclusion of OMAE 2016 with a look forward to OMAE 2017 in Trondheim, Norway.

Refreshment Breaks

Dates: Monday, June 20 to Thursday, June 23

Times: 10:00 – 10:30 and 15:00 – 15:30

Locations: Lobby, 2nd Floor, Convention Hall,
Refreshment breaks will take place in the Exhibits Hall, located in the Lobby on the 2nd Floor

Accompanying Persons Program

The Accompanying Persons Program includes admission to the Welcome Reception, the Conference Banquet, and a special sightseeing tour on Monday where attendees will visit Busan's famous Jagalchi Fish Market, the Busan Tower, which offers a stunning view over Busan, and BIFF Street, center of activities for the Busan International Film Festival.

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The Korea Ship and Offshore Research Institute (KOSORI) at Pusan National University (PNU), located in the hub of Korean shipbuilding and offshore industries, is a recognized institute led by Prof. Jeom Kee Paik, a conference chair of OMAE 2016 to be held in Busan. The main objective and vision of KOSORI is to play a leading role as a global hub of fundamental research and industrial applications in association with safety design and engineering of ships and offshore structures in extreme and accidental conditions as well as in normal conditions. KOSORI has facilitated one of the world's largest and best test infrastructures for safety studies of ships and offshore structures associated with extreme and accidental events that are core tasks to meet HSE&E (health, safety, environment & ergonomics) requirements within the framework of quantitative risk assessment and management.

DIAMOND

Busan City

www.busan.go.kr



Busan, a bustling city of approximately 3.6 million residents, is located on the southeastern tip of the Korean peninsula. The size of Busan is 769.82km² which is 0.8% of the whole land of the Korean Peninsula. The natural environment of Busan is a perfect example of harmony between mountains, rivers and sea. Its geography includes a coastline with superb beaches and scenic cliffs, mountains which provide excellent hiking and extraordinary views, and hot springs scattered throughout the city. Busan enjoys four distinct seasons and a temperate climate that never gets too hot or too cold.

Busan is the second largest city in Korea. Its deep harbor and gentle tides have allowed it to grow into the largest container handling port in the country and the fifth largest in the world. The city's natural endowments and rich history have resulted in Busan's increasing reputation as a world class city of tourism and culture, and it is also becoming renowned as an international convention destination.

Busan Dream Space is a state-of-the-art multimedia exhibition hall featuring depictions of Busan in the past, present and future. Visitors can view the future of Busan, a Marine Capital in this Northeast Asian Era, and the city's growing potential through its many unique attractions.

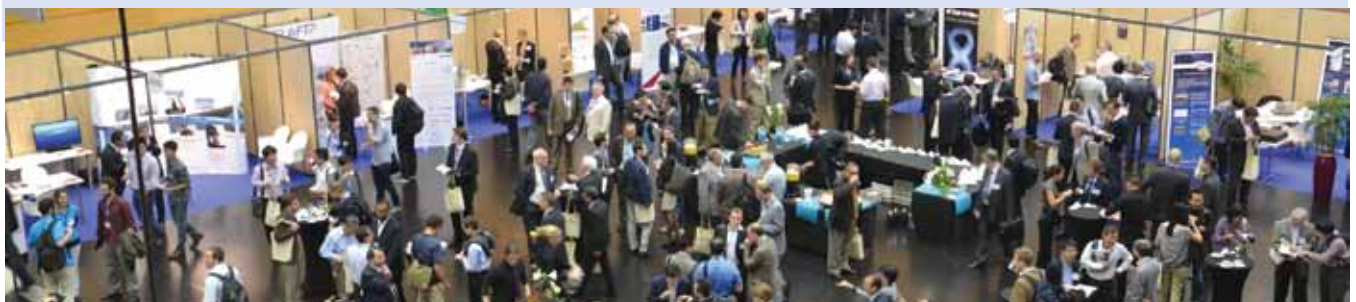
Exhibition

Visit the exhibits to discover new products and services from some of the industry's leading organizations. Coffee and tea will be served amongst the exhibits during Refreshment Breaks.

Dates & Times:

Monday, June 20	10:00 – 17:00
Tuesday, June 21	08:30 – 17:00
Wednesday, June 22	08:30 – 17:00
Thursday, June 23	08:30 – 10:30

Location: Lobby, 2nd Floor, Convention Hall



GOLD

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Established in 1899, ClassNK is a leading non-profit classification society dedicated to ensuring the safety of life and property at sea and protecting the marine environment. Providing the entire spectrum of classification services for maritime and offshore, its register boasts more than 240 million gross tons or some 20% of the world's merchant fleet. As the infrastructure of the industry, ClassNK also supports the advancement of the maritime industry through its Joint R&D for Industry Program. Since the Program's inception in 2009, ClassNK has joined forces with industry, academia and government agencies worldwide and contributed to over 300 R&D projects.



SILVER

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www.bto.or.kr

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KR is an IACS member classification society founded in 1960. Headquartered in Korea, we operate through a global network of qualified surveyors and engineers always ready to assist client's needs. Our core business is the provision of classification services, statutory services, material and equipment approval and related consultancy.

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SILVER *Continued*

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MARINTEK and the Department of marine technology at the Norwegian University of Science and Technology (NTNU) are co-located at the Marine Technology Centre in Trondheim, Norway. Together we are the largest higher education and research centre within marine technology in the western world. We are in the international forefront in several of our disciplines within our main areas maritime, offshore oil & gas and new ocean industries. Our internationally known laboratories like the ocean basin, the towing tank and the structural laboratory are vital for our operations. We are now shaping the future with the development of the Ocean Space Centre.

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EXHIBITORS

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Altair is focused on the development and broad application of simulation technology to synthesize and optimize designs, processes and decisions for improved business performance. Privately held with more than 2,000 employees, Altair is headquartered in Troy, Michigan, USA and operates more than 45 offices throughout 22 countries. Today, Altair serves more than 5,000 corporate clients across broad industry segments. To learn more, please visit www.altair.com.

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EXHIBITORS *Continued*

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Founded in Houston, USA in 2006 and headquartered in Hangzhou in 2010, OPR is an offshore engineering corporation that provides the whole industry chain services and products for offshore oil and gas development engineering, its business areas including offshore pipelines and risers, subsea engineering, marine engineering equipment, drilling rigs and vessels. OPR owns an overseas technical team as the core and attracts more than sixty professional and technical personnel at home and abroad. OPR has a manufacturing plant in Ningbo China that specializes in producing all kinds of flexible composite pipes from 2 inch to 8 inch with an annual capacity of 300km pipelines.

Technical Program





Prof. Norman Jones

Professor Norman Jones Honoring Symposium on Impact Engineering

The 35th International Ocean Offshore and Arctic Engineering (OMAE) 2016 Conference is proud to dedicate a Special Symposium in honor of Professor Norman Jones, an Emeritus Professor of Engineering at The University of Liverpool, UK. He was the A. A. Griffith Professor of Engineering, Head of the University's Department of Mechanical Engineering (1982 – 1990) and Director of the Impact Research Centre (1985 – 2005). Prior to that, he was a Professor of Ocean Engineering at MIT in the US.

Professor Jones has published over 300 papers, principally on many aspects of the response of structures subjected to dynamic, impact and blast loadings which produce large inelastic strains. He is the Honorary Editor-in-Chief of the International Journal of Impact Engineering and was Founding Editor (1983 – 87) and Editor-in-Chief (1988 – 2008). He is the author of Structural

Impact (first edition 1989, 1997, second edition 2012). Professor Jones is an honorary professor at Huazhong University and Taiyuan University of Technology in China, a Fellow of the Royal Academy of Engineering (London) and a Foreign Fellow of the Indian National Academy of Engineering.

The Symposium will foster fundamental and practical researches related to impact engineering including structural impact and failure, energy absorption, terminal ballistics, dynamic material, behaviour and failure, stress waves, structural crashworthiness, blast loading and its effects on structures, and associated experimental and numerical techniques, as well as their industrial applications. The objectives of the Symposium are to bring scientific experts, industry and academic leaders, as well as researchers and students together in the common area of impact engineering.





Prof. Yukio Ueda

Professor Yukio Ueda Honoring Symposium on Idealized Nonlinear Mechanics for Welding and Strength of Structures

The 35th International Ocean Offshore and Arctic Engineering (OMAE) 2016 Conference is proud to dedicate a Special Symposium in honor of Professor Yukio Ueda, an Emeritus Professor of Osaka University, Japan. He was a Professor at Osaka University (1975 – 1996), Director General of Joining and Welding Research Institute (1992 – 1996), Chairman of the Department of Mechanical Engineering School of BOST, Kinki University (1996 – 2003).

In 1971 he presented a pioneering paper on “Analysis of Thermal Elastic-Plastic Stress and Strain during Welding by Finite Element Method” which laid the basis for “Computational Welding Mechanics”. He is also recognized as a pioneer who developed “Idealized Structural Unit Method” which made it possible to predict fully nonlinear process leading to the collapse of ships and offshore structures. He has published 450 papers and received 16 awards for his contributions.

Since 1971 and 1976, respectively, he served for ISSC and IIW. Professor Ueda was a visiting professor in the University

of Michigan (1977 – 1978), adjunct professor at Xi’an Jiaotong University (1979 –) and Shanghai Jiaotong University (1987 –) and awarded Honorary Doctoral Degree at Norwegian University of Science and Technology.

The objectives of the Symposium are to promote computationally efficient methods that are easy to use by field engineers to predict welding residual stress, welding deformation and structural strength. To this purpose the symposium brings scientific experts, industry and academic leaders, as well as researchers, engineers and students together in the common area of welding and structural mechanics.

The Symposium will foster Novel computational methods for welding mechanics and strength of structures, computational method based on idealization of nonlinear phenomenon, buckling strength, ultimate strength, influence of initial imperfection, prediction and control of welding residual stress and distortion and associated experimental methods for validation, as well as their industrial applications.



Saturday, June 18

Time	Title	Location
Short Course: 08:30 – 12:00	Global Marine Technology Trends 2030	Room 101, 1st Floor, Convention Hall
Short Course: 09:00 – 16:00	Subsea Pipelines	Room 102, 1st Floor, Convention Hall
17:00 – 19:00	Outreach Team Building Exercise	Room 101, 1st Floor, Convention Hall



Dr. Spyros Hirdaris

Short Course

Global Marine Technology Trends 2030

08:30 – 12:00

Location: Room 101, 1st Floor, Convention Hall

Instructor: Dr. Spyros Hirdaris, *Lloyd's Register Asia, Technology Group, South Korea*

Course Description: What's next for Marine Technology? It's a simple question to ask, but it's not so simple to answer. The future poses many challenges but also opens many new opportunities.

World trade is expanding. Shipping as its workhorse is undergoing a transformation and facing huge challenges in maintaining competitiveness. The shipping industry is constantly searching for cost-effective technology and business solutions to 'future-proof' their fleet and assets. The rule of the market economy – constant operational change to meet changing customer needs – is forever putting pressures on ship operators.

Maritime Technology development is accelerating and will continue to do so. There is no indication that its rapid pace will slow in the next 15 years, nor will the trend toward the increasingly integrated nature of technology applications reverse. Technologies can help in solving the environmental challenges and improving operational efficiency in the business world of the 21st century. With the explosion of consumption demanded by the growing middle classes from developing countries, the demand for raw materials, food and energy production will increase. With land-based resources depleting rapidly, attention will necessarily turn to ocean space for alternatives; efforts here will require sustainable technologies to protect the environment.

The speed of innovation is rapid and the introduction of new technologies is swift, which means that predicting which

technologies will transform commercial shipping and ocean space exploitation is always a challenge.

This seminar will outline recent findings from a team from Lloyd's Register, QinetiQ and the University of Southampton on Global Marine Technology Trends 2030.

Learning Objectives:

- Appreciate the complexity of the marine industry;
- Identify key scenarios that will shape the Maritime R&D agenda to 2030;
- Realise the key range of transformational technologies in different industry sectors; and
- Understand the technology driven R&D trends and challenges ahead for commercial shipping, naval and ocean space exploration sectors.



Prof. Yong Bai

Short Course

Subsea Pipelines

09:00 – 16:00

Location: Room 102, 1st Floor, Convention Hall

Instructor: Prof. Yong Bai, *Zhejiang University*

Course Description: This course is provided for pipeline engineers to gain basic knowledge and advanced skills of subsea pipeline integrity management related theories, methodologies, assessment procedures and application experiences. Based on our project and teaching experiences, three of the most common topics have been chosen to cover corrosion defect assessment and Fitness For Service, Free-Span Assessment, and Risk-Based Inspection. For each topic, basic theories and methodologies will be elaborated and complemented with case studies. In the end of each topic, Q&A section will be provided for the participants to gain better understandings on the training.

Sunday, June 19

Time	Title	Location
08:00 – 17:00	Outreach Welcome & Introductions Industry Presentations	Room 101, 1st Floor, Convention Hall
Short Courses: 08:00 – 17:00	Fundamentals of Deepwater Riser & Flexible Pipe Engineering	Room 102, 1st Floor, Convention Hall
09:00 – 16:00	Hydrodynamics for Renewable Energy Device	Room 103, 1st Floor, Convention Hall
09:00 – 17:00	Dynamic Analysis and Design for Offshore Structures	Room 104, 1st Floor, Convention Hall
09:00 – 17:00	Modern Well Design	Room 105, 1st Floor, Convention Hall
18:30 – 21:00	Welcome Reception	Busan Cinema Centre



Kieran Kavanagh

Short Course

Fundamentals of Deepwater Riser & Flexible Pipe Engineering

08:00 – 17:00

Location: Room 102, 1st Floor, Convention Hall

Instructor: Kieran Kavanagh, *Technology Development Director, Wood Group Kenny*

Course Description: This course provides attendees with the basic principles and technologies of riser and flexible pipe engineering design, fabrication and installation. It also offers them in-depth information regarding the primary drivers behind system selection for offshore floating production.



Alexia Aubault

Short Course

Hydrodynamics for Renewable Energy Device

09:00 – 16:00

Location: 103, 1st Floor, Convention Hall

Instructor: Alexia Aubault, *PrinciplePower*

Course Description: The fundamentals of hydrodynamics are applied to the peculiar case of renewable energy devices. The course will briefly review applicable theories governing the estimate of wave and current loads. These include

radiation-diffraction in the first and second order, and Morrison forces for slender bodies.

The following topics will be discussed:

- Coupling of environmental loads with power take-off systems;
- Influence of station-keeping on the response of renewable energy devices;
- Load case definitions for renewable energy devices; and
- The particularities of wind energy device, wave energy converters and ocean current energy device will be investigated through a few representative examples.

Learning Objectives:

- Define relevant combinations of environmental conditions; and operational status for offshore renewable energy (ORE) devices;
- Identify load sources on a variety of ORE devices;
- Choose appropriate methods to compute hydrodynamic loads and motions on ORE devices; and
- Select appropriate standards for hydrodynamic calculations.



Dr. Junbo Jia

Short Course

Dynamic Analysis and Design for Offshore Structures

09:00 – 17:00

Location: 104, 1st Floor, Convention Hall

Instructor: Dr. Junbo Jia, *Aker Solutions, Norway* and Prof. Lance Manuel, *The University of Texas at Austin, USA*



Prof. Lance Manuel

Course Description: An understanding of the principles of structural dynamics and vibration is important for assuring system integrity and operational functionality in different engineering areas. However, practical problems regarding dynamics are in many cases handled without success, despite large expenditures of investment.

It is essential in approaching dynamic analysis and design that one develops an “intuition” to solve the relevant problem at hand; both academic knowhow and professional experience play equally important roles in developing such intuition.

To meet the objectives above, this course aims to address a wide range of topics in the field of offshore structures, starting from fundamentals and moving on to relevant and practical engineering challenges and solutions. Topics covered will include (i) engineering failures due to inappropriate accounting

of dynamics; (ii) vibration mitigation measures; (iii) dynamics in assessing different limit states (extreme, fatigue, etc.); and (iv) dynamics in different offshore applications including wind energy generation. Special emphasis is placed on engineering applications that utilize state-of-the-art knowledge, the finite element method, relevant codes, probabilistic methods, and recommended practices.

Learning Objectives:

- Understand principles in the analysis and design of offshore structures with consideration for dynamic loads;
- Develop an “intuition” and understanding for concepts in dynamics; and
- Implement relevant vibration mitigation measures.



Prof. Bernt Aadnoy

Short Course

Modern Well Design

09:00 – 17:00

Location: 105, 1st Floor, Convention Hall

Instructor: Professor Bernt Aadnoy, University of Stavanger, Norway

Course Description: The course presents an overview of a unified approach for the well design process. It is aimed at personnel performing work related to

petroleum wells. The participants will learn elementary rock mechanics and how to analyze borehole stability problems in a simple manner. Methodology for casing seat selection and optimal mud weight selection to minimize borehole stability problems will be defined. The complete casing design process is covered, including pressure testing of casing.

A separate chapter is included on HPHT wells. Other elements covered are: experience transfer from reference wells, hydraulic optimization and interpretation of ballooning in deep wells.

Completion and production requirements are covered. Well design issues related to special wells like deep-water wells, multilateral wells and long-reach wells are covered, as well as well friction, bottom-hole-assembly design etc.

What you will learn:

The course presents a unified approach for the well design process. The participants will learn elementary rock mechanics and how to analyze borehole stability problems in a simple manner. The well design is gone through in detail such as mud hydraulics, casing seat selection, casing design, wellbore friction and others.

Many of the practical solutions given in the course are results of many years experience in the North Sea and are not published elsewhere. The participants will receive a copy of the book *Modern Well Design: Second Edition* by Bernt S. Aadnoy, which contains many field examples.

CONSULTANCY SERVICE SCOPE FOR NEW SHIPYARD AND REPAIR SHIPYARD

Introduction

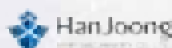
- Site Survey and evaluation for shipyard planning
- Review of technical data ; shipyard layout scheme and feasibility study
- Productivity analysis and shipbuilding planning

Optimization of shipyard layout - Concept Design

- Arrangement of production area and workshop area
- Review of production procedure and material flow in shipyard
- Review of ship launching system (Dry Dock, Floating Dock, Slipway, Skid system)
- Arrangement of machinery, equipment and crane in workshop
- Arrangement of crane in yard, dockside and quay area
- Arrangement of Shot Blasting & Painting Shop

Optimization of shipyard layout - Basic Design

- Shipyard construction strategy
- Manpower planning and organization
- Calculation of specification of machinery and equipment including crane
- Selection and cost estimate of machinery, equipment and crane

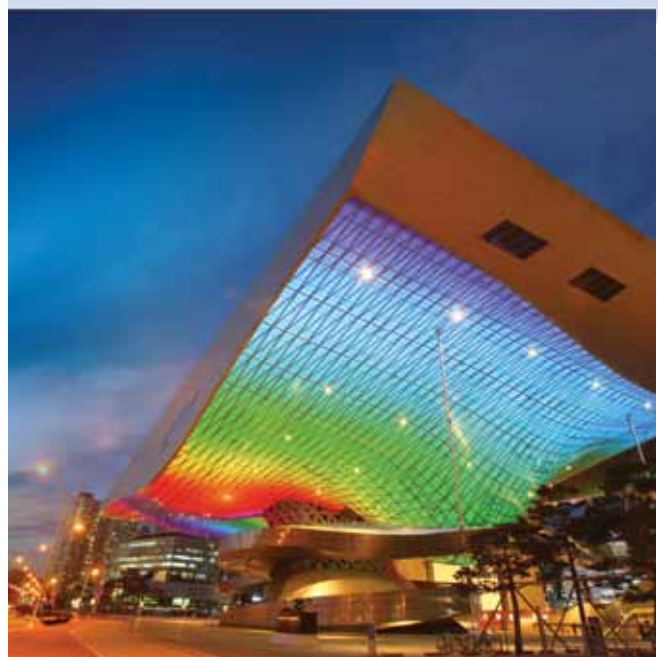


Welcome Reception

18:30 – 21:00

Busan Cinema Centre, 120 Suyeong Gangbyeon-daero, Busan 612-020

See Social Events, page18 for more details.



Busan Cinema Centre

Monday, June 20

Time	Title	Location
08:30 – 10:00	Opening Ceremony and Keynote Plenaries	Grand Ballroom, 3rd Floor, Convention Hall
10:00 – 10:30	Refreshment Break	Lobby, 2nd Floor, Convention Hall
10:30 – 12:00	Keynote Plenaries	Grand Ballroom, 3rd Floor, Convention Hall
12:00 – 13:30	Opening Lunch	Grand Ballroom, 3rd Floor, Convention Hall
13:30 – 15:00	Concurrent Sessions	See pages 33 to 35 for session titles, authors and locations.
15:00 – 15:30	Refreshment Break	Lobby, 2nd Floor, Convention Hall
15:30 – 17:00	Concurrent Sessions	See pages 36 to 38 for session titles, authors and locations.

OPENING CEREMONY AND KEYNOTE PLENARIES

08:30 – 10:00

Grand Ballroom, 3rd Floor, Convention Hall

Opening Ceremony

Presenters:

- Prof. Dr. Jeom Kee Paik, Conference Chair
- Dr. Charles E. Smith, Technical Program Chair
- Dr. Dominique Roddier, OOA Division Chair
- Dr. Byung-soo Suh, Mayor of Busan



Prof. Jeom Kee Paik



Dr. Charles Smith



Dr. Dominique Roddier



Dr. Byung-soo Suh, Mayor

Keynote Plenary One

Standardization for Oil & Gas Industry



Dae-Young Park

Dae-Young Park
President and CEO, Samsung Heavy Industries Co., Ltd.

With a significant drop in oil prices since mid-2014, the oil and gas sector has been sluggish and most energy companies have reduced their investments from increased uncertainty and volatility.

The advent of low oil price age has spurred on to the needs for cost-effective solutions for developing oil and gas fields.

We have witnessed many obstacles such as cost-overrun, delayed delivery or poor performances especially in mega-sized oil and gas projects around the world. It has been proved that it is very challenging for energy companies to meet the specific requirements of the projects with current industry practice.

In collaboration with industry players, we can standardize the industry practice by setting up new common rules. For example, bulk materials or utility equipments are able to be standardized. Through this process, we can achieve overall cost reduction and improve performances by eliminating unnecessary elements.

Furthermore, we should be able to consider the standardization in other areas including LNG supply chain, etc. for the future market.

Biography: Daeyoung Park has been President & CEO of Samsung Heavy Industries since December 2012. He is also chairman of the KOSHIPA since March 2015.

Mr Park started his career as a technical engineer with Samsung Heavy Industries in 1977. He was transferred to Samsung Group, where he experienced various areas including Strategy and Planning until 1996. Mr Park returned to Samsung Heavy Industries as Vice President for offshore sales division (1998~2001). After he held various positions in offshore division (2002~2010), Mr Park took over responsibility for managing the shipyard as Shipyard General Manager in 2011. In this role, he was dedicated to lead a significant growth especially in offshore production.

Daeyoung Park was graduated from Yonsei University with Bachelor's degree in Mechanical Engineering. He was born in 1953.

REFRESHMENT BREAK

10:00 – 10:30

Lobby, 2nd Floor, Convention Hall

KEYNOTE PLENARIES

10:30 – 12:00

Keynote Plenary Two

Green Wave – Challenges or Opportunities for Maritime Industry?



Bum Shik Park

Bum Shik Park
Chairman and CEO, Korean Register

The environmental regulations for maritime industry by international convention or market driven initiatives are newly introduced or strengthened. This presentation provides the status and trend of the regulations. In addition, it

provides how KR supports the industry to turn the challenges that the industry is faced with new green paradigm into opportunities as green growth strategy.

Biography: Dr. B. S. Park graduated from Korea Maritime and Ocean University with a bachelor's degree in navigation science and later gained a doctorate degree of shipping management from the same university. Dr Park's career included executive vice president of maritime division at Pan Ocean Shipping Co., Ltd., and chief executive officer of Wilson Korea Insurance Brokers Ltd. He had also served as chief operating officer of Korea P & I club since 2006.

Dr. Park has contributed to Korean Register (KR) for a number of years as an external director and so has a wealth of knowledge about classification society and its activities. He is well versed in maritime affairs and has extensive knowledge of international business as a former overseas business director of a well-known shipping company. Dr. Park is also an expert in marine insurance.

Keynote Plenary Three

Global Marine Technology Trends 2030



Jim Smith

Jim Smith, M.Eng C.Eng (MIMechE)
Regional Marine & Offshore Manager, North Asia, Lloyd's Register Asia

In today's complex world the shipping industry is constantly searching for cost-effective technology and business solutions to "future-proof" their fleet and assets.

The rule of the market economy—constant operational change to meet changing customer needs—is forever putting pressures on ship operators. What's then next for Marine Technology? Technologies can

help in solving the environmental challenges and improving operational efficiency in the business world of the 21st century. The speed of innovation is rapid and the introduction of new technologies is swift, which means that predicting which technologies will transform commercial shipping and ocean space exploitation is always a challenge.

Following a recent horizon technology scanning exercise carried out by Lloyd's Register, the University of Southampton and QinetiQ this keynote will outline recent findings on Global Marine Technology Trends 2030. The presentation shall highlight risks, uncertainties, the need for raised awareness and understanding of these complex technologies and the profound changes they may bring about.

Biography: Jim Smith is Lloyd's Register's Regional Marine & Offshore Manager for North Asia. Based at Hong Kong he oversees Lloyd's Register Marine and Offshore Business at Greater China, South Korea, Japan and the Philippines. Having joined the company in 1995, he is responsible for business leadership and operational management in North Asia. A long term resident in Asia, he has been based in the region continuously since 1997 and held operational and management positions in South Korea, Vietnam, Singapore, Japan and P.R. China. Jim attended Sheffield and Kyushu Universities, graduating from the University of Sheffield with a first class Masters degree in Mechanical Engineering and Japanese.

Keynote Plenary Four

A New Reality – The Outlook for the Oil and Gas Industry in 2016



Arthur William Stoddart

Arthur William Stoddart
Regional Manager at DNV GL Oil & Gas Region Greater China, Korea & Japan

Oil and gas industry has struggled since the end of 2014 when high oil supply suppressed oil prices. The industry has been responding to this reality by organization restructuring, layoff and cost savings.

Oil prices still remain around 40US\$/bbl and there are no signals indicating business upturn. Korea is not an exception. Three major Korean yards (HHI, DSME, SHI) won orders for only 8 ships (171,000 CGT) in Q1 2016. This is 75% decrease from Q1 2015 according to local media. These yards lost 8.5 billion USD in 2015 and more than 1,000 people had to leave their job. Reflecting on 2015 and today's situation, it seems that we are facing new reality where cost pressure is forcing greater collaboration among industries and industry members. It is driving the industry to seek continuous innovation and to make significant efficiency improvements.

DNV GL performed the research for "The outlook for the oil and gas industry in 2016". Our research result shows the

new reality we are facing and key trends in 2016. The report delivers an assessment of industry sentiment, confidence and priorities, in addition to expert analysis of the key pressures facing the industry in the year ahead and their likely impact. During October and November 2015 we surveyed 921 senior professionals and executives across the global oil and gas industry. More than a third of respondents are oil and gas operators and the remainder suppliers, service companies, regulators and trade associations.

In this presentation, the key trends researched in “The outlook for the oil and gas industry in 2016” will be covered.

Biography: Arthur is a chartered naval architect and astrophysicist. Since the early days of oil and gas developments in the UK North Sea, he was with Atkins and involved in the design, analysis and integrity of fixed and floating structures including many of the FPSOs operating in the UK sector.

From 2009, he was Managing Director of Advantica and responsible for Germanischer Lloyd's oil and gas business in UK and subsequently Executive Vice President of GL Noble Denton Americas based in Houston, Texas.

He is currently based in Shanghai, a member of the DNVGL Oil and Gas executive leadership team and responsible for business in Greater China, Korea and Japan.

MONDAY OPENING LUNCH

12:00 – 13:30

Grand Ballroom, 3rd Floor, Convention Hall

Sponsored by ClassNK



CONCURRENT SESSIONS

13:30 – 15:00

Offshore Technology

1-1-1 Spars, FPSO and Semi-Subs

Monday June 20

Rm 101 | 13:30 – 15:00

Session Chair: Anil Sablok, Technip, USA

Session Co-Chair: Johyun Kyoung, Technip, USA

Global Performance and Mooring Analysis using Long Term Analysis Methodology OMAE2016-54303

Mubing Xu¹ Anil Sablok² Oddgeir Dalane³

1. Technip USA, Houston, TX, USA;
2. Technip, Houston, TX, USA;
3. Statoil, Trondheim, Norway

Experimental and Numerical Investigation on the Effect of Varying Hull Shape Near the Water Plane on the Mathieu-type Instability of Spar OMAE2016-54779

N. Senthil Kumar, S. Nallayarasu

Indian Institute Of Technology Madras, Chennai, India

On Approximations of the Wave Drift Forces Acting on

Semi-Submersible Platforms with Heave Plates OMAE2016-54166

Bernard Molin¹ Jean-Baptiste Lacaze²

1. Ecole Centrale de Marseille, Marseille, France;
2. ADWEN, Paris la Defense, France

An Innovative FPSO Design Hosting SCRs in the

North Sea Harsh Environment OMAE2016-55140

Alaa M. Mansour¹ Ricardo Zuccolo¹ Cheng Peng¹ Chunfa Wu¹

Bill Greiner¹ Dhiraj Kumar² Jefferson Azevedo¹

1. INTECSEA, WorleyParsons Group, Houston, TX, USA;
2. INTECSEA, Houston, TX, USA

Structures, Safety and Reliability

2-1-1 Abnormal or Rogue Waves

Monday June 20

Rm 102 | 13:30 – 15:00

Session Chair: Alex Babanin, Swinburne University of Technology, Australia

Session Co-Chair: Ning Ma, Shanghai Jiao Tong University, China

The Velocity Field Underneath Linear and Nonlinear

Breaking Rogue Waves OMAE2016-54481

Alberto Alberello¹ Amin Chabchoub² Alexander V. Babanin¹ Jason P. Monty³

Jung H. Lee¹ John Elsnab³ Elzbieta M. Bitner-Gregersen⁴ Alessandro Toffoli¹

1. Swinburne University of Technology, Hawthorn, VIC, Australia;
2. University of Tokyo, Tokyo, Japan;
3. The University of Melbourne, Parkville, VIC, Australia;
4. DNV GL AS, DNV GL Strategic Research and Innovation, Høvik, Norway

Field Observation Site for Air-Sea Interactions

in Tropical Cyclones OMAE2016-54570

Alexander V. Babanin¹ Geoff Wake² Jason McConochie³

1. Swinburne University of Technology, Hawthorn, VIC, Australia;
2. Woodside Energy Ltd, Perth, WA, Australia;
3. Shell Corporation, The Hague, Netherlands

The Relationship between the Shape of Freak Waves

and Nonlinear Wave Interaction OMAE2016-54768

Wataru Fujimoto, Takuji Waseda

The University of Tokyo, Kashiwa, Japan

Potential Changes of North Atlantic Wind and Wave

Climate and Occurrence of Rogue Waves OMAE2016-54794

Elzbieta M. Bitner-Gregersen

DNV GL AS, DNV GL Strategic Research and Innovation, Høvik, Norway

Structures, Safety and Reliability

2-3-1 Probabilistic Response Models I

Monday June 20

Rm 206 | 13:30 – 15:00

Session Chair: Bernt Johan Leira, NTNU, Department of Marine Technology, Norway

Session Co-Chair: Thomas B. Johannessen, DNV GL, Norway

Analysis of the Motion Response of Trimaran Based

on Directional Spectrum OMAE2016-54208

Shuzheng Sun, Hui Sun, Xiyang Liu, Jide Li, Wenlei Du

Harbin Engineering University, Harbin, China

Long-Term Extreme Response of a Vessel

Rolling in Random Seas OMAE2016-54233

Wei Chai¹ Arvid Naess² Bernt Leira²

1. Department of Marine Technology, NTNU, Trondheim, Norway;
2. Norwegian University of Science and Technology, Trondheim, Norway

Airgap and Wave in Deck Impact Statistics OMAE2016-54927
Øistein Hagen, Thomas B. Johannessen, Jørn Birknes-Berg
DNV GL, Høvik, Norway

First and Second-Order Wave-induced Dynamic Response of Submerged Floating Tunnels OMAE2016-54598
Bernt Leira
Norwegian University of Science and Technology, Trondheim, Norway

Materials Technology

3-6-1 Advances in Welding and Inspection

Monday June 20 **Rm 103 | 13:30 – 15:00**

Session Chair: Koji Gotoh, Kyushu University, Japan
Session Co-Chair: Jeong Hong, Battelle, USA

Seamless Line Pipe Response under Small and Full Scale Reeling Simulation

OMA2016-54031
Israel Marines Garcia¹ Jorge Aldana Diaz² Philippe Darcis³ Hector Quintanilla²
1. Tubos De Acero De Mexico, S.A., Veracruz, Mexico; 2. TenarisTamsa, Veracruz, Mexico; 3. Tenaris Dalmine S.p.A., Dalmine, Italy

A Review of the Metal Magnetic Memory Technique

OMA2016-54269
Sheng Bao¹ Meili Fu² Shengnan Hu² Yibin Gu² Huangjie Lou²
1. Zhejiang University, Zhejiang, China; 2. Zhejiang University, Hangzhou, China

Investigation of Friction Stir Spot Welding Optimal Parameter Combination for Galvanized Trip Steel

OMA2016-54504
R.M. Chandima Ratnayake, Lars Erik Moene Skedsmo, Magomed Suleymanov, Vegard Goa
University of Stavanger, Stavanger, Norway

Expert Knowledge Based Statistical Experimentation for Investigating Optimal Arc Welding Parameter Combination Under Noise

OMA2016-54860
R.M. Chandima Ratnayake, Daniel Dyakov
University of Stavanger, Stavanger, Norway

Pipelines, Risers, and Subsea Systems

4-1-1 Flexible Pipes I

Monday June 20 **Rm 104 | 13:30 – 15:00**

Session Chair: Zhimin Tan, GE Oil & Gas, Wellstream, USA
Session Co-Chair: Murilo Vaz, Coppe/ufjf, Brazil

H2S Consumption and the Derivation of a New Annulus Prediction Model for Off Shore Flexible Pipes

OMA2016-54472
Marie Haahr¹ Jonas Gudme¹ Adam Rubin² Jacob Sonne¹ Sten Overby¹ Torben Nielsen¹
1. National Oilwell Varco Denmark I/S, Broendby, Denmark; 2. NOV Flexibles, Brøndby, Denmark

Equivalent Model for Interlocked Carcass Under Axial Loads

OMA2016-54381
Rodrigo Provasi, Fernando Geremias Toni, Clovis de Arruda Martins
University of São Paulo, São Paulo, SP, Brazil

Parametric Analysis of Flexible Pipes Crushing Resistance under Installation Loads

OMA2016-54453
Helôisa Mendonça, Clovis de Arruda Martins
University of São Paulo, São Paulo, SP, Brazil

Friction Behavior Between Epoxy and Flexible Pipes Armor Wires

OMA2016-54905
Diego A. Lorio¹ Facundo J. Wedekemper¹ Fabiano Bertoni² Facundo Lopez² George Campello³ Telmo R. Strohaecker¹
1. Universidade Federal do Rio Grande do Sul - UFRGS, Porto Alegre, RS, Brazil; 2. Símeros, Porto Alegre, PA, Brazil; 3. PETROBRAS, Rio de Janeiro, RJ, Brazil

Pipelines, Risers, and Subsea Systems

4-5-1 Flow Assurance

Monday June 20 **Rm 107 | 13:30 – 15:00**

Session Chair: Celso Morooka, UNICAMP - University of Campinas, Brazil
Session Co-Chair: Jianlin Cai, WorleyParsons/Advisian/INTECSEA, USA

Effect of Oil Properties on The Internal Corrosion of Pipelines

OMA2016-54755
Hassan Pouraria¹ Jung Kwan Seo¹ Jeom Kee Paik²
1. Pusan National University, Busan, Korea; 2. The Korea Ship and Offshore Research Institute, Geumjeong-Gu, Korea

Sandwich Pipe for Long Distance Pipelines: Flow Assurance and Costs

OMA2016-54950
Segen Estefen¹ Marcelo Igor Lourenço² Junkai Feng² Claudio M. Paz² B. L. Dirney Jr.²
1. Rio de Janeiro Federal University, Rio De Janeiro, RJ, Brazil; 2. COPPE - Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil

Affects of Residual Stress on Large Thickness Polypropylene Joints in a Reel-lay System

OMA2016-54777
Kristopher Reaves¹ Raresh Pascali² David Rypien²
1. University of Houston, Tomball, TX, USA; 2. University of Houston, Houston, TX, USA

Multiphase Transient Slugging Flow in Subsea Oil and Gas Production

OMA2016-55137
Zhenhua Zhang, Longbin Tao
Newcastle University, Newcastle, United Kingdom

Ocean Space Utilization

5-1-1 New Concepts for Ocean Space Utilization

Monday June 20 **Rm 208 | 13:30 – 15:00**

Session Chair: Bai Wei, National University of Singapore, Singapore
Session Co-Chair: Kazuhiro Iijima, Dept of NAOE, Osaka University, Japan

Hydro-Elastoplastic Analysis for Predicting Collapse Behavior of VLFS Under Large Waves

OMA2016-54890
Kazuhiro Iijima¹ Megumi Sakai² Masahiko Fujikubo² Akira Tatsumi²
1. Dept of NAOE, Osaka University, Osaka, Japan; 2. Osaka University, Osaka, Japan

Fundamental Study on Elastic Behavior of Large-Scale Floating Coal Stockyard

OMA2016-54958
Hiroaki Eto, Chiaki Sato, Koichi Masuda, Tomoki Ikoma, Tomoyuki Kishida, Mitsuru Kubota
Nihon University, Funabashi, Japan

A Basic Study on Ship Speed Loss from Viewpoint of Geographic Conditions and Ship Performance

OMA2016-54556
Kenji Sasa¹ Li-Feng Lu² Chen Chen³
1. Kobe University, Kobe, Japan; 2. Dept. of Maritime Sciences, Kobe University, Kobe, Japan; 3. Japan Society of Promotion of Science, Kobe, Japan

Feasibility Study of the Floating Medical Support System to Operate as a Dialysis Treatment Center OMAE2016-54884

Hiroaki Eto, Chiaki Sato, Koichi Masuda, Tomoki Ikoma, Mayumi Nakajima
Nihon University, Funabashi, Japan

Ocean Engineering

6-1-1 Advanced Ship Hydromechanics and Marine Technology I

Monday June 20 **Rm 106 | 13:30 – 15:00**

Session Chair: Wei Cai, Wuhan University of Technology, China
Session Co-Chair: Mahesh J. Rao, Indian Institute of Technology Madras, India

Maneuvering Characteristics of a Large LPG Carrier in Shallow Water and Deep Water OMAE2016-54152

Rajesh Reguram Balakrishnan¹ S. Surendran¹ P Sivabalan¹ Vignesh Ravi²
1. Indian Institute of Technology Madras, Chennai, India; 2. Amet University, Chennai, India

Improvement of Rankine Panel Method for Seakeeping Prediction of a Ship in Low Frequency Region OMAE2016-54163

Eiji Yasuda¹ Hidetsugu Iwashita² Masashi Kashiwagi¹
1. Osaka University, Osaka, Japan; 2. Hiroshima University, Hiroshima, Japan

Effect of Anisotropic Shape on Ship Wakes in Presence of Shear Current of Uniform Vorticity OMAE2016-54250

Yan Li, Simen Å Ellingsen
Norwegian University of Science and Technology, Trondheim, Norway

Study on the Maneuvering of a Ship in Waves based on Unified State Space Model OMAE2016-54311

TV Rameesha, P. Krishnankutty
Indian Institute of Technology, Madras, Chennai, India

CFD and VIV

8-1-1 Ship Motions

Monday June 20 **Rm 201 | 13:30 – 15:00**

Session Chair: Guilherme Vaz, MARIN, Netherlands
Session Co-Chair: Frédéric Jauouën, MARIN, Netherlands

URANS Prediction of Ship Hydrodynamics in Regular Head Sea Waves at Zero Forward Speed with Experimental Validation OMAE2016-54295

Yuting Jin¹ Shuhong Chai¹ Jonathan Duffy¹ Christopher Chin¹ Neil Bose¹ Liping Sun²
1. Australian Maritime College, University of Tasmania, Launceston, TAS, Australia; 2. Harbin Engineering University, Harbin, China

CFD Simulation of Roll Damping Characteristics of a Ship Mid-Section with Bilge Keel OMAE2016-54342

Mohsin A. R. Irkal, S. Nallayarasu, S. K. Bhattacharyya
Indian Institute of Technology Madras, Chennai, India

Determining Side-By-Side Current Loads Using CFD And Model Tests OMAE2016-54344

Arjen Koop
MARIN, Wageningen, Netherlands

Effects on Drillship Resistance of a Large Moonpool Using CFD Simulations with Experimental Validation OMAE2016-54470

Lucas do Vale Machado¹ Antonio Carlos Fernandes² Anis Hussain³
1. Keppel / COPPE-UFRJ, Rio de Janeiro, RJ, Brazil; 2. COPPE/UFRJ, Rio de Janeiro, RJ, Brazil; 3. Keppel Offshore & Marine Technology Centre (KOMtech), Singapore, Singapore

Ocean Renewable Energy

9-1-1 Bottom-fixed Offshore Wind Turbines – I

Monday June 20 **Rm 203 | 13:30 – 15:00**

Session Chair: Erin E. Bachynski, MARINTEK, Norway
Session Co-Chair: Wenhua Wang, Dalian University of Technology, China

Radiative Damping of Offshore Wind Turbine Gravity Base Foundations at Low Frequencies OMAE2016-54322

Rui He¹ Ting Huang²
1. Hohai University, Nanjing, China; 2. College of Harbor, Coastal and Offshore Engineering, Hohai University, Nanjing, China

Loads on a Jacket-Supported Wind Turbine during Hurricane Sandy Simulation OMAE2016-54657

Eungsoo Kim¹ Lance Manuel²
1. POSCO, Incheon, Korea; 2. University of Texas at Austin, Austin, TX, USA

Impact of Water on the Fatigue Performance of Large-Scale Grouted Connection Tests OMAE2016-54823

Peter Schaumann, Alexander Raba, Anne Bechtel
Leibniz University Hannover, Hannover, Germany

Comparing a Fracture Mechanics Model to the SN-Curve Approach for Jacket-supported Offshore Wind Turbines: Challenges and Opportunities for Lifetime Prediction OMAE2016-54915

Lisa Ziegler¹ Michael Muskulus²
1. Ramboll, Hamburg, Germany; 2. Norwegian University of Science and Technology, Trondheim, Norway

Petroleum Technology

11-5-1 Petroleum Reservoir Engineering and Management

Monday June 20 **Rm 105 | 13:30 – 15:00**

Session Chair: Bernt Aadnoy, University of Stavanger, Norway

Experimental Study of the Removal of Water Blocking in a Tight Sandstone Gas Reservoir using a Novel Wettability Alteration Agent OMAE2016-54038

Qi Zhu¹ Tiancong Mao² Hongwei Li²
1. CNPC BoHai Drilling Engineering Company, Tianjin, China; 2. CNPC Xinjiang Oilfield, Xinjiang, China

PVT Correlations for Heavy and Extraheavy Oil for South Chicontepec OMAE2016-54060

Andrea Avilés
Universidad Veracruzana, Poza Rica, Mexico

Effect of Nano-Silica on Polymer/Salt Treated Bentonite Drilling Fluid Systems OMAE2016-54450

Mesfin Belayneh, Bernt Aadnoy
University of Stavanger, Stavanger, Norway

Dynamic and Static Sagging Characterization and Performances of Four Oil Based Muds OMAE2016-54457

Mesfin Belayneh, Bernt Aadnoy, Sharman Thomas
University of Stavanger, Stavanger, Norway

REFRESHMENT BREAK

15:00 – 15:30

Lobby, 2nd Floor, Convention Hall

CONCURRENT SESSIONS

15:30 – 17:00

Offshore Technology

1-1-2 TLPs

Monday June 20

Rm 101 | 15:30 – 17:00

Session Chair: Jeffrey Falzarano, Texas A&M University, USA

Session Co-Chair: Takeshi Kinoshita, University of Tokyo, Japan

Effect of Tendon Modelling on TLP Behaviours OMAE2016-54267

Damilola. O Oyejobi, Mohammed Jameel, Nor Hafizah Ramli Sulong
University of Malaya, Kuala Lumpur, Malaysia

Hydrostatic Stability and Global Performance

Analysis for SET TLP OMAE2016-54666

Raehyoung Yuck¹ Seungjun Kim¹ Seungun Sung² Hyun Joe Kim¹
Dong Yeon Lee¹ Boo Ki Kim³

1. Samsung Heavy Industries, Daejeon, Korea; 2. Samsung Heavy Industries, Sungnam, Korea; 3. Samsung Heavy Industries, Geoje, Korea

Estimation of Wave Loads due to Green Water Events in 10000-year

Conditions on a TLP Deck Structure OMAE2016-54839

Csaba Pakozdi¹ Anders Östman¹ Carl Trygve Stansberg¹ Guomin Ji¹ Ola Reum²
Stig Øvrebo³ Tone M. Vestbøstad³ Christian Sorvaag⁴ Jon Erstrand⁴

1. MARINTEK, Trondheim, Norway; 2. Statoil, Trondheim, Norway; 3. Statoil, Stavanger, Norway; 4. Aibel AS, Haugesund, Norway

Structures, Safety and Reliability

2-2-1 Probabilistic and Spectral Wave Models

Monday June 20

Rm 102 | 15:30 – 17:00

Session Chair: Elzbieta M. Bitner-Gregersen, DNV GL AS,
DNV GL Strategic Research and Innovation, Norway

Session Co-Chair: Dag Myrhaug, NTNU, Norway

Comparison Between Two Forecast Systems

Implemented for the North Atlantic OMAE2016-54464

A. Rute Bento¹ Marta Gonçalves¹ Ricardo Campos¹ Carlos Guedes Soares²

1. University of Lisbon, Lisbon, Portugal; 2. Instituto Superior Tecn-CENTEC, Lisboa, Portugal

Copula-Based Bivariate Modelling of Significant Wave

Height and Wave Period and the Effects of Climate

Change on the Joint Distribution OMAE2016-54314

Erik Vanem

DNV GL, Høvik, Norway

Estimating Extreme Waves in Brazil Using Regional

Frequency Analysis OMAE2016-54461

Ricardo Campos¹ Carlos Guedes Soares²

1. University of Lisbon, Lisbon, Portugal; 2. Instituto Superior Tecn-CENTEC, Lisboa, Portugal

Modulation Instability and Extreme Events Beyond

Initial Three Wave Systems OMAE2016-54916

Amin Chabchoub, Takuji Waseda

University of Tokyo, Tokyo, Japan

Structures, Safety and Reliability

2-3-2 Probabilistic Response Models II

Monday June 20

Rm 206 | 15:30 – 17:00

Session Chair: Ying Min Low, National University of Singapore, Singapore

Session Co-Chair: Suhail Ahmad, Indian Institute of Technology Delhi, India

Extreme Response Prediction for Fixed Offshore Structures

by Monte Carlo Time Simulation Technique OMAE2016-54200

Mohd Khairi Abu Husain¹ Noor Irza Mohd Zaki¹ Muhammad Bukhari Johari¹
Gholamhossein Najafian²

1. UTM Razak School of Engineering and Advanced Technology, Kuala Lumpur, Malaysia; 2. University of Liverpool, Liverpool, United Kingdom

Derivation of Morison's Force Coefficients by Three Alternative

Forms of the Method of Moments OMAE2016-54201

Noor Irza Mohd Zaki¹ Mohd Khairi Abu Husain¹ Gholamhossein Najafian²

1. UTM Razak School of Engineering and Advanced Technology, Kuala Lumpur, Malaysia; 2. University of Liverpool, Liverpool, United Kingdom

Prediction of Offshore Structural Response Extreme Values by

Modified Finite-Memory Nonlinear System Modeling OMAE2016-54204

Noor Irza Mohd Zaki¹ Mohd Khairi Abu Husain¹ Gholamhossein Najafian²

Nurul 'Azizah Mukhlas¹

1. UTM Razak School of Engineering and Advanced Technology, Kuala Lumpur, Malaysia; 2. University of Liverpool, Liverpool, United Kingdom

Materials Technology

3-4-1 Materials Performance in Sour Environment

Monday June 20

Rm 103 | 15:30 – 17:00

Session Chair: David A. Baker, ExxonMobil Upstream Research Co, USA

Session Co-Chair: Jens Tronskar, DNV GL, Singapore

Fatigue Crack Growth Behavior of Embedded

Flaws in Sour Pipelines OMAE2016-54384

Feng Gui¹ Colum Holtam² Ramgopal Thodla³ Brandon Gerst¹

1. DNV GL, Dublin, OH, USA; 2. DNV GL, Katy, TX, USA

Effect of Sour Acidizing Treatments on the Fatigue Crack Growth and

Fracture Toughness Behavior of C-Mn Line Pipe Steels OMAE2016-54388

Weiwei Yu¹ Jonathan Bowman¹ Apurva Batra¹ Ramgopal Thodla²

Colum Holtam³ Brandon Gerst²

1. Chevron Energy Technology Company, Houston, TX, USA;

2. DNV GL, Dublin, OH, USA; 3. DNV GL, Katy, TX, USA

Development and Characterization of High Strength Austenitic

Stainless Steel for Down-Hole Application in Sour Environment

with Superior Corrosion and Wear Resistance OMAE2016-55084

Brajendra Mishra, Eunkyung Lee

Worcester Polytechnic Institute, Worcester, MA, USA

Pipelines, Risers, and Subsea Systems

4-1-2 Flexible Pipes II

Monday June 20

Rm 104 | 15:30 – 17:00

Session Chair: Anh Tuan Do, Technip, France

Session Co-Chair: Zhimin Tan, GE oil & gas, Wellstream, USA

On-Line Phased Array Ultrasonic System – OPUS to Control Pressure Sheath of Flexible Pipe During Manufacturing OMAE2016-54473

Mickaël Mélot, Julien Berthoin
Technip - Flexi France, Le Trait, France

Evolution of Residual Stress in Tensile Armour Wires of Flexible Pipes During Pipe Manufacture OMAE2016-54387

Upul S. Fernando¹ Michelle Davidson¹ Kun Yan² Matthew J. Roy² Mark D. Callaghan² John A. Francis² Philip J. Withers² Thilo Pirling³
1. GE Oil & Gas, Newcastle upon Tyne, United Kingdom; 2. University of Manchester, Manchester, United Kingdom; 3. Institute Laue-Langevin, Grenoble, France

Alternative Stress Models with Focus on Full FE model for Flexible Risers OMAE2016-54547

Lidong Wang¹ Naiquan Ye² Svein Savvik³ Qianjin Yue¹ Zhixun Yang¹ Jinlong Chen¹
1. Dalian University of Technology, Dalian, China; 2. MARINTEK, Trondheim, Norway; 3. Norwegian University of Science and Technology, Trondheim, Norway

Pipelines, Risers, and Subsea Systems

4-4-1 Subsea Systems

Monday June 20

Rm 107 | 15:30 – 17:00

Session Chair: Ahmed Reda, Qatar Petroleum, Qatar

Session Co-Chair: Gareth Forbes, Curtin University, Australia

Fatigue Considerations for Subsea Well Systems OMAE2016-54280

David A. Baker, Karen M. Walker
ExxonMobil Upstream Research Co, Spring, TX, USA

Evaluating Vibration Performance of a Subsea Pump Module by Full-Scale Testing and Numerical Modelling OMAE2016-54318

Pieter Van Beek, Hajo Pereboom, Harmen Slot
TNO, Delft, Netherlands

Vibration Behavior of Pipelines Conveying Gas-liquid Two-phase Flow Supported on the Seabed OMAE2016-54595

Chen An¹ Menglan Duan¹ Jian Su²
1. China University of Petroleum Beijing, Beijing, China;
2. Federal University of Rio de Janeiro, Ilha do Fundão, China

Ocean Space Utilization

5-3-1 Deepsea Mining and Underwater Development Technology

Monday June 20

Rm 208 | 15:30 – 17:00

Session Chair: Tetsuo Yamazaki, Osaka Prefecture Univ., Japan

Session Co-Chair: Yoshitaka Watanabe, JAMSTEC, Japan

A Numerical Study on the Load-Bearing Armored Cable Performance of an 11,000m ARV for the First Phase Sea Trial OMAE2016-54128

Zhe Jiang¹ Yong Hu¹ Weicheng Cui¹ Tianyu Zhang² Xiaoyan Liu²
1. Shanghai Ocean University, Shanghai, China;
2. DMAR Offshore Engineering Inc., Beijing, China

Economic Seafloor Massive Sulfide Mining by Japan's Model OMAE2016-54575

Tetsuo Yamazaki, Yosuke Takeda, Rei Arai, Naoki Nakatani
Osaka Prefecture University, Sakai, Japan

An Experimental Consideration on Accuracy of Inverse Super Short Baseline Underwater Positioning Using Acoustic Data Transmission OMAE2016-54975

Yoshitaka Watanabe
JAMSTEC, Yokosuka, Japan

Waste Rejection on Seafloor by Hydrocyclone for Economic Seafloor Massive Sulfide Mining OMAE2016-55016

Yosuke Takeda, Tetsuo Yamazaki, Rei Arai, Naoki Nakatani
Osaka Prefecture University, Sakai, Japan

Ocean Engineering

6-1-2 Advanced Ship Hydromechanics and Marine Technology II

Monday June 20

Rm 106 | 15:30 – 17:00

Session Chair: Jeffrey Falzarano, Texas A&M University, USA

Session Co-Chair: Mohsin A. R. Irkal, Indian Institute of Technology Madras, India

An Alternative Approach to Validation of Ship Manoeuvring Models OMAE2016-54276

Sergey Gavrilin¹ Sverre Steen²
1. Department of Marine Technology, Norwegian University of Science and Technology, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway

SVR-Based Parametric Identification for Parametric Roll Resonance of Ships in Longitudinal Regular Waves OMAE2016-54316

Xian-Rui Hou, Zaojian Zou
Shanghai Jiao Tong University, Shanghai, China

Numerical Study on Added Resistance Computations in Short Waves OMAE2016-54334

Xinshu Zhang, Kang Tian, Yunxiang You
Shanghai Jiao Tong University, Shanghai, China

Computation of Wave Added Resistance by Control Surface Integration OMAE2016-54353

Zhiyuan Pan¹ Torgeir Kirkhorn Vada² Kai Jia Han¹
1. DNV GL - Software, Høvik, Norway; 2. DNV GL, Høvik, Norway

CFD and VIV

8-3-1 Risers and Pipelines I

Monday June 20

Rm 201 | 15:30 – 17:00

Session Chair: Muk Chen Ong, University of Stavanger, Norway

Session Co-Chair: Jie Wu, MARINTEK, Norway

Numerical Study of Pipeline-Riser Slugging in an Open Source Way OMAE2016-54085

Xiangyin Meng, Longbin Tao
Newcastle University, Newcastle, United Kingdom

Numerical Analysis of the Effects of Parametric Excitation on Riser VIV OMAE2016-54700

Song Lei, Xiang Yuan Zheng
Division of Ocean Science and Technology, Graduate School at Shenzhen, Tsinghua University, Shenzhen, China

A Procedure to Include Slip Damping in a VIV Analysis of an Umbilical OMAE2016-54816

Elizabeth Passano, Shahriar Abtahi, Torfinn Ottesen
MARINTEK, Trondheim, Norway

Vortex-Induced Vibrations of a Riser with Design Variations OMAE2016-54990

Robert Zueck
US Navy - NAVFAC EXWC, Port Hueneme, CA, USA

Ocean Renewable Energy

9-2-1 Modeling of Arrays

Monday June 20

Rm 203 | 15:30 – 17:00

Session Chair: Bryony DuPont, Oregon State University, USA

Session Co-Chair: Ryan Coe, Sandia National Laboratories, USA

Computation of the Diffraction Transfer Matrix and the Radiation Characteristics in the Open-Source BEM Code NEMOH OMAE2016-54130

Francesc Fàbregas Flavià¹ Cameron McNatt²
François Rongère¹ Aurélien Babarit¹ Alain Clément¹
1. Ecole Centrale de Nantes, Nantes, France;
2. University of Edinburgh, Edinburgh, United Kingdom

A Multi-Objective Real-Coded Genetic Algorithm Method for Wave Energy Converter Array Optimization OMAE2016-54996

Chris Sharp, Bryony DuPont
Oregon State University, Corvallis, OR, USA

Assimilating a Time-Domain Representation of a Wave Energy Converter into a Spectral Wave Model OMAE2016-54235

Ewelina Luczko¹ Helen Bailey¹ Bryson Robertson¹ Clayton Hiles² Bradley Buckham¹
1. University of Victoria, Victoria, BC, Canada;
2. Cascadia Coast Research, Victoria, BC, Canada

Numerical and Experimental Study of a Multi-Use Platform. OMAE2016-54427

Jose Armesto¹ Javier Sarmiento² Víctor Ayllón² Arantza Iturrioz³
Alfonso Jurado² Raúl Guanche² Iñigo J. Losada²
1. University of Cantabria, Santander, Spain; 2. Environmental Hydraulics Institute of Cantabria - Universidad de Cantabria, Santander, Spain; 3. IH Cantabria, Santander, Spain

Petroleum Technology

11-8-1 Unconventional Reservoirs: Production, Well Control and Injection

Monday June 20

Rm 105 | 15:30 – 17:00

Session Chair: Arash Dahi Taleghani, Louisiana State University, USA

Session Co-Chair: Peyman Pourashshary, Sultan Qaboos University, Oman

An Environmentally Friendly Alternative for the Conventional Acids Used in Acid Fracturing of Carbonate Reservoirs OMAE2016-54487

Adisak Nawik¹ Kyle Taylor² Reza Barati Ghahfarokhi³
1. University of Kansas, Lawrence, KS, USA; 2. Earthborn Clean Products, Lawrence, KS, USA; 3. The University of Kansas, Lawrence, KS, USA

Impact of Pore Topology on Gas Diffusion and Productivity in Barnett and Haynesville Shale Plays OMAE2016-54531

Davud Davudov¹ Rouzbeh Moganloo² Younas Dadmohammadi¹
Mark Curtis¹ Farzam Javadpour³
1. University of Oklahoma, Norman, OK, USA; 2. Oklahoma University, Norman, OK, USA;
3. Bureau of Economic Geology The University of Texas at Austin, Austin, TX, USA

A Transient Model for Hydraulic Simulation of Bullheading and Pressurized Mud Cap Drilling OMAE2016-54293

Abrar Akram Ghauri¹ Kjell Kåre Fjelde¹ Johnny Froyen²
1. University of Stavanger, Stavanger, Norway;
2. SINTEF Petroleum Research, Bergen, Norway

The State of the Art and Challenges in Geomechanical Modeling of Injector Wells; a Review Paper OMAE2016-54383

Juan Bautista, Arash Dahi Taleghani
Louisiana State University, Baton Rouge, LA, USA

Tuesday, June 21

Time	Title	Location
08:30 – 10:00	Concurrent Sessions	See pages 39 to 43 for session titles, authors and locations.
10:00 – 10:30	Refreshment Break	Lobby, 2nd Floor, Convention Hall
10:30 – 12:00	Concurrent Sessions	See pages 43 to 47 for session titles, authors and locations.
12:00 – 13:30	Awards Lunch	Grand Ballroom, 3rd Floor, Convention Hall
13:30 – 15:00	Concurrent Sessions	See pages 47 to 51 for session titles, authors and locations.
15:00 – 15:30	Refreshment Break	Lobby, 2nd Floor, Convention Hall
15:30 – 17:00	Concurrent Sessions	See pages 51 to 55 for session titles, authors and locations.

CONCURRENT SESSIONS

08:30 – 10:00

Offshore Technology

1-1-3 Semi-Subs

Tuesday June 21

Rm 101 | 8:30 – 10:00

Session Chair: Jose Ferrari, BG Group, Brazil

Session Co-Chair: Bruce Martin, SBM Offshore, USA

Influence of the Draft Condition on Vortex-Induced Motions of a Semi-Submersible Platform with Four Square Columns OMAE2016-54764

Mingyue Liu¹ Longfei Xiao¹ Haining Lu¹ Jun Li¹ Xiaochuan Yu²

1. Shanghai Jiao Tong University, Shanghai, China;

2. University of New Orleans, New Orleans, LA, USA

Experimental and Numerical Study on Flow Past Four Rectangular Columns in Diamond Configuration OMAE2016-54609

Yibo Liang¹ Longbin Tao¹ Longfei Xiao² Mingyue Liu²

1. Newcastle University, Newcastle upon Tyne, United Kingdom;

2. Shanghai Jiao Tong University, Shanghai, China

Development of Dual-lifting Technique for Installation of Topside Mega-modules OMAE2016-54669

Dongwoo Jung¹ Hyun Joe Kim¹ Hae Sung Ji² Hyoen Su Jeong³

Mi Hee Nam² Dong Yeon Lee¹ Boo Ki Kim² Jong Dae Jin²

1. Samsung Heavy Industries. Co., Ltd., Dae-Jeon, Korea; 2. Samsung Heavy Industries. Co., Ltd., Geoje, Korea; 3. Samsung Heavy Industries Co., Ltd., Pangyo, Korea

Offshore Technology

1-3-1 Non-linear Wave and Wave Effects

Tuesday June 21

Rm 207 | 8:30 – 10:00

Session Chair: Xiao-Bo Chen, Bureau Veritas, Singapore

Session Co-Chair: Antonio Carlos Fernandes, COPPE/UF RJ, Brazil

Numerical Investigation on Spectrum Evolution of Random Waves in Shallow Water Based on KdV and Fully Nonlinear Model OMAE2016-54169

Jinghua Wang, Q. W. Ma, Shiqiang Yan

City University London, London, United Kingdom

The EXWAVE JIP: Improved Procedures to Calculate Slowly Varying Wave Drift Forces on Floating Units in Extreme Seas OMAE2016-54829

Nuno Fonseca¹ Carl Trygve Stansberg¹ Arne Nestegård² Arne Bøckmann² Rolf Baarholm³

1. MARINTEK, Trondheim, Norway; 2. DNV GL - Oil & Gas,

Høvik, Norway; 3. Statoil, Stjørdal, Norway

Self-Adaptive Wave Absorbing Technique for Nonlinear Shallow Water Waves OMAE2016-54475

Shiqiang Yan¹ Q. W. Ma² Jinghua Wang² Juntao Zhou²

1. School of Mathematics, Computer Science and Engineering, City University London,

London, United Kingdom; 2. City University London, London, United Kingdom

Structures, Safety and Reliability

2-5-1 Reliability of Marine Structures I

Tuesday June 21

Rm 102 | 8:30 – 10:00

Session Chair: George Wang, ABS, USA

Session Co-Chair: Carlos Guedes Soares, Instituto Superior Tecn-CENTEC, Portugal

Deformation of the Wave Field Interacting with Offshore Platforms – Comparison Between the Corresponding Results from a Numerical Model and a Wave Tank OMAE2016-54329

M Hasanat Zaman¹ Ayhan Akinturk²

1. National Research Council Canada, St. John's, NL, Canada;

2. NRC Ocean, Coastal and River Engineering, St. John's, NL, Canada

Non-stationary Estimation of Joint Design Criteria with a Multivariate Conditional Extremes Approach OMAE2016-54355

Laks Raghupathi¹ David Randell² Kevin Ewans³ Philip Jonathan²

1. Shell India Markets Pvt. Ltd., Bangalore, India; 2. Shell Global Solutions (UK),

Manchester, United Kingdom; 3. Sarawak Shell Berhad, Lutong, Malaysia

Structural Reliability Analysis Using Quadratic Polynomial Response Surface and Finite Element in MATLAB OMAE2016-54543

M.M.A Wahab¹ Velluruzhathil John Kurian¹ MS Liew¹ Z Nizamani² Do Kyun Kim¹

1. Universiti Teknologi PETRONAS, Bandar Seri Iskandar, Malaysia;

2. Universiti Tunku Abdul Rahman, Bandar Baru Kampar, Malaysia

Characteristic Levels of Strongly Nonlinear Extreme Wave Load Effects OMAE2016-54963

Thomas B. Johannessen, Øistein Hagen

DNV GL, Høvik, Norway

Structures, Safety and Reliability

2-11-1 Ultimate Strength I

Tuesday June 21

Rm 206 | 8:30 – 10:00

Session Chair: Lei Jiang, Martec Limited, Canada
Session Co-Chair: Xiaoli Jiang, TU Delft, Netherlands

Ultimate Limit State Analysis of FRP Composite Sandwich Plates – Development of a Semi-analytical Method OMAE2016-54069

Jonas Ringsberg, Niklas Blomgren, Matej Prev
Chalmers University of Technology, Göteborg, Sweden

Buckling/Ultimate Strength Evaluation for Continuous Stiffened Panel under Combined Shear and Thrust OMAE2016-54306

Hiroaki Ogawa¹ Tomoki Takami² Akira Tatsumi³ Yoshiteru Tanaka²
Shinichi Hirakawa¹ Masahiko Fujikubo⁴
1. Japan Marine United Corporation, Tsu, Japan; 2. National Maritime Research Institute, Mitaka, Japan; 3. Osaka University, Osaka, Japan; 4. Osaka University, Suita, Japan

Influence of the Lateral Pressure on the Collapse Strength of Continuous Stiffened Panels Under In-plane Compression OMAE2016-55064

Ming Cai Xu¹ Zhao Jun Song² Si Xuan Chen²
1. Huanzong University, Wuhan, China; 2. Huazhong University of Science & Technology, Wuhan, China

Investigation on the Post-ultimate Strength Behaviour of Damaged Stiffened Plate of Ship Structure OMAE2016-54348

Weijun Xu, Minjie Yuan, Xiaotian Wang
Harbin Engineering University, Harbin, China

Materials Technology

3-4-2 Materials Performance in Challenging Environment

Tuesday June 21

Rm 103 | 8:30 – 10:00

Session Chair: Koji GOTOH, Kyushu University, Japan
Session Co-Chair: Jeong Hong, Battelle, USA

Statistical Method to Requalify Steel Grades During Conversion of Tankers to FPSOs OMAE2016-54325

Phillippe Cambos, Guy Parmentier
Bureau Veritas, Neuilly sur Seine, France

Towards a Unified Approach for Brittle Fracture Resistance and Safe Application of Steel Structures in Arctic Environments OMAE2016-54341

Agnes Marie Horn¹ Erling Østby² Mons Hauge³ Per Olav Moslet²
1. DNV GL, Oslo, Norway; 2. DNV GL, Høvik, Norway; 3. Statoil, Trondheim, Norway

Effect of Acidizing Treatments on the Fatigue Crack Growth Behavior of C-Mn Line Pipe Steels OMAE2016-54385

Apurva Batra¹ Jonathan Bowman¹ Weiwei Yu¹ Ramgopal Thodla²
Colum Holtam³ Brandon Gerst²
1. Chevron Energy Technology Company, Houston, TX, USA;
2. DNV GL, Dublin, OH, USA; 3. DNV GL, Katy, TX, USA

Effect of Reeling and pH on the Fatigue Crack Growth Behavior of C-Mn Line Pipe Steels Exposed to Acidizing Environments OMAE2016-54386

Apurva Batra¹ Jonathan Bowman¹ Weiwei Yu¹ Ramgopal Thodla²
Colum Holtam³ Brandon Gerst²
1. Chevron Energy Technology Company, Houston, TX, USA;
2. DNV GL, Dublin, OH, USA; 3. DNV GL, Katy, TX, USA

Pipelines, Risers, and Subsea Systems

4-1-3 Flexible Pipes III

Tuesday June 21

Rm 104 | 8:30 – 10:00

Session Chair: Svein Savik, NTNU, Norway
Session Co-Chair: Jun Yan, Dalian University of Technology, China

Pure Bending Behavior of Pipe Reinforced by Steel Wires (PSP) OMAE2016-54577

Gao Tang, Weidong Ruan, Ting Huang, Yutian Lu, Yong Bai
Zhejiang University, Hangzhou, China

Behavior of Flexible Pipe Subjected to Internal Pressure OMAE2016-54588

Shuai Yuan¹ Weidong Ruan¹ Peihua Han¹ Yong Bai² Peng Cheng¹
1. Zhejiang University, Hangzhou, China; 2. Zhejiang University, Zhejiang, China

Taking Further the Domain of Use of Low Plasticized High Molecular Weight PVDF for Monolayer Dynamic Application in Flexible Pipe OMAE2016-54650

Thomas Epszstein, Frederic Demanze
Technip, Le Trait, France

Ocean Space Utilization

5-5-1 Floating Systems for Renewable Energy I

Tuesday June 21

Rm 208 | 8:30 – 10:00

Session Chair: Tomoki Ikoma, Nihon University, Japan

Coupled Simulation Between FAST and Hydro-Structural Code for a Flexible FOWT Considering Blade Pitch Control Malfunction OMAE2016-54352

Sharath Srinivasamurthy¹ Kazuhiro Iijima² Yasunori Nihei³ Naoyuki Hara³
1. Osaka University, Osaka, Japan; 2. Dept of NAOE, Osaka University, Osaka, Japan; 3. Osaka Prefecture University, Osaka, Japan

Seaquake Loads Acting on Offshore Wind Turbine OMAE2016-54492

Katsunari Fujioka¹ Yasunori Nihei¹ Kazuhiro Iijima²
1. Osaka Prefecture University, Osaka, Japan;
2. Dept of NAOE, Osaka University, Osaka, Japan

Wave Energy Extraction from Multiple Buoys Supporting a Flexible Runway OMAE2016-54603

Haicheng Zhang, Daolin Xu, Shuyan Xia
Hunan University, Changsha, China

Experimental Study on a 3-Dimensional Hydro-Elastic Deformation of "Underwater Platform" with Multi-Towers in Waves OMAE2016-54744

Ken Haneda¹ Motohiko Murai² Jun Yamano²
1. National Maritime Research Institute, Tokyo, Japan;
2. Yokohama National University, Yokohama, Japan

Ocean Engineering

6-1-3 Advanced Ship Hydromechanics and Marine Technology III

Tuesday June 21

Rm 106 | 8:30 – 10:00

Session Chair: Peter Naaijen, Delft University of Technology, Netherlands

Session Co-Chair: Sergey Gavrilin, Department of Marine Technology, Norwegian University of Science and Technology, Norway

Numerical Investigation on the Influence of Froude Number on the Hydrodynamic Derivatives of a Container ship

OMAEE2016-54312
TV Rameesha, P. Krishnankutty
Indian Institute of Technology, Madras, Chennai, India

CFD and EFD Based Studies of Hull Wetness of Fast Mono-WPC

OMAEE2016-54391
Chengzhu Wei, Yinghui Li, Hong Yi
Shanghai Jiao Tong University, Shanghai, China

Analysis of Ship Parametric Roll Amplitude Variation with Forward Speed Based on AQWA

OMAEE2016-55109
Hongxia Li, Bohai Zhu, Xiaoyu Zhou
Dalian University of Technology, Dalian, China

Methodology for Definition of New Sectors for DP Assisted Offloading Operations in Spread Moored Platforms

OMAEE2016-55133
Ana Luisa de Barros Orsolini¹ Eduardo A. Tannuri² Felipe Santana Castelpoggi¹
Douglas Gustavo Takashi Yuba³
1. Petrobras – E&P, Rio de Janeiro, RJ, Brazil; 2. University of São Paulo, São Paulo, SP, Brazil; 3. Petrobras – Research Center, Rio de Janeiro, RJ, Brazil

Ocean Engineering

6-8-1 Fluid-Structure, Multi-body and Wave-body Interaction I

Tuesday June 21

Rm 107 | 8:30 – 10:00

Session Chair: Yu-Hsien Lin, National Cheng Kung University, Taiwan

Session Co-Chair: Désirée Plenker, Hamburg University of Technology, Germany

Numerical Simulation of Wave Run-ups Due to Nonlinear Interaction between Stokes Waves and Offshore Wind Turbines

OMAEE2016-54013
Yu-Hsien Lin, Jing-Fu Chen, Po-Ying Lu
National Cheng Kung University, Tainan, Taiwan

Hydrodynamic Aspects on a Submerged Floating Tunnel by a Passing Ship or Two Ships in Maneuver in Calm Water

OMAEE2016-54030
Xu Xiang¹ Mathias Eidem¹ Jorunn Hillestad Sekse² Arianna Minoretti³
1. Norwegian Public Roads Administration, Stavanger, Norway;
2. Norwegian Public Roads Administration, Leikanger, Norway;
3. Norwegian Public Roads Administration, Trondheim, Norway

On the Wake Structure behind a Rotating Cylinder

OMAEE2016-54097
Yangyang Gao¹ Changshan Yin¹ Kang Yang¹ Soon Keat Tan²
1. Zhejiang University, Zhoushan, China; 2. Nanyang Technological University, Singapore, Singapore

Computation of Hydrodynamic Load and Strength

OMAEE2016-55071
Assessment of Highly Skewed Propeller
Sachin Awasare, Ram Kumar Joga, Sharad Dhavalikar, Apurba Kar
Indian Register of Shipping, Mumbai, India

Ocean Engineering

6-12-1 Ocean Engineering Technology

Tuesday June 21

Rm 204 | 8:30 – 10:00

Session Chair: Jon Mikkelsen, University of British Columbia, Canada

Session Co-Chair: Qiuchen Guo, University of California, Berkeley, USA

Data Compression in Ship Performance and Navigation Information under Deep Learning

OMAEE2016-54093
Lokukaluge P. Perera¹ Brage Mo²
1. MARINTEK Energy Systems and Technical Operations, Trondheim, Norway; 2. MARINTEK, Trondheim, Norway

Data Analytics for Capturing Marine Engine Operating Regions in Ship Performance Monitoring

OMAEE2016-54168
Lokukaluge P. Perera¹ Brage Mo²
1. MARINTEK Energy Systems and Technical Operations, Trondheim, Norway; 2. MARINTEK, Trondheim, Norway

A Data Mining Approach to Identify Maneuvers in Ship In-Service Measurements

OMAEE2016-54180
Afshin Abbasi Hoseini, Sverre Steen
Norwegian University of Science and Technology, Trondheim, Norway

Environmental Regulations in Shipping:

Interactions and Side Effects OMAEE2016-54646
Sepideh Jafarzadeh, Harald Ellingsen
Norwegian University of Science and Technology, Trondheim, Norway

Polar and Arctic Sciences and Technology

7-3-1 Structures in Ice

Tuesday June 21

Rm 108 | 8:30 – 10:00

Session Chair: Regina Sopper, Memorial University of Newfoundland, Canada

Session Co-Chair: Walter Kuehnlein, sea2ice Ltd. & Co. KG, Germany

Introduction to Symposium 7: Polar and Arctic Sciences

OMAEE2016-55156
Walter Kuehnlein
Sea2Ice Ltd. & Co. KG, Hamburg, Germany

Predicted Ice Accretion on Horizontal Surfaces of Marine Vessels and Offshore Structures in Arctic Regions

OMAEE2016-54054
Alireza Dehghani Sanij, Yuri Muzychka, Greg Naterer
Memorial University of Newfoundland, St. John's, NL, Canada

Identify Modal Parameters of a Real Offshore Platform from the Response Excited by Natural Ice Loading

OMAEE2016-54821
Wenlong Yang¹ Lei Li¹ Qiang Fu¹ Yao Teng¹ Shuqing Wang² Fushun Liu²
1. CIMC Offshore Engineering Institute, Yantai, China;
2. Ocean University of China, Qingdao, China

Technical Solutions of the Active Ice Protection of Offshore Structures for the Russian Arctic

OMAEE2016-54089
Valerii V. Tarasov¹ Olga A. Sabodash²
1. Admiral Nevelskoy Maritime State University, Vladivostok, Russia;
2. Far Eastern Federal University, Vladivostok, Russia

CFD and VIV

8-1-2 Ship Propulsion and Manoeuvring

Tuesday June 21

Rm 201 | 8:30 – 10:00

Session Chair: Ould el Moctar, University of Duisburg-Essen, Germany

Session Co-Chair: Guilherme Vaz, MARIN, Netherlands

Application Study of Cartesian Grid in Numerical

Prediction of a Marine Propeller OMAE2016-54522

Lang Gu, Chao Wang, Jian Hu

Harbin Engineering University, Harbin, China

Numerical Prediction of Ship Hydrodynamic Derivatives in Close Proximity to a Vertical Bank and Maneuvering Stability Analysis OMAE2016-54528

Han Liu, Ning Ma, Xiechong Gu

Shanghai Jiao Tong University, Shanghai, China

Numerical and Experimental Investigations of Ship Manoeuvres in Waves OMAE2016-54847

Ould el Moctar¹ Florian Sprenger² Apostolos Papanikolaou³ Thomas Schellin¹

1. University of Duisburg-Essen, Duisburg, Germany; 2. MARINTEK, Trondheim, Norway; 3. National Technical University of Athens, Athens, Greece

Numerical Study on Flap Style Rudder Hydrodynamic Characteristics with the Different Connection OMAE2016-55038

Zhenwei Dong, Zhijian Xiao, Shiqi Gong, Dakui Feng, Zhiguo Zhang

Huazhong University of Science & Technology, Wuhan, China

CFD and VIV

8-3-2 Risers and Pipelines II

Tuesday June 21

Rm 202 | 8:30 – 10:00

Session Chair: Muk Chen Ong, University of Stavanger, Norway

Session Co-Chair: Jie Wu, MARINTEK, Norway

A Response Model for Vortex Induced Vibrations in Low KC Number Flows OMAE2016-55000

Knut Vedeld¹ Håvar Sollund¹ Olav Fyrileiv² Arne Nestegård³

1. DNV GL, Oslo, Norway; 2. Det Norske Veritas, Høvik, Norway; 3. DNV GL - Oil & Gas, Høvik, Norway

Applying CFD for In-Line Structure Hydrodynamics in Pipeline Installation Analysis OMAE2016-54273

Carel F.C. Hoekstra, Henk Smienk, Joris van Drunen, Alessio Pistidda

Heerema Marine Contractors, Leiden, Netherlands

Numerical Investigation of Vortex-Induced Vibration of a Circular Cylinder Close to a Plane Boundary Subject to Oscillatory Flow OMAE2016-54338

Adnan Munir, Ming Zhao, Helen Wu

School of Computing, Engineering and Mathematics, Western Sydney University, Penrith, NSW, Australia

Experimental Evaluation of Pure In-line Vortex Induced Vibration (VIV) of Low Mass-Damping Ratio Cylinder OMAE2016-54374

Mohammad Mobasher Amini¹ Antonio Carlos Fernandes²

1. Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 2. COPPE/UFRJ, Rio de Janeiro, RJ, Brazil

Ocean Renewable Energy

9-1-2 Resource Assessment and Wind Farm Optimization

Tuesday June 21

Rm 203 | 8:30 – 10:00

Session Chair: Bryony DuPont

Session Co-Chair: Casey Fontana

Comparison of Offshore Wind Farm Layout Optimization Using a Genetic Algorithm and a Particle Swarm Optimizer OMAE2016-54145

Ajit C Pillai¹ John Chick¹ Lars Johanning² Mahdi Khorasanchi³ Sami Barbouchi⁴

1. The University of Edinburgh, Edinburgh, United Kingdom; 2. The University of Exeter, Penryn, United Kingdom; 3. University of Strathclyde, Glasgow, United Kingdom; 4. EDF Energy R&D UK Centre, London, United Kingdom

Efficient Multiline Anchor Systems For Floating

Offshore Wind Turbines OMAE2016-54476

Casey Fontana¹ Sanjay R. Arwade¹ Don J. DeGroot¹ Andrew Myers²

Melissa Landon³ Charles Aubeny⁴

1. University of Massachusetts, Amherst, MA, USA; 2. Northeastern University, Boston, MA, USA; 3. University of Maine, Orono, ME, USA; 4. Texas A&M University, College Station, TX, USA

Assessment of Seasonal Wind Energy at Zhifudao Observation Station Based on Joint Wind Speed and Wind Direction OMAE2016-54634

Yifan Lin¹ Sheng Dong²

1. College of Engineering, Ocean University, Qingdao, China; 2. Ocean University of China, Qingdao, China

Optimization of Floating Offshore Wind Energy Systems using an Extended Pattern Search Method OMAE2016-54973

Caitlin Forinash, Bryony DuPont

Oregon State University, Corvallis, OR, USA

Petroleum Technology

11-7-1 Well Drilling Fluids and Hydraulics – I

Tuesday June 21

Rm 105 | 8:30 – 10:00

Session Chair: Ergun Kuru, University of Alberta, Canada

Derivation of Drag and Lift Force Correlations for Spheres Suspended in Flowing Non-Newtonian Fluids OMAE2016-54045

Roland May¹ Yaroslav Ignatenko² Oleg Bocharov² Dmitry Kushnir²

Evgeny Podryabinkin³ Andrey Gavrilov⁴ Konstantin Finnikov⁵

1. Baker Hughes, Celle, Germany; 2. Baker Hughes, Novosibirsk, Russia; 3. Skolkovo Institute of Science and Technology, Moscow, Russia; 4. Institute of Thermophysics of SB RAS, Krasnoyarsk, Russia; 5. Institute of Thermophysics of the SB RAS, Krasnoyarsk, Russia

Experimental Investigation of Friction and Hydraulics in Circular and Non-Circular Wellbores with Oil Based Drilling Fluids OMAE2016-54046

Ali Taghipour¹ Jan David Ytrehus² Bjørnar Lund²

1. SINTEF Petroleum Research, Trondheim, Norway; 2. SINTEF, Trondheim, Norway

Experimental Investigation of Cuttings Transport With Oil Based Drilling Fluids OMAE2016-54047

Sneha Sayindla¹ Bjørnar Lund² Ali Taghipour³ Benjamin Werner¹ Arild Saasen⁴

Knud Richard Gyland⁵ Zalpato Ibragimova⁶ Jan David Ytrehus²

1. Norwegian University of Science and Technology, Trondheim, Norway; 2. SINTEF, Trondheim, Norway; 3. SINTEF Petroleum Research, Trondheim, Norway; 4. Det norske oljeselskap ASA, Oslo, Norway; 5. MI-SWACO, Schlumberger, Sandnes, Norway; 6. Statoil, Sandli, Norway

Effect of Near Wall Turbulence on the Particle Removal from Bed Deposits in Horizontal Wells OMAE2016-54051

Majid Bizhani, Ergun Kuru, Sina Ghaemi
University of Alberta, Edmonton, AB, Canada

Prof. Norman Jones Honoring Symposium on Impact Engineering

12-1-1 Structural Response I

Tuesday June 21 **Rm 109 | 8:30 – 10:00**

Session Chair: Dora Karagiozova, Bulgarian Academy of Science

Perforation Modes of Double-layered Plates with Air Space Struck by a Blunt Rigid Projectile OMAE2016-54103

Chen Xiaowei¹ Liu Bing²
1. Chinese Academy of Engineering Physics, Mianyang, China;
2. South West University of Science and Technology, Mianyang, China

A Finite Element Model of 18650 Lithium-Ion Battery for Explosion Caused by Internal Short Circuit OMAE2016-54211

Lubing Wang, Binghe Liu, Jun Xu
Beihang University, Beijing, China

Influence of Impact Location on the Plastic Response of Rectangular Cross-Section Tubes Struck Transversely by a Hemispherical Indenter OMAE2016-54241

Bin Liu¹ Carlos Guedes Soares²
1. Instituto Superior Técnico, Universidade de Lisboa, Lisboa, Portugal;
2. Instituto Superior Tecn-CENITEC, Lisboa, Portugal

An Appreciation of Professor Norman Jones – Contributions to Impact Engineering OMAE2016-54251

Qingming Li
The University of Manchester, Manchester, United Kingdom

REFRESHMENT BREAK

10:00 – 10:30

Lobby, 2nd Floor, Convention Hall

CONCURRENT SESSIONS

10:30 – 12:00

Offshore Technology

1-1-5 Fixed Structures and Jack-up Rigs

Tuesday June 21 **Rm 101 | 10:30 – 12:00**

Session Chair: Partha Chakrabarti, Zentech Inc, USA

Session Co-Chair: Bernt Leira, NTNU, Norway

Structure Design of Great Blocks lifting Tooling OMAE2016-54699

Zeng Ji¹ Wang Yuhan² Zhang Wei² Wang Chao² Li Chunhui² Zhou Ruijia²
1. Shanghai Maritime University, Shanghai, China;
2. Shanghai Waigaoqiao Shipbuilding Co, Ltd, Shanghai, China

Nonlinear RPD Analysis of Jack-up Rigs including Material Plasticity OMAE2016-54029

Partha Chakrabarti, Abhijeet Chawan
Zentech Inc., Houston, TX, USA

Experimental Investigation of Hydrodynamic Force Coefficients for Jack-Up Offshore Platform Leg OMAE2016-55068

Xiaojie Tian, Guijie Liu, Pengfei Chen, Yingchun Xie
Ocean University of China, Qingdao, China

Offshore Technology

1-3-4 Numerical Methods and Experiments

Tuesday June 21 **Rm 207 | 10:30 – 12:00**

Session Chair: Allan Ross Magee, National University of Singapore, Singapore

Session Co-Chair: Riaan van 't Veer, SBM Offshore, Netherlands

Combined Experimental and Numerical Investigations of Ocean Basin Inlet Design OMAE2016-54732

Allan Ross Magee¹ My Ha Dao² Yingying Zheng¹ Kian Yew Lim¹ Rajeev Kumar Jaiman¹
1. National University of Singapore, Singapore, Singapore;
2. Institute of High Performance Computing, A*STAR, Singapore, Singapore

Establishment of a Validation and Benchmark Database for the Assessment of Ship Operations in Adverse Conditions OMAE2016-54865

Florian Sprenger¹ Vahid Hassani¹ Adolfo Maron² Guillaume Delefortrie³
Thibaut Van Zwijnsvoorde⁴ Andrés Cura-Hochbaum⁵ Antonio Lengwinat⁵
1. MARINTEK, Trondheim, Norway; 2. CEHIPAR, El Pardo, Spain; 3. Flanders Hydraulics Research, Antwerpen, Belgium; 4. Ghent University, Ghent, Belgium; 5. Technische Universität Berlin, Berlin, Germany

Vortex Induced Vibrations of Pipelines with Non-Linear Seabed Contact Properties OMAE2016-54424

Jan Vidar Ulveseter, Svein Savik, Carl M. Larsen
Norwegian University of Science and Technology, Trondheim, Norway

Towards an Improved Understanding of Green Water Exceedance at the Bow of an FPSO OMAE2016-54651

Riaan van 't Veer, Anne Boorsma
SBM Offshore, Schiedam, Netherlands

Structures, Safety and Reliability

2-5-2 Reliability of Marine Structures II

Tuesday June 21 **Rm 102 | 10:30 – 12:00**

Session Chair: Jordan Garbatov, Universidade de Lisboa, Portugal

Session Co-Chair: Bernt Johan Leira, NTNU, Department of Marine Technology, Norway

A Review on Damage Identification and Structural Health Monitoring for Offshore Platform OMAE2016-54561

Liping Sun, Yang Lu, Xinyue Zhang
Harbin Engineering University, Harbin, China

Reliability-Based Design and Assessment for Lifetime Extension of Aging Offshore Structures OMAE2016-54206

Ezanizam Mat Soom¹ Mohd Khairi Abu Husain² Noor Irza Mohd Zaki²
Gholamhossein Najafian³ Nurul Uyun Azman⁴
1. Sarawak Shell Berhad, Miri, Malaysia; 2. UTM Razak School of Engineering and Advanced Technology, Kuala Lumpur, Malaysia; 3. University of Liverpool, Liverpool, United Kingdom; 4. Technip, Miri, Sarawak, Malaysia

Asset Integrity Assessment and Management Program for Life Preservation of a Purpose Built FPSO and Associated Subsea System Facilities OMAE2016-54257

Abe Nezamian, Robert J Nicolson
Advisian WorleyParsons, Melbourne, VIC, Australia

The Reliability of Subsea Cluster Manifold OMAE2016-54396

Yingying Wang¹ FangQiu Li¹ Menglan Duan¹ Houfa Liu¹ Jiandong Gu²
 1. *China University of Petroleum Beijing, Beijing, China;*
 2. *Beijing Accellence Information Technology Inc., Beijing, China*

Structures, Safety and Reliability

2-11-2 Ultimate Strength II

Tuesday June 21 **Rm 206 | 10:30 – 12:00**

Session Chair: Jung Kwan Seo, Pusan National University, Korea
 Session Co-Chair: Zhiqiang Hu, Shanghai Jiao Tong University, China

Residual Torsional Strength of Cracked Stiffened Girders With a Large Deck Opening OMAE2016-54127

Lei Ao, Deyu Wang
Shanghai Jiao Tong University, Shanghai, China

Residual Strength of Pitted Mild Steel Plate Subjected to Biaxial Compression OMAE2016-54243

Xiaoli Jiang¹ Carlos Guedes Soares²
 1. *TU Delft, Delft, Netherlands;* 2. *Instituto Superior Tecn-CENTEC, Lisboa, Portugal*

Ultimate Strength of Typical Stiffened Panels in Container Ships under Localized Pitting Corrosion OMAE2016-54444

Jinju Cui, Deyu Wang, Ning Ma
Shanghai Jiao Tong University, Shanghai, China

A Calculation Method of Ultimate Torsional Strength for Subsea Collet Connector Based on Finite Element Method OMAE2016-54620

Kang Zhang¹ Menglan Duan¹ Xiaolan Luo¹ Yi Hong²
 1. *China University of Petroleum Beijing, Beijing, China;* 2. *China National Offshore Oil Corporation Research Institute, Beijing, China*

Materials Technology

3-3-1 Integrity Management and Life Extension

Tuesday June 21 **Rm 103 | 10:30 – 12:00**

Session Chair: Agnes Marie Horn, DNV GL, Norway
 Session Co-Chair: Koji Gotoh, Kyushu University, Japan

Life Extension and Management of Ageing FPSOs OMAE2016-54283

Hilman Salleh
DNV GL, Singapore, Singapore

Development of Underfilm Corrosion Simulation Method Based on Cellular Automaton OMAE2016-54508

Naoki Osawa¹ Yasuhide Kanou² Yasumi Kawamura² Atsushi Takada³ Kazuhiko Shiotani⁴ Seiru Takeno⁵ Shino Katayama⁵ Kristov I. William⁵
 1. *Osaka University, Suita, Japan;* 2. *Yokohama National University, Yokohama, Japan;* 3. *National Maritime Research Institute, Mitaka, Japan;* 4. *JFE Steel Co., Kurasaki, Okayama, Japan;* 5. *Osaka University, Suita, Osaka, Japan*

Effect of Nano-MoS₂ Particles on Properties of Micro-arc Oxidation Coating Prepared on the Surface of Aluminum Alloy Drill Pipe for Offshore Platform OMAE2016-54685

Yipeng Pan¹ Yan Shen² Prasanta Sahoo¹
 1. *Florida Institute of Technology, Melbourne, FL, USA;*
 2. *Jiangsu Maritime Institute, Nanjing, China*

Cofferdam and Hyberbaric OMAE2016-55077

Jens Tronskar, Chon Gee Lee
DNV GL, Singapore, Singapore

Pipelines, Risers, and Subsea Systems

4-1-4 Flexible Pipes IV

Tuesday June 21 **Rm 104 | 10:30 – 12:00**

Session Chair: Jun Yan, Dalian University of Technology, China
 Session Co-Chair: Svein Savik, NTNU, Norway

Analytical and Experimental Analysis of Axisymmetric Behavior of the Simplified Unbounded Flexible Pipes in Bohai Bay OMAE2016-54682

Xiqia Chen¹ Xiaying Du¹ Jun Wan¹ Fan Liu¹ Peng Liang¹ Yun Gao²
 1. *Tianjin Branch, CNOOC China Limited, Tianjin, China;*
 2. *Southwest Petroleum University, Chengdu, China*

A Novel Electrical Based Breach Detection System for Flexible Pipe OMAE2016-54781

Phil Nott¹ William Shepherd² John McNab¹ Phil Harley² Syed Zakir Ahmed¹
 1. *GE Oil & Gas, Newcastle upon Tyne, United Kingdom;*
 2. *Photon Fire Ltd., Newcastle upon Tyne, United Kingdom*

Finite Element Analysis of Flexible Pipes under Compression: Influence of the Friction Coefficient OMAE2016-54895

Eduardo Ribeiro Malta, Clovis de Arruda Martins
University of São Paulo, São Paulo, SP, Brazil

Periodic and Fixed Boundary Condition for Multi-Scale Finite Element Analysis of Flexible Risers OMAE2016-54360

MT Rahmati¹ Hamid Bahai² Giulio Alfano²
 1. *Brunel University London, London, United Kingdom;*
 2. *Brunel University London, Uxbridge, United Kingdom*

Ocean Space Utilization

5-5-2 Floating Systems for Renewable Energy II

Tuesday June 21 **Rm 208 | 10:30 – 12:00**

Session Chair: Atilla Incecik, University of Strathclyde, United Kingdom
 Session Co-Chair: Hiroaki Eto, Nihon University, Japan

Effects of Disturbance of Current Field on Power Characteristics of a Floating Type Pitch-Controlled VAMT in a Real Sea OMAE2016-54693

Tomoki Ikoma¹ Koichi Masuda¹ Hiroaki Eto¹ Chang-Kyu Rheem² Osamu Enomoto¹
 1. *Nihon University, Funabashi, Japan;* 2. *The University of Tokyo, Tokyo, Japan*

Weather Window Analysis in Connection with Operation and Maintenance of Ocean Renewable Energy Devices OMAE2016-54814

Tomoki Taniguchi, Shigesuke Ishida, Toshifumi Fujiwara, Shunji Inoue
National Maritime Research Institute, Tokyo, Japan

A Study on Motion Characteristics of Wind Turbine on a Floating Platform in Blade Pitch Control Malfunction OMAE2016-55025

Yuki Mizukami¹ Yasunori Nihei¹ Kazuhiro Iijima² Naoyuki Hara¹
 1. Osaka Prefecture University, Osaka, Japan;
 2. Dept of NAOE, Osaka University, Osaka, Japan

An Experimental Study on Performance Verification of the New Type High Performance Anchor OMAE2016-54805

Mitsuhiro Masuda, Kiyokazu Minami
 Tokyo University of Marine Science and Technology, Tokyo, Japan

Ocean Engineering

6-1-4 Advanced Ship Hydromechanics and Marine Technology IV

Tuesday June 21 **Rm 106 | 10:30 – 12:00**

Session Chair: Spyros Hirdaris, Lloyd's Register, Korea
 Session Co-Chair: Yan Li, Norwegian University of Science and Technology, Norway

Short-term Prediction of Ship Pitching Motion Based on Artificial Neural Networks OMAE2016-54317

Baigang Huang, Zaojian Zou
 Shanghai Jiao Tong University, Shanghai, China

Numerical Prediction of the Propulsion Characteristics of Ships in Waves OMAE2016-54793

Sebastian Sigmund, Ould el Moctar
 University of Duisburg-Essen, Duisburg, Germany

Virtual Prototyping of Maritime Systems and Operations OMAE2016-54886

Vahid Hassani¹ Martin Rindarøy¹ Lars Tandle Kyllingstad² Jørgen Nielsen¹ Severin Sadjina³ Stian Skjong³ Dariusz Fathi¹ Trond Johnsen¹ Vilmar Æsøy⁴ Eilif Pedersen³
 1. MARINTEK, Trondheim, Norway; 2. SINTEF Fisheries and Aquaculture, Trondheim, Norway; 3. Norwegian University of Science and Technology, Trondheim, Norway; 4. Norwegian University of Science and Technology, Aalesund, Norway

Near Field Expression of Ship Wave Resistance by Green's Theorem OMAE2016-54896

Takashi Tsubogo
 Osaka Prefecture University, Sakai, Japan

Ocean Engineering

6-3-1 Model Tests I

Tuesday June 21 **Rm 204 | 10:30 – 12:00**

Session Chair: P. Krishnankutty, Indian Institute of Technology Madras, India
 Session Co-Chair: Karola v.d. Meij, MARIN, Netherlands

Examining Random Uncertainty Using a Newly Developed Power Spectrum Based Method OMAE2016-54020

Joris Brouwer, Yvette Klinckenberg
 MARIN, Wageningen, Netherlands

How to Deal with Basin Modes in Shallow-Water Irregular Wave Generation OMAE2016-54134

Sanne van Essen, Willemijn Pauw, Joris van den Berg
 MARIN, Wageningen, Netherlands

The Effect of Mooring Line Pre-tension on FDPs's Motion OMAE2016-54262

Yanlong Sun, Huilong Ren, Zhendong Liu, Liu Yan, Zepeng Guo
 Harbin Engineering University, Harbin, China

Stopping Test Method for Free-running Model Ship Equipped with Auxiliary Thruster OMAE2016-54336

Michio Ueno, Yoshiaki Tsukada
 National Maritime Research Institute, Mitaka, Japan

Ocean Engineering

6-8-2 Fluid-Structure, Multi-body and Wave-body Interaction II

Tuesday June 21 **Rm 107 | 10:30 – 12:00**

Session Chair: Ye Li, Shanghai Jiao Tong University, China
 Session Co-Chair: Qian Zhong, University of California at Berkeley, USA

An Investigation Into the Limitations of the Panel Method and the Gap Effect for a Fixed and a Floating Structure Subject to Waves OMAE2016-54121

Blanca Peña¹ Aaron McDougall²
 1. Houlder Limited, London, United Kingdom; 2. Houlder Limited, Aberdeen, United Kingdom

A Hybrid Numerical Model to Address Fluid Elastic Structure Interaction OMAE2016-54161

Manoj Kumar Gangadharan, Sriram Venkatachalam
 Indian Institute of Technology Madras, Chennai, India

Performance Analysis for Grid Plate Wave Absorbing Device OMAE2016-54221

Baolei Geng¹ Rongquan Wang²
 1. Tianjin Institute for Water Transport Engineering, Tanggu Binhai, China; 2. Dalian University of Technology, Dalian, China

Effects of Curvature on Slamming Loads OMAE2016-54333

John Weber, Raj Das, Mark Battley
 University of Auckland, Auckland, New Zealand

Polar and Arctic Sciences and Technology

7-2-1 Arctic Sea Transportation

Tuesday June 21 **Rm 108 | 10:30 – 12:00**

Session Chair: Sören Ehlers, Norwegian University of Science and Technology, Norway
 Session Co-Chair: Walter Kuehnlein, sea2ice Ltd. & Co. KG, Germany

The Estimation of Carbonic Gas Emission by Ice-Class Large-Size Ships Moving in Ice Using Different Escorting Methods OMAE2016-54099

Aleksei Dobrodeev, Kirill Sazonov
 Krylov State Research Centre, St.Petersburg, Russia

Model of Transit Transport in Arctic, Based on Graph Algorithms OMAE2016-54439

Petr Zvyagin¹ Anna Voitkunskaia²
 1. St. Petersburg State Polytechnic University, St. Petersburg, Russia;
 2. St. Petersburg State Marine Technical University, St. Petersburg, Russia

Scheduling of Offshore Support Vessels on the Grand Banks OMAE2016-54544

David Molyneux, Nicholas Boyd
 Memorial University of Newfoundland, St. John's, NL, Canada

A FEM Based Potential Theory Approach for Optimal Ice Routing OMAE2016-54649

Henry Piehl¹ Aleksandar-Saša Milakovic¹ Soren Ehlers²
 1. Norwegian University of Science and Technology, Trondheim, Norway;
 2. Hamburg University of Technology, Hamburg, Germany

CFD and VIV

8-1-3 Floating Systems I

Tuesday June 21 **Rm 201 | 10:30 – 12:00**

Session Chair: Luis Eça, Instituto Superior Tecnico, Portugal
 Session Co-Chair: Arjen Koop, MARIN, Netherlands

Assessment of Nonlinear Heave Damping Model for Spar with Heave Plate Using Free Decay Tests OMAE2016-54404

Mahesh J. Rao, S. Nallayarasu, S. K. Bhattacharyya
 Indian Institute of Technology Madras, Chennai, India

Computation of Added Mass and Damping Coefficients of a Horizontal Circular Cylinder in Openfoam OMAE2016-54429

Hao Chen, Erik Damgaard Christensen
 Technical University of Denmark, Kgs Lyngby, Denmark

CFD Modeling of Heat Transfer in Oil Filling and Offloading of SDPSO Storage Tank OMAE2016-54465

Dongxi Liu¹ Hong Gu² Jin Wang³ Wenyong Tang¹ Weiwei Liu⁴
 1. Shanghai Jiao Tong University, Shanghai, China; 2. China Offshore Oil Engineering Company (COOEC), Tianjin, China; 3. COTEC Offshore Engineering Solutions, Beijing, China; 4. COTEC Offshore Engineering Solutions, Shanghai, China

CFD Driven Drillship Design OMAE2016-54119

Jan-Willem Krijger, Dimitris Chalkias
 Gusto MSC, Schiedam, Netherlands

CFD and VIV

8-3-3 Risers and Pipelines III

Tuesday June 21 **Rm 202 | 10:30 – 12:00**

Session Chair: Elizabeth Passano, MARINTEK, Norway
 Session Co-Chair: Carel F.C. Hoekstra, Heerema Marine Contractors, Netherlands

A Wake Oscillator Model with Nonlinear Coupling for the VIV of Rigid Cylinder Constrained to Vibrate in the Cross-flow Direction OMAE2016-54511

Yang Qu, Andrei V. Metrikine
 Delft University of Technology, Delft, Netherlands

Numerical Analysis of Combined VIV and Slug Flow in Time Domain OMAE2016-54891

Tor Huse Knudsen, Svein Savik, Mats Jørgen Thorsen
 Norwegian University of Science and Technology, Trondheim, Norway

Vortex-Induced Vibration of a Free-Hanging Riser Under Irregular Vessel Motion OMAE2016-54701

Jungao Wang¹ Rajeev Kumar Jaiman¹ Peter Francis Bernard Adaikalara²
 Linwei Shen¹ Sue Ben Tan³ Wenping Wang⁴
 1. National University of Singapore, Singapore, Singapore;
 2. Keppel Offshore and Marine Technology Centre, Singapore, Singapore;
 3. KEEPEL, Singapore, Singapore; 4. KOMtech, Singapore, Singapore

Ocean Renewable Energy

9-2-2 Model Tests, New Concepts and Designs

Tuesday June 21 **Rm 203 | 10:30 – 12:00**

Session Chair: Kelley Ruehl, Sandia National Laboratories, USA

Oscillating Wave Surge Converter Forced Oscillation Tests OMAE2016-54660

David Crooks, Jos van 't Hoff, Matt Folley, Dr. Bjoern Elsaesser
 Queen's University Belfast, Belfast, United Kingdom

The Principle of a Three-DOF Mechanism for Wave Energy Absorption OMAE2016-55058

Weixing Chen, Xiangdun Meng, Feng Gao
 Shanghai Jiao Tong University, Shanghai, China

Design and Performance Analysis of Anchor System for a Single-body Wave Energy Converter OMAE2016-54043

Rodrigo L. Banos, Hirpa Lemu
 University of Stavanger, Stavanger, Norway

Preliminary Results of Numerical Simulations of a Bio-mimetic Wells Turbine OMAE2016-54463

Qiuha Hu¹ Ye Li¹ Fangyi Wei²
 1. Shanghai Jiao Tong University, Shanghai, China;
 2. Shanghai Jiao Tong University, Minhang, China

Petroleum Technology

11-7-2 Well Drilling Fluids and Hydraulics – II

Tuesday June 21 **Rm 105 | 10:30 – 12:00**

Session Chair: Ergun Kuru, University of Alberta, Canada

Direction Drilling Measurement Errors Caused by Drilling Fluid Constituents OMAE2016-54044

Giorgio Pattarini¹ Sheldon Rawlins² Arild Saasen³ Per Amund Amundsen¹
 Benny Poedjono⁴
 1. University of Stavanger, Stavanger, Norway; 2. Schlumberger Oilfield Services, Yuzhno-Sakhalinsk, Russia; 3. Det Norske Oljeselskap ASA, Oslo, Norway; 4. Schlumberger Oilfield Services, Sugar Land, TX, USA

Flow Loop Investigation of Lubricant Concentration Effect on Mechanical Friction in Drilling Fluids OMAE2016-54048

Jan David Ytrehus¹ Ali Taghipour² Knud Richard Gyland³ Bjørnar Lund¹
 Sneha Sayindla⁴ Arild Saasen³ Lasse Hermansson⁶
 1. SINTEF, Trondheim, Norway; 2. SINTEF Petroleum Research, Trondheim, Norway; 3. MI-SWACO, Schlumberger, Sandnes, Norway; 4. Norwegian University of Science and Technology, Trondheim, Norway; 5. Det Norske Oljeselskap ASA, Oslo, Norway; 6. Det norske oljeselskap, Trondheim, Norway

Effects of Oil Based Drilling Fluid Rheological Properties on Hole Cleaning Performance OMAE2016-54050

Benjamin Werner¹ Velaug Myrseth² Bjørnar Lund³ Arild Saasen⁴ Jan David Ytrehus³
 Zalpató Ibragimova⁵ Knud Richard Gyland⁶
 1. Norwegian University of Science and Technology, Trondheim, Norway;
 2. SINTEF Petroleum Research, Bergen, Norway; 3. SINTEF, Trondheim, Norway; 4. Det Norske Oljeselskap ASA, Oslo, Norway; 5. Statoil, Sandslj, Norway; 6. MI-SWACO, Schlumberger, Sandnes, Norway

Incorporation of Fe3O4 Nanoparticles as Drilling Fluid

Additives for Improved Drilling Operations OMAE2016-54071

Zisis Vryzas¹ Omar Mahmoud² Hisham Nasr-El-Din² Vassilis Zaspalis³ Vassilios Kelessidis¹
 1. Texas A&M University at Qatar, Doha, Qatar; 2. Texas A&M University, College Station, TX, USA; 3. Aristotle University of Thessaloniki, Thessaloniki, Greece

Prof. Norman Jones Honoring Symposium on Impact Engineering

12-1-2 Structural Response II

Tuesday June 21 **Rm 109 | 10:30 – 12:00**

Session Chair: Jilin Yu, University of Science and Technology of China

Failure Behavior of RC Slabs Subjected to Medium Velocity Impact OMAE2016-54256

Masuhiko Beppu, Shinnosuke Kataoka
 National Defence Academy of Japan, Yokosuka, Japan

Scaling Effect on Saturated Impulse for Square Plates Under Rectangular Pulse Loading OMAE2016-54366

Ling Zhu¹ Xu He¹ T.X. Yu² F.L. Chen³ Yinggang Li¹
 1. Wuhan university of Technology, Wuhan, China; 2. Hong Kong University of Science & Technology, Clear Water Bay-kowloon, Hong Kong; 3. Institute of Applied Physics and Computational Mathematics, Beijing, China

On the Energy Absorption of Combined Foam-Honeycomb Layered Structures OMAE2016-54471

Dora Karagiozova¹ Marcilio Alves²
 1. Bulgarian Academy of Sciences, Sofia, Bulgaria; 2. University of São Paulo, São Paulo, SP, Brazil

Failure Prediction of Fiber Reinforced Laminated Composite Plates Under Low Velocity Impact OMAE2016-54486

Shivdayal Patel¹ Suhail Ahmad²
 1. National Institute of Technology Delhi, Delhi, India; 2. Indian Institute of Technology Delhi, Delhi, India

Prof. Yukio Ueda Honoring Symposium on Idealized Nonlinear Mechanics for Welding and Strength of Structures

13-1-1 Idealized Structural Unit Method

Tuesday June 21 **Rm 110 | 10:30 – 12:00**

Session Chair: Masahiko Fujikubo, Osaka University, Japan

Session Co-Chair: Patrick Kaeding, University of Rostock, Germany

ISUM – Its Birth, Growth and Future OMAE2016-54479

Sherif Rashed
 CAE Lab, Hyogo-ken, Japan

ISUM for Offshore Frame Structures OMAE2016-55053

Jørgen Amdahl¹ Tore Holmas²
 1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Aker Solutions MMO, Bergen, Norway

Collapse Analysis of Ship Hull Girder in Waves Using Idealized Structural Unit Method OMAE2016-54494

Masahiko Fujikubo¹ Kazuhiro Iijima² Zhiyong Pei³ Han H.H. Ko¹
 1. Osaka University, Suita, Japan; 2. Dept of NAOE, Osaka University, Osaka, Japan; 3. Wuhan University of Technology, Wuhan, China

Hierarchically Decomposed Multi-level Optimization for Ship Structural Design OMAE2016-54452

Ming Ma¹ Jeom Kee Paik² Tobin McNatt³
 1. DRS Technologies, Inc, Stevensville, MD, USA;
 2. The Korea Ship and Offshore Research Institute, Geumjeong-Gu, Korea;
 3. Advanced Marine Technology Center, Stevensville, MD, USA

AWARDS LUNCH

12:00 – 13:30

Grand Ballroom, 3rd Floor, Convention Hall

CONCURRENT SESSIONS

13:30 – 15:00

Offshore Technology

1-2-1 Mooring System Design and Analysis

Tuesday June 21 **Rm 101 | 13:30 – 15:00**

Session Chair: Arjen Koop, MARIN, Netherlands

Session Co-Chair: Basim Mekha, Coneiform Offshore Consulting, LLC, USA

VIM Simulation Method on a Cylindrical Floating Structure OMAE2016-54307

Toshifumi Fujiwara
 National Maritime Research Institute, Tokyo, Japan

Instability of Mooring Cables in Presence of Ice-load OMAE2016-54713

Ritwik Ghoshal¹ Anurag Yenduri¹ Aziz Ahmed¹ Zhuo Chen² Wenping Wang³
 Anis Hussain⁴ Rajeev Kumar Jaiman¹ Xudong Qian¹
 1. National University of Singapore, Singapore, Singapore; 2. Keppel Offshore and Marine Technology Centre, Singapore, Singapore; 3. KOMtech, Singapore, Singapore; 4. Keppel Offshore & Marine Technology Centre (KOMtech), Singapore, Singapore

Impact of Bathymetry on the Mooring Design of an Offshore Floating Unit OMAE2016-54965

Vivek Jaiswal¹ Srinivas Vishnubhotla¹ Sean Cole² Robert Gordon¹ Partha Sharma¹
 1. DNV GL, Katy, TX, USA; 2. DNV GL, St. John's, NL, Canada

Response of a CALM Buoy Moored Vessel in Squall Conditions OMAE2016-54968

Mark Paalvast¹ Jelte Kymmell¹ Alison Brown² Ward Gorter³
 1. MOCEAN Offshore BV, Amsterdam, Netherlands; 2. Shell Research Ltd, Aberdeen, United Kingdom; 3. Shell Global Solutions, Den Haag, Netherlands

Offshore Technology

1-3-5 Computational Fluid Dynamics and Wave-Current Interaction

Tuesday June 21 **Rm 207 | 13:30 – 15:00**

Session Chair: Antonio Souto-Iglesias, Technical University of Madrid (UPM), Spain

Session Co-Chair: Wenhua Zhao, The University of Western Australia, Australia

Numerical Calculation of Roll, Pitch and Heave Decay of a Gravity Based Structure During Tow-Out OMAE2016-54466

Cosmin Ciortan¹ Helge Johnsgård² Olav Rognebakke¹ Meg Overstake³ Andreas Brehm⁴
 1. DNV GL, Høvik, Norway; 2. Kiewit-Kvaerner Contractors, St John's, NL, Canada; 3. ExxonMobil Canada Properties, St. John's, NL, Canada; 4. DNV GL, Hamburg, Germany

Aframax in Numerical Wave Tank: From Classic Decay Tests to the Ship Moored in Irregular Waves OMAE2016-54844

Daniel Barcarolo¹ Olivia Thilleul¹ David Le Touzé² Igor De Vries³
Mamoun Naciri⁴ Erwan Jacquin¹
1. HydrOcean, Nantes, France; 2. Ecole Centrale de Nantes, Nantes, France;
3. SBM Offshore, Monaco, Monaco; 4. Single Buoy Moorings Inc, Monaco, Monaco

Benchmark Study of Numerical Approaches for Wave-Current Interaction Problem of Offshore Floaters OMAE2016-54411

Zhiyuan Pan¹ Torgeir Kirkhorn Vada² Styrk Finne¹ Arne Nestegård³ Jan Roger Hoff⁴
Elin Marita Hermundstad⁴ Carl Trygve Stansberg⁴
1. DNV GL - Software, Høvik, Norway; 2. DNV GL, Høvik, Norway;
3. DNV GL - Oil & Gas, Høvik, Norway; 4. MARINTEK, Trondheim, Norway

Comparative Study of Dynamics of Gravity Cages with Different Meshes in Wave and Current OMAE2016-54549

Xinxin Wang, Rong Wan, Liuyi Huang, Fenfang Zhao, Yanli Tang, Peng Sun
Ocean University of China, Qingdao, China

Effects of Wave-Current Interaction on Floating Bodies OMAE2016-54868

Elin Marita Hermundstad¹ Jan Roger Hoff¹ Carl Trygve Stansberg¹ Rolf Baarholm²
1. MARINTEK, Trondheim, Norway; 2. Statoil, Stjørdal, Norway

Structures, Safety and Reliability

2-5-3 Reliability of Marine Structures III

Tuesday June 21 **Rm 102 | 13:30 – 15:00**

Session Chair: Carlos Guedes Soares, Instituto Superior Tecn-CENTEC, Portugal
Session Co-Chair: Nian Zhong Chen, Newcastle University, United Kingdom

Stochastic Characterisation of Ship Hull

Damage in Collisions OMAE2016-54301
Abayomi Obisesan¹ Srinivas Sriramula¹ John Harrigan²
1. University of Aberdeen, Aberdeen, United Kingdom; 2. AMEC, Aberdeen, United Kingdom

Probability Analysis of Critical Load of Sphere-cylinder Combined Shell Structures OMAE2016-54438

Weijun Xu, Yan Feng, Xiaotian Wang
Harbin Engineering University, Harbin, China

Reliability Analysis of Ultimate Longitudinal Strength for Ships in Yangtze River OMAE2016-55092

Le Deng¹ Ji Guo² Chuang Fang² Lu-yao Zou³
1. China Classification Society, Wuhan, China; 2. Wuhan Rules and Research Institutes, China Classification Society, Wuhan, China; 3. Shanghai Jiao Tong University, Shanghai, China

Structures, Safety and Reliability

2-11-3 Ultimate Strength III

Tuesday June 21 **Rm 206 | 13:30 – 15:00**

Session Chair: Yasuhira Yamada, NMRI, Japan
Session Co-Chair: Xiaoli Jiang, TU Delft, Netherlands

Finite Element Analysis of Bending Collapse Behavior of Container Ships Considering Bottom Local Loads OMAE2016-54747

Akira Tatsumi, Masahiko Fujikubo
Osaka University, Osaka, Japan

Hull Deformation Effect on Membrane-Type LNG Containment Systems OMAE2016-54903

Bo Wang, Yung-Sup Shin, Eric Norris
American Bureau of Shipping, Houston, TX, USA

Hull Girder Ultimate Strength of Intact and Damaged Double Hull Tankers OMAE2016-54929

Diogo Do Amaral M. Amante¹ Segen Estefen² John Chujutalli³
1. Petrobras, Rio De Janeiro, RJ, Brazil; 2. Rio de Janeiro Federal University, Rio De Janeiro, RJ, Brazil; 3. COPPE/UFRJ, Rio de Janeiro, RJ, Brazil

Application of the Incorporated Meshing Technique to Non-linear FE Analysis of Hull Girder Ultimate Strength OMAE2016-55094

Chenfeng Li, Zhiyao Zhu, Huilong Ren, Xueqian Zhou
Harbin Engineering University, Harbin, China

Materials Technology

3-1-1 Fracture Assessment and Control

Tuesday June 21 **Rm 103 | 13:30 – 15:00**

Session Chair: Jens Tronskar, DNV GL, Singapore
Session Co-Chair: Xin Wang, Carleton University, Canada

Evaluation of CTOD Resistance Curve Test Methods Using SENT Specimens OMAE2016-54231

Xian-Kui Zhu, Paul Zelenak, Tom McGaughy
Edison Welding Institute, Columbus, OH, USA

Full Scale Reeling Simulation Tests of Girth Welded X60 HFW Linepipe OMAE2016-54678

Teruki Sadasue¹ Satoshi Igi² Kenji Oi² Satoru Yabumoto³
1. JFE Steel Corporation, Chiba, Japan; 2. JFE Steel Corporation, Chiba, Japan; 3. JFE Steel Corporation, Kawasaki, Japan

Three-Dimensional Finite Element Analysis of Antisymmetric Four-point Shear Specimen OMAE2016-55111

Mark Cohen, Xin Wang
Carleton University, Ottawa, ON, Canada

Analytical Solution of Stress Intensity Factor for Clamped SENT Specimens OMAE2016-54230

Xian-Kui Zhu
Edison Welding Institute, Columbus, OH, USA

Pipelines, Risers, and Subsea Systems

4-1-6 Flexible Pipes V

Tuesday June 21 **Rm 104 | 13:30 – 15:00**

Session Chair: Lin Zhao, Ocean University of China, China
Session Co-Chair: Anh Tuan Do, Technip, France

Advanced Finite-Element Modeling for Creep Simulation on Flexible Pipe Pressure Sheath OMAE2016-54952

Jérôme Naturel¹ Thomas Epsztein² Thierry Gavouyere¹
1. Technip - Flexi France, Le Trait, France; 2. Technip, Le Trait, France

Multi-Objective Shape Optimization Design for LNG Cryogenic Helical Corrugated Steel Pipe OMAE2016-55151

Jun Yan, Zhixun Yang, Qingzhen Lu, Jinlong Chen,
Shanghua Wu, Lidong Wang, Qianjin Yue
Dalian University of Technology, Dalian, China

End Fitting Effect on the Tensile Armor Behavior in Unbonded Flexible Pipes under Axial Tension and Uniform Bending OMAE2016-55093

Leilei Dong, Jing Rao, Yi Huang, Qi Zhang, Gang Liu
Dalian University of Technology, Dalian, China

Comparison Between Stress Obtained by Numerical Analysis and In-situ Measurements on a Flexible Pipe Subjected to In-plane Bending Test OMAE2016-55060

Troels Vestergaard Lukassen¹ Kristian Glejbol² Anders Lyckegaard² Christian Berggreen³
1. Technical University of Denmark / NOV Flexibles, Kgs. Lyngby, Denmark;
2. National Oilwell Varco, Subsea Production Systems, Brøndby, Denmark;
3. Technical University of Denmark, Lyngby, Denmark

Ocean Space Utilization

5-6-1 High Tide and Tsunamis

Tuesday June 21

Rm 208 | 13:30 – 15:00

A Study on Tsunami Protection Measures by the Floating Tsunami Protection Wharf and the Tsunami Mooring Bitt for Mooring Vessel at a Wharf OMAE2016-54791

Mitsuhiro Masuda¹ Kiyokazu Minami¹ Koichi Masuda²
1. Tokyo University of Marine Science and Technology, Tokyo, Japan;
2. Nihon University, Funabashi, Japan

A Fundamental Study on the Applicability of the Floating Large Size Tsunami Shelter OMAE2016-54792

Takuma Kishi¹ Kiyokazu Minami² Mitsuhiro Masuda²
1. National Institute of Technology, Hiroshima College, Hiroshima, Japan;
2. Tokyo University of Marine Science and Technology, Tokyo, Japan

Fundamental Study on Development of the Tsunami Hazard Map for Mooring Vessels in Port OMAE2016-55004

Koichi Masuda, Tomoki Ikoma, Satoshi Hoshino
Nihon University, Funabashi, Japan

Research on the Trend Toward Public Access to Canals in the Tokyo Waterfront Area OMAE2016-54393

Ryo Sugahara, Akio Kuroyanagi
Nihon University, Funabashi-shi, Japan

Ocean Engineering

6-1-5 Advanced Ship Hydromechanics and Marine Technology V

Tuesday June 21

Rm 106 | 13:30 – 15:00

Session Chair: Yvette Klinkenberg, MARIN, Netherlands

Session Co-Chair: Mingyue Liu, Shanghai Jiao Tong University, China

The Computation of Higher Order Derivatives of Velocity Potential Based on B Spline Function OMAE2016-54407

Hui Li¹ Hao Lizhu¹ Huilong Ren¹ Xiao-Bo Chen² Fang Li³
1. Harbin Engineering University, Harbin, China; 2. Bureau Veritas, Singapore, Singapore

Hydrodynamic Study on Water Column Oscillation of Varying Cross-Section Moonpool and Its Effect on Resistance of a Drill Ship OMAE2016-54523

P Sivabalan, S. Surendran, Rajesh Reguram Balakrishnan
Indian Institute of Technology Madras, Chennai, India

A Study of Anti-Rolling Tank on Floating Vessel OMAE2016-54964

Kyung-Sung Kim¹ Byung-Hyuk Lee² Moo-Hyun Kim³ Jong-Chun Park⁴ Han Suk Choi⁵
1. Pohang University of Science and Technology, Pohang, Korea; 2. Hyundai Heavy Industry, Ulsan, Korea; 3. Texas A&M University, College Station, TX, USA;
4. Pusan National University, Busan, Korea; 5. POSTECH, Pohang, Korea

Deep and Shallow Water Low-Speed Maneuvering Tests – Comparison between Experimental and Simulation Results OMAE2016-54982

Felipe Ribolla Masetti¹ Pedro C. de Mello² Guilherme Rosetti³ Eduardo A. Tannuri²
1. University of São Paulo / Technomar Engenharia, São Paulo, SP, Brazil;
2. University of São Paulo, São Paulo, SP, Brazil; 3. Argonautica, São Paulo, SP, Brazil

Ocean Engineering

6-3-2 Model Tests II

Tuesday June 21

Rm 204 | 13:30 – 15:00

Session Chair: Spyros Hirdaris, Lloyd's Register, Korea

Session Co-Chair: Sanne van Essen, MARIN, Netherlands

Springing Responses Analysis and Segmented Model Testing on a 550,000 DWT Ore Carrier OMAE2016-54356

Hui Li, Di Wang, Cheng Ming Zhou, Kaihong Zhang, Huilong Ren
Harbin Engineering University, Harbin, China

Experimental Investigation of Wave Loads Based on Trimaran Self-Propulsion Model OMAE2016-54550

Wei Xiaobo, Huilong Ren, Yanlong Sun, Di Wang, Zhen Yu Wang
Harbin Engineering University, Harbin, China

Breaking Load on Jacket Structure OMAE2016-54734

Sruthi Chandrasekar, Sriram Venkatachalam
Indian Institute of Technology, Madras, Chennai, India

Correlation Allowances in Model Tests Results: A Delicate Balance Between Performance, Accuracy and Commercial Interests? OMAE2016-54842

Gerco Hagesteijn, Patrick Hooijmans, Karola v.d. Meij
MARIN, Wageningen, Netherlands

Ocean Engineering

6-8-3 Fluid-Structure, Multi-body and Wave-body Interaction III

Tuesday June 21

Rm 107 | 13:30 – 15:00

Session Chair: Sungho Lee, Glosten, USA

Session Co-Chair: Bülent Güzel, Yildiz Technical University, Turkey

Simulations of Extreme Wave Runup on a Vertical Wall by Analytic Boussinesq Model OMAE2016-54365

Ruddy Kurnia
University of Twente & Labmath Indonesia, Enschede, Netherlands

Study on the Bubble Dynamics and the Exciting Force in a Bended Pipe Based on BEM OMAE2016-54441

Yunlong Liu, Zhaoli Tian
Harbin Engineering University, Harbin, China

Calculations of Wave Loads on a Fixed Vertical Cylinder using Potential-Flow and Viscous-Flow Solvers OMAE2016-54467

Simon Burmester¹ Matthieu Guérinel²
1. MARIN (Maritime Research Institute Netherlands), Wageningen, Netherlands; 2. WavEC - Offshore Renewables, Lisbon, Portugal

A Numerical Study on Wave Propagating Through In-Line Net Cages OMAE2016-54510

Yun-Peng Zhao, Chun-Wei Bi, Guo-Hai Dong, Xiao-Dong Bai, Tiao-Jian Xu
Dalian University of Technology, Dalian, China

Polar and Arctic Sciences and Technology

7-4-1 Vessels in Ice and Oil Spills

Tuesday June 21 **Rm 108 | 13:30 – 15:00**

Session Chair: Soren Ehlers, Hamburg University of Technology, Germany
Session Co-Chair: Walter Kuehnlein, sea2ice Ltd. & Co. KG, Germany

A Fuzzy Event Tree Model for Accident Scenario Analysis of Ship Stuck in Ice in Arctic Waters OMAE2016-54882

Shanshan Fu¹ Di Zhang¹ Jakub Montewka² Enrico Zio³ Xinping Yan¹
1. Wuhan University of Technology, Wuhan, China; 2. Aalto University, Department of Applied Mechanics, Espoo, Finland; 3. Centrale-Supélec, Paris, France

A System for Measuring Ice-Induced Accelerations and Identifying Ice Actions on the CCGS Amundsen and a Swedish Atle-class Icebreaker OMAE2016-54738

Hans-Martin Heyn, Roger Skjetne
Norwegian University of Science and Technology, Trondheim, Norway

Assessment of Helicopter Emergency Response Capacity in the Barents Sea OMAE2016-54278

Marion Jakobsen¹ Aleksandar-Saša Milakovic² Soren Ehlers³
1. Norwegian University of Science and Technology, Oslo, Norway;
2. Norwegian University of Science and Technology, Trondheim, Norway;
3. Hamburg University of Technology, Hamburg, Germany

CFD and VIV

8-1-4 Floating Systems II

Tuesday June 21 **Rm 201 | 13:30 – 15:00**

Session Chair: Joost Sterenborg, MARIN (Maritime Research Institute Netherlands), France
Session Co-Chair: Bruno Sainte-Rose, The Ocean Cleanup Foundation, Netherlands

Multi-Scale Numerical Analysis of the Field Efficiency of an Ocean Plastic Cleanup Array OMAE2016-54926

Bruno Sainte-Rose¹ Laurent Lebreton² Joao de Lima Rego³ Frank Kleissen³ Julia Reisser¹
1. The Ocean Cleanup Foundation, Delft, Netherlands; 2. The Modelling House, Wellington, New Zealand; 3. Deltares, Delft, Netherlands

Loads and Dynamic Response of a Floating Wave Energy Converter due to Regular Waves from CFD Simulations OMAE2016-54784

Anna Büchner¹ Thomas Knapp² Martin Bednarz² Philipp Sinn² Arndt Hildebrandt¹
1. Franzius Institute for Hydraulic and Coastal Engineering, Leibniz University Hannover, Hannover, Germany; 2. SINN Power GmbH, Gauting, Germany

Non-Linear 3D Hydrodynamics of Floating Wind Turbine Compared Against Wave Tank Tests OMAE2016-55090

Nicolai F. Heilskov, Ole S. Petersen
DHI, Hoersholm, Denmark

CFD and VIV

8-3-4 Risers and Pipelines IV

Tuesday June 21 **Rm 202 | 13:30 – 15:00**

Session Chair: Elizabeth Passano, MARINTEK, Norway
Session Co-Chair: Carel F.C. Hoekstra, Heerema Marine Contractors, Netherlands

VIV Prediction of Marine Risers with Staggered Buoyancy Elements OMAE2016-54502

Jie Wu¹ Malakonda Reddy Lekkala² Muk Chen Ong³
1. MARINTEK, Trondheim, Norway; 2. University of Stavanger, Stavanger, Norway;
3. University of Stavanger, Trondheim, Norway

NDP Riser VIV Model Test with Staggered Buoyancy Elements OMAE2016-54503

Jie Wu¹ Halvor Lie¹ Yiannis Constantinides² Rolf Baarholm³
1. MARINTEK, Trondheim, Norway; 2. Chevron Energy Technology Company, Katy, TX, USA; 3. Statoil, Stjørdal, Norway

A Review of VIV Responses of Steel Lazy Wave Riser OMAE2016-54321

Airindy Felisita¹ Ove Tobias Gudmestad² Daniel Karunakaran¹ Lars Olav Martinsen³
1. University of Stavanger, Stavanger, Norway; 2. Institutt for konstruksjonsteknikk og materialteknologi, Stavanger, Norway; 3. E. On E&P Norway, Stavanger, Norway

CFD Modeling and Validation of Steel Lazy-Wave Riser VIV OMAE2016-54945

Yiannis Constantinides¹ Maeanna Stover² Markku Santala² Amanda Steele²
1. Chevron Energy Technology Company, Katy, TX, USA; 2. Chevron, Houston, TX, USA

Ocean Renewable Energy

9-1-3 FOWT Modeling and Analysis

Tuesday June 21 **Rm 203 | 13:30 – 15:00**

Session Chair: Sungho Lee, Glosten, Seattle, Washington, USA

Time-Domain Analysis of Substructure of a Floating Offshore Wind Turbine in Waves OMAE2016-54113

Zi Lin¹ Jianmin Yang¹ Longbin Tao² Phillip Sayer³ Dezhi Ning⁴
1. Shanghai Jiao Tong University, Shanghai, China; 2. Newcastle University, Newcastle, United Kingdom; 3. University of Strathclyde, Glasgow, United Kingdom; 4. Dalian University of Technology, Dalian, China

Hydrodynamic Coefficients of Hexagonal Heave Plates for Floating Offshore Wind Turbine Platforms OMAE2016-54139

Javier Moreno, Krish Thiagarajan, Matthew Cameron
University of Maine, Orono, ME, USA

Numerical Simulation of Dynamics of a Spar Type Floating Wind Turbine and Comparison with Laboratory Measurements OMAE2016-54149

Hyunseong Min¹ Cheng Peng² Fei Duan³ Zhiqiang Hu³ Jun Zhang¹
1. Texas A&M University, College Station, TX, USA; 2. INTECSEA, Houston, TX, USA; 3. Shanghai Jiao Tong University, Shanghai, China

Design and Analysis of a Braceless Steel 5-MW Semi-Submersible Wind Turbine OMAE2016-54848

Chenyu Luan¹ Zhen Gao¹ Torgeir Moan²

1. Norwegian University of Science and Technology, Trondheim, Norway;
2. Center For Ships and Ocean Structures, Trondheim, Norway

Petroleum Technology

11-7-3 Well Drilling Hydraulics and Mechanics

Tuesday June 21 **Rm 105 | 13:30 – 15:00**

Session Chair: Ergun Kuru, University of Alberta, Canada

Experimental Investigation of Mechanical Friction and Hydraulics for Liner Drilling and Liner Running OMAE2016-54049

Jan David Ytrehus¹ Ali Taghipour² Bjørnar Lund¹ Knud Richard Gyland³ Arild Saasen⁴

1. SINTEF, Trondheim, Norway;
2. SINTEF Petroleum Research, Trondheim, Norway;
3. MI-SWACO, Schlumberger, Sandnes, Norway;
4. Det Norske Oljeselskap ASA, Oslo, Norway

Estimation of Stick-Slip Characteristics by Simulation with Actual Drilling Data OMAE2016-54319

Tomoya Inoue¹ Tokihiro Katsui² Junya Ishiwata¹ Miki Matsuo¹ Chang-Kyu Rheem³

1. JAMSTEC, Yokohama, Japan;
2. Kobe University, Kobe, Japan;
3. The University of Tokyo, Tokyo, Japan

The Effect of Stick Slip Vibration on the Backward Whirl of Bottom Hole Assembly OMAE2016-54478

Dapeng Zhao, Sigve Hovda, Sigbjørn Sangesland

Norwegian University of Science and Technology, Trondheim, Norway

Prof. Norman Jones Honoring Symposium on Impact Engineering

12-6-1 Impact and Blast Effects with Fluid Interaction

Tuesday June 21 **Rm 109 | 13:30 – 15:00**

Session Chair: Masuhiro Beppu, National Defence Academy of Japan

A Comparative Study on Displacement Response between Air-Backed and Water-Backed Condition For Flexible Plate Structures Subjected to Underwater Shock Load OMAE2016-54339

Debashis Wadadar, Asokendu Samanta, Vighnesh Ambekar

Indian Register of Shipping, Mumbai, India

Progressive Collapse Analysis of A Medium-Rise Circular RC Building Against Blast Loads OMAE2016-54901

Yousef Al-Salloum¹ Tarek Almusallam¹ Tuan Ngo² Hussein Elsanadedy¹

Husain Abbas¹ Priyan Mendis²

1. King Saud University, Riyadh, Saudi Arabia;
2. The University of Melbourne, Melbourne, VIC, Australia

Comparative Study of Wave Run-up and Slamming Occurrence for Multi-unit Floating Offshore Wind Turbine Platform Between Numerical and Experimental Tests OMAE2016-54995

HeonYong Kang¹ Hakun Jang¹ Moo-Hyun Kim¹ Kyong-Hwan Kim² Keyyong Hong³

1. Texas A&M University, College Station, TX, USA;
2. KRISO, Daejeon, Korea;
3. Korea Research Institute of Ships and Ocean Engineering, Daejeon, Korea

Experiments and Hydrodynamic Analysis of an Adaptive Arresting Net Device for Protecting Bridge Piers Against Ship Collisions OMAE2016-54707

Yonggang Wang, Beiqiao Wang, Liming Yang, Jun Liu, Xinlong Dong, Fenghua Zhou
Ningbo University, Ningbo, China

Prof. Yukio Ueda Honoring Symposium on Idealized Nonlinear Mechanics for Welding and Strength of Structures

13-2-1 Ultimate Strength and Progressive Collapse

Tuesday June 21

Rm 110 | 13:30 – 15:00

Session Chair: Takao Yoshikawa, Kyushu University, Japan

Session Co-Chair: Sherif Rashed, CAE Lab, Japan

Evaluation of Ultimate Hull Girder Strength in Longitudinal Bending OMAE2016-54506

Tetsuya Yao

Osaka University, Suita, Japan

Analysis Method of Ultimate Strength of Ship Hull Girder Under Combined Loads – Application to an Existing Container Ship OMAE2016-54402

Yoshiteru Tanaka¹ Yutaka Hashizume¹ Hiroaki Ogawa² Akira Tatsumi³ Masahiko Fujikubo³

1. National Maritime Research Institute, Mitaka, Japan;
2. Japan Marine United Corporation, Tsu, Japan;
3. Osaka University, Osaka, Japan

A Study on the Simplified Calculation Method for the Residual Ultimate Strength of Damaged Hull Structures OMAE2016-54673

Kimihiro Toh, Shunsuke Maeda, Takao Yoshikawa

Kyushu University, Fukuoka, Japan

Experimental Determination of the Ultimate Strength of Box Girder Specimens OMAE2016-54140

Thomas Lindemann, Eldor Backhaus, Patrick Kaeding

University of Rostock, Rostock, Germany

REFRESHMENT BREAK

15:00 – 15:30

Lobby, 2nd Floor, Convention Hall

CONCURRENT SESSIONS

15:30 – 17:00

Offshore Technology

1-2-2 Dynamic Positioning and Model Tests

Tuesday June 21

Rm 101 | 15:30 – 17:00

Session Chair: Pierre Ferrant, Ecole Centrale De Nantes/Cnrs, France

Session Co-Chair: Dagang Zhang, DMAR Engineering Consulting, USA

Fuel Optimal Thrust Allocation Algorithm Development by Using the Penalty Method for DP FPSO OMAE2016-54260

Sewon Kim¹ Moo-Hyun Kim¹ Jin-Woo Choi² Young-Jun You²

1. Texas A&M University, College Station, TX, USA;
2. Daewoo Shipbuilding and Marine Engineering, Seoul, Korea

Potential Impact of Sudden Change of Wind Condition on Offshore Operation OMAE2016-54505

Yongjian Lu, Masahiko Ozaki

The University of Tokyo, Chiba, Japan

Chain Out of Plane Bending (OPB) Fatigue Joint Industry Project (JIP) Static Test Program and OPB Interlink Stiffness OMAE2016-54195

Lucile Rampi¹ Fata Dewi¹ Michel Francois² Arnaud Gerthoffert³ Pedro Vargas⁴
 1. SBM Offshore, Monaco, Monaco; 2. Bureau Veritas, Neuilly sur Seine, France; 3. Bureau veritas, Shanghai, China; 4. Chevron Energy Technology Company, Houston, TX, USA

VIM Model Test and Assessment on a Semi-Submersible Type Floater with Different Column Intervals OMAE2016-54308

Toshifumi Fujiwara, Tadashi Nimura, Kohei Shimozato, Ryosuke Matsui
 National Maritime Research Institute, Tokyo, Japan

Structures, Safety and Reliability

2-7-1 Reliability of Mooring and Riser Systems

Tuesday June 21 **Rm 102 | 15:30 – 17:00**

Session Chair: Luis Sagrilo, UFRJ, Brazil
 Session Co-Chair: Ying Min Low, National University of Singapore, Singapore

Reliability Assessment of Marine Drilling Risers with Correlated Random Variables OMAE2016-54434

Piyali Sengupta¹ Ying Min Low¹ Xiaodong Zhang¹
 Peter Francis Bernad Adaikalaraj² Chan Ghee Koh¹
 1. National University of Singapore, Singapore, Singapore;
 2. Keppel Offshore and Marine Technology Centre, Singapore, Singapore

A Novel Method for Predicting the Motion of Moored Floating Bodies OMAE2016-54674

Jonathan Gumley, Madeleine J. Henry, Andrew E. Potts
 AMOG Consulting, Notting Hill, VIC, Australia

Application of Reliability Analysis to Re-Qualification and Life Extension of Floating Production Unit Moorings OMAE2016-54677

Jeremy Rosen, Daniel Johnstone, Paul Sincock, Andrew E. Potts, Daniel Hourigan
 AMOG Consulting, Notting Hill, VIC, Australia

Optimization of Flexible Pipes Dynamic Analysis using Artificial Neural Networks OMAE2016-54949

Victor Chaves¹ Luis Sagrilo² Vinicius Ribeiro Machado da Silva²
 1. ETP, Rio de Janeiro, RJ, Brazil; 2. COPPE/UFRJ, Rio de Janeiro, RJ, Brazil

Structures, Safety and Reliability

2-11-4 Ultimate Strength IV

Tuesday June 21 **Rm 206 | 15:30 – 17:00**

Session Chair: Lei Jiang, Martec Limited,
 Session Co-Chair: Marc Cahay, Technip France, France

Finite Element Analysis on the Hull Girder Ultimate Strength of Asymmetrically Damaged Ships OMAE2016-54041

Muhammad Zubair Muis Alie, Ganding Sitepu, Juswan Sade, Wahyuddin Mustafa,
 Andi Mursid Nugraha, Alamsyah Bin Muh. Saleh
 Hasanuddin University, Makassar, Indonesia

Study on Numerical Methodologies for Assessing Ultimate Bending Moment of Ship Hull Girder OMAE2016-54117

Ming Cai Xu¹ Zhao Jun Song²
 1. Huanzong University, Wuhan, China;
 2. Huazhong University of Science & Technology, Wuhan, China

Examination of Effect of Lateral Loads on the Hull Girder Ultimate Strength of Large Container Ships OMAE2016-54350

Toshiyuki Matsumoto¹ Toshiyuki Shigemitsu² Kinya Ishibashi²
 Kei Sugimoto² Mitsuhiko Kidogawa²
 1. Nippon Kaiji Kyokai (ClassNK), Chiba, Japan;
 2. Nippon Kaiji Kyokai (ClassNK), Tokyo, Japan

Structural Fire Integrity Testing of Lightweight Structures OMAE2016-54418

Michael Rahm, Franz Evengren
 SP Technical Research Institute of Sweden, Borås, Sweden

Materials Technology

3-5-1 Fatigue Strength and Evaluation

Tuesday June 21 **Rm 103 | 15:30 – 17:00**

Session Chair: Myung-Hyun Kim, Pusan National University, Korea (Republic)
 Session Co-Chair: Xiaozhi (Christina) Wang, ABS, USA

Fatigue Strength and Angular Distortion of Full Penetrated Tee Type Full Penetrated Joint Fabricated by Laser-Arc Hybrid Welding OMAE2016-54173

Koji Gotoh, Shuichi Tsumura
 Kyushu University, Fukuoka, Japan

Fatigue Crack Propagation Characteristics of 3.5 to 9 wt% Nickel Steels for Low Temperature Applications OMAE2016-54740

Jeongyeol Park, Myung-Hyun Kim
 Pusan National University, Busan, Korea

Study on Weld Fatigue Evaluation Incorporating Welding Induced Residual Stress Effect OMAE2016-55024

Jeong Hong
 Battelle, Columbus, OH, USA

Pipelines, Risers, and Subsea Systems

4-1-7 Umbilicals and Cables I

Tuesday June 21 **Rm 104 | 15:30 – 17:00**

Session Chair: Alan Dobson, Duco, United Kingdom
 Session Co-Chair: Krassimir Doynov, Exxonmobil Development Co, USA

Root Cause Analysis of Bend Stiffener Failure During Umbilical Full-Scale Fatigue Testing OMAE2016-54063

Krassimir Doynov¹ Hengliang Yuan² Evyatar Belson¹
 Rune Haakonsen³ Ying Li³ John Duggan⁴
 1. Exxonmobil Development Co, Spring, TX, USA; 2. Consultant to EMDC, Spring, TX, USA;
 3. Kongsberg Oil & Gas Technologies Inc., Houston, TX, USA;
 4. Independent Consultant, Skelmersdale, United Kingdom

Comparison of Bitumen's Large Strain Viscoelastic Properties in Cables and Umbilicals to Small Strain Rheometer Measurements OMAE2016-54091

Bjørn Konradsen
 Nexans Norway AS, Halden, Norway

A Novel Fatigue Stress Model of Power Phases and Coated Tubes in Deep-Water Power Cables, Umbilicals, and Power Umbilicals OMAE2016-54105

Magnus Komperød
 Nexans Norway AS, Halden, Norway

Experimental Investigation of Kinematic Flow Field in the Geometric Similar GTT Tanks OMAE2016-54065Zhi-Jun Wei¹ Chui-Jie Wu¹ Hui Guan²

1. Dalian University of Technology, Dalian, China;

2. PLA University of Science and Technology, Nanjing, China

Damping Effect On The Wave Propagation In Carbon Steel Pipelines Under Fluid Hammer Conditions OMAE2016-54194Dimitrios G. Pavlou¹ Muk Chen Ong²

1. University of Stavanger, Stavanger, Norway;

2. University of Stavanger, Trondheim, Norway

Ocean Space Utilization**5-7-1 Environmental Assessment and Ecosystem**

Tuesday June 21

Rm 208 | 15:30 – 17:00

Session Chair: Daisuke Kitazawa, The University of Tokyo, Japan

Wave Response of Closed Flexible Bags OMAE2016-54146Pål Furset Lader¹ David W. Fredriksson² Jud DeCew³Zsolt Volent⁴ Trond Rosten⁴ Ida Strand⁵

1. SINTEF, Trondheim, Norway; 2. United States Naval Academy,

Annapolis, MD, USA; 3. University of New Hampshire, Durham, NH, USA;

4. SINTEF Fisheries and Aquaculture, Trondheim, Norway; 5. Norwegian

University of Science and Technology, Trondheim, Norway

Numerical Models as Enabling Tools for Resource Characterization and Environmental Assessment for Marine Renewable Energy OMAE2016-54223

Zhaoqing Yang, Taiping Wang

Pacific Northwest National Laboratory, Seattle, WA, USA

A Study on Vertical Movement Model for Planktonic Larvae of Manila Clam in Tokyo Bay OMAE2016-54756Fumikazu Otsuka¹ Mao Hironaka² Toshimasa Kawanishi¹ Koichi Masuda¹

1. Nihon University, Funabashi, Japan; 2. Mitsui Consultants CO.,LTD, Tokyo, Japan

Combined Optical and Acoustic Monitoring of Fishes in the Demonstration Site of Marine Renewable Energy Development OMAE2016-54852Daisuke Kitazawa¹ Yoichi Mizukami²

1. The University of Tokyo, Tokyo, Japan; 2. Institute of Industrial

Science, The University of Tokyo, Tokyo, Japan

Ocean Engineering**6-1-6 Advanced Ship Hydromechanics and Marine Technology VI**

Tuesday June 21

Rm 106 | 15:30 – 17:00

Session Chair: Florian Sprenger, MARINTEK, Norway

Session Co-Chair: Manoj Kumar Gangadharan, Indian

Institute of Technology Madras, India

Reducing Operational Risks by On-board Phase Resolved Prediction of Wave Induced Ship Motions OMAE2016-54591Peter Naaijen¹ Dorus Karel Roozen² Rene Huijsmans³

1. Delft University of Technology, Delft, Netherlands; 2. Next Ocean, Delft,

Netherlands; 3. Ship Hydromechanics & Structures, Delft, Netherlands

Numerical Simulation and Experimental Validation on the Surf-riding and Broaching of a Fishing Vessel OMAE2016-54594Liwei Yu¹ Ning Ma¹ She-ming Fan² Peiyuan Feng¹ Xiechong Gu¹

1. Shanghai Jiao Tong University, Shanghai, China;

2. Marine Design & Research Institute of China, Shanghai, China

Numerical Analysis of Added Resistance on Ship in Parametric Roll Motions OMAE2016-54596

Jae-Hoon Lee, Yonghwan Kim, Min-Guk Seo

Seoul National University, Seoul, Korea

A Numerical Study on Correlation Between the Bow Design Parameters and Added Resistance Using the Design of Experiments OMAE2016-54861Gwan Hoon Kim¹ Shin Rhee² Jeonghwa Seo² Hyun Joon Shin¹

1. Hyundai Heavy Industries, Seoul, Korea; 2. Seoul National University, Seoul, Korea

Ocean Engineering**6-6-1 Unsteady Hydrodynamics, Vibrations, Acoustics, and Propulsion**

Tuesday June 21

Rm 204 | 15:30 – 17:00

Session Chair: Torgeir Kirkhorn Vada, DNV GL, Norway

Session Co-Chair: Kie Hian Chua, National University of

Singapore / Lloyd's Register-GTC, Singapore

Hydrodynamic Performance Effect of Steel Catenary Risers on Wave Frequency motions of a Semi Submersible OMAE2016-54092

Chen Gang, Zhao Nan, Zhang Wei, Yuan Hongtao, Li Chunhui, Yang Yong

Shanghai Waigaoqiao Shipbuilding Co, Ltd, Shanghai, China

Experimental Study on Bubble Collapse Near a Solid Boundary OMAE2016-54183

Shuai Zhang, Shiping Wang, Yunlong Liu

Harbin Engineering University, Harbin, China

Parametric Study on Hub Vortex Reducing Effects of Propeller Boss Cap Fins by Force and Wake Field Measurements in Open Water and Self-Propulsion Conditions OMAE2016-54858Jeonghwa Seo¹ Bumwoo Han² Shin Rhee¹ Seung-Jae Lee¹ Hyeeseong Kim³Jeongmin Kim³ Kangkyu Kwon³ Jaehyun Park³

1. Seoul National University, Seoul, Korea; 2. Hyundai Heavy Industries,

Ulsan, Korea; 3. Korea Science Academy, Busan, Korea

Experimental Investigation of Cavity Patterns and Noise Characteristics OMAE2016-55073

Ji-Hye Kim, So-Won Jeong, Byoung-Kwon Ahn

Chungnam National University, Daejeon, Korea

Ocean Engineering

6-8-4 Fluid-Structure, Multi-body and Wave-body Interaction IV

Tuesday June 21

Rm 107 | 15:30 – 17:00

Session Chair: Spyros Hirdaris, Lloyd's Register, Korea

Session Co-Chair: Shixiao Fu, Shanghai Jiao Tong University, China

Experimental Study of a New Suppressing Floating Device in the Membrane-type LNG Tank OMAE2016-54518

Yue-min Yu¹ Ning Ma¹ She-ming Fan²

1. Shanghai Jiao Tong University, Shanghai, China;

2. Marine Design & Research Institute of China, Shanghai, China

Large Containerships – Fatigue Analysis Due to Springing and Whipping OMAE2016-54525

Huilong Ren, Kaihong Zhang, Hui Li, Di Wang

Harbin Engineering University, Harbin, China

Nonlinear Dynamics in Immersed Tunnel Installation Under Regular Waves OMAE2016-54558

Zhihuan Hu¹ Xin Li¹ Haining Lu¹ Jun Li¹ Shaobo Wu² Fan Zhang³

1. Shanghai Jiao Tong University, Shanghai, China;

2. CCCC Ltd., Beijing, China; 3. DNV GL - Software, Oslo, Norway

Dynamic Analysis of a Tension Leg Platform Under Combined Wind and Wave Loads Within the Typhoon Area OMAE2016-54576

Bin Wang, Yougang Tang, Wei Li, Jiawei Zhai

Tianjin University, Tianjin, China

Polar and Arctic Sciences and Technology

7-11-1 Ice Model Tests and Structure-Ice-Interactions

Tuesday June 21

Rm 108 | 15:30 – 17:00

Session Chair: Petr Zvyagin, St. Petersburg State Polytechnic University, Russia

Session Co-Chair: Walter Kuehnlein, sea2ice Ltd. & Co. KG, Germany

Experimental and Numerical Studies of the Plastic Behavior of Large Structural Grillages Subjected to Ice Loads OMAE2016-54151

Hyunmin Kim¹ John Dolny² Claude Daley³

1. Canatec Associates International Ltd., St. John's, NL, Canada;

2. ABS Harsh Environment Technology Center, St. John's, NL, Canada;

3. Memorial University of Newfoundland, St. John's, NL, Canada

Study on Distribution Law and Stationarity of Global Ice Loads Registered in Experiments in Ice Tank OMAE2016-54100

Aleksei Dobrodeev¹ Petr Zvyagin² Kirill Sazonov¹

1. Krylov State Research Centre, St. Petersburg, Russia;

2. St. Petersburg State Polytechnic University, St. Petersburg, Russia

The Influence of External Boundary Conditions on Ice Loads in Ice-Structure Interactions OMAE2016-54277

Regina Sopper, Claude Daley, Bruce Colbourne, Stephen Bruneau

Memorial University of Newfoundland, St. John's, NL, Canada

Numerical Study of Wave-Driven Impact of a Sea Ice Floe on a Circular Cylinder OMAE2016-54296

Biao Su¹ Karl Gunnar Aarsather² David Kristiansen¹

1. SINTEF Fisheries and Aquaculture, Trondheim, Norway;

2. SINTEF Fisheries and Aquaculture, Tromsø, Norway

CFD and VIV

8-1-5 VIM & VIV

Tuesday June 21

Rm 201 | 15:30 – 17:00

Session Chair: Bruno Sainte-Rose, The Ocean Cleanup Foundation, Netherlands

Session Co-Chair: Sarah McElman, University of Maine, USA

Investigation on Reasons for Possible Difference Between VIM

Response in the Field and in Model Tests OMAE2016-54746

Arjen Koop¹ Jaap de Wilde¹ André Luis Condino Fajarra² Oriol Rijken³

Samuel Linder⁴ Johan Lennblad⁵ Nora Haug⁶ Amal Phadke⁷

1. MARIN, Wageningen, Netherlands; 2. Federal University of Santa Catarina, Joinville, SC,

Brazil; 3. SBM Offshore, Houston, TX, USA; 4. Granherne, Houston, TX, USA;

5. GVA, Gothenburg, Sweden; 6. Aker Solutions, Fornebu, Norway;

7. ConocoPhillips, Houston, TX, USA

CFD Calculations of the Vortex-Induced Motions of a Circular-Column Semi-Submersible OMAE2016-54987

Guilherme Rosetti¹ Rodolfo Trentin Gonçalves² André Luis Condino Fajarra³ Arjen Koop⁴

1. Argonautica, São Paulo, SP, Brazil; 2. University of São Paulo, São Paulo, SP,

Brazil; 3. UFSC, Guararema, SP, Brazil; 4. MARIN, Wageningen, Netherlands

Experimental Study on Vortex-Induced Vibration of Floating Squared Section Cylinders with Low Aspect Ratio, Part II: Effects of Rounded Edges OMAE2016-54813

Rodolfo Trentin Gonçalves¹ Dennis Gambarine¹ Aline M Momenti¹

Felipe Pierrobom Figueiredo¹ André Luis Condino Fajarra²

1. University of São Paulo, São Paulo, SP, Brazil;

2. Federal University of Santa Catarina, Joinville, SC, Brazil

Novel Experimental Investigation on Vortex Induced Motions of a Tension Leg Platform OMAE2016-54530

Miguel A M Ramirez¹ Antonio Carlos Fernandes²

1. BrasFELS, Rio de Janeiro, RJ, Brazil; 2. COPPE/UF RJ, Rio de Janeiro, RJ, Brazil

CFD and VIV

8-4-2 VIV Suppression and Control

Tuesday June 21

Rm 202 | 15:30 – 17:00

Session Chair: Haining Zheng, ExxonMobil Upstream Research Company, USA

Session Co-Chair: Francisco Huera-Huarte, Universitat Rovira i Virgili, Spain

Experimental Verification of Flow-induced Vibration Fatigue of a Flexible Tube Array With and Without Strakes OMAE2016-54062

Michael Tognarelli¹ Himanshu Gupta² Alexia Aubault³ Dominique Roddier⁴

1. BP American Production Co., Houston, TX, USA; 2. BP, Houston, TX, USA;

3. Principle Power, San Francisco, CA, USA; 4. Principle Power, Berkeley, CA, USA

Vortex Shedding Control Using Jets: A Computational Study With Lattice Boltzmann Method OMAE2016-54592

Guoqiang Fu¹ Bassam Younis² Liping Sun¹ Shaoshi Dai¹

1. Harbin Engineering University, Harbin, China;

2. University of California, Davis, Davis, CA, USA

Drag Reduction and VIV Suppression Behaviour of LGS Technology Integral to Drilling Riser Buoyancy Units OMAE2016-54689

Hayden Marcollo¹ Andrew E. Potts¹ Daniel Johnstone¹ Peter Pezet² Phillip Kurts¹

1. AMOG Consulting, Notting Hill, VIC, Australia;

2. Matrix Engineering and Composites, Henderson, WA, Australia

Flow-Induced Motion of an Elastically Mounted Circular Cylinder with Roughness Strips at Different Angles of Attack OMAE2016-54815

Li Zhang, Qiyang Shangguan, Lin Ding, Yanrong Chen, Qianyun Ye
Chongqing University, Chongqing, China

Ocean Renewable Energy

9-3-1 Concepts, Model Tests and Analysis

Tuesday June 21

Rm 203 | 15:30 – 17:00

Session Chair: M. Arockiasamy

Session Co-Chair: Islam Amin

Optimal Energy Harvesting from Vortex-Induced Vibrations of Cables OMAE2016-54359

Guillaume Antoine, Sébastien Michelin, Emmanuel De Langre
Ecole Polytechnique, Palaiseau, France

Demonstrating a Tidal Turbine Control Strategy at Laboratory Scale OMAE2016-54364

Magnus Harrold¹ Peter Bromley² David Clelland³ Merin Broudic²
1. Tidal Energy Ltd., Cardiff, United Kingdom; 2. Tidal Energy Ltd. (TEL), Cardiff, United Kingdom; 3. University of Strathclyde, Glasgow, United Kingdom

Design and Structural Strength Analysis of the Gate-type Tidal Current Energy Converter OMAE2016-54446

Yong Ma, Bing-qiang Li, Yan Xu, Yue Dong
Harbin Engineering University, Harbin, China

Numerical Simulation of a Tidal Turbine Based Hydrofoil with Leading-Edge Tubercles OMAE2016-54796

Weichao Shi¹ Mehmet Atlar¹ Kwangcheol Seo² Rosemary Norman¹ Roslyna Rosli¹
1. Newcastle University, Newcastle upon Tyne, United Kingdom; 2. Mokpo National Maritime University, Mokpo, Korea

Petroleum Technology

11-1-1 General Petroleum Technology

Tuesday June 21

Rm 105 | 15:30 – 17:00

Session Chair: Stephen Butt, Memorial University of Newfoundland, Canada

Session Co-Chair: Mohammad Azizur Rahman, Memorial University of Newfoundland, Canada

The Transient Temperature Prediction in the Deepwater Riserless Well OMAE2016-54023

Ming Feng¹ Catalin Teodoriu² Jerome Schubert³
1. CNOOC Research Institute, Beijing, China; 2. The University of Oklahoma, Norman, OK, USA; 3. Texas A&M University, College Station, TX, USA

CFD Study of Turbulence Characterization for Non-Newtonian Flow in Concentric Annulus OMAE2016-54379

Xiao Xiong, Mohammad Azizur Rahman, Yan Zhang
Memorial University of Newfoundland, St. John's, NL, Canada

A Study of Fluid Flow in Sediments and the Effect of Tidal Pumping OMAE2016-54959

John Whitehead, Richard Hughes, Karsten Thompson, Paulo Waltrich
Louisiana State University, Baton Rouge, LA, USA

Empirical Investigation on Relationships Between Oriented Physical and Mechanical Measurements and Drilling Performance of Isotropic Rocks Material: Phase-I OMAE2016-55141

Abdelsalam Abugharara¹ Abourawi Alwaar² Charles Hurich² Stephen Butt²
1. Memorial University of Newfoundland-Oil and Gas Eng., St. John's, NL, Canada; 2. Memorial University of Newfoundland, St. John's, NL, Canada

Prof. Norman Jones Honoring Symposium on Impact Engineering

12-2-1 Dynamic Behaviour I

Tuesday June 21

Rm 109 | 15:30 – 17:00

Session Chair: Ling Zhu, Wuhang University of Technology

Comparative Study of Tensile Tests Based on Hopkinson Bar for Recycled Aggregate Concrete OMAE2016-54413

Xiao Teng¹ Yu-bin Lu¹ Shui-sheng Yu² Xing Chen¹ Xi-quan Jiang³
1. Southwest University of Science And Technology, Mianyang, China; 2. Northeastern University, Shenyang, China; 3. Army Officer Academy of PLA, Hefei, China

Effect of Relative Density on the Dynamic Impact Behaviors of Closed-cell Foam OMAE2016-54562

Shilong Wang¹ Yuanyuan Ding¹ Changfeng Wang² Zhijun Zheng¹ Jilin Yu¹
1. University of Science and Technology of China, Hefei, China; 2. Dalian Jiaotong University, Liaoning, China

Dynamic Tensile Strength Enhancement of Concrete in Split Hopkinson Pressure Bar Test OMAE2016-54629

Genwei Wang, Da Xiang, Zhihua Wang
Taiyuan University of Technology, Taiyuan, China

Mechanics Modeling and Inverse Analyses of Body Pulse Waves System From the View-point of Traditional Chinese Medicine OMAE2016-55106

Lili Wang¹ Hui Wang²
1. Ningbo University, Ningbo, China; 2. Ningbo Hospital of Traditional Chinese Medicine, Ningbo, China

Prof. Yukio Ueda Honoring Symposium on Idealized Nonlinear Mechanics for Welding and Strength of Structures

13-3-1 Idealized Structural Units

Tuesday June 21

Rm 110 | 15:30 – 17:00

Session Chair: Tetsuya Yao, Osaka University, Japan

Session Co-Chair: Yoshiteru Tanaka, National Maritime Research Institute, Japan

Efficient Collapse Analysis of Ductile Components Subjected to Impact Loads OMAE2016-54480

Akihiro Yasuda¹ Sherif Rashed²
1. Mitsui Engineering And Shipbuilding Co., Ltd., Tamano, Okayama, Japan; 2. CAE Lab, Hyogo-ken, Japan

Idealized Structural Unit Method – A Review of the Current Formulation OMAE2016-54186

Anna Oksina¹ Thomas Lindemann¹ Patrick Kaeding¹ Masahiko Fujikubo²
1. University of Rostock, Rostock, Germany; 2. Osaka University, Suita, Japan

Effect of Combined Shear Stresses on the Ultimate Axial Response of the Double Bottom of a Containership OMAE2016-54908

Marco Gaiotti¹ Masahiko Fujikubo² Cesare Rizzo¹ Riccardo Bacocoli¹
1. Università degli Studi di Genova, Genova, Italy; 2. Osaka University, Suita, Japan

Wednesday, June 22

Time	Title	Location
08:30 – 10:00	Concurrent Sessions	See pages 56 to 60 for session titles, authors and locations.
10:00 – 10:30	Refreshment Break	Lobby, 2nd Floor, Convention Hall
10:30 – 12:00	Concurrent Sessions	See pages 61 to 64 for session titles, authors and locations.
12:00 – 13:30	Lunch	Grand Ballroom, 3rd Floor, Convention Hall
13:30 – 15:00	Concurrent Sessions	See pages 64 to 68 for session titles, authors and locations.
15:00 – 15:30	Refreshment Break	Lobby, 2nd Floor, Convention Hall
15:30 – 17:00	Concurrent Sessions	See pages 68 to 71 for session titles, authors and locations.
18:30 – 22:00	Conference Banquet	Grand Ballroom, 3rd Floor, Convention Hall

CONCURRENT SESSIONS

08:30 – 10:00

Offshore Technology

1-3-6 FLNG/FPSO

Wednesday June 22 **Rm 101 | 8:30 – 10:00**

Session Chair: Wenhua Zhao, The University of Western Australia, Australia

Bilge Keel Induced Roll Damping of an FPSO with Sponsons OMAE2016-54420

Babak Ommani¹ Nuno Fonseca¹ Trygve Kristiansen² Christopher Hutchison¹ Hanne Bakksjø³

1. MARINTEK, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. Teekay Offshore Production, Trondheim, Norway

Methodology for the Design of LNG Terminals in a Nearshore Environment OMAE2016-54724

Frédéric Jaouën¹ Olaf Waals¹ Martijn De Jong² Arne van der Hout² Marios Christou³

1. MARIN, Wageningen, Netherlands; 2. Deltares, Delft, Netherlands; 3. Imperial College London, London, United Kingdom

Current Drag from Tow and Wind Tunnel Tests of a FLNG Hull OMAE2016-54493

Zhenjia Huang¹ Jang Whan Kim² Hyunchul Jang³ Scott Slocum¹

1. ExxonMobil Upstream Research Company, Spring, TX, USA; 2. Technip, Houston, TX, USA; 3. Technip USA, Inc., Houston, TX, USA

Structures, Safety and Reliability

2-4-1 Fracture and Fatigue Reliability I

Wednesday June 22

Rm 102 | 8:30 – 10:00

Session Chair: Bernt Leira, Dept Marine Technology/NTNU, Norway

Session Co-Chair: Nian Zhong Chen, Newcastle Univ, United Kingdom

Assessment Procedures for Mechanical Securing Components of LNG Cargo Containment System with Potential Damages OMAE2016-54064

SungIn Cho¹ JungOh Hwang¹ Chang-Seon Bang¹ Jun-Hong Bae²

1. Samsung Heavy Industries, Pangyo, Korea; 2. Samsung Heavy Industries, Geoje, Korea

Fatigue Life Analysis Method of Upper-Hinge Joints of FPSO SYMS Based on Real-time Proto-type Monitoring Technique OMAE2016-54624

Wenhua Wu¹ Baicheng Lv¹ Wenyuan Li¹ Yanlin Wang² Qianjin Yue¹ Yantao Zhang³

1. Dalian University of Technology, Dalian, China; 2. Dalian University of Technology, Panjin, China; 3. CNOOC, Tianjin, China

Practical Review on Fatigue Damage Estimation Under Combinations of Global and Local Loadings OMAE2016-54664

Tae Min Cho¹ Min Sung Chun¹ Hyun Joe Kim¹ Dong Yeon Lee¹ Boo Ki Kim²

1. Samsung Heavy Industries, Daejeon, Korea; 2. Samsung Heavy Industries, Geoje, Korea

Fatigue Algorithm for Modeling Many Weld Toe Cracks Propagating at Welded Joints OMAE2016-54735

Kin Shun Tsang, John Hock Lye Pang, Hsin Jen Hoh

Nanyang Technological University, Singapore, Singapore

Structures, Safety and Reliability

2-12-1 Structural Analysis and Optimization I

Wednesday June 22

Rm 206 | 8:30 – 10:00

Session Chair: Jonas W. Ringsberg, Chalmers University of Technology, Sweden

Session Co-Chair: Marco Rosas, DNV GL, Brazil

Structural Analysis of Node Cut-outs In a Semi-submersible Offshore Platform OMAE2016-54068

Jonas Ringsberg, Daniel Karlsson, Mårten Forser

Chalmers University of Technology, Göteborg, Sweden

Engineering Establishment of Living Quarters for Jack-up Rig Structures OMAE2016-54705

Yeong Su Ha¹ JooShin Park² Jeong Bon Koo² Byung Jin Cho² Kuk Yeol Ma² Ki Bok Jang²

1. Samsung Heavy Industries, Gyeongsangnam Do, Korea; 2. Samsung Heavy Industries, Geoje, Korea

Water Spray System Design for Fire Fighting OMAE2016-54717

Jin Lee¹ Jeom Kee Paik² Jung Kwan Seo¹ Sanghwan Kim¹

1. Pusan National University, Pusan, Korea;

2. The Korea Ship and Offshore Research Institute, Geumjeong-Gu, Korea

Comparison on the Numerical Performance of Experimental Modal Analysis Methods for a Real Offshore Platform OMAE2016-54832

Wenlong Yang¹ Qiang Fu¹ Lei Li¹ Yao Teng¹ Shuqing Wang² Fushun Liu²

1. CIMC Offshore Engineering Institute, Yantai, China;

2. Ocean University of China, Qingdao, China

Materials Technology

3-2-1 Fatigue Performance and Testing

Wednesday June 22

Rm 103 | 8:30 – 10:00

Session Chair: Sheng Bao, Zhejiang University, China

Session Co-Chair: Myung-Hyun Kim, Pusan National University, Korea

Double Joint WPS Development for SCR or Fatigue

Sensitive Flowlines OMAE2016-54032

Israel Marines Garcia¹ Emma Erezuma² Noe Mota-Solis²

Philippe Darcis³ Hector Quintanilla²

1. Tubos De Acero De Mexico, S.A., Veracruz, Mexico; 2. TenarisTamsa, Veracruz, Mexico; 3. Tenaris Dalmine S.p.A., Dalmine, Italy

Verification of Class B S-N Curve for Forging

Steel Connectors OMAE2016-54193

Yanhui Zhang¹ Stephen J Maddox¹ Siakzar Manteghi²

1. TWI Limited, Cambridge, United Kingdom; 2. BP, Sunbury, United Kingdom

Study on the Piezomagnetic Response to Low-Cycle

Fatigue of X80 Pipeline Steel OMAE2016-54191

Sheng Bao¹ Shengnan Hu² Meili Fu² Huangjie Lou²

1. Zhejiang University, Zhejiang, China; 2. Zhejiang University, Hangzhou, China

Background for Revision of DNVGL-RP-C203 Fatigue Design of Offshore Steel Structures in 2016

OMA2016-54939

Inge Lotsberg¹ Arne Fjeldstad² Knut O. Ronold¹

1. DNV GL, Høvik, Norway; 2. DNV GL, Oslo, Norway

Pipelines, Risers, and Subsea Systems

4-1-8 Umbilicals and Cables II

Wednesday June 22

Rm 104 | 8:30 – 10:00

Session Chair: Krassimir Doynov, Exxonmobil Development Co, USA

Session Co-Chair: Alan Dobson, Duco, United Kingdom

A Frequency-Domain Model of Bitumen-Coated Armor Wires in Subsea Power Cables, Umbilicals, and Power Umbilicals

OMA2016-54106

Magnus Komperød

Nexans Norway AS, Halden, Norway

The Study of a Possible Strengthened Structure Implanting Into

the Hoses in Umbilical for Deep Water Application OMAE2016-54765

Chongyao Zhou¹ Liang Zhang¹ Yan Qu² Yongtian Kang¹ Kevin Huang² Dagang Zhang²

1. DMAR Offshore Engineering Consulting, Qingdao, China;

2. DMAR Engineering Consulting, Houston, TX, USA

An Experimental Assessment on Umbilical Cable Crushing Using Digital Image Correlation

OMA2016-54875

Caio C. P. Santos¹ Celso P. Pesce² Guilherme R. Franzini¹ Olaf O. Otte Filho³

1. Escola Politecnica - University of São Paulo, São Paulo, SP, Brazil; 2. University of São Paulo, São Paulo, SP, Brazil; 3. Prysmian SURF, Cariacica, ES, Brazil

Ocean Engineering

6-2-1 Wave Mechanics and Wave Effects I

Wednesday June 22

Rm 106 | 8:30 – 10:00

Session Chair: Solomon Yim, Oregon State University, USA

Session Co-Chair: Wanggang Shen, Shanghai Jiao Tong University, China

Benjamin–Feir Wave Instability on the Opposite Current

OMA2016-54084

Igor Shugan¹ Hwung-Hweng Hwung² Ray-Yeng Yang²

1. Cheng Kung University, Tainan, Taiwan;

2. National Cheng Kung University, Tainan, Taiwan

The Effect of Angle of Attack on the Generated

Wave Propagation OMAE2016-54172

Mohammadreza Javanmardi¹ Jonathan Binns² Muhammad Iqbal Che Izham²

1. University of Tasmania, Launceston, TAS, Australia;

2. Australian Maritime College, Launceston, TAS, Australia

The Effect of Different Methods of Simulating Water Particle

Kinematics on the 100-Year Responses OMAE2016-54207

Noor Irza Mohd Zaki¹ Mohd Khairi Abu Husain¹ Gholamhossein Najafian²

Nurfatin Abdullah Shuhaimy¹

1. UTM Razak School of Engineering and Advanced Technology, Kuala Lumpur, Malaysia;

2. University of Liverpool, Liverpool, United Kingdom

Design and Construction of an Active Wave

Absorber in a Wave Channel OMAE2016-54214

Rafael de Barros Passos, Antonio Carlos Fernandes, Ramon Romankevicius Costa

COPPE/UFRI, Rio de Janeiro, RJ, Brazil

Ocean Engineering

6-5-1 Advanced Underwater Vehicles and Design Technology I

Wednesday June 22

Rm 204 | 8:30 – 10:00

Session Chair: Matthias Golz, Berlin Institute of Technology, Germany

Session Co-Chair: Lokukaluge P. Perera, MARINTEK Energy Systems and Technical Operations, Norway

Comprehensive Optimization Analysis of Rapidity, Maneuverability and Energy System for Flat

Unmanned Underwater Vehicle OMAE2016-54234

Shengping Jing, Zifan Wei, Songlin Yang, Mengyun Wang

Jiangsu University of Science and Technology, Zhenjiang, China

Design and Underwater Tests of Subsea Walking

Hexapod MAK-1 OMAE2016-54440

Vadim V. Chernyshev, Vladimir Arykantsev, Andrey

Gavrilov, Yaroslav Kalinin, Nikolay Sharonov

Volgograd State Technical University, Volgograd, Russia

Optimal Vertical Position Control of a Near-surface Remotely

Operated Vehicle in Regular Waves OMAE2016-54631

Xiaoyang Liang¹ Han Liu¹ Ning Ma¹ Yoshiaki Hirakawa² Xiechong Gu¹

1. Shanghai Jiao Tong University, Shanghai, China;

2. Yokohama National University, Yokohama, Japan

Determination of Hydrodynamic Parameters for

Remotely Operated Vehicles OMAE2016-54642

Ole Eidsvik, Ingrid Schjøberg

Norwegian University of Science and Technology, Trondheim, Norway

Ocean Engineering

6-8-5 Fluid-Structure, Multi-body and Wave-body Interaction V

Wednesday June 22

Rm 107 | 8:30 – 10:00

Session Chair: Babak Ommani, MARINTEK, Norway

Session Co-Chair: Didit Adytia, University of Twente, The Netherlands & LabMath-Indonesia, Netherlands

Hydrodynamics of Side-by-Side Fixed Floating Bodies OMAE2016-54583

Kie Hian Chua¹ Rodney Eatock Taylor² Yoo Sang Choo³

1. National University of Singapore / Lloyd's Register-GTC, Singapore, Singapore;
2. University of Oxford, Oxford, United Kingdom;
3. National University of Singapore, Singapore, Singapore

Slam Induced Loads on the 3d Bow with Various Pitch Angles OMAE2016-54610

Yiwen Wang¹ Weiguo Wu¹ Carlos Guedes Soares²

1. Wuhan University of Technology, Wuhan, China;
2. Instituto Superior Tecn-CENTEC, Lisboa, Portugal

Numerical Study on Hydrodynamic Responses of a Two-body System in Side-by-side Operation OMAE2016-54625

Shaowu Ou, Shixiao Fu, Wei Wei, Tao Peng, Xuefeng Wang
Shanghai Jiao Tong University, Shanghai, China

Experimental Investigation of Water Exit Under Hydrophobic Effects OMAE2016-54636

Bülent Güzel, Fatih C. Korkmaz
Yildiz Technical University, Istanbul, Turkey

Polar and Arctic Sciences and Technology

7-12-1 Numerical Ice Modeling I

Wednesday June 22

Rm 108 | 8:30 – 10:00

Session Chair: Regina Sopper, Memorial University of Newfoundland, Canada

Session Co-Chair: Walter Kuehnlein, sea2ice Ltd. & Co. KG, Germany

Local Ice Loads on the Sakhalin-II Project Structures: Probability Analysis and Comparison by Existing Design Codes OMAE2016-54018

Olga A. Sabodash
Far Eastern Federal University, Vladivostok, Russia

Parameter Sensitivity in Numerical Modelling of Ice-Structure Interaction with Cohesive Element Method OMAE2016-54687

Dianshi Feng, S. D. Pang, Jin Zhang
National University of Singapore, Singapore, Singapore

On Autocorrelation of Ice Loads, Measured in Ice Tank Experiments OMAE2016-54436

Petr Zvyagin
St. Petersburg State Polytechnic University, St. Petersburg, Russia

Number Simulation of Ice Load for Icebreaker Based on Peridynamic OMAE2016-54409

Guoliang Zhao, Yanzhuo Xue, Renwei Liu, Xikui Lu
Harbin Engineering University, Harbin, China

CFD and VIV

8-2-1 Free Surface Flows-I

Wednesday June 22

Rm 201 | 8:30 – 10:00

Session Chair: Chih-Hua WU, Institute of High Performance Computing, A*STAR, Singapore

Session Co-Chair: Muk Chen Ong, University of Stavanger, Norway

Wave-Structure Interaction of Focussed

Waves with REEF3D OMAE2016-54917

Hans Bihs¹ Mayilvahanan Alagan Chella¹ Arun Kamath² Øivind Asgeir Arnsten¹

1. Norwegian University of Science and Technology, Trondheim, Norway;
2. Department of Civil and Transport Engineering, Trondheim, Norway

CFD Reproduction of Model Test Generated Extreme Irregular Wave Events and Nonlinear Loads on a Vertical Column OMAE2016-54869

Csaba Pakozdi, Carl Trygve Stansberg, Anders Östman, Erin E. Bachynski
MARINTEK, Trondheim, Norway

A Coupled VOF-Eulerian Multiphase CFD Model to Simulate Breaking Wave Impacts on Offshore Structures OMAE2016-54876

Pietro D. Tomaselli, Erik Damgaard Christensen
Technical University of Denmark, Kgs. Lyngby, Denmark

Numerical Simulation of Nonlinear Free Surface Water Waves – Coupling of a Potential Flow Solver to a URANS/VOF Code OMAE2016-54808

Bulent Duz, Tim Bunnik, Geert Kapsenberg, Guilherme Vaz
MARIN, Wageningen, Netherlands

CFD and VIV

8-5-1 Physics of Gap and Seabed Proximity

Wednesday June 22

Rm 202 | 8:30 – 10:00

Session Chair: Jungao Wang, National University of Singapore, Singapore

Session Co-Chair: Henry Piehl, Norwegian University of Science and Technology NTNU, Norway

Parametric Investigation and Mechanism of Low-Drag Fairings for Suppressing Vortex-Induced Vibration OMAE2016-54853

Yun Zhi Law, Tan Jui Hang Benjamin, Rajeev Kumar Jaiman
National University of Singapore, Singapore, Singapore

On the Streamwise Oscillations of Freely Vibrating Cylinder Near a Stationary Plane Wall in Steady Flow OMAE2016-54442

Zhong Li, Weigang Yao, Rajeev Kumar Jaiman, Boo Cheong Khoo
National University of Singapore, Singapore, Singapore

The Effect of Gap-flow on Vortex-induced Vibration of Side-by-side Cylinder Arrangement OMAE2016-54736

Bin Liu, Rajeev Kumar Jaiman
National University of Singapore, Singapore, Singapore

Frequency and Time Domain Methods for Forced Vibration Analysis of an Oscillating Cascade OMAE2016-55054

MT Rahmati
Brunel University London, London, United Kingdom

Ocean Renewable Energy

9-1-4 Design and Control

Wednesday June 22

Rm 203 | 8:30 – 10:00

Session Chair: Denis Matha, Ramboll, Germany

Session Co-Chair: Hyunkyung Shin, University Of Ulsan, Korea

Wind Turbine Controller to Mitigate Structural Loads on a Floating Wind Turbine Platform OMAE2016-54536

Paul Fleming¹ Antoine Peiffer² David Schlipf³

1. NREL, Golden, CO, USA; 2. Principle Power Inc., Berkeley, CA, USA;

3. University of Stuttgart, Stuttgart, Germany

Comparative Analysis of Industrial Design Methodologies for Fixed-Bottom and Floating Wind Turbines OMAE2016-54920

Denis Matha¹ Kolja Müller² German Perez Moran³ Frank Lemmer²

1. Ramboll, Hamburg, Germany; 2. University of Stuttgart, Stuttgart, Germany; 3. Tecnalia, Derio, Spain

Evaluation of Walk-To-Work Accessibility for a Floating Wind Turbine OMAE2016-54416

Michele Martini, Alfonso Jurado, Raúl Guanache, Iñigo Losada
University of Cantabria, Santander, Spain

Application of a Speed Exclusion Zone Algorithm on a Large 10MW Offshore Wind Turbine OMAE2016-54845

Emil Smilden, Asgeir J. Sørensen

AMOS, Norwegian University of Science and Technology, Trondheim, Norway

Offshore Geotechnics

10-1-1 Fluid-Soil-Structure Interaction

Wednesday June 22

Rm 207 | 8:30 – 10:00

Session Chair: Dongsheng Jeng, Southwest Jiao Tong University, China

Equilibrium Scour Prediction For Uniform And Non-Uniform Cylindrical Structures Under Clear Water Conditions OMAE2016-54377

Nicholas Tavouktsoglou¹ Richard R. Simons¹ Richard Whitehouse² John Harris³

1. University College London, London, United Kingdom; 2. HR Wallingford, Oxford, United Kingdom; 3. HR Wallingford, Wallingford, United Kingdom

A Comparison of Simplified Engineering and FEM Methods for On-Bottom Stability Analysis of Subsea Pipelines OMAE2016-54431

Guomin Ji¹ Lanjing Li² Muk Chen Ong³

1. MARINTEK, Trondheim, Norway; 2. University of Stavanger, Stavanger, Norway; 3. University of Stavanger, Trondheim, Norway

Shape Optimisation of Model Scale Geotextile Sand Containers (GSC) Regarding Sinking Behaviour: First Results of Physical Model Tests OMAE2016-54873

Désirée Plenker¹ Evelyn Heins¹ Jurgen Grabe²

1. Hamburg University of Technology, Hamburg, Germany;

2. Technische Universität Hamburg Harburg TUHH, Hamburg, Germany

Petroleum Technology

11-3-1 Coalbed Methane and CO2 Sequestration

Wednesday June 22

Rm 105 | 8:30 – 10:00

Session Chair: Jeonghwan Lee, Chonnam National University, Korea

CO2 Plume Migration with Gravitational, Viscous, and Capillary Forces in Saline Aquifers OMAE2016-54123

Hyesoo Lee, Youngho Jang, Woodong Jung, Wonmo Sung
Hanyang University, Seoul, Korea

Development and Verification of Measurement Equipment for Residual Gas Content of a Coal Sample OMAE2016-54154

Hyeong Jun Seo¹ Seung Rok Lee² Sunil Kwon¹

1. Dong-a University, Busan, Korea; 2. KOGAS, Incheon, Korea

Underground Gas Storage with CO2 Sequestration in a Depleted Gas Field OMAE2016-54224

Juhyeon Kim, Sun Lee Han, Gilyong Sung, Youngsoo Lee
Chonbuk National University, Jeonju, Korea

The Analysis on the Sorption Effects About the Inflow Performance Relationship in the Coalbed OMAE2016-54249

Kihong Kim, Iloh Kang, Jeongmin Han, Seongmin Lee

Korea Gas Corporation, Ansan, Korea

Prof. Norman Jones Honoring Symposium on Impact Engineering

12-4-1 Lightweight Materials and Structures I

Wednesday June 22

Rm 109 | 8:30 – 10:00

Session Chair: Xiaowei Chen, China Academy of Engineering Physics

Towards Numerical and Model Test Verifications for an Analytical Model of Tubular Member Under Lateral Collision Scenario OMAE2016-54215

Zhiqiang Hu¹ Chao Jiang¹ Kun Liu²

1. Shanghai Jiao Tong University, Shanghai, China;

2. Jiangsu University of Science and Technology, Zhenjiang, China

Local Strain and Stress Calculation Methods of Irregular Honeycombs under Dynamic Compression OMAE2016-54554

Jilin Yu¹ Peng Wang¹ Shenfei Liao² Zhijun Zheng¹

1. University of Science and Technology of China, Hefei, China;

2. Institute of Fluid Physics, Mianyang, China

The Dynamic Behavior of Sandwich Plate with Layered Graded Metallic Honeycomb Cores OMAE2016-55006

Zhihua Wang, Shiqiang Li, Genwei Wang, Guoyun Lu, Longmao Zhao
Taiyuan University of Technology, Taiyuan, China

Plastic Cyclic Behavior of a Bellow Joint for Pipelines OMAE2016-55019

Guoxing Lu¹ Ning Wang² Yang Lv²

1. Swinburne University of Technology, Melbourne, VIC, Australia;

2. Tianjian Chenjian University, Tianjian, China

Prof. Yukio Ueda Honoring Symposium on Idealized Nonlinear Mechanics for Welding and Strength of Structures

13-4-1 Computational Welding Mechanics

Wednesday June 22 **Rm 110 | 8:30 – 10:00**

Session Chair: Naoki Osawa, Osaka University, Japan
 Session Co-Chair: Yu Luo, Shanghai Jiao Tong University, China

Idealized Methods for Nonlinear Welding Mechanics OMAE2016-55135

Hidekazu Murakawa
 Osaka University, Ibaraki, Japan

Inherent Strain Method for Residual Stress Measurement and Welding Distortion Prediction OMAE2016-54184

Ninshu Ma¹ Kenji Nakacho² Takahiko Ohta³ Naoki Ogawa⁴
 Akira Maekawa⁵ Hui Huang² Hidekazu Murakawa²
 1. JSOL Corporation / Osaka University, Osaka, Japan; 2. Osaka University, Ibaraki, Japan; 3. University of Tokai, Hiratsuka, Japan; 4. MHI, Kobe, Japan; 5. Institute of Nuclear Safety System, Inc., Fukui, Japan

Nonlinear Computational Welding Mechanics for Large Structures OMAE2016-54313

Kazuki Ikushima, Masakazu Shibahara
 Osaka Prefecture University, Sakai, Japan

Study on Fluid Flow and Heat Transfer Characteristics of Molten Pool Considering the Effects of Turbulence OMAE2016-54272

Rong Liang, Zhen Chen, Yu Luo
 Shanghai Jiao Tong University, Shanghai, China

REFRESHMENT BREAK

10:00 – 10:30

Lobby, 2nd Floor, Convention Hall

CONCURRENT SESSIONS

10:30 – 12:00

Offshore Technology

1-3-8 Platform/Ship Motions

Wednesday June 22 **Rm 101 | 10:30 – 12:00**

Session Chair: Zhenjia Huang, ExxonMobil Upstream Research Company, USA
 Session Co-Chair: Hermione Van Zutphen, Shell Global Solutions Malaysia, Malaysia

Analysis of Variance to Determine the Effect of Hull Form Parameters on Resistance and Seakeeping Performance for PSV Hulls OMAE2016-54542

Nicholas Boyd, David Molyneux
 Memorial University of Newfoundland, St John's, NL, Canada

Hydrodynamic Behavior of Truss Pontoon Mobile Offshore Base (MOB) Platform OMAE2016-54627

S Soman Sundar¹ Panneer Selvam Rajamanickam² Nagan Srinivasan³
 1. Department of Ocean Engineering, Chennai, India; 2. Indian Institute of Technology Madras, Chennai, India; 3. Deepwater Structures Inc, Houston, TX, USA

Motion Analysis of TAD and TLP Platforms

Operating Side by Side OMAE2016-54716
 M A Hannan¹ Bai Wei¹ Allan Ross Magee¹ Ankit Choudhary² Amit Jain²
 Peter Francis Bernad Adaikalaraj² Anis Hussain²
 1. National University of Singapore, Singapore, Singapore;
 2. Keppel Offshore and Marine Technology Centre, Singapore, Singapore

Structures, Safety and Reliability

2-4-2 Fracture and Fatigue Reliability II

Wednesday June 22 **Rm 102 | 10:30 – 12:00**

Session Chair: Yordan Garbatov, Universidade de Lisboa, Portugal
 Session Co-Chair: Dr. Suhail Ahmad, Indian Institute of Technology Delhi, India

Uncertainties of Crack Propagation Analysis in Ship Structures OMAE2016-54226

Wengang Mao¹ Jingxia Yue² Da Wu¹ Luis De Gracia³ Naoki Osawa³
 1. Chalmers University of Technology, Gothenburg, Sweden; 2. Wuhan University of Technology, Wuhan, China; 3. Osaka University, Suita, Japan

Influence of Different Wave Load Sequence Models on Fatigue Life Prediction of Ship Structures Based on Fracture Mechanics Approach OMAE2016-54688

Luis De Gracia¹ Naoki Osawa¹ Wengang Mao² Daichi Ichihashi¹
 1. Osaka University, Osaka, Japan;
 2. Chalmers University of Technology, Gothenburg, Sweden

Numerical Estimation on Stress Intensity Factors for Surface Cracks in a Welding Residual Stress Field OMAE2016-54495

Ramy Gadallah¹ Naoki Osawa¹ Satoyuki Tanaka²
 1. Osaka University, Suita, Japan; 2. Hiroshima University, Higashi-Hiroshima, Japan

Research for Calculation of Dynamic Stress Intensity Factor Based on Maximum Crack Opening Displacement Under Impact Loads OMAE2016-54541

Jingjie Chen¹ Yi Huang² Yugang Li³
 1. School of Naval Architecture Dalian University of Technology, Dalian, China;
 2. Dalian University of Technology, Dalian, China;
 3. Deepwater Engineering Dalian University of Technology, Liaoning, China

Structures, Safety and Reliability

2-12-2 Structural Analysis and Optimization II

Wednesday June 22 **Rm 206 | 10:30 – 12:00**

Session Chair: Jonas W. Ringsberg, Chalmers University of Technology, Sweden
 Session Co-Chair: George Jagite, Bureau Veritas, Singapore

Validation of Hydro-structure Analysis Using Partial Structural Model OMAE2016-54415

George Jagite¹ Xiang-Dong Xu¹ Xiao-Bo Chen¹ Sime Malenica²
 1. Bureau Veritas, Singapore, Singapore; 2. Bureau Veritas, Paris, France

Application of the Global Optimization Method to the Preliminary Design of Tension Leg Platform OMAE2016-54567

Jeong-Du Kim, Beom-Seon Jang
 Seoul National University, Seoul, Korea

Integrity Assessment of Hot Bolting Tool OMAE2016-54652

Guomin Ji¹ Madjid Karimirad¹ Frank Klæbo¹ Per-Christian Irgens²
 1. MARINTEK, Trondheim, Norway; 2. Irgens Engineering AS, Nesoya, Norway

Progressive Collapse Approach Compared to the Traditional Temperature Screening on Structural Assessment of Offshore Structures Against Fire OMAE2016-54923

Paula T. Nascimento, Marco Rosas, Leonardo Brandao, Fernando Castanheira
DNV GL, Rio de Janeiro, RJ, Brazil

Structural Optimization of Aluminium Helideck Based on the NORSOK Requirement OMAE2016-55062

JooShin Park¹ Yeong Su Ha² Ki Bok Jang¹ R. Krishna Kishore²
1. Samsung Heavy Industries, Geoje, Korea;
2. Samsung Heavy Industries, Gyeongsangnam Do, Korea

Materials Technology

3-8-1 Residual Stresses – Measurement and Analysis

Wednesday June 22 **Rm 103 | 10:30 – 12:00**

Session Chair: Agnes Marie Horn, DNV GL, Norway
Session Co-Chair: Jeong Hong, Battelle, USA

Assessment of Residual Stress and Suitability for Subsea Service of a Commercially Produced Welded Superduplex Stainless Steel Flange Joint. OMAE2016-54004

Michael Dodge¹ Kasra Sotoudeh¹ Tyler London¹ Simon Smith¹
Roberto Morana² Saurabh Kabra³
1. TWI Ltd, Cambridge, United Kingdom;
2. BP Exploration Operating Company Ltd, Sunbury-on-Thames, United Kingdom;
3. ISIS, Rutherford Appleton Laboratory, Didcot, United Kingdom

Correlation Between Stress Concentration Degree and Residual Magnetic Field OMAE2016-54715

Sheng Bao¹ Ashri Mustapha² Huangjie Lou³
1. Zhejiang University, Zhejiang, China; 2. Petronas, Kuala Lumpur, Malaysia; 3. Zhejiang University, Hangzhou, China

Crack Extension Effects on Welding Residual Stress in Fitness for Service Assessment of Crack-like Defect in Weld OMAE2016-55023

Jeong Hong
Battelle, Columbus, OH, USA

Calibration of the Ultrasonic Technique Using the DHD, Neutron Diffraction and Contour Residual Stress Measurement on a Ring Stiffened Cylindrical Structures OMAE2016-55138

Xavier Ficquet¹ Remi Romac¹ Douglas Cave¹ Ed Kingston²
1. VEQTER, Bristol, United Kingdom; 2. Veqter Limited, Bristol, United Kingdom

Pipelines, Risers, and Subsea Systems

4-3-1 Bending and Reeling

Wednesday June 22 **Rm 104 | 10:30 – 12:00**

Session Chair: Stelios Kyriakides, University of Texas at Austin, USA
Session Co-Chair: Julian Hallai, Exxonmobil Upstream Research Company, USA

High Peak Strain on Pipeline Material During Reel-Lay – Acceptable or Not? OMAE2016-54432

Erwan Karjadi¹ Henk Smienk¹ Philippe Thibaux² Olav Aamlid³
1. Heerema Marine Contractors SE, Leiden, Netherlands;
2. OCAS NV, Zwijnaarde, Belgium; 3. DNV GL, Hovik, Norway

Measurement of Lined Pipe Liner Geometric Imperfections and their Effect on Wrinkling Under Bending OMAE2016-54539

Benjamin Harrison, Lin Yuan, Stelios Kyriakides
University of Texas at Austin, Austin, TX, USA

Effect of Reeling on Pipeline Structural Performance OMAE2016-54866

Yafei Liu, Stelios Kyriakides
University of Texas At Austin, Austin, TX, USA

Reeling Analyses and Limit State Criteria OMAE2016-54971

Jianfeng Xu¹ Srinivas Vishnubhotla¹ Olav Aamlid² Leif Collberg²
1. DNV GL, Katy, TX, USA; 2. DNV GL, Hovik, Norway

Ocean Engineering

6-2-2 Wave Mechanics and Wave Effects II

Wednesday June 22 **Rm 106 | 10:30 – 12:00**

Session Chair: Sungho Lee, Glosten, USA
Session Co-Chair: Wei-Liang Chuang, Texas A&M University, USA

A Study on the Wave Drift Forces Calculation on Two Floating Bodies Based on the Boundary Element Method – Attempt for Improvement of the Constant Panel Method OMAE2016-54263

Qiao Li, Takashi Tsubogo, Yoshiho Ikeda, Yasunori Nihei
Osaka Prefecture University, Sakai, Japan

Wave Diffraction Around Islands from ERS-2 SAR Images OMAE2016-54449

Nelson Violante-Carvalho¹ Luiz Mariano Carvalho² Felipe Marques dos Santos²
Konstantina Rizopoulou³
1. Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil;
2. Rio de Janeiro State University UERJ, Rio de Janeiro, RJ, Brazil;
3. University of Southampton, Southampton, United Kingdom

Two-Dimensional Linear Irregular Wave Propagation by FMBEM OMAE2016-54668

Wanggang Shen, Zhiliang Lin
Shanghai Jiao Tong University, Shanghai, China

Fully Nonlinear Dispersive HAWASSI-VBM for Coastal Zone Simulations OMAE2016-54704

Didit Adytia¹ Lawrence Lawrence²
1. University of Twente, The Netherlands & LabMath-Indonesia, Enschede, Netherlands;
2. LabMath-Indonesia, Bandung, Indonesia

Ocean Engineering

6-5-2 Advanced Underwater Vehicles and Design Technology II

Wednesday June 22 **Rm 204 | 10:30 – 12:00**

Session Chair: Vadim V. Chernyshev, Volgograd State Technical University, Russia
Session Co-Chair: Ole Eidsvik, Norwegian University of Science and Technology, Norway

An Autonomous Robotic Platform for Detecting, Monitoring and Tracking of Oil Spill on Water Surface OMAE2016-54714

Swarn Singh Rathour¹ Naomi Kato¹ Naoto Tanabe¹ Hidetaka Senga¹
Muneo Yoshie² Toshinari Tanaka²
1. Osaka University, Suita, Japan; 2. Port and Airport Research Institute, Yokosuka, Japan

Automated Landing and Mooring in Deep-Sea Environment Using Suction Buckets for Unmanned Vehicles OMAE2016-54830

Florin Boeck, Matthias Golz, Sebastian Ritz, Gerd Holbach
Berlin Institute of Technology, Berlin, Germany

A Ballast System for Automated Deep-Sea Ascents OMAE2016-54841

Matthias Golz, Florin Boeck, Sebastian Ritz, Gerd Holbach
Berlin Institute of Technology, Berlin, Germany

The Dynamic Behaviour of an ROV in Wave Affected Zones OMAE2016-54849

Musa Bashir¹ Simon Benson¹ Alan Murphy¹ Mahesh Menon² Rob Eastwood²
Daniel Cunny² Michael van Zwanenberg²
1. Newcastle University, Newcastle upon Tyne, United Kingdom;
2. Soil Machine Dynamics Ltd, Newcastle upon Tyne, United Kingdom

Ocean Engineering

6-8-6 Fluid-Structure, Multi-body and Wave-body Interaction VI

Wednesday June 22 **Rm 107 | 10:30 – 12:00**

Session Chair: Spyros Hirdaris, Lloyd's Register,
Session Co-Chair: Sachin Awasare, Indian Register of Shipping, India

Hydrodynamic Analysis on a Flexible Barge Adjacent to a Floating Mobile Harbor OMAE2016-54809

Wei Wei, Shixiao Fu, Runpei Li, Jun Li, Shaowu Ou
Shanghai Jiao Tong University, Shanghai, China

Impact Pressure, Void Fraction, and Green Water Velocity due to Plunging Breaking Wave Impingement on a 2d Tension-Leg Structure OMAE2016-54872

Wei-Liang Chuang, Kuang-An Chang, Richard Mercier
Texas A&M University, College Station, TX, USA

Comparison of Global Response of a 3-Span Floating Suspension Bridge with Different Floater Concepts OMAE2016-54892

Arnt G. Fredriksen¹ Basile Bonnemaire² Halvor Lie³ Jan Munkeby⁴
Anders Nesteby⁵ Petter Buckholm⁵ Xiang Tan¹
1. Multiconsult, Tromsø, Norway; 2. Multiconsult, Oslo, Norway; 3. MARINTEK, Trondheim, Norway; 4. Kværner, Lysaker, Norway; 5. Multiconsult, Fredrikstad, Norway

Mathematical And Numerical Modelling Of Wave Impact On Wave-Energy Buoys OMAE2016-54937

Anna Kalogirou, Onno Bokhove
University of Leeds, Leeds, United Kingdom

Polar and Arctic Sciences and Technology

7-12-2 Numerical Ice Modeling II

Wednesday June 22 **Rm 108 | 10:30 – 12:00**

Session Chair: Petr Zvyagin, St. Petersburg State Polytechnic University, Russia
Session Co-Chair: Walter Kuehnlein, sea2ice Ltd. & Co. KG, Germany

Sea Ice Distribution in the Barents Sea OMAE2016-54817

Sindre Fritzner, Trond Sagerup
Aker Solutions, Tromsø, Norway

A Temperature-Gradient-Dependent Elastic-Plastic Material Model of Iceberg and Its Application on the Simulation of FPSO-Iceberg Collision OMAE2016-54247

Chu Shi¹ Yu Luo² Zhiqiang Hu²
1. State Key Laboratory of Ocean Engineering, Shanghai Jiao Tong University, Shanghai, China; 2. Shanghai Jiao Tong University, Shanghai, China

The Research of Heat Transfer Characteristics of Ice-water Two-phase Flow in Seawater Pipes OMAE2016-55118

Li Xu, Lailai Zhang, Bing Tang, Huanbao Jiang
School of Energy and Power Engineering, Wuhan, China

CFD and VIV

8-2-2 Free Surface Flows – II

Wednesday June 22 **Rm 201 | 10:30 – 12:00**

Session Chair: Stephen Cosgrove, Altair, USA
Session Co-Chair: Xu Xiang, Norwegian Public Roads Administration, Norway

Low Reynolds Flow Past a Circular Cylinder Close to a Free-Surface with Vertical Motion Dynamics OMAE2016-54874

Jose L. Cercos-Pita¹ Andrea Colagrossi² Antonio Souto-Iglesias¹
1. Technical University of Madrid (UPM), Madrid, Spain; 2. CNR-INSEAN, Rome, Italy

Three-Dimensional Forward-Speed Seakeeping Calculation Using FINE/Marine OMAE2016-54780

Limin Chen, Guanghua He, Dazheng Wang, Zihao Zhang
Harbin Institute of Technology, Weihai, China

Numerical Simulation of Extremely Nonlinear Interaction between Solitary Wave and Flat Plate OMAE2016-54827

Jiadong Wang, Guanghua He, Dehe Zhang
Harbin Institute of Technology, Weihai, China

Numerical Simulation of Irregular Wave Forces on a Horizontal Cylinder OMAE2016-54423

Ankit Aggarwal¹ Mayilvahanan Alagan Chella¹ Arun Kamath²
Hans Bihs¹ Øivind Asgeir Arnsten¹
1. Norwegian University of Science and Technology, Trondheim, Norway;
2. Department of Civil and Transport Engineering, Trondheim, Norway

CFD and VIV

8-5-2 Modeling of Fluid-Structure Interaction and VIV Suppression

Wednesday June 22 **Rm 202 | 10:30 – 12:00**

Session Chair: Rajeev Jaiman, National University of Singapore, Singapore
Session Co-Chair: Owen Oakley, Retired

Numerical Study of Seabed Boundary Layer Flow around Monopile and Gravity-based Wind Turbine Foundations OMAE2016-54643

Muk Chen Ong¹ Eirik Trygdsland² Dag Myrhaug²
1. University of Stavanger, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway

Flow-induced Vibrations of Riser Array System OMAE2016-54695

Vaibhav Joshi¹ Bin Liu² Rajeev Kumar Jaiman²
1. Keppel-NUS Corporate Lab, Singapore, Singapore;
2. National University of Singapore, Singapore, Singapore

Computational Fluid Dynamics Study of a Flexible Flapping Hydrofoil Propulsor OMAE2016-54259

Harikrishnan V, P. Krishnankutty
Indian Institute of Technology Madras, Chennai, India

Application of Industry Guidelines, CFD and Frequency Domain Analyses to Assess Flow Induced Vibration Risk in Pipework OMAE2016-54520

David Fielding¹ Alex Graham² Phil Shorter³
1. Norton-Straw Consultants, Derby, United Kingdom; 2. CD-adapco, London, United Kingdom; 3. CD-adapco, Northville, MI, USA

Ocean Renewable Energy

9-2-3 Practical Aspects

Wednesday June 22 **Rm 203 | 10:30 – 12:00**

Session Chair: Nathan Tom, National Renewable Energy Laboratory, USA

Analysis of Wave Energy Sources in the North Atlantic Waters in View of Design Challenges OMAE2016-54042

Jose V. Taboada, Hirpa Lemu
University of Stavanger, Stavanger, Norway

On the Optimum Sizing of a Real WEC from a Techno-Economic Perspective OMAE2016-54110

Adrian de Andres¹ Jeromine Maillet² Jørgen Hals Todalshaug² Patrik Moller² Henry Jeffrey¹
1. University of Edinburgh, Edinburgh, United Kingdom; 2. Corpower Ocean, Stockholm, Sweden

Experimental Validation of a Nonlinear MPC Strategy for a Wave Energy Converter Prototype OMAE2016-54455

Hoai-Nam Nguyen¹ Guillaume Sabiron¹ Paolino Tona¹ Morten Mejlhede Kramer² Enrique Vidal Sánchez³
1. IFP Energies Nouvelles, Solaize, France; 2. Aalborg University, Department of Civil Engineering, Aalborg, Denmark; 3. Wave Star A/S, Brøndby, Denmark

Application of the Most Likely Extreme Response Method for Wave Energy Converters OMAE2016-54751

Eliot Quon¹ Andrew Platt¹ Yi-Hsiang Yu² Michael Lawson¹
1. National Renewable Energy Laboratory (NREL), Golden, CO, USA; 2. NREL, Golden, CO, USA

Offshore Geotechnics

10-2-1 Anchors and Pile Foundations

Wednesday June 22 **Rm 207 | 10:30 – 12:00**

Session Chair: Yun Wook Choo, Kongju National University, Korea

Yield Surface of Deeply Buried Square Anchors Under Out-of-Plane Loading OMAE2016-54417

Tianyuan Zheng, Mark J. Cassidy, Yinghui Tian, Christophe Gaudin
Centre of Offshore Foundation Systems, The University of Western Australia, Crawley, WA, Australia

A New Method to Investigate the Failure Envelopes of Offshore Foundations OMAE2016-54513

Yinghui Tian¹ Tianyuan Zheng² Tao Zhou² Mark J. Cassidy¹
1. Centre of Offshore Foundation Systems, The University of Western Australia, Crawley, WA, Australia; 2. University of Western Australia, Crawley, WA, Australia

Seismic Soil-Structure Interaction Design Considerations for Offshore Platforms OMAE2016-54934

Jiun-Yih Chen¹ Richard Litton¹ Albert Ku¹ Ramsay Fraser² Philippe Jeanjean³
1. Ergo Engineering, A KBR Company, Houston, TX, USA; 2. BP, Aberdeenshire, United Kingdom; 3. BP, Houston, TX, USA

Petroleum Technology

11-3-2 Gas Hydrates

Wednesday June 22 **Rm 105 | 10:30 – 12:00**

Session Chair: Jeonghwan Lee, Chonnam National University, Korea

Numerical Investigation on Gas Hydrate Production by Depressurization in Hydrate-Bearing Reservoir OMAE2016-55067

Xiaoyan Long¹ Komin Tjok² Sudarshan Adhikari²
1. Fugro Geoconsulting Inc., Pearland, TX, USA; 2. Fugro Geoconsulting Inc., Houston, TX, USA

Experimental Simulation of Self-Trapping Mechanism of Co₂ Hydrates in Marine Sediments OMAE2016-54213

Hak-Sung Kim, Gye-Chun Cho
KAIST, Daejeon, Korea

Geomechanical Responses During Gas Hydrate Production Induced by Depressurization OMAE2016-54217

Ah-Ram Kim¹ Gye-Chun Cho² Jooyong Lee³ Se-Joon Kim³
1. Korean Advanced Institute of Science and Technology, Daejeon, Korea; 2. KAIST, Daejeon, Korea; 3. Korea Institute of Geoscience and Mineral Resources, Daejeon, Korea

Numerical Flow Analysis of Hydrate Formation in Offshore Pipelines Using Computational Fluid Dynamics OMAE2016-54534

Eugenio Turco Neto, Mohammad Azizur Rahman, Syed Imtiaz, Salim Ahmed
Memorial University of Newfoundland, St. John's, NL, Canada

Prof. Norman Jones Honoring Symposium on Impact Engineering

12-1-3 Structural Response III

Wednesday June 22 **Rm 109 | 10:30 – 12:00**

Session Chair: Guoxing Lu, Swinburne University of Technology

Critical Shock Response Spectrum of a Beam Under Shock Loading OMAE2016-54507

Bingwei Li¹ Qingming Li² Bo Liu¹ Zhiling Niu¹ Zijun Nangong¹ Changjian Zhao¹
1. China Academy of Launch Vehicle Technology, Beijing, China; 2. The University of Manchester, Manchester, United Kingdom

Numerical Study on Through-thickness Cone Cracking of Reinforced Concrete Slabs Struck Normally by Flat-ended Projectiles OMAE2016-54574

Pei-Bao Xu, Jing-Song Cheng, He-Ming Wen
University of Science and Technology of China, Hefei, China

Investigation of the Effect of the Deck Simulator on the Shock Spectrum of Floating Shock OMAE2016-54604

Yao Xiongliang, Cui Xiongwei, Wang Jun, Zhang Wenqi
Harbin Engineering University, Harbin, China

Prediction of the Damage Extents of Ship's Double-Hull Side Structures OMAE2016-54605

Sang-Rai Cho¹ Kyeong-Ryun Kim² Seung-Uck Song¹ Sang-Hyun Park¹ Joo-Sung Lee¹ Jin Tae Lee¹
1. University of Ulsan, Ulsan, Korea; 2. Samsung Heavy Industries, Seoul, Korea

Prof. Yukio Ueda Honoring Symposium on Idealized Nonlinear Mechanics for Welding and Strength of Structures

13-5-1 Inherent Strain/Deformation Methods

Wednesday June 22 **Rm 110 | 10:30 – 12:00**

Session Chair: Jeong-Ung Park, Chosun University, Korea
Session Co-Chair: Dean Deng, Chongqing University, Korea

A New Method to Estimate Inherent Deformation in Thin-plate Welded Joint with Buckling Distortion OMAE2016-54265

Wei Liang¹ Hidekazu Murakawa²
1. Chongqing Jiaotong University, Chongqing, China; 2. Osaka University, Ibaraki, Japan

Prediction of Welding Deformation and Residual Stress in a Multiply-stiffened Plate OMAE2016-54164

Min Guo, Zhen Chen, Yu Luo
Shanghai Jiao Tong University, Shanghai, China

Prediction of Distortion Produced on Welded Structures During Straightening Process Using Inherent Strain Method OMAE2016-54743

Hector Olmedo Ruiz Valdes¹ Naoki Osawa¹ Hidekazu Murakawa² Sherif Rashed³
1. Osaka University, Suita, Japan; 2. Osaka University, Ibaraki, Japan; 3. CAE Lab, Hyogo-ken, Japan

WEDNESDAY LUNCH

12:00 – 13:30

Grand Ballroom, 3rd Floor, Convention Hall

CONCURRENT SESSIONS

13:30 – 15:00

Offshore Technology

1-4-1 Model Testing & Numerical Simulations

Wednesday June 22 **Rm 101 | 13:30 – 15:00**

Session Chair: Frédérick Jaouën, MARIN, Netherlands
Session Co-Chair: Joost Sterenberg, MARIN (Maritime Research Institute Netherlands), Netherlands

The Effects of Current on the Dynamic Responses of Truss Spar in Malaysia Water OMAE2016-54399

Siti Nor Adha Tuhaijan¹ ChengYee Ng¹ Velluruzhathil John Kurian²
1. Universiti Teknologi PETRONAS, Tronoh, Malaysia; 2. Universiti Teknologi PETRONAS, Bandar Seri Iskandar, Malaysia

Experimental Investigation on the Dynamic Response of a Three-Legged Articulated Type Offshore Wind Tower OMAE2016-54635

Chinsu Joy, Anitha Joseph, Lalu Mangal
TKM College of Engineering/University of Kerala, Kollam, India

Stochastic Linearization and Its Application in Motion Analysis of Cylindrical Floating Structure with Bilge Box OMAE2016-55059

Yanlin Shao, Jikun You, Einar B. Glomnes
Sevan Marine ASA, Oslo, Norway

CFD-Based Numerical Wave Basin for Global Performance Analysis OMAE2016-54485

Guangyu Wu¹ Jang Whan Kim² Hyunchul Jang³ Aldric Baquet²
1. Chevron, Houston, TX, USA; 2. Technip, Houston, TX, USA; 3. Technip USA, Inc., Houston, TX, USA

Structures, Safety and Reliability

2-4-3 Fracture and Fatigue Reliability III

Wednesday June 22 **Rm 102 | 13:30 – 15:00**

Session Chair: Yordan Garbatov, Universidade de Lisboa, Portugal
Session Co-Chair: Marc Cahay, Technip France, France

Spectral Fatigue Analysis Considering Probabilistic Corrosion Effects: A Case Study of a Container Ship's Hatch Coaming Detail OMAE2016-54447

Jinju Cui, Deyu Wang, Ning Ma
Shanghai Jiao Tong University, Shanghai, China

Fatigue Modelling of Semi-elliptical Surface Cracks in Welded Pipe Geometries OMAE2016-54683

Hsin Jen Hoh, John Hock Lye Pang, Kin Shun Tsang
Nanyang Technological University, Singapore, Singapore

Structural Fatigue Assessment of Offshore Platform Considering the Effect of Nonlinear Drag Force OMAE2016-54870

Weichen Ding¹ Liang Pang²
1. DMAR Engineering Inc., Qingdao, China; 2. Ocean University of China, Qingdao, China

Structures, Safety and Reliability

2-10-1 Collision and Crashworthiness I

Wednesday June 22 **Rm 206 | 13:30 – 15:00**

Session Chair: Sören Ehlers, Hamburg University of Technology, Germany
Session Co-Chair: Yasuhira Yamada, NMRI, Japan

Wrinkling, Fracture, and Necking: The Various Failure Modes in a Maritime Crash OMAE2016-54148

Bilim Atli-Veltin¹ Richard Dekker² Stefan Brunner² Carey L Walters¹
1. TNO, Delft, Netherlands; 2. TNO Structural Dynamics, Delft, Netherlands

Rapid Assessment of Hull Girder Collapse for Corroded Double Hull Oil Tankers After Collision OMAE2016-54667

Sung Hwan Noh¹ Jeom Kee Paik² Samy A.M. Youssef³ Jung Kwan Seo¹
1. Pusan National University, Busan, Korea; 2. The Korea Ship and Offshore Research Institute, Geumjeong-Gu, Korea; 3. Arab Academy for Science, Technology & Maritime Transport, Alexandria, Egypt

Experimental and Numerical Studies on Nonlinear Impact Response of Deck Structures Subjected to Dropped Objects OMAE2016-54691

Bogyong Jung¹ Sungwoo Jo¹ Sung Hwan Noh¹ Younghun Kim² Jung Kwan Seo¹ Jeom Kee Paik³
1. Pusan National University, Busan, Korea; 2. Kyungnam University, Pusan, Korea; 3. The Korea Ship and Offshore Research Institute, Geumjeong-Gu, Korea

A Rubber Bag For Liquid Cargo To Improve Ship Collision Safety OMAE2016-54790

Jan M. Kubiczek¹ Boyuan Liang¹ Lars Molter² Soren Ehlers¹
1. Hamburg University of Technology (TUHH), Hamburg, Germany; 2. Center of Maritime Technologies E.V., Hamburg, Germany

Materials Technology

3-10-1 Advances in Materials Technology

Wednesday June 22

Rm 103 | 13:30 – 15:00

Session Chair: Xin Wang, Carleton University, Canada
Session Co-Chair: Agnes Marie Horn, DNV GL, Norway

Niobium-Bearing Offshore Plate Steel Process Metallurgy, Design and Quality OMAE2016-54177

Steven Jansto
CBMM North America, Inc., Bridgeville, PA, USA

Making Sense of 3D Printing/Additive Layer Manufacturing in Offshore Petroleum Industry: State of the Art OMAE2016-54537

R.M. Chandima Ratnayake
University of Stavanger, Stavanger, Norway

The Experiment and Finite Element Analysis of Carbon Fiber Sandwich Beam with Pyramidal Truss Core Structure OMAE2016-55150

Jiguang Gu, Nana Yang, Zhanyi Guo, Xiongliang Yao
Harbin Engineering University, Harbin, China

Development and Wear Resistance of High Interstitial Stainless Steels OMAE2016-55153

Eunkyung Lee, Brajendra Mishra
Worcester Polytechnic Institute, Worcester, MA, USA

Friction Joint between Basalt Reinforced Composite and Aluminum OMAE2016-54197

Andrei Costache¹ Kristian Glejbol² Ion M. Sivebæk¹ Christian Berggreen¹
1. Technical University of Denmark, Kgs. Lyngby, Denmark;
2. National Oilwell Varco, Subsea Production Systems, Brøndby, Denmark

Pipelines, Risers, and Subsea Systems

4-3-2 Buckling and Collapse

Wednesday June 22

Rm 104 | 13:30 – 15:00

Session Chair: Segen Estefen, Rio de Janeiro Federal University, Brazil
Session Co-Chair: Theodoro Netto, COPPE/UFRJ, Brazil

DNVGL-ST-F101 Combined Loading Criterion – Background and Derivation OMAE2016-54238

Leif Collberg¹ Erik Levold²
1. DNV GL, Hovik, Norway; 2. Statoil, Trondheim, Norway

Subsea Pipeline UHB Design – An Improved Analysis Approach OMAE2016-54253

Matt Liu, Colin Cross
Aker Solutions, London, United Kingdom

DNV-OS-F101 Combined Loading Criterion – Range of Application and Comparison with other Criteria OMAE2016-54741

Olav Fyrileiv¹ Leif Collberg² Olav Aamlid²
1. Det Norske Veritas, Hovik, Norway; 2. DNV GL, Hovik, Norway

Probabilistic Analysis of the Collapse Pressure of Corroded Pipelines OMAE2016-54299

Nara Oliveira¹ Helio Bisaggio² Theodoro Netto³
1. Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 2. Agência Nacional do Petróleo - ANP, Rio de Janeiro, RJ, Brazil; 3. COPPE/UFRJ, Rio De Janeiro, RJ, Brazil

Ocean Engineering

6-2-3 Wave Mechanics and Wave Effects III

Wednesday June 22

Rm 106 | 13:30 – 15:00

Session Chair: Solomon Yim, Oregon State University, USA
Session Co-Chair: WATARU FUJIMOTO, The University of Tokyo, Japan

Study on Influence of Geometrical Dimensions of Floating Bodies on Cloaking Phenomenon OMAE2016-54783

Zhigang Zhang, Guanghua He, Xiaoqun Ju, Dong Yu
Harbin Institute of Technology, Weihai, China

Mass, Momentum and Energy Flux in Nonlinear Water Wave Based on HAM Solution OMAE2016-54856

Zhiliang Lin
Shanghai Jiao Tong University, Shanghai, China

Numerical Simulation of Submarine Surfacing with Six Degrees of Freedom in Regular Waves OMAE2016-55018

Weijian Jiang, Ran He, Zhilin Wang, Xianzhou Wang, Dakui Feng
Huazhong University of Science & Technology, Wuhan, China

Statistical Investigation of the Surface Profile of Rouge Waves in 2D Non-breaking Seas OMAE2016-55091

Qiuchen Guo, Mohammad-Reza Alam
University of California, Berkeley, Berkeley, CA, USA

Ocean Engineering

6-8-7 Fluid-Structure, Multi-body and Wave-body Interaction VII

Wednesday June 22

Rm 107 | 13:30 – 15:00

Session Chair: Nuno Fonseca, MARINTEK, Norway
Session Co-Chair: Onno Bokhove, University of Leeds, United Kingdom

Suppression of Irregular Frequency in Multi-body Problem and Free-Surface Singularity Treatment OMAE2016-54957

Yujie Liu, Jeffrey Falzarano
Texas A&M University, College Station, TX, USA

Wave-Body Interactions Among an Array of Truncated Vertical Cylinders OMAE2016-55055

Qian Zhong, Ronald W. Yeung
University of California at Berkeley, Berkeley, CA, USA

Optimization of a Parametric FLNG in Finite Water Depth OMAE2016-55087

Amitava Guha, Jeffrey Falzarano
Texas A&M University, College Station, TX, USA

Dynamic Analysis of Towed Cable-array System Under Different Munk Moment Coefficients OMAE2016-54002

Dapeng Zhang, Keqiang Zhu
Ningbo University, Ningbo, China

Polar and Arctic Sciences and Technology

7-13-1 Structure-Ice-Interaction I

Wednesday June 22 **Rm 108 | 13:30 – 15:00**

Session Chair: Quentin Hissette, Hamburg Ship Model Basin (HSVA), Germany
 Session Co-Chair: Walter Kuehnlein, sea2ice Ltd. & Co. KG, Germany

Breaking Load of Thick Ice on Sloping Structures OMAE2016-54397

Fwu Chyi Teo, L.H. Poh, S. D. Pang
 National University of Singapore, Singapore, Singapore

Velocity Effects on Wide Sloping Structure Ice Loads OMAE2016-54400

Yihe Wang, Leong Hien Poh
 National University of Singapore, Singapore, Singapore

A Coupled Dynamic Ice-Load and Moored Floater Interaction Parametric Study for First Year Level Ice OMAE2016-54708

Aziz Ahmed¹ Anurag Yenduri¹ Ritwik Ghoshal¹ Xudong Qian¹ Rajeev Kumar Jaiman¹ Zhuo Chen² Wenping Wang³ Ankit Choudhary² Anis Hussain⁴
 1. National University of Singapore, Singapore, Singapore; 2. Keppel Offshore and Marine Technology Centre, Singapore, Singapore; 3. KOMtech, Singapore, Singapore; 4. Keppel Offshore & Marine Technology Centre (KOMtech), Singapore, Singapore

Hydrodynamic Interaction of Ice Sheet and a Floating Platform OMAE2016-54745

Aziz Ahmed, M A Hannan, Xudong Qian, Bai Wei
 National University of Singapore, Singapore, Singapore

CFD and VIV

8-2-3 Free Surface Flows – III

Wednesday June 22 **Rm 201 | 13:30 – 15:00**

Session Chair: Antonio Souto-Iglesias, Technical University of Madrid (UPM), Spain
 Session Co-Chair: Arnt G. Fredriksen, Multiconsult, Norway

Numerical Modelling of Breaking Wave Interaction with a Group of Four Vertical Slender Cylinders in Square Arrangements OMAE2016-54451

Mayilvahanan Alagan Chella¹ Hans Bihs¹ Arun Kamath²
 Dag Myrhaug¹ Øivind Asgeir Arnsten¹
 1. Norwegian University of Science and Technology, Trondheim, Norway;
 2. Department of Civil and Transport Engineering, Trondheim, Norway

CFD Simulations of Non-linear Sloshing in a Rotating Rectangular Tank Using the Level Set Method OMAE2016-54533

Erlend Liavaag Grotle¹ Hans Bihs² Eilif Pedersen² Vilmar Æsøy¹
 1. Norwegian University of Science and Technology, Aalesund, Norway;
 2. Norwegian University of Science and Technology, Trondheim, Norway

Study of Water Impact and Entry of a Free Falling Wedge Using CFD Simulations OMAE2016-54675

Arun Kamath¹ Hans Bihs² Øivind Asgeir Arnsten²
 1. Department of Civil and Transport Engineering, Trondheim, Norway;
 2. Norwegian University of Science and Technology, Trondheim, Norway

Passing Ship Effects in Non-Uniform Water Field OMAE2016-55065

Lilan Zhou, Ji Yang, Qian Wang, Jiangtao Qin
 Wuhan University of Technology, Wuhan, China

CFD and VIV

8-5-3 Verification, Validation and Uncertainty Quantification

Wednesday June 22 **Rm 202 | 13:30 – 15:00**

Session Chair: Owen Oakley, Retired
 Session Co-Chair: Guangyu Wu, Chevron, USA

Validation: What, Why and How OMAE2016-54005

Luis Eca¹ Guilherme Vaz² Arjen Koop² Filipe Pereira³ Hugo Abreu³
 1. IST Universidade de Lisboa, Lisboa, Portugal;
 2. MARIN, Wageningen, Netherlands; 3. IST, Lisboa, Portugal

Verification of Length Scale Effects on Solution Accuracy of Hybrid RANS – LES Methods OMAE2016-54008

Gaurav Kumar¹ Harish Gopalan² Dominic Denver John Chandar² Vinh-Tan Nguyen² Ashoke De¹
 1. Indian Institute of Technology, Kanpur, Kanpur, India;
 2. Institute of High Performance Computing, A*STAR, Singapore, Singapore

Research on the Uncertainty Analysis in CFD Simulation of the Dredging Dustpan OMAE2016-54075

Yu Lu, Ankang Hu, Xin Chang
 Harbin Engineering University, Harbin, China

Hydrodynamic Characteristics Analysis on the Dredging Dustpan Internal Flow Field Based on CFD OMAE2016-54074

Yu Lu, Ankang Hu, Xin Chang
 Harbin Engineering University, Harbin, China

Ocean Renewable Energy

9-1-5 Model Testing and Simulation

Wednesday June 22 **Rm 203 | 13:30 – 15:00**

Session Chair: Jean-Christophe Gilloteaux, Ecole Centrale de Nantes, France
 Session Co-Chair: Sandy Day, University of Strathclyde, United Kingdom
 Session Co-Chair: Chenyu Luan, Norwegian University of Science and Technology, Norway

Simulation and Development of a Wind-Wave Facility for Scale Testing of Offshore Floating Wind Turbines OMAE2016-54281

Sarah McElman¹ Arjen Koop² Erik-Jan de Ridder² Andrew Goupee³
 1. University of Maine, Orono, ME, USA; 2. MARIN, Wageningen, Netherlands; 3. University of Maine, Holden, ME, USA

Real-time Hybrid Model Testing of a Braceless Semi-submersible Wind Turbine – Part I: The Hybrid Approach OMAE2016-54435

Thomas Sauder¹ Valentin Chabaud² Maxime Thys¹ Erin E. Bachynski¹ Lars Ove Sæther¹
 1. MARINTEK, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway

Real-time Hybrid Model Testing of a Braceless Semi-submersible Wind Turbine – Part II: Experimental Results OMAE2016-54437

Erin E. Bachynski¹ Maxime Thys¹ Thomas Sauder¹ Valentin Chabaud² Lars Ove Sæther¹
 1. MARINTEK, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway

Real-Time Hybrid Model Tests of a Braceless Semi-Submersible Wind Turbine – Part III: Calibration of a Numerical Model OMAE2016-54640

Petter Andreas Berthelsen, Erin E. Bachynski, Madjid Karimirad, Maxime Thys
 MARINTEK, Trondheim, Norway

Ocean Renewable Energy

9-3-2 Vertical Axis Systems

Wednesday June 22

Rm 204 | 13:30 – 15:00

Session Chair: Stephane Paboef

Session Co-Chair: Martin Nurenburg

Turbine-Current Frequencies Interaction in Vertical Axis Marine Current Turbine OMAE2016-55131

Islam Amin

Port Said University, Port Said, Egypt

Effect of Number of Blades on the Performance of Vertical Axis Marine Current Turbine under Unsteady Current Velocity OMAE2016-55132

Islam Amin

Port Said University, Port Said, Egypt

Starting System for Darrieus Water Turbine of Tidal Stream Electricity Generation OMAE2016-55143

Seiji Shimizu¹ Masayuki Fujii¹ Tetsuya Sumida¹ Kenji Sasa²

Yasuhiro Kimura¹ Eishi Koga¹ Hisaya Motogi¹

1. National Institute of Technology, Oshima College, Suo-oshima, Japan;

2. Kobe University, Kobe, Japan

Aerodynamic Design Optimization of Elliptical-bladed Savonius-style Wind Turbine by Numerical Simulations OMAE2016-55095

Nur Alom¹ Satish C. Kolaparthi² Sarath C. Gadde² Ujjwal K. Saha³

1. National Institute of Technology Meghalaya, Shillong, India; 2. Caggemini India Pvt. Ltd., Bangalore, India; 3. Indian Institute of Technology Guwahati, Guwahati, India

Offshore Geotechnics

10-3-1 Bucket Foundations and Suction Caissons

Wednesday June 22

Rm 207 | 13:30 – 15:00

Session Chair: Terry Griffiths, UWA, Australia

Suction Bucket Foundations for Wind Energy Turbines: A Numerical Study with FEM OMAE2016-54362

Paola Dutto, Matthias Baessler, Peter Geissler

Bundesanstalt für Materialforschung und -prüfung, Berlin, Germany

Influence of the Skirt on the Seismic Response of Bucket Foundations for Offshore Wind Tower Using Dynamic Centrifuge Model Tests OMAE2016-54739

Leonardo T. Olalo¹ Yun Wook Choo¹ Kyung-Tae Bae²

1. Kongju National University, Cheonan, Korea; 2. Daewoo E&C, Suwon, Korea

Re-evaluation of Suction Anchor Holding Capacity based on Undrained Shear Strength Back Calculations OMAE2016-55075

Yun Sup Shin¹ Thomas Langford¹ Jérôme De Sordi²

1. Norwegian Geotechnical Institute, Oslo, Norway; 2. Statoil ASA, Stavanger, Norway

Petroleum Technology

11-10-1 Innovations in Drilling, Production and Transport

Wednesday June 22

Rm 105 | 13:30 – 15:00

Session Chair: Wenting Qin, Chongqing University of Science of Technology, Korea

Effect of Major Factors on Asphaltene Deposition of Heavy Crude Oil Dilution for Submarine Production and Transportation OMAE2016-54021

Jiaqiang Jing¹ Cheng Wu¹ Xiaoshuang Chen¹ Junwen Chen² Ping Lu³ Anlin Hu⁴

1. Southwest Petroleum University, Chengdu, China; 2. China Petroleum Engineering Company Southwest Branch, Chengdu, China; 3. Bohai Oilfield Research Institute, Tianjin Branch, CNOOC China Limited, Tianjin, China; 4. Oil & Gas Fire Protection Key Laboratory of Sichuan Province, Chengdu, China

Potential of Solar Enhanced Oil Recovery in the Major Heavy Oil Areas of China OMAE2016-54022

Miguel Frasset, Manuel Silva

University of Sevilla, Sevilla, Spain

Extended-reach Capability of the Horizontal Micro-hole Drilled by Multiple Water Jets OMAE2016-54028

Huanpeng Chi¹ Jigang Meng² Shouceng Tian³

1. Oil and Gas Survey, China Geological Survey, Beijing, China; 2. Xinjiang Oil Field Company, PetroChina, Karamay, China; 3. China University of Petroleum-Beijing, Beijing, China

Investigation of Well Production Mechanism in Heavy Oil Reservoirs Underlain by Strong Bottom Water OMAE2016-54040

Wenting Qin¹ Andrew Wojtanowicz² Pingya Luo³

1. Chongqing University of Science of Technology, Chongqing, China; 2. Louisiana State University, Baton Rouge, LA, USA; 3. Southwest Petroleum University, Chengdu, China

Prof. Norman Jones Honoring Symposium on Impact Engineering

12-1-4 Structural Response IV

Wednesday June 22

Rm 109 | 13:30 – 15:00

Session Chair: He-Ming Wen, University of Science and Technology of China

A Dual-Limit-Erosion Approach to Estimate Fracture Zone of RC Slabs Subjected to High Velocity Impact Loads OMAE2016-54694

Masaharu Itoh¹ Ryo Matsuzawa¹ Masuhiro Beppu²

1. ITOCHU Techno-Solutions Corporation, Tokyo, Japan;

2. National Defence Academy of Japan, Yokosuka, Japan

TRM Versus FRP as Strengthening Material for Improving Impact Resistance of RC Slabs OMAE2016-54737

Husain Abbas, Tarek Almusallam, Yousef Al-Salloum, Nadeem Siddiqui, Aref Abadel King Saud University, Riyadh, Saudi Arabia

Influences of Fiber Types on the Scabbing of Concrete Slabs Subjected of Projectile Impact OMAE2016-54742

Gyuyong Kim¹ Hongseop Kim¹ Jeongsoo Nam² Sanggyu Lee¹

1. Chungnam National University, Daejeon, Korea;

2. Tokyo Institute of Technology, Yokohama, Japan

Crack Propagation and Local Failure Simulation of Reinforced Concrete Subjected to Projectile Impact Using RBSM OMAE2016-54969

Yoshihito Yamamoto¹ Soichiro Okazaki¹ Masuhiro Beppu²

Taiki Shibata² Hikaru Nakamura¹

1. Nagoya University, Nagoya, Japan;

2. National Defence Academy of Japan, Yokosuka, Japan

Prof. Yukio Ueda Honoring Symposium on Idealized Nonlinear Mechanics for Welding and Strength of Structures

13-6-1 Welding Residual Stresses and Distortion

Wednesday June 22 **Rm 110 | 13:30 – 15:00**

Session Chair: Ninshu Ma, JSOL Corporation, Japan

Session Co-Chair: Masakazu Shibahara, Osaka Prefecture University, Japan

Predicting Welding Residual Stress Distributions in P92 Steel Joints Considering the Influence of Solid-state

Phase Transformation OMAE2016-54255

Dean Deng¹ Hidekazu Murakawa²

1. Chongqing University, Chongqing, China; 2. Osaka University, Ibaraki, Japan

The Effect of Welding Residual Stress Distribution in Thickness Direction with Thick Steel Plate to

Identification of Fracture Toughness OMAE2016-55086

Gyubaek An¹ Jeong-Ung Park² Wanchuck Woo³

1. POSCO, Pohang, Korea; 2. Chosun University, Dong-Gu, Korea; 3. KAERI, Daejeon, Korea

Effect of Welding Sequences on the Residual Stress Distribution in Stiffened Plates OMAE2016-54245

Bai Qiao Chen¹ Carlos Guedes Soares²

1. Instituto Superior Técnico, Universidade de Lisboa, Lisboa, Portugal;

2. Instituto Superior Tecn-CENTEC, Lisboa, Portugal

REFRESHMENT BREAK

15:00 – 15:30

Lobby, 2nd Floor, Convention Hall

CONCURRENT SESSIONS

15:30 – 17:00

Offshore Technology

1-4-4 Fatigue

Wednesday June 22 **Rm 101 | 15:30 – 17:00**

Session Chair: Xinshu Zhang, Shanghai Jiao Tong University, China

Session Co-Chair: Xiao-Bo Chen, Bureau Veritas, Singapore

Chain Out Of Plane Bending (OPB) Fatigue Joint Industry Project (JIP) FEA Results And Multiaxiality Study Results OMAE2016-54198

Lucile Rampi¹ Andre Bignonnet² cedric Le Cunff³ Francois Bourgin⁴ Pedro Vargas⁵

1. SBM Offshore, Monaco, Monaco; 2. andre bignonnet consulting, Beaulieu

sur Layon, France; 3. Principia, La Ciotat, France; 4. Principia, Nantes,

France; 5. Chevron Energy Technology Company, Houston, TX, USA

Chain Out of Plane Bending (OPB) Fatigue Joint Industry Project (JIP) Fatigue Test Program Results and Methodology OMAE2016-54199

Lucile Rampi¹ Arnaud Gerthoffert² Michel Francois³ Andre Bignonnet⁴ Pedro Vargas⁵

1. SBM Offshore, Monaco, Monaco; 2. Bureau Veritas, Shanghai, China; 3. Bureau

Veritas, Neuilly sur Seine, France; 4. Andre Bignonnet Consulting, Beaulieu sur

Layon, France; 5. Chevron Energy Technology Company, Houston, TX, USA

Corrosion Fatigue Behavior of Mooring Chain Steel in Seawater OMAE2016-54426

Alberto Arredondo¹ Jonathan Fernández¹ Elena Silveira² José Luis Arana³

1. Vicinay Marine Innovación, Leioa, Spain; 2. Tecnalia, San Sebastián,

Spain; 3. Basque Country University, Bilbao, Spain

Subsea Wellhead Fatigue Analysis With Focus on Thermal Conditions OMAE2016-54088

Lucas Cantinelli Sevillano, Jesus De Andrade, Milan Stanko, Sigbjørn Sangesland

Norwegian University of Science and Technology, Trondheim, Norway

Offshore Geotechnics

10-4-1 Spudcans and Pipelines

Wednesday June 22 **Rm 207 | 15:30 – 17:00**

Session Chair: Amin Barari, Virginia Tech, USA

Numerical Study of Spudcan Penetration in Clay-Sand-Clay Soil OMAE2016-54639

Qilin Yin, Sheng Dong, Jinjin Zhai

Ocean University of China, Qingdao, China

The Mechanical Behaviour of Marine Clays in Malaysia OMAE2016-54795

Niraku Ahmad, Indra Harahap

Universiti Teknologi PETRONAS, Tronoh, Malaysia

A Novel Spudcan for Easing Spudcan-Footprint Interaction Issues OMAE2016-55003

Minjung Jun¹ Youngho Kim² Muhammad Shazzad Hossain¹

Mark J. Cassidy¹ Yuxia Hu³ Jonghwa Won⁴ Jongsik Park⁴

1. Centre of Offshore Foundation Systems, The University of Western Australia, Crawley,

WA, Australia; 2. University of Western Australia, Perth, WA, Australia; 3. School of Civil,

Environmental and Mining Engineering, The University of Western Australia, Crawley, WA,

Australia; 4. Daewoo Shipbuilding & Marine Engineering Co. Ltd. (DSME), Seoul, Korea

Structures, Safety and Reliability

2-8-1 Reliability of Renewable Energy Systems

Wednesday June 22 **Rm 102 | 15:30 – 17:00**

Session Chair: Zhen Gao, NTNU, Norway

Session Co-Chair: John D. Sørensen, Aalborg University, Denmark

Availability Estimation of Ship-based Carbon Capture and Storage (CCS) Chain for Korea CCS Demonstration Project OMAE2016-54703

Youngkyun Seo¹ Daejun Chang¹ Cheol Huh²

1. Korea Advanced Institute of Science and Technology, Daejeon, Korea;

2. Korea Maritime and Ocean University, Busan, Korea

An Investigation of Passive and Semi-Active Tuned Mass Dampers for a Tension Leg Platform Floating Offshore

Wind Turbine in ULS Conditions OMAE2016-54332

Semyung Park¹ Matthew Lackner¹ John Cross-Whiter² A. Rodriguez Tsouroukdissian³

William La Cava¹

1. University of Massachusetts, Amherst, MA, USA;

2. GLOSTEN, Seattle, WA, USA; 3. General Electric, Richmond, VA, USA

Reliability of Offshore Wind Turbine Support Structures Subjected to Extreme Wave-induced Loads OMAE2016-54240

Yordan Garbatov¹ Baran Yeter¹ Carlos Guedes Soares²

1. Universidade de Lisboa, Lisboa, Portugal;

2. Instituto Superior Tecn-CENTEC, Lisboa, Portugal

Updating Failure Probability of a Welded Joint in Offshore Wind Turbine Substructures OMAE2016-54232

Quang A. Mai¹ John D. Sørensen² Philippe Rigo¹
1. University of Liege, Liege, Belgium; 2. Aalborg University, Aalborg, Denmark

Structures, Safety and Reliability

2-10-2 Collision and Crashworthiness II

Wednesday June 22 **Rm 206 | 15:30 – 17:00**

Session Chair: Sören Ehlers, Hamburg University of Technology, Germany
Session Co-Chair: Zhiqiang Hu, Shanghai Jiao Tong University, China

Safety and Reliability Analysis of Composites

Under Low Velocity Impact OMAE2016-54582

Shivdayal Patel¹ Suhail Ahmad² Manander Singh³
1. National Institute of Technology Delhi, Delhi, India; 2. Indian Institute of Technology Delhi, Delhi, India; 3. GGSIP University, New Delhi, India

Parametric Study Related to Probability of Riser Collision OMAE2016-54637

Ping Fu, Bernt Leira, Dag Myrhaug
Norwegian University of Science and Technology, Trondheim, Norway

Numerical Analysis for Impact Force in the High-Energy

Ship-Bridge Pier Collisions OMAE2016-55119

Ming Cai Xu¹ Jin Pan² Shi Wen Huang²
1. Huanzong University, Wuhan, China; 2. Wuhan University of Technology, Wuhan, China

Pipelines, Risers, and Subsea Systems

4-3-4 Fatigue and Fracture

Wednesday June 22 **Rm 104 | 15:30 – 17:00**

Session Chair: Yong Bai, Zhejiang University, China
Session Co-Chair: Olav Fyrileiv, Det Norske Veritas, Norway

Fatigue Assessment of Pipeline with Plain Dent Under Cyclic Pressure Loading Using Finite Element Method OMAE2016-54863

Michael Durowoju¹ Yongchang Pu¹ Simon Benson¹ Julia Race²
1. Newcastle University, Newcastle upon Tyne, United Kingdom;
2. University of Strathclyde, Glasgow, United Kingdom

Recent Advances in Pipeline Free Span Design:

A New Revision of DNV-RP-F105 OMAE2016-55010

Knut Vedeld¹ Hävar Sollund¹ Olav Fyrileiv²
1. DNV GL, Oslo, Norway; 2. Det Norske Veritas, Hoevik, Norway

Inelastic Analysis of the SENT Specimen of X80 Pipe for Strain Capacity Evaluation OMAE2016-54340

Woo-Yeon Cho¹ Ki-Seok Kim¹ Jae Hyuk Lee² Young-Cheol Yoon³
1. POSCO, Incheon, Korea; 2. Daehung Future Technology, Seoungnam, Korea; 3. Myongji College, Seoul, Korea

Mechanical Behavior of Dented Steel Pipelines

Under Cyclic Loading OMAE2016-55157

Aglaia E. Pournara, Philip C. Perdikaris, Spyros A. Karamanos, Theocharis Papatheocharis
University of Thessaly, Volos, Greece

Ocean Engineering

6-7-1 Computational Mechanics and Design Applications

Wednesday June 22 **Rm 106 | 15:30 – 17:00**

Session Chair: Spyros Hirdaris, Lloyd's Register,
Session Co-Chair: Zhiyuan Pan, DNV GL - Software, Norway

A 3D Higher Order Time Domain Rankine Panel Method for Wave-current interaction OMAE2016-54994

Felipe Ruggeri¹ Rafael Watai² Alexandre N. Simos¹
1. University of São Paulo, São Paulo, SP, Brazil; 2. Argonautica, São Paulo, SP, Brazil

Comparison of DES and LES Model for Simulation of Surface Ship Airwake OMAE2016-55037

Congmin Li¹ Jie Cheng² Weijian Jiang¹ Zongxin Yu¹ Zhiguo Zhang¹
1. Huazhong University of Science & Technology, Wuhan, China; 2. Rensselaer Polytechnic Institute/Huazhong University of Science & Technology, Troy, NY, USA

An Arrangement Design Framework for Ships and Offshore Plants Based on Expert System and Optimization Technique OMAE2016-55072

Ki-Su Kim, Myung-Il Roh, Sung-Kyoon Kim
Seoul National University, Seoul, Korea

Verification of Riser Load Stacked on Stanchion Induced by Self Weight and Hull Acceleration OMAE2016-55110

So-Yoon Kim¹ Ki-Sub Choi² Myung-Hyun Kim²
1. Pusan National University, Pusan, Korea; 2. InnoQual, Pusan, Korea

Ocean Engineering

6-13-1 Ocean Measurement and Data Interpretation

Wednesday June 22 **Rm 107 | 15:30 – 17:00**

Session Chair: Xiaoyan Long, Fugro Geoconsulting Inc., USA
Session Co-Chair: Martin Nuernberg, Newcastle University, United Kingdom

Image Based Method to Estimate Regular

Wave Parameters OMAE2016-54176

Rodrigo S. Lavieri, Eduardo A. Tannuri
University of São Paulo, São Paulo, SP, Brazil

Directional Analysis and Potential for Spectral

Modelling of Infragravity Waves OMAE2016-54282

Takehiko Nose¹ Alexander V. Babanin² Kevin Ewans³
1. Swinburne University of Technology, Melbourne, VIC, Australia; 2. Swinburne University of Technology, Hawthorn, VIC, Australia; 3. Sarawak Shell Berhad, Lutong, Malaysia

Examining Field Measurements of Deep

Water Crest Statistics OMAE2016-54363

Isabella Maria Makri¹ Stephen Marcus Rose² Marios Christou¹
Richard Gibson³ Graham Feld⁴
1. Imperial College London, London, United Kingdom; 2. Shell, Rijswijk, Netherlands; 3. Offshore Consulting Group, London, United Kingdom; 4. Shell Global Solutions, Aberdeen, United Kingdom

Towards Nonlinear Wave Reconstruction and Prediction From Synthetic Radar Images OMAE2016-54496

Andreas P. Wijaya
LabMath-Indonesia & University of Twente, Bandung, Indonesia

Polar and Arctic Sciences and Technology

7-13-2 Structure-Ice-Interactions II

Wednesday June 22 **Rm 108 | 15:30 – 17:00**

Session Chair: Regina Sopper, Memorial University of Newfoundland, Canada
 Session Co-Chair: Walter Kuehnlein, sea2ice Ltd. & Co. KG, Germany

Numerical Simulation of Icebreaking Process and Parameters Sensitivity Analysis OMAE2016-54497

Yue Qiao, Duanfeng Han, Mange Teng, Guoliang Wang, Feng Liu
 Harbin Engineering University, Harbin, China

Simulation of Brittle-ice Contacting with Stiffened Plate by Peridynamic Method OMAE2016-54569

Minghao Liu, Qing Wang, Wei Lu, Hang Guo
 Harbin Engineering University, Harbin, China

Numerical Investigation of Fluid-Ice-Structure Interaction During Collision by an Arbitrary Lagrangian Eulerian Method OMAE2016-54608

Ming Song¹ Ekaterina Kim² Jørgen Amdahl² Marilena Greco² Souli Mhamed³
 1. Dalian University of Technology, Dalian, China; 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. University of Lille, USTL, Villeneuve d'Ascq, France

Numerical Analysis for Damage Characteristics Caused by Ice Collision on the Side Structure OMAE2016-54727

Bo Cao¹ Dong-Myung Bae¹ Jung-Min Sohn¹ Aditya Rio Prabowo¹ Tuo-Han Chen² Huaiji Li³
 1. Pukyong National University, Busan, Korea; 2. Samin Information System. Co., Ltd / Shanghai Branch, Shanghai, China; 3. China Classification Society, Beijing, China

CFD and VIV

8-4-1 Cylinder VIV

Wednesday June 22 **Rm 201 | 15:30 – 17:00**

Session Chair: Hayden Marcollo, AMOG Consulting, Australia
 Session Co-Chair: Zhibiao Rao, Massachusetts Institute of Technology, USA

Flow-Induced Vibrations of a Square Cylinder with Combined Translational and Rotational Oscillations OMAE2016-54662

Tharindu Pradeeptha Miyawala, Mengzhao Guan, Rajeev Kumar Jaiman
 National University of Singapore, Singapore, Singapore

An Empirical Procedure for Fatigue Damage Estimation in Instrumented Risers OMAE2016-54623

Chen Shi¹ Lance Manuel²
 1. China University of Petroleum (East China), Qingdao, China;
 2. University of Texas at Austin, Austin, TX, USA

On the Effects of Turbulence Modeling on the Fluid-Structure Interaction of a Rigid Cylinder OMAE2016-54989

Guilherme Rosetti¹ Guilherme Vaz² André Luís Condino Fajarra³
 1. Argonautica, São Paulo, SP, Brazil; 2. MARIN, Wageningen, Netherlands; 3. UFSC, Guararema, SP, Brazil

Vortex Induced Motion of a Square Cylinder at Moderate Reynolds Numbers OMAE2016-54190

Chih-Hua Wu¹ Shengwei Ma¹ Chang-Wei Kang¹ Teck-Bin Arthur Lim¹
 Rajeev Kumar Jaiman² Gabriel Weymouth³ Owen Tutty³
 1. Institute of High Performance Computing, A*STAR, Singapore, Singapore;
 2. National University of Singapore, Singapore, Singapore; 3. Engineering And Environment / University of Southampton, Southampton, United Kingdom

CFD and VIV

8-5-4 Bluff Body Flows and Turbulence Modeling

Wednesday June 22 **Rm 202 | 15:30 – 17:00**

Session Chair: Zhong Li, National University of Singapore, Singapore
 Session Co-Chair: Rajeev Jaiman, National University of Singapore, Singapore

Numerical Study of Flow Around a Circular Cylinder at Reynold Number=3900 with Large Eddy Simulation Using CFD Code OMAE2016-55114

Niaz Bahadur Khan, Mohammed Jameel, Ahmad Badarudin
 Bin Mohamad Badry, Zainah B Ibrahim
 University of Malaya, Kuala Lumpur, Malaysia

Evaluation of Wind Loads on FPSO Topsides Using Numerical Wind Tunnel OMAE2016-54346

Daniel Barcarolo¹ Yann Andrillon¹ Erwan Jacquin¹ Alain Ledoux²
 1. HydrOcean, Nantes, France; 2. Total, Courbevoie, France

Numerical Simulation of the Influence of Rounded Corner on Flow Around Square Column OMAE2016-54512

Shaoshi Dai¹ Bassam Younis² Hongyang Zhang¹ Rongyu Zhang¹
 1. Harbin Engineering University, Harbin, China;
 2. University of California, Davis, Davis, CA, USA

On the Numerical Prediction of Transitional Flows with Reynolds-Averaged Navier-Stokes and Scale-Resolving Simulation Models OMAE2016-54414

Filipe Pereira¹ Guilherme Vaz² Luis Eca³ Sebastien Lemaire⁴
 1. IST, Lisbon, Portugal; 2. MARIN, Wageningen, Netherlands; 3. IST Universidade de Lisboa, Lisboa, Portugal; 4. Ecole Centrale de Lyon, Ecully, France

Ocean Renewable Energy

9-2-4 Prediction Tools

Wednesday June 22 **Rm 203 | 15:30 – 17:00**

Session Chair: Adrian de Andres
 Session Co-Chair: Ye Li

Coupled Mooring Analyses for the WEC-Sim Wave Energy Converter Design Tool OMAE2016-54789

Senu Sirnivas¹ Yi-Hsiang Yu² Matthew Hall³ Bret Bosma⁴
 1. National Renewable Energy Laboratory, Golden, CO, USA; 2. NREL, Golden, CO, USA;
 3. The University of Maine, Orono, ME, USA; 4. Oregon State University, Corvallis, OR, USA

WEC-Sim Phase 1 Validation Testing – Experimental Setup and Initial Results OMAE2016-54984

Bret Bosma¹ Kelley Ruehl² Asher Simmons¹ Budi Gunawan² Pedro Lomonaco¹
 1. Oregon State University, Corvallis, OR, USA;
 2. Sandia National Laboratories, Albuquerque, NM, USA

WEC-Sim Phase 1 Validation Testing – Numerical Modeling of Experiments OMAE2016-54986

Kelley Ruehl¹ Carlos Michelen¹ Yi-Hsiang Yu² Bret Bosma³
 1. Sandia National Laboratories, Albuquerque, NM, USA;
 2. NREL, Golden, CO, USA; 3. Oregon State University, Corvallis, OR, USA

Balancing Power Absorption and Fatigue Loads in Irregular Waves for an Oscillating Surge Wave Energy Converter OMAE2016-55046

Nathan Tom, Yi-Hsiang Yu, Michael Lawson, Alan Wright
 National Renewable Energy Laboratory, Golden, CO, USA

Ocean Renewable Energy

9-3-3 Site and Environmental Assessment

Wednesday June 22

Rm 204 | 15:30 – 17:00

Session Chair: M. Arockiasamy

Session Co-Chair: Sungho Lee

A French Application Case of Tidal Turbine Certification OMAE2016-54834

Stephane Paboeuf¹ Laura-Mae Macadre² Pascal Yen Kai Sun³

1. Bureau Veritas, Saint-Herblain Cedex, France; 2. Bureau Veritas, Neuilly sur Seine, France; 3. Sabella, Quimper, France

Power Performance Assessment of the Tidal Turbine

Sabella D10 Following IEC62600-200 OMAE2016-54836

Stephane Paboeuf¹ Pascal Yen Kai Sun² Laura-Mae Macadre³ Gaël Malmgorn²

1. Bureau Veritas, Saint-Herblain Cedex, France; 2. Sabella, Quimper, France; 3. Bureau Veritas, Neuilly sur Seine, France

Development of a Simulation Tool to Accurately

Predict Tidal Turbine Reliability OMAE2016-54921

Benson Waldron¹ Alexandros Zymaris² Nikolaos M Kakalis² Claudio Bittencourt¹

1. DNV GL, London, United Kingdom; 2. DNV GL, Piraeus, Greece

Experimental Study of Flow Field Characteristics in

Tidal Stream Turbine Arrays OMAE2016-54516

Martin Nuernberg, Longbin Tao

Newcastle University, Newcastle upon Tyne, United Kingdom

Petroleum Technology

11-11-1 Petroleum Production System Design and Operation

Wednesday June 22

Rm 105 | 15:30 – 17:00

Session Chair: Sergio N. Bordalo, University of Campinas, Brazil

Session Co-Chair: Celso Morooka, UNICAMP - University of Campinas, Brazil

Laboratory Study of the Behavior of Conventional

Intermittent Gas-Lift OMAE2016-54070

Sergio N. Bordalo, Ismael O. Ochoa Lara

UNICAMP - University of Campinas, Campinas, SP, Brazil

Challenges for Under-inhibition Strategies for Offshore Gas

Fields with Low Production Rates Using OLGA OMAE2016-54776

Yutaek Seo¹ Jakyung Kim² Daejun Chang³

1. Seoul National University, Seoul, Korea; 2. KAIST, Daejeon, Korea; 3. Korea Advanced Institute of Science and Technology, Daejeon, Korea

Verifying Production Losses Due to Petroleum Flow for

Improving Well Intervention and Design OMAE2016-54820

Paola Adriana Coca Suaznabar, Kazuo Miura, Celso Morooka

UNICAMP - University of Campinas, Campinas, SP, Brazil

Feasibility Study of a Subsea to Shore Production System OMAE2016-55108

Anna Carolinna Carrano Porto Scudino Alves, Ilson Paranhos Pasqualino

COPPE/UFRJ, Rio de Janeiro, RJ, Brazil

Prof. Norman Jones Honoring Symposium on Impact Engineering

12-1-5 Structural Response V

Wednesday June 22

Rm 109 | 15:30 – 17:00

Session Chair: Husain Abbas, King Saud University

Impact Response of Concrete Filled Steel Tube Columns OMAE2016-55070

Zhongwei Guan, Alaa Shakir, Steve Jones

University of Liverpool, Liverpool, United Kingdom

Comparison of Johnson-Cook Model and an ISV Plasticity

Damage Model in Penetration Simulation OMAE2016-55116

Yucheng Liu

Mississippi State University, Mississippi, USA

Dynamic Response of Sandwich Panels with Functionally Graded Aluminum Foam Cores Subjected to Underwater Explosion OMAE2016-55122

Changzai Zhang¹ Pan Zhang¹ Jun Liu¹ Jianqiang Pan² Yanjie Zhao² Yuansheng Cheng¹

1. Huazhong University of Science & Technology, Wuhan, China;

2. China Ship Scientific Research Center, Wuxi, China

Numerical Simulation on Response of Foam Core Sandwich

Panels Subjected to Underwater Explosion OMAE2016-55149

Dongjie Ai¹ Yuansheng Cheng¹ Jun Liu¹ Jianhu Liu² Haikun Wang² Pan Zhang¹

1. Huazhong University of Science & Technology, Wuhan, China;

2. China Ship Scientific Research Center, Wuxi, China

CONFERENCE BANQUET

18:30 – 22:00

Grand Ballroom, 3rd Floor, Convention Hall

See Social Events, page 19 for more details.

Thursday, June 23

Time	Title	Location
07:30 – 09:00	Outreach Breakfast / Feedback Session	Room 207, Convention Hall
08:30 – 10:00	Concurrent Sessions	See pages 72 to 75 for session titles, authors and locations.
10:00 – 10:30	Refreshment Break	Lobby, 2nd Floor, Convention Hall
10:30 – 12:00	Concurrent Sessions	See pages 75 to 77 for session titles, authors and locations.
12:00 – 13:30	Technical Session Organizers' Lunch	Grand Ballroom, 3rd Floor, Convention Hall
13:30 – 15:00	Concurrent Sessions	See pages 78 to 80 for session titles, authors and locations.
15:00 – 17:00	Farewell Reception	Room 205, 2nd Floor, Convention Hall

OUTREACH BREAKFAST / FEEDBACK SESSION

07:30 – 09:00

Room 207, Convention Hall

CONCURRENT SESSIONS

8:30 – 10:00

Offshore Technology

1-6-2 Vessel Motions and Sloshing

Thursday June 23

Rm 101 | 8:30 – 10:00

Session Chair: Wenhua Zhao, The University of Western Australia, Australia

Session Co-Chair: Xiaochuan Yu, University of New Orleans, USA

Numerical and Experimental Investigation on the Relative Motions of an FLNG System During Side-By-Side

Offloading Operation OMAE2016-54141

Qiaowei Xu, Zhiqiang Hu

Shanghai Jiao Tong University, Shanghai, China

Experimental Determination of Resonant Response in the Narrow Gap Between Two Side-by-side Fixed Bodies in Deep Water

OMA2016-54797

Wenhua Zhao¹ Hugh Wolgamot¹ Michalakos Efthymiou¹

Scott Draper¹ Paul Taylor² Rodney Eatock Taylor²

1. The University of Western Australia, Perth, WA, Australia;

2. Oxford University, Oxford, United Kingdom

Experimental Study of FLNG Hydrodynamics in Regular Head and Oblique Sea Waves

OMA2016-54811

Yuting Jin, Shuhong Chai, Jonathan Duffy, Christopher Chin, Neil Bose

Australian Maritime College, University of Tasmania, Launceston, TAS, Australia

Structures, Safety and Reliability

2-13-1 Risk Analysis and Management I

Thursday June 23

Rm 206 | 8:30 – 10:00

Session Chair: Marcelo R. Martins, Universidade de São Paulo, Brazil

Session Co-Chair: David Card, DNV GL, Korea

Reliability Analysis of Redundant Dynamic Positioning Control System with Human Factor Involved

OMA2016-54101

Fang Wang¹ Yong Bai² Feng Xu³

1. Hangzhou Dianzi University, Hangzhou, China; 2. Zhejiang University, Hangzhou, China; 3. Wuhan Second Ship Design and Research Institute, Wuhan, China

Multicriteria Optimization for System Configuration Using Monte Carlo Simulation and RAM Analysis

OMA2016-54274

Adriana M. Schleder, Paula C. Araujo, Marcelo Martins

University of São Paulo, São Paulo, SP, Brazil

Dynamic Decision-Making Model for Traffic Organization Within Traffic Separation Scheme During Maritime Accident Process

OMA2016-54616

Bing Wu, Xinpeng Yan, Yang Wang

Wuhan University of Technology, Wuhan, China

Human Factor Study for Maritime Simulator-based Assessment of Cadets

OMA2016-54772

Yisi Liu¹ Xiyuan Hou² Olga Sourina² Dimitrios Konovessis³ Gopala Krishnan⁴

1. Nanyang Technological University, Singapore, Singapore; 2. Fraunhofer/IDM@NTU, NTU, Singapore, Singapore; 3. School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore, Singapore; 4. Singapore Polytechnic, Singapore, Singapore

Structures, Safety and Reliability

2-9-1 Extreme Loading and Responses I

Thursday June 23

Rm 102 | 8:30 – 10:00

Session Chair: Jung Kwan Seo, Pusan National University, Korea

Session Co-Chair: Zhiqiang Hu, Shanghai Jiao Tong University, China

The Eulerian Analysis Technique for Underwater Explosions Bubbles in Three Dimensions

OMA2016-54072

Yingyu Chen, Xiongqiang Yao

Harbin Engineering University, Harbin, China

Pressure Load on Rigid Structure Induced by Double Underwater Explosions

OMA2016-54158

Rui Han, Aman Zhang, Shiping Wang

Harbin Engineering University, Harbin, China

Transient Response of Coated Submersible Hull to Deep Underwater Explosion

OMA2016-54165

Caiyu Yin, Zeyu Jin, Yong Chen, Hongxing Hua

Shanghai Jiao Tong University, Shanghai, China

The Use of Coupled and Uncoupled Analysis Techniques in the Assessment of Blast Wall Response to Explosions OMAE2016-55100

Bassam Burgan¹ Anqi Chen¹ Jae-Woong Choi² Yonghee Ryu²
 1. *The Steel Construction Institute, Ascot, United Kingdom;*
 2. *Samsung Heavy Industries, Bundang-gu, Seongnam-si, Korea*

Pipelines, Risers, and Subsea Systems

4-2-1 Rigid Riser I

Thursday June 23 **Rm 103 | 8:30 – 10:00**

Session Chair: Olav Fyrileiv, Det Norske Veritas, Norway
 Session Co-Chair: Feng Wang, Genesis Oil and Gas Consultants, USA

Nonlinear Dynamic Analysis of Deepwater Steel Lazy Wave Riser Subjected to Imposed Top-End Excitations OMAE2016-54111

Weidong Ruan¹ Songhua Liu¹ Yanyao Li¹ Yong Bai² Shuai Yuan¹
 1. *Zhejiang University, Hangzhou, China;* 2. *Zhejiang University, Zhejiang, China*

An Efficient User Defined Element for Nonlinear Riser-Soil Interaction Analysis of Steel Catenary Riser Systems OMAE2016-54210

Jiayue Liu¹ Mehrdad Kimiaei² Mark Randolph¹
 1. *The University of Western Australia, Crawley, WA, Australia;*
 2. *The University of Western Australia, Perth, WA, Australia*

Study of Seabed Trench Induced by Steel Catenary Riser and Seabed Interaction OMAE2016-54236

Kunpeng Wang¹ Ying Min Low²
 1. *Jiangsu University of Science and Technology, Zhenjiang, China;*
 2. *National University of Singapore, Singapore, Singapore*

Comparison of Software for Analysis of Risers Tied Back with Pull Tubes OMAE2016-54456

Feng Wang¹ Roger Burke¹ Alan Yu²
 1. *Genesis Oil and Gas Consultants, Houston, TX, USA;*
 2. *Genesis Oil and Gas USA, Houston, TX, USA*

Pipelines, Risers, and Subsea Systems

4-3-5 Impact

Thursday June 23 **Rm 104 | 8:30 – 10:00**

Session Chair: Ilson Paranhos Pasqualino, COPPE/UFRJ, Brazil
 Session Co-Chair: Segen Estefen, Rio de Janeiro Federal University, Brazil

Analysis of Clump Weight Interference with Pipelines – Mechanisms and Actions OMAE2016-54196

Hagbart S. Alsos¹ Åsta O. Wendel¹ Stig Olav Kvarme¹ Svein Savik²
 1. *Reinertsen Oil & Gas, Trondheim, Norway;* 2. *Norwegian University of Science and Technology, Trondheim, Norway*

Advanced Pipeline Impact Design OMAE2016-54855

Ragnar Torvanger Iglund¹ Hagbart S. Alsos² Stig Olav Kvarme²
 1. *Reinertsen, Trondheim, Norway;* 2. *Reinertsen Oil & Gas, Trondheim, Norway*

Behavioral Characteristics of Dropped Pipeline During Installation OMAE2016-55040

Taesung Eom, Minsu Kim
 Wood Group Kenny, Houston, TX, USA

Ocean Engineering

6-9-1 Marine Environment and Very Large Structures I

Thursday June 23 **Rm 107 | 8:30 – 10:00**

Session Chair: Wei Qiu, Memorial University of Newfoundland, Canada
 Session Co-Chair: Arnt G. Fredriksen, Multiconsult, Norway

A Submerged Floating Tube Bridge for the Bjørnafjord: Alternatives for Station Keeping OMAE2016-54056

Tale Egeberg Aasland¹ Anders Myhr² Stein Atle Haugerud²
 Arianna Minoretta³ Jorunn Hillestad Sekse⁴
 1. *Norwegian Public Roads Administration, Stavanger, Norway;* 2. *Dr. Techn. Olav Olsen, Lysaker, Norway;* 3. *Norwegian Public Roads Administration, Trondheim, Norway;* 4. *Norwegian Public Roads Administration, Leikanger, Norway*

Sensitivity Analysis of Design Parameters in Jacket Foundation for Offshore Wind Farm OMAE2016-54309

Qiyu Wang¹ Jianhua Zhang² Yiqun Xie²
 1. *Harbin Engineering University, Harbin, China;* 2. *College of Aerospace and Civil Engineering, Harbin Engineering University, Harbin, China*

The Study on the Risk Analysis of Submarine Landslide in Continental Slope Region of the Northern South China Sea OMAE2016-54898

Zhiduo Yan¹ Weichen Ding² Liang Pang¹
 1. *Ocean University of China, Qingdao, China;* 2. *DMAR Engineering Inc., Qingdao, China*

Comparative Study of Different Grid Models for the Oil Spill Under Water OMAE2016-55154

Meirong Jiang¹ Zhigang Li² Jianxing Yu³ Hanjun Yin² Ying Jiang²
 1. *State Key Laboratory of Hydraulic Engineering Simulation and Safety, Tianjin University, Tianjin, China;* 2. *Offshore Oil Engineering Co., Ltd., Tianjin, China;* 3. *Tianjin University, Tianjin, China*

Ocean Engineering

6-14-1 Coastal Engineering I

Thursday June 23 **Rm 106 | 8:30 – 10:00**

Session Chair: Shixiao Fu, Shanghai Jiao Tong University, China
 Session Co-Chair: Bjarte O. Kvamme, University of Stavanger, Norway

Dune Erosion Behind Revetments Due to Overtopping of Irregular Waves with Different Angles of Wave Incidence OMAE2016-54162

Lisham Bonakdar¹ Hocine Oumeraci¹ Frank Thorenz² Holger Blum²
 1. *Technische Universität Braunschweig, Braunschweig, Germany;* 2. *Lower Saxony Water Management, Coastal Defence and Nature Conservation Agency, Norden, Germany*

Numerical Study of Transient Harbor Oscillations Induced by N-Waves OMAE2016-54237

Junliang Gao¹ Chunyan Ji¹ Yingyi Liu²
 1. *Jiangsu University of Science and Technology, Zhenjiang, China;*
 2. *Kyushu University, Kasuga, Japan*

Numerical Investigation of Wave Period Influence on Long Wave Run-up on Rigid Vegetation Slope OMAE2016-54298

Jun Tang¹ Yongming Shen²
 1. *Dalian University of Technology, Dalian, China;* 2. *State Key laboratory of Coastal and Offshore Engineering, Dalian University of Technology, Dalian, China*

Net Bottom Sediment Transport Pattern Related to Residual Currents in the Pearl River Estuary, South China OMAE2016-54514

Yao Wu, Wei Zhang, Mingkai Guan, Huanghao Hu
Hohai University, Nanjing, China

CFD and VIV

8-3-5 Risers and Pipelines V

Thursday June 23 **Rm 201 | 8:30 – 10:00**

Session Chair: Yiannis Constantinides, Chevron Energy Technology Company, USA
Session Co-Chair: Owen Oakley, Retired

Drilling Riser Model Tests for Software Verification OMAE2016-54323

Decao Yin¹ Halvor Lie² Massimiliano Russo³ Guttorm Grytoy⁴
1. MARINTEK/SINTEF, Trondheim, Norway; 2. MARINTEK, Trondheim, Norway; 3. Statoil ASA, Katy, TX, USA; 4. Statoil, Fornebu, Norway

Determining the Hydrodynamic Coefficients of a BOP OMAE2016-54932

Samuel Holmes¹ William Calver² Michael Tognarelli³
Yiannis Constantinides⁴ Massimiliano Russo⁵
1. Redwing Engineering, Palo Alto, CA, USA; 2. Altair Product Design, Troy, MI, USA; 3. BP American Production Co., Houston, TX, USA; 4. Chevron Energy Technology Company, Katy, TX, USA; 5. Statoil ASA, Katy, TX, USA

Experimental Investigation on Vortex-Induced Vibration of a Free-Hanging Riser Under Vessel Motion OMAE2016-54617

Jungao Wang¹ Shixiao Fu² Muk Chen Ong³ Huajun Li⁴
1. National University of Singapore, Singapore, Singapore; 2. Shanghai Jiao Tong University, Shanghai, China; 3. University of Stavanger, Trondheim, Norway; 4. Ocean University of China, Qingdao, China

Examination of Hydrodynamic Forces Acting on a Group of Circular Cylinders at High Reynolds Numbers OMAE2016-54750

Linwei Shen¹ Rajeev Kumar Jaiman¹ Peter Francis Bernad Adaikalaraj² Vaibhav Joshi³ Jungao Wang¹ Sue Ben Tan⁴
1. National University of Singapore, Singapore, Singapore; 2. Keppel Offshore and Marine Technology Centre, Singapore, Singapore; 3. Keppel-NUS Corporate Lab, Singapore, Singapore; 4. KEEPEL, Singapore, Singapore

CFD and VIV

8-5-5 High Re Workshop I

Thursday June 23 **Rm 208 | 8:30 – 10:00**

Session Chair: Jang Whan Kim, Technip, USA
Session Co-Chair: Guangyu Wu, Chevron, USA

High Reynolds Number CFD Benchmark: Introduction and Overview of Wind Tunnel Test Program OMAE2016-54382

Guangyu Wu¹ Matthew Kramer² Wei Ma¹ Jang Whan Kim³ Bonjun Koo³ Ho Joon Lim⁴ Hyunchul Jang⁴ Kostas Lambrakos³ Jim O'Sullivan³ Nils van Hinsberg⁵ Guenter Schewe⁶ Markus Jacobs⁷
1. Chevron, Houston, TX, USA; 2. Chevron Energy Technology Company, Houston, TX, USA; 3. Technip, Houston, TX, USA; 4. Technip USA, Inc., Houston, TX, USA; 5. DLR - German Aerospace Center, Gottingen, Germany; 6. DLR, Gottingen, Germany; 7. DNW, Gottingen, Germany

Experimental Investigation of the Reynolds-Number Effect on the Steady and Unsteady Loading on a Slightly Rough Circular Cylinder at Reynolds Numbers Up to 12 Million OMAE2016-54171

Nils van Hinsberg
DLR - German Aerospace Center, Gottingen, Germany

Numerical Simulation of Turbulence around a Square Column OMAE2016-54098

Marc Woolliscroft, Kevin Maki, Grzegorz Filip
University of Michigan, Ann Arbor, MI, USA

CFD Benchmark for High Reynolds Number Flows Around a Square Column with Rounded Corners OMAE2016-54297

Sylvain Lardeau¹ Milovan Peric² Alex Read³
1. CD-adapco, London, United Kingdom; 2. CD-adapco, Nuremberg, Germany; 3. CD-adapco, Houston, TX, USA

Ocean Renewable Energy

9-1-6 Bottom Fixed Offshore Wind Turbines – II

Thursday June 23 **Rm 203 | 8:30 – 10:00**

Session Chair: Lance Manuel, University of Texas at Austin, USA

Two Methods for the Inverse Estimation of Local Slamming Loads on a Jacket Structure OMAE2016-54462

Ying Tu, Thorvald C. Grindstad, Michael Muskulus
Norwegian University of Science and Technology, Trondheim, Norway

Model Test of Offshore Bottom Fixed Pentapod Wind Turbine Under Seismic Loads OMAE2016-54499

Wenhua Wang¹ Zhen Gao² Xin Li³ Torgeir Moan³ Bin Wang⁴
1. Dalian University of Technology, Dalian, China; 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. Center For Ships and Ocean Structures, Trondheim, Norway; 4. Powerchina Huadong Engineering Corporation Limited, Hangzhou, China

On the Simulation of Wind, Waves and Currents during Hurricane Sandy for Assessing the Performance of Jacket-Supported Offshore Wind Turbines OMAE2016-54656

Eungsoo Kim¹ Lance Manuel²
1. POSCO, Incheon, Korea; 2. University of Texas at Austin, Austin, TX, USA

Extreme Typhoon Loads Effect on the Structural Response of Offshore Meteorological Mast and Wind Turbine OMAE2016-55008

Tsung-Yueh Lin, Yann Quéméner
CR Classification Society, Taipei City, Taiwan

Petroleum Technology

11-6-1 EOR and Reservoir Evaluation

Thursday June 23 **Rm 105 | 8:30 – 10:00**

Session Chair: Changhyup Park, Kangwon National University, Korea

Probabilistic Estimation of Shale Gas Reserves Implementing Fast Marching Method and Monte Carlo Simulation OMAE2016-54167

Jaeyun Kim¹ Changhyup Park² Joe M. Kang¹ Jihye Park³ Yongjun Park¹ Seojin Lim¹
1. Seoul National University, Seoul, Korea; 2. Kangwon National University, Chuncheon, Korea; 3. Daewoo International, Incheon, Korea

An Overview: Practice, Experience and Achievement of Polymer Flooding in Daqing Oilfield OMAE2016-54228

Jicheng Zhang, Qianru Li
Northeast Petroleum University, Daqing, China

Numerical Investigation into the Effects of Top Water-Bearing Zone on Steam and Gas Push OMAE2016-54268

Changsoo Lee, Changhyup Park, Soobin Park
Kangwon National University, Chuncheon-si, Korea

Prediction of Facies Distribution in a Clastic Reservoir Using a Hidden Markov Model Combined with Expectation-Maximization Algorithm OMAE2016-54773

Hwasoo Suk¹ Baehyun Min² Joe M. Kang¹ Cheolkyun Jeong³
1. Seoul National University, Seoul, Korea; 2. Center for Subsurface Modeling / The University of Texas at Austin, Austin, TX, USA; 3. Schlumberger, Beijing, China

REFRESHMENT BREAK

10:00 – 10:30

Lobby, 2nd Floor, Convention Hall

CONCURRENT SESSIONS

10:30 – 12:00

Offshore Technology

1-4-6 Design Tools

Thursday June 23 **Rm 101 | 10:30 – 12:00**

Session Chair: Allan Ross Magee, National University of Singapore, Singapore
Session Co-Chair: Han Suk Choi, POSTECH, Korea

Modelling and Simulation for Analysis of the Thermodynamics of the Accumulator during Active Heave Compensation Operations OMAE2016-54445

Yingguang Chu¹ Vilmar Aesøy¹ Øyvind Bunes² Eilif Pedersen³
1. Norwegian University of Science and Technology, Ålesund, Norway; 2. Rolls-Royce Marine AS, Ålesund, Norway; 3. Norwegian University of Science and Technology, Trondheim, Norway

Hardware-in-the-loop Simulation for a Heave Compensator of Offshore Support Vessel OMAE2016-54709

Luman Zhao, Myung-II Roh, Seung-Ho Ham
Seoul National University, Seoul, Korea

A Methodology to Assess the Downtime of a Multi-phase Offshore Floating Bulk Transshipment Operation OMAE2016-54774

Yijun Wang¹ Alex van Deyzen¹ Willemijn Pauw² Rene Huijsmans³
1. Royal Haskoning DHV, Rotterdam, Netherlands; 2. MARIN, Wageningen, Netherlands; 3. Ship Hydromechanics & Structures, Delft, Netherlands

Neural Networks for Tubular Joint Optimization in Offshore Jacket Structures OMAE2016-54846

Niels H. Christiansen¹ Benny Tang²
1. DNV GL, Hellerup, Denmark; 2. Dong Energy, Fredericia, Denmark

Evaluation of Upstream Logistics System Concepts for Offshore Operations in Remote Areas OMAE2016-54941

Victoria Gribkovskaia¹ Trond Johnsen¹ Haakon Lindstad¹ Eirik Uthaug²
1. MARINTEK, Trondheim, Norway; 2. Statoil ASA, Rotvoll, Norway

Structures, Safety and Reliability

2-9-2 Extreme Loading and Responses II

Thursday June 23 **Rm 102 | 10:30 – 12:00**

Session Chair: Spyros Hirdaris, Lloyd's Register Asia, South Korea
Session Co-Chair: Marc Cahay, Technip France, France

Challenges in Structural Engineering Design and Analysis of Offshore Plants Under Probabilistic Vapor Cloud Explosion Loads OMAE2016-54096

YeongAe Heo
Case Western Reserve University, Cleveland, OH, USA

Simulation of the Response of Coated Circular Plate Subjected to Near-Field Underwater Explosion Using RKG-FEM OMAE2016-54178

Zeyu Jin, Caiyu Yin, Yong Chen, Hongxing Hua
Shanghai Jiao Tong University, Shanghai, China

A Simplified Method of Water Impact on Elastic Plate in Early Stage OMAE2016-54133

Hua Sun, Deyu Wang
Shanghai Jiao Tong University, Shanghai, China

Sloshing Impact Response in LNG Membrane Carriers – A Response Analysis of the Hull Structure Supporting the Membrane Tanks OMAE2016-54067

Jonas Ringsberg, André Liljegren, Ola Lindahl
Chalmers University of Technology, Göteborg, Sweden

Structures, Safety and Reliability

2-13-2 Risk Analysis and Management II

Thursday June 23 **Rm 206 | 10:30 – 12:00**

Session Chair: Inger Lise Johansen, Norwegian Public Roads Administration, Norway
Session Co-Chair: Marcelo R. Martins, Universidade de São Paulo, Brazil

Numerical Analysis of Gas Leakage Problem Based on Improved Gas Storage Vessel Leakage Model OMAE2016-54142

Liping Sun¹ Zhiqiang Wan¹ Shangmao Ai¹ Jiaji Li²
1. Harbin Engineering University, Harbin, China; 2. 703 Institute of China Shipbuilding Industry Corporation, Harbin, China

Risk Evaluation of Explosion in FPSO Based on Failure Model and Effect Analysis OMAE2016-54144

Liping Sun, Zhiyou Niu, Gang Ma, Yang Li
Harbin Engineering University, Harbin, China

The Improved Method of Risk Assessment for Falling Objects from the Crane of FPSO OMAE2016-54216

Bin Yu, Liping Sun, Siqi Li, Xu Zhang
Harbin Engineering University, Harbin, China

A Preliminary Investigation on the Risk Arising from the Use of Hp Fgs System in LNGC by Analyzing Risk Contributors Comparatively OMAE2016-54721

Joon Young Yoon, Sung-In Park, Jae Bong Lee, Seungmin Kwon, Yoonsik Hwang
Daewoo Shipbuilding & Marine Engineering Co., Ltd., Geoje-si, Korea

Pipelines, Risers, and Subsea Systems

4-2-2 Rigid Riser II

Thursday June 23 **Rm 103 | 10:30 – 12:00**

Session Chair: Feng Wang, Genesis Oil and Gas Consultants, USA

Strength Performance of Steel Catenary Riser using Short Term and Long Term Analysis Methodologies OMAE2016-54335

Feng Wang¹ Roger Burke¹ Anil Sablok² Kristoffer H. Aronsen³ Oddgeir Dalane⁴
 1. Genesis Oil and Gas Consultants, Houston, TX, USA; 2. Technip, Houston, TX, USA; 3. Statoil, Fornebu, Norway; 4. Statoil, Trondheim, Norway

Non-linear Static Analysis of Offshore Steep Wave Riser OMAE2016-54460

Hongdong Qiao, Weidong Ruan, Zhaohui Shang, Yong Bai
 Zhejiang University, Hangzhou, China

Steel Lazy Wave Riser Tests in Harsh Offshore Environment OMAE2016-54970

Yiannis Constantinides¹ Greg Kusinski² Peimin Cao³ Jingyun Cheng³ Shixiao Fu⁴
 1. Chevron Energy Technology Company, Katy, TX, USA; 2. Chevron DeepStar, Houston, TX, USA; 3. SBM Offshore, Houston, TX, USA; 4. Shanghai Jiao Tong University, Shanghai, China

Fatigue Design and Analysis of Offshore Pipelines and Risers Subjected to Environmental Loads OMAE2016-54252

Matt Liu, Colin Cross
 Aker Solutions, London, United Kingdom

Pipelines, Risers, and Subsea Systems

4-3-6 Pipe-Soil Interaction

Thursday June 23 **Rm 104 | 10:30 – 12:00**

Session Chair: Celso Morooka, UNICAMP - University of Campinas, Brazil

Session Co-Chair: Daniel Carneiro, Wood Group Kenny, Australia

Contribution of Axial Soil Resistance in Buckle Initiation of the HPHT Pipelines on Sleepers OMAE2016-54137

Navid Vosooghi, Ana Ivanovic, Srinivas Srimamula
 University of Aberdeen, Aberdeen, United Kingdom

Response of Submarine Pipelines to Impacts in Soft Clay OMAE2016-54619

Yi Wang¹ Menglan Duan¹ Jixiang Yue² Zhang Yu¹ Yi Zhao¹
 1. China University of Petroleum Beijing, Beijing, China;
 2. Shandong Kerui Machinery Manufacturing co., LTD, Dongying, China

Non-Linear Clay Soil Model for Lateral Pipe-Soil Interaction OMAE2016-54658

Arifian Agusta¹ Guomin Ji² Svein Savik³
 1. University of Pertamina, Jakarta, Indonesia; 2. MARINTEK, Trondheim, Norway;
 3. Norwegian University of Science and Technology, Trondheim, Norway

Soil Characterisation for Installing and Operating Deep-water Pipelines OMAE2016-54838

Antonio Borges Rodriguez¹ Vishal Dantal² Roselynn Carroll³ Victor Smith³
 1. Norwegian Geotechnical Institute, Perth, WA, Australia;
 2. NGI Houston, Houston, TX, USA; 3. NGI, Oslo, Norway

Ocean Engineering

6-9-2 Marine Environment and Very Large Structures II

Thursday June 23 **Rm 107 | 10:30 – 12:00**

Session Chair: Liang Pang, Ocean University of China, China

Session Co-Chair: Guanghua He, Harbin Institute of Technology, Weihai, China

Towing Analysis of Multi-cylinder Platform for Offshore Marginal Oil Field Development OMAE2016-54579

Zhijuan Zhao¹ Yougang Tang¹ Zhirong Wu² Yan Li¹ Zhenkui Wang¹
 1. Tianjin University, Tianjin, China; 2. CNOOC Research Institute, Beijing, China

Non-harmonic Decomposition of Sea Measured Data of Offshore Platforms OMAE2016-54711

Fushun Liu¹ Jinchao Cao¹ Jiefeng Chen¹ Wenlong Yang² Wei Li³
 1. Ocean University of China, Qingdao, China; 2. China International Marine Containers (Group) LTD, Shenzhen, China; 3. POWERCHINA Huadong Engineering Corporation Limited, Hangzhou, China

Numerical Modelling of Floating and Submerged Bridges Subjected to Wave, Current and Wind OMAE2016-54851

Halvor Lie¹ Shixiao Fu¹ Ivar Fylling¹ Basile Bonnemaire²
 Arnt G. Fredriksen³ Geir Lasse Kjersem⁴
 1. MARINTEK, Trondheim, Norway; 2. Multiconsult, Oslo, Norway;
 3. Multiconsult, Tromsø, Norway; 4. LMG Marin, Bergen, Norway

Ocean Engineering

6-14-2 Coastal Engineering II

Thursday June 23 **Rm 106 | 10:30 – 12:00**

Session Chair: Mohammad-Reza Alam, University of California, Berkeley, USA

Session Co-Chair: Jon Mikkelsen, University of British Columbia, Canada

Scaling Analysis For the Liquefaction Phenomena Induced By Water Waves OMAE2016-54535

E. Arcos¹ E. Bautista² F. Méndez¹
 1. Universidad Nacional Autónoma de México, México, Mexico;
 2. Instituto Politécnico Nacional, México, Mexico

Study of Surface Wave Characteristics and Extreme Parameter Estimation in a Port with Submerged Breakwater OMAE2016-54641

Zhifeng Wang, Sheng Dong, Xiangke Dong, Xin Zhang
 Ocean University of China, Qingdao, China

Burial and Scour of Short Cylinders and Truncated Cones Due to Long-Crested and Short-Crested Nonlinear Random Waves plus Currents OMAE2016-54644

Muk Chen Ong¹ Dag Myrhaug²
 1. University of Stavanger, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway

Experimental Study of Breaking Wave Impinging and Overtopping a Deck Structure OMAE2016-54837

Yun-Ta Wu¹ Kuang-An Chang²
 1. National Cheng-Kung University, Tainan, Taiwan;
 2. Texas A&M University, College Station, TX, USA

CFD and VIV

8-4-3 Interference, Proximity and Geometry Effects

Thursday June 23 Rm 201 | 10:30 – 12:00

Session Chair: Antonio Souto-Iglesias, Technical University of Madrid, Spain
 Session Co-Chair: Wenhua Zhao, The University of Western Australia, Australia

Model Test Investigation of the Influence of Damping on the Vortex Induced Motions of Deep Draft Semi-submersibles Using a Novel Active Damping Device OMAE2016-54810

Joost Sterenborg¹ Vimal Vinayan² Arun Antony² Arjen Koop¹

John Halkyard³ Jaap de Wilde¹

1. MARIN (Maritime Research Institute Netherlands), Wageningen, Netherlands; 2. Houston Offshore Engineering, Houston, TX, USA; 3. Deep Reach Technology, Inc., Houston, TX, USA

Experimental Study About the Influence of the Free End Effects on Vortex-Induced Vibration of Floating Cylinder with Low Aspect of Ratio OMAE2016-54632

Dennis Gambarine¹ Felipe Pierrobom Figueiredo¹ André Luis Condino Fajarra²

Rodolfo Trentin Gonçalves¹

1. University of São Paulo, São Paulo, SP, Brazil;

2. Federal University of Santa Catarina, Joinville, SC, Brazil

Freely Vibrating Two Side-By-Side Square Columns with Combined Translational Motions OMAE2016-54517

Mengzhao Guan¹ Rajeev Kumar Jaiman¹ Chang-Wei Kang² Teck-Bin Arthur Lim²

1. National University of Singapore, Singapore, Singapore;

2. Institute of High Performance Computing, Singapore, Singapore

Numerical Study of Wake-Induced Vibrations for Cylinders in Tandem with Different Diameters at High Reynolds Numbers OMAE2016-54564

Vinh-Tan Nguyen, Wai Hong Ronald Chan, Hoang-Huy Nguyen

Institute of High Performance Computing, A*STAR, Singapore, Singapore

CFD and VIV

8-5-6 High Re Workshop II

Thursday June 23 Rm 207 | 10:30 – 12:00

Session Chair: Jang Whan Kim, Technip, USA

Session Co-Chair: Guangyu Wu, Chevron, USA

High Reynolds Number CFD Benchmark: An Immersed Boundary Method coupled with LES Model OMAE2016-54761

Yunxing Zhang, Kangping Liao, Wenyang Duan, Binbin Zhao

Harbin Engineering University, Harbin, China

High Reynolds Number CFD Benchmark: Simulations of Flow Around a Rounded Square Cylinder Using URANS Method Based on an Open Source Library OMAE2016-54766

Hak Kyu Choi¹ Bumwoo Han² Shin Rhee¹

1. Seoul National University, Seoul, Korea; 2. Hyundai Heavy Industries CO.,LTD, Seoul, Korea

High Reynolds Flows DDES Over a Square Rounded Cylinder Using OpenFOAM OMAE2016-55155

Eric Serre¹ Marcello Meldi² Matthieu Minguez³

1. CNRS-Aix-Marseille University, Marseilles, France; 2. Poitiers University,

Futuroscope Chasseneuil, France; 3. SEAL Engineering, Nimes, France

High Reynolds Number CFD Benchmark: Blind CFD Validations and Comparison OMAE2016-54978

Hyunchul Jang¹ Bonjun Koo² Jang Whan Kim²

1. Technip USA, Inc., Houston, TX, USA; 2. Technip, Houston, TX, USA

Ocean Renewable Energy

9-2-5 Concepts and Optimization

Thursday June 23 Rm 203 | 10:30 – 12:00

Session Chair: Yi-Hsing Yu

Session Co-Chair: Bret Bosma

Hydrodynamic Analysis and Optimization of a Hinged Type Wave Energy Converter OMAE2016-54911

Yuzhu Li¹ Heather Peng¹ Wei Qiu¹ Brian Lundrigan² Tim Gardiner²

1. Memorial University of Newfoundland, St John's, NL, Canada;

2. Grey Island Energy, St. John's, NL, Canada

A New Flapping-hydrofoil Wave Power Generating Unmanned Ocean Vehicle OMAE2016-54324

Tao Sun, Jiangbin Zhao, Xinpeng Yan, Pengpeng Xu

Wuhan University of Technology, Wuhan, China

On the Performance of a Dual-Cylinder Wave-Energy Converter: Single versus Two Degrees of Freedom OMAE2016-54422

Lu Wang, Daewoong Son, Ronald W. Yeung

University of California, Berkeley, Berkeley, CA, USA

Balancing Power Absorption and Structural Loading for an Asymmetric Heave Wave-Energy Converter in Regular Waves OMAE2016-55050

Nathan Tom¹ Farshad Madhi² Ronald W. Yeung²

1. National Renewable Energy Laboratory, Golden, CO, USA; 2.

University of California, Berkeley, Berkeley, CA, USA

Petroleum Technology

11-6-2 Fluid Transport and Simulation

Thursday June 23 Rm 105 | 10:30 – 12:00

Session Chair: Changhyup Park, Kangwon National University, Korea

Hydrate Inhibition Strategy by Particle Injection at the Water-Oil Interface OMAE2016-54284

Minjun Cha¹ Seungjun Baek² Jae W. Lee²

1. Kangwon National University, Chuncheon-si, Korea; 2. Korea Advanced

Institute of Science and Technology (KAIST), Daejeon, Korea

Reliable Reservoir Characterization and History Matching Using a Pattern Recognition Based Distance OMAE2016-54287

Jiyeon Lee, Jonggeun Choe

Seoul National University, Seoul, Korea

Dynamic Data Integration for Reservoir Simulation OMAE2016-54483

Seil Ki¹ Changwoo Hong² Changseok Jeong²

1. KNOC, Ulsan, Korea; 2. Korea National Oil Corporation, Ulsan, Korea

Characterization of Permeability Variation Using Inter-Well Tracer Test (Part 1) OMAE2016-54540

Tong Shen¹ Rouzbeh Moghanloo² Wei Tian¹ Xingru Wu¹

1. University of Oklahoma, Norman, OK, USA; 2. Oklahoma University, Norman, OK, USA

TECHNICAL SESSION ORGANIZERS' LUNCH

12:00 – 13:30

Grand Ballroom, 3rd Floor, Convention Hall

CONCURRENT SESSIONS

13:30 – 15:00

Offshore Technology

1-4-5 Platform/Ship Motions and Design Optimisations

Thursday June 23

Rm 101 | 13:30 – 15:00

Session Chair: Riaan van 't Veer, SBM Offshore, Netherlands

Session Co-Chair: Youngbok Kim, Kyungnam University, Korea

Hydrodynamic Behavior of an Ultra-Deep Water

Decoupled Buoy Supporting Risers OMAE2016-54300

Claudia Claro¹ Chunqun Ji² Ivan Cruz¹ Yun Ding² Chunfa Wu³ Daniel Karunakaran⁴

Gustavo Hepner¹ Jule Scharnke⁵ Jaap de Wilde⁶ Ricardo Franciss⁶

1. Subsea7, Rio de Janeiro, CE, Brazil; 2. INTECSEA, Houston, TX, USA; 3. INTECSEA WorleyParsons, Houston, TX, USA; 4. Subsea7 / University of Stavanger, Stavanger, Norway; 5. MARIN, Wageningen, Netherlands; 6. Petrobras, Rio de Janeiro, RJ, Brazil

Design Approach for CALM Buoy Moored Vessel

in Squall Conditions OMAE2016-54826

Alison Brown¹ Ward Gorter² Mark Paalvast³ Jelte Kymmell³

1. Shell Research Ltd, Aberdeen, United Kingdom; 2. Shell Global Solutions, Den Haag, Netherlands; 3. MOCEAN Offshore BV, Amsterdam, Netherlands

Development of Technique for Installation and Management

of Offshore by Applying the Ocean Fish Farm OMAE2016-55069

Youngbok Kim

Kyungnam University, Changwon, Korea

A Synthesis Model for FLNG Design OMAE2016-54983

Daniel P. Vieira, Rodrigo S. Lavieri, Raul Dotta, Thiago P.

Rocha, Fabiano Rampazzo, Kazuo Nishimoto

University of São Paulo, São Paulo, SP, Brazil

A Study on Small Scale Associated Gas FLNG with Small Scale

LNG Carriers to Near-by Onshore LNG Plant OMAE2016-55152

Xuan Chi Nguyen, Komla Miheaye, MunGyu Kim, Howard Newman, Dong Hoon Yoo,

Ho Young Cho, Cees De Regt, Jin-Ki Kim, Wang K. Lee

Samsung Heavy Industries, Seongnam-si, Gyeonggi-do, Korea

Structures, Safety and Reliability

2-9-3 Extreme Loading and Responses III

Thursday June 23

Rm 102 | 13:30 – 15:00

Session Chair: Spyros Hirdaris, Lloyd's Register Asia, South Korea

Session Co-Chair: Carlos Guedes Soares, Instituto Superior Tecn-CENTEC, Portugal

Structural Integrity Assessment of Free-Fall Lifeboats by

Combining Fast Monte-Carlo Simulations with CFD OMAE2016-54343

Sebastien Fouques, Ole Andreas Hermundstad

MARINTEK SINTEF, Trondheim, Norway

Time Domain Analysis on Ship Maneuvering

in Adverse Sea State OMAE2016-54589

Bingjie Guo¹ Ruth Eivind¹ Håvard Nordveit Austefjord¹

Elzbieta M. Bitner-Gregersen² Olav Rognebakke¹

1. DNV GL, Høvik, Norway;

2. DNV GL AS, DNV GL Strategic Research and Innovation, Høvik, Norway

Numerical Simulation of Green Water and the Safety Analysis

Research on Structures and Equipment OMAE2016-54491

Xu Wang, Huilong Ren, Xiaolong Lu, Guoqing Feng

Harbin Engineering University, Harbin, China

Floating Bridge Technology – Prediction of Extreme

Environmental Load Effects OMAE2016-54433

Bruno Villoria

Norwegian Public Roads Administration, Stavanger, Norway

Structures, Safety and Reliability

2-13-3 Risk Analysis and Management III

Thursday June 23

Rm 206 | 13:30 – 15:00

Session Chair: Adriana M. Schleder, University of São Paulo, Brazil

Session Co-Chair: Marcelo Martins, University of São Paulo, Brazil

The Role of Software Quality in Maritime

Safety and Security OMAE2016-54191

David Card

DNV GL, Haeundae-gu, Korea

The Detailed Safety Lifecycle for Offshore

Safety System Design OMAE2016-54275

Jinhyung Park

Yokogawa Electric Korea, Seoul, Korea

Technology Qualification of Extreme Fjord Crossings OMAE2016-54419

Inger Lise Johansen

Norwegian Public Roads Administration, Leikanger, Norway

Group Maintenance Strategy for FPSO Offloading System

Based on Reliability Analysis OMAE2016-55083

Song Gao¹ Jichuan Kang²

1. State Key Laboratory of Ocean Engineering, Shanghai, China;

2. Harbin Engineering University, Harbin, China

Pipelines, Risers, and Subsea Systems

4-2-3 Rigid Riser III

Thursday June 23

Rm 103 | 13:30 – 15:00

Session Chair: Olav Fyrileiv, Det Norske Veritas, Norway

Axial Load Transfer Characteristics of SCR Pipe-in-pipe Vibration

System with Different Diameter Ratio OMAE2016-54599

Wenming Wang, Yingchun Chen, Haoran Li, Minghao Xiong

China University of Petroleum-Beijing, Beijing, China

Determination of Short-Term Extreme Value Responses for

Temporary Riser Systems – A Practical Approach OMAE2016-54763

Ali Cetin, Trond Pytte, Sveinung Eriksrud

4Subsea, Asker, Norway

Experimental and Numerical Study of Steel Lazy Wave Riser Response in Extreme Environment OMAE2016-54871

Jingyun Cheng¹ Peimin Cao¹ Yiannis Constantinides² Shixiao Fu³
 1. SBM Offshore, Houston, TX, USA; 2. Chevron Energy Technology Company, Katy, TX, USA; 3. Shanghai Jiao Tong University, Shanghai, China

Proposed Methodology for Extending the Lives of Steel Catenary Risers Connected to Floating Production Systems OMAE2016-54918

Basim Mekha
 Cuneiform Offshore Consulting, LLC, Houston, TX, USA

Pipelines, Risers, and Subsea Systems

4-3-7 Leak Detection Systems

Thursday June 23 **Rm 104 | 13:30 – 15:00**
 Session Chair: Duane DeGeer, INTECSEA, USA

Performance of Vibroacoustic Technology for Pipeline Leak Detection OMAE2016-54181

Giuseppe Giunta¹ Silvia Morrea¹ Giancarlo Bernasconi²
 Silvio Del Giudice³ Renat Gabbassov⁴
 1. Eni S.p.A; Development Operations & Technology, San Donato Milanese, Italy; 2. Politecnico di Milano, Dipartimento di Elettronica Informazione Bioingegneria (DEIB), Milano, Italy; 3. SOLARES (Solgeo&Aresys JV), Seriate, Italy; 4. Karachaganak Petroleum Operating B.V., Ak Sai, Kazakhstan

A Study of Subsea Pipeline Leak Detection System Based on Multi-Method OMAE2016-54155

Yanyao Li¹ Tianyu Zhang¹ Weidong Ruan¹ Yong Bai¹ Chuntian Zhao²
 1. Zhejiang University, Hangzhou, China; 2. China National Offshore Oil Corporation, Beijing, China

Ocean Engineering

6-11-1 Offshore Industry: Structures and Design

Thursday June 23 **Rm 107 | 13:30 – 15:00**
 Session Chair: Partha Chakrabarti, Zentech Inc, USA
 Session Co-Chair: stephane paboeuf, Bureau Veritas, France

Suspension Design of a Semi-Submersible Platform OMAE2016-54347

Hongzhong Zhu¹ Changhong Hu¹ Yingyi Liu¹ Kangping Liao²
 1. Kyushu University, Kasuga, Japan; 2. Harbin Engineering University, Harbin, China

Parameterization and Visualization of Maritime Crane Concept Design OMAE2016-54448

Yingguang Chu, Yuxiang Deng, Birger Skogeng Pedersen, Houxiang Zhang
 Norwegian University of Science and Technology, Ålesund, Norway

The Temperature Distribution Analysis of the Large LNG-FSRU OMAE2016-54607

Chong Wang, Hongde Qin, Jing Shen, Xiuzi Hao
 Harbin Engineering University, Harbin, China

Ocean Engineering

6-14-3 Coastal Engineering III

Thursday June 23 **Rm 106 | 13:30 – 15:00**
 Session Chair: Kuang-An Chang, Texas A&M University, USA
 Session Co-Chair: Junliang Gao, Jiangsu University of Science and Technology, China

Marine Operation Windows Offshore Norway OMAE2016-54840

Bjarte O. Kvamme¹ Adekunle Peter Orimolade¹ Sverre K. Haver¹ Ove Tobias Gudmestad²
 1. University of Stavanger, Stavanger, Norway;
 2. Institutt for Konstruksjonsteknikk Og Materialteknologi, Stavanger, Norway

Numerical Simulation for Typhoon and Wave of Qiongzhou Strait OMAE2016-54862

Yanan Xu
 Tianjin Research Institute of Water Transport Engineering, Tianjin, China

Motion-Based Wave Inference: Monitoring Campaign on a Turret FPSO OMAE2016-54956

Iuri Baldaconi da Silva Bispo, Asdrubal Queiroz Filho, Eduardo A. Tannuri, Alexandre N. Simos
 University of São Paulo, São Paulo, SP, Brazil

Sheltering the Shore via Nearshore Oblique Seabed Bars OMAE2016-55066

Louis-Alexandre Coustou, Mir Abbas Jalali, Mohammad-Reza Alam
 University of California, Berkeley, Berkeley, CA, USA

CFD and VIV

8-5-7 High Re Workshop Panel Discussion

Thursday June 23 **Rm 201 | 13:30 – 15:00**
 Session Chair: Jang Whan Kim, Technip, USA
 Session Co-Chair: Guangyu Wu, Chevron, USA

An Assessment of Numerical and Modeling Errors for a Rounded-Corner Cylinder at High Reynolds Number (MARIN) (55158)

Arjen Koop
 MARIN, Wageningen, Netherlands

An Assessment of Numerical and Modelling Errors for a Rounded-Corner Cylinder at High Reynolds Number (IST) (55159)

Luis Eça
 IST Universidade de Lisboa, Lisboa, Portugal

Ocean Renewable Energy

9-1-7 VAWTs and New FOWT Systems

Thursday June 23

Rm 203 | 13:30 – 15:00

Session Chair: Maurizio Collu, Cranfield University, United Kingdom

The Aerodynamic Performance of a 3-MW Floating Offshore Vertical-Axis Wind Turbine OMAE2016-54337

Liqin Liu, Xiaorui Zhang, Ying Guo, Yu Qiu
Tianjin University, Tianjin, China

On the Relative Importance of the Loads Acting on a Floating Vertical Axis Wind Turbine System when Evaluating the Global System Response OMAE2016-54628

Maurizio Collu¹ Michael Borg² Lance Manuel³
1. Cranfield University, Cranfield, United Kingdom; 2. DTU Wind Energy, Kgs. Lyngby, Denmark; 3. University of Texas at Austin, Austin, TX, USA

Variational Modelling of Wave-Structure Interactions for Offshore Wind Turbines OMAE2016-54897

Tomasz Salwa, Onno Bokhove, Mark Kelmanson
University of Leeds, Leeds, United Kingdom

A Novel Tension-Leg Application for Floating Offshore Wind: Targeting Lower Nacelle Motions OMAE2016-54961

Cecile Melis¹ Francois Caille¹ Timothée Perdrizet² Yann Poirrette² Pauline Bozonnet³
1. SBM Offshore, Monaco, Monaco; 2. IFP Energies Nouvelles, Rueil-Malmaison, France; 3. IFPEN, Rueil-Malmaison, France

Petroleum Technology

11-4-1 Petroleum Production Systems Design and Analysis

Thursday June 23

Rm 105 | 13:30 – 15:00

Session Chair: Paulo Waltrich, Louisiana State University, USA

Session Co-Chair: Mayank Tyagi, Louisiana State University, USA

Experimental Verification Analysis of Propane Pre-Cooling and Dual Nitrogen Expansion Liquefaction Process Adaptable for Floating Liquid Natural Gas (FLNG) in South China Sea Deep Water Gas Field OMAE2016-54150

Xichong Yu¹ Bin Xie¹ Yuxing Li² Yan Li¹ Qing Wang¹ Bing Cheng¹ Chunsheng Wang¹
1. CNOOC Research Institute, Beijing, China;
2. China University of Petroleum (East China), Beijing, China

Investigation of Synergistic Thermodynamic Inhibition Effect of MEG and Salt Solution on Gas Hydrate Formation OMAE2016-54726

Yutaek Seo¹ Hyunho Kim¹ Juwoon Park²
1. Seoul National University, Seoul, Korea;
2. Korea Advanced Institute of Science, Daejeon, Korea

Performance of Two-Phase Flow Models on the Prediction of Oscillatory Flow Conditions OMAE2016-54954

Catalina Posada, Paulo Waltrich
Louisiana State University, Baton Rouge, LA, USA

Innovation in Site for Reconditioning of Trees and Heads in Marine Platforms for Mature Field Development in North of Mexico OMAE2016-55009

Luis F. Aguilera Naveja¹ Arturo Ramirez Rodriguez¹ Gioswald R. Inciarte Fermin¹
Gerardo Torres Meza¹ Jorge F. Robles Cortes²
1. Petroleos Mexicanos (PEMEX), Poza Rica de Hidalgo, Mexico;
2. JR Consultores Industriales; SA de CV., Comalcalco, Mexico

FAREWELL RECEPTION

15:00 – 17:30

Lobby, 2nd Floor, Convention Hall

See Social Events, page 19 for more details.

Technical Tour: Friday, June 24

Technical Tour to Samsung Heavy Industries and The Korea Ship and Offshore Research Institute (KOSORI)

Registration: Pre-purchased tickets for the tour are provided with your name badge. Additional tickets will be for sale at the Registration Desk if space is still available.

Meeting Point: Flagpoles in front of BEXCO

Departure: 07:00, Busan Exhibition and Convention Centre

Approximate Return Time: 19:00

Fee: \$70 USD (includes lunch)

Join us for a visit to Samsung Heavy Industries yard in Geoje Island and the KOSORI test yard in Hadong. Participants will see the site of shipbuilding and offshore construction in SHI's Geoje yard and the test facilities of KOSORI in Hadong. Participants need to provide passport information to visit SHI's yard in advance.

SHI (Samsung Heavy Industries) has successfully completed diverse projects with the aim of securing global leadership in numerous sectors including shipbuilding, offshore, machinery, and electric systems. The company has achieved an unbeatable competence in the high-tech & high-valued product sector in association with drill ships, LNG carriers and FPSOs, among others. The SHI's Geoje yard

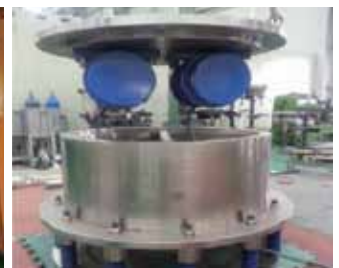
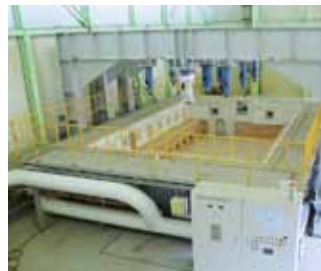
boasts the world's greatest dock turnover rate through the utilization of robots. It has developed remarkably intelligent robot systems such as a spider automatic welding robot for LNG cargo tank, a wall-climbing, vacuum-blasting robot, and an inspection and cleaning pipe robot. Using these robot systems, it records 68% of production automation rate and secures perfect quality as well as employees' security.

KOSORI (The Korea Ship and Offshore Research Institute) has been a Lloyd's Register Foundation Research Centre of Excellence at Pusan National University since 2008. It has secured large scale test facilities with the area of 23.1 ha in association with safe design and engineering against accidental and extreme events such as buckling collapse, fires, explosions, collisions, grounding, dropped objects, Impact failure, fatigue fracture, subsea hyperbaric environment, and low/cryogenic conditions due to Arctic and LNG. The test facilities offer the benefits of managing full- or large scale models in terms of minimizing uncertainties associated with high nonlinearities and unavailable scaling laws to real structures under such accidental and extreme events.

Samsung Heavy Industries



KOSORI test facilities





Dr. Bernt J. Leira



Dr. Oddvar I. Eide

Invitation to OMAE 2017

It is with great honour that we invite you to the 36th International Conference on Ocean, Offshore and Arctic Engineering (OMAE) in Trondheim, Norway, June 25 – 30, 2017!

Norway has a unique relationship with the ocean from both a modern and a historical perspective. Harvesting of the ocean resources and mastering of the seas and the arctic environment will always be of key importance for our country. It is our hope that you will get an impression of the wide range of our activities and the industries associated with the oceans. This spans across oil and gas activities, shipping, shipbuilding, maritime services, marine renewable energy, fisheries and aquaculture. The ocean space is truly our closest companion.

As your hosts, MARINTEK, NTNU and the Municipality of Trondheim look forward to this great event, and we will do our best to give you an experience, which is rich in memories from one of the oldest cities in Norway.

The picturesque city of Trondheim, located by the Trondheim fjord in Central Norway, is the historical capital of Norway, founded by the Viking King Olav Trygvasson in year 997. With its approximately 200,000 inhabitants, Trondheim is the third largest city of Norway. Due to the many and varied research and academic institutions the city has a highly educated population, and it is named The Technology Capital of Norway.

Trondheim is known for its educational institutions and rich research community. The Marine Technology Centre, comprising MARINTEK and NTNU, is internationally renowned for its high level in research and education towards the whole spectre of ocean industries. An important part of the Marine Technology Centre is the famous hydrodynamic laboratories like the Ocean basin and the Towing tank.

It is hard to travel through Trondheim and Central Norway

without stumbling upon places with strong historic roots.

Battlefields, old churches and castles, rock carvings and burial mounds all witness the presence of earlier inhabitants, dating back to the Viking era and beyond. Trondheim is the main hub of the region. It is where you will find the best shopping, cafés, cosy streets with an intimate atmosphere, culture and sporting events.

With its wide range of local food producers, rich history, natural resources and high quality restaurants, the Trøndelag region is definitely a culinary region. The coast is famous for its sea fishing, and there are great sites the whole way up the coastline of Central Norway. This is the “birthplace” of the famous Norwegian Salmon, where the aquaculture industry was first established in the 1960’s.

A number of interesting outings will be arranged during OMAE 2017, among them a tour to the historical mining town of Røros (UNESCO World Heritage). You can also visit the coast and other places of interest, or go for a voyage with the famous coastal express.

We are really looking forward to seeing you all during OMAE 2017 in Trondheim—The Technology Capital of Norway—next year! Read more about Trondheim and the region here: <http://en.trondelag.com/>

—Dr. Bernt J. Leira

Conference Chair, OMAE 2017

Professor, Department of Marine Technology,

Norwegian University of Science and Technology – NTNU

—Dr. Oddvar I. Eide

Conference Co-Chair, OMAE 2017

President, The Norwegian Marine Technology

Research Institute – MARINTEK

WELCOME TO TRONDHEIM
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www.omae2017.com

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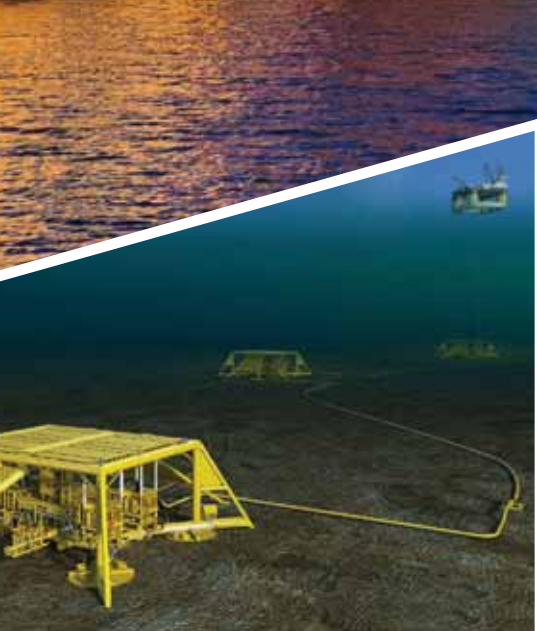
TRONDHEIM KOMMUNE



36th International Conference on Ocean, Offshore and Arctic Engineering

Trondheim, Norway, June 25–30, 2017

www.omae2017.com



MARINTEK

OMAE

2017



Trondheim

10th Annual Outreach for Engineers Specialty Forum

“I have learned a lot on so many levels and I am so thankful to the Committee for having granted me a scholarship for this event. The forum has given me great insights on what working in industry could represent and thanks to that I am now considering new stimulating options for my future career.”

—Comment from an Outreach attendee.

Overview

The Ocean, Offshore and Arctic Engineering Division (OOAE) of ASME is hosting a specialty forum at the 2016 International Conference on Ocean, Offshore and Arctic Engineering (OMAE) in Busan, Korea. The specialty forum is designed for students and early professionals who may not be familiar with the industry as well as those who have already specialized in this area.

This is the tenth year of the Outreach for Engineers Forum. Highlights of the Forum will include presentations of the various technologies required (e.g. from ocean and/or offshore engineering, civil engineering, petroleum engineering, aerospace engineering, mechanical/structural engineering and project management), types of job opportunities, possible career paths and a team building activity. We are pleased to announce that the technical tour is included this year. In addition, Outreach for Engineers Specialty Forum delegates will be provided with the opportunity to participate at the 35th International Conference on Ocean, Offshore and Arctic Engineering as full conference delegates.

Attendee Profile

- Senior Undergraduate Students enrolled in Engineering or Science Curricula
- Graduate Students (both Masters and Doctoral levels) with specialization in fields such as ocean and/or offshore engineering, civil engineering, mechanical engineering, petroleum engineering, and aerospace engineering
- Early professionals with an interest in the oil & gas industry and ocean, offshore & arctic engineering.

If you are a paid OMAE 2016 attendee and wish to attend the Outreach Forum, you may do so at no additional cost. However, you must be a qualified student or young professional.

Scholarships

Through funding provided by the OOAE Division of ASME and corporate sponsors, the organizers of the Outreach to Engineers Specialty Forum will be offering scholarships to cover registration costs and a limited number of travel subsidies. The scholarships are open to students and early professionals from around the world. If you qualify and have not been a recipient yet, please feel free to apply for OMAE 2017 (www.omae2017.com)



Conference Schedule with Outreach Events

Date	Event	Time	Location
Saturday, June 18	Outreach Team Building Exercise	17:00 – 19:00	Room 101, 1st Floor
Saturday, June 18	Outreach Welcome Dinner	19:00	Off-site
Sunday, June 19	Outreach Welcome & Introductions Industry Presentations	09:00 – 17:45	Room 101, 1st Floor
	OMAE 2016 Conference Registration	13:00 - 18:00	Lobby, 1st Floor
	OMAE 2016 Welcome Reception	18:30 – 21:00	Busan Cinema Center
Monday, June 20	OMAE Conference	See detailed program for session locations and times.	
Tuesday, June 21	OMAE Conference	See detailed program for session locations and times.	
Wednesday, June 22	OMAE Conference	See detailed program for session locations and times.	
	OMAE 2016 Conference Banquet	See detailed program for session locations and times.	
Thursday, June 23	Outreach Breakfast / Feedback Session	07:30 – 09:00	Room 207, 2nd Floor
	OMAE Conference	See detailed program for session locations and times.	
Friday, June 24	OMAE Technical Tour (Optional, included for Outreach Participants)	See Technical Tour on page 81 for locations and times.	

Note: Outreach only events are bolded.



Listing of Committees

Conference Organizing Committee

Jeom Kee Paik, Conference Chair
Charles E. Smith, Technical Program Chair

Volunteers

The Conference Organizing Committee would like to express gratitude to all the OMAE 2016 volunteers. We sincerely appreciate all the support they provide!

OMAE 2016 Local Organizing Committee

Jeom Kee Paik (Chair), Pusan National University and University College London
Hee Yol Yu, Pusan National University
Byung Oke Cho, Pusan National University
Jerzy Jozef Czujko, Nowatec E&C
Spyros Hirdaris, Lloyd's Register Asia
Yeon Chul Ha, Pusan National University
Jung Kwan Seo, Pusan National University
Bung Ju Kim, Pusan National University
Hyo Kwan Leem, Pusan National University
Woo Il Ha, Pusan National University
Hyo Seok Jung, Pusan National University
Seong Won Moon, Pusan National University
Seung Yul Lee, Pusan National University
Ki Chang Im, Pusan National University
Soung Woo Park, Pusan National University
Jun Hwan Lee, Pusan National University
Dae Kyeom Park, Pusan National University
Sang Eui Lee, Pusan National University
Young Hyoo Joo, Pusan National University
Dae Seok Oh, Pusan National University
Mi Seon Kim, Pusan National University
Sang Jin Kim (Secretary), Pusan National University

Technical Program Committee

SYMP 1: Offshore Technology

Symposium Coordinator: Dominique Roddier, PrinciplePower
Symposium Co-Coordinator: R. Cengiz Ertekin, University of Hawaii at Manoa

SYMP 2: Structures, Safety and Reliability

Symposium Coordinator: Carlos Guedes Soares, Instituto Superior Tecn-CENTEC

SYMP 3: Materials Technology

Symposium Coordinator: Mamdouh Salama, Conoco Phillips Company

SYMP 4: Pipeline and Riser Technology

Symposium Coordinator: Theodoro A. Netto, COPPE/ UFRJ
Symposium Co-Coordinator: Duane DeGeer, INTECSEA

SYMP 5: Ocean Space Utilization

Symposium Coordinator: Hideyuki Suzuki, University of Tokyo

SYMP 6: Ocean Engineering

Symposium Coordinator: Jon Mikkelsen, University of British Columbia

SYMP 7: Polar and Arctic Sciences and Technology

Symposium Coordinator: Walter Kuehnlein, sea2ice Ltd. & Co. KG

SYMP 8: CFD and VIV

Symposium Coordinator: Yiannis Constantinides, Chevron Energy Technology Company

Symposium Co-Coordinator: Owen Oakley, Retired

SYMP 9: Ocean Renewable Energy

Symposium Co-Coordinator: Krish Thiagarajan, University of Maine

SYMP 10: Offshore Geotechnics

Symposium Co-Coordinator: Horst Brandes, University of Hawaii at Manoa

SYMP 11: Petroleum Technology

Symposium Co-Coordinator: Andrzej Wojtanowicz, Louisiana State University

SYMP 12: Norman Jones Honoring Symposium on Impact Engineering

Symposium Coordinator: Qingming Li, University of Manchester

Symposium Co-Coordinator: Jeom Kee Paik, The Korean Ship and Offshore Research Institute

SYMP 13: Yukio Ueda Honoring Symposium on Idealized Nonlinear Mechanics for Welding and Strength of Structures

Symposium Coordinator: Hidekazu Murakaw, Osaka University
Symposium Co-Coordinator: Masahiko Fujikubo, Osaka University

Topic Organizers

SYMP 1: Offshore Technology

Offshore Platforms: Anil Sablok, Technip
Station Keeping: Allan Ross Magee, National University of Singapore
Hydrodynamics: Longbin Tao, Newcastle University

Design and Analysis: Olaf Waals, MARIN

Design and Analysis: Allan Ross Magee, National University of Singapore
FLNG Hydrodynamics: Wenhua Zhao, The University of Western Australia

SYMP 2: Structures, Safety and Reliability

Abnormal or Rogue Waves: Alexander V. Babanin, Swinburne University of Technology

Probabilistic and Spectral Wave Models: Carlos Guedes Soares, Instituto Superior Tecn-CENTEC

Probabilistic and Spectral Wave Models: Dag Myrhaug, NTNU

Probabilistic Response Models: Carlos Guedes Soares, Instituto Superior Tecn-CENTEC

Fracture and Fatigue Reliability: Bernt Johan Leira, NTNU, Department of Marine Technology

Fracture and Fatigue Reliability: Yordan Garbatov, Universidade de Lisboa

Reliability of Marine Structures: Carlos Guedes Soares, Instituto Superior Tecn-CENTEC

Lifeboat Performance: Carlos Guedes Soares, Instituto Superior Tecn-CENTEC

Reliability of Mooring and Riser Systems: Ying Min Low, National University of Singapore

Reliability of Mooring and Riser Systems:
Luis Sagrilo, COPPE/UFRJ

Reliability of Renewable Energy Systems:
Zhen Gao, Norwegian University of
Science and Technology

Extreme Loading and Responses: Carlos
Guedes Soares, Instituto Superior
Tecn-CENTEC

Collision and Crashworthiness: Soren
Ehlers, Hamburg University of
Technology

Ultimate Strength: Shengming Zhang,
Lloyds Register

Structural Analysis and Optimization:
Jonas Ringsberg, Chalmers University
of Technology

Risk Analysis and Management: Marcelo
Martins, University of São Paulo

Risk Based Maintenance: Carlos
Guedes Soares, Instituto Superior
Tecn-CENTEC

Light Weight Structures: Carlos
Guedes Soares, Instituto Superior
Tecn-CENTEC

SYMP 3: Materials Technology

Fracture Assessment and Control: Xin
Wang, Xin Wang

Fatigue Performance and Testing: Sheng
Bao, Zhejiang University

Fatigue Performance and Testing: Jeong
Hong, Battelle

Asset integrity and life extension: Jens
Tronskar, DNV GL

Asset integrity and life extension:
Myung-Hyun Kim, Pusan National
University

Materials selection and qualification
for challenging environment: Amir
Bahrami, ExxonMobil,

Materials selection and qualification for
challenging environment: David A.
Baker, ExxonMobil Upstream Research
Co

Fatigue Performance and Assessment:
Brian Healy, DNV GL

Fatigue Performance and Assessment:
Pedro Vargas, Chevron Energy
Technology Company

Construction and fabrication of
pipelines, offshore and arctic structures
and ships: Koji Gotoh, Kyushu
University

Performance and Application of Non-
Metallics: Luiz Claudio Meniconi,
Petrobras

Residual Stress Measurement and
Analysis: Shuwen Wen, Tata Steel

Inspection, Maintenance and Repair:
Sani Sulaiman, Petronas

The enabling role of materials technology
in cost-effective design and operations:
Agnes Marie Horn, DNV GL

SYMP 4: Pipeline and Riser Technology

Flexible Pipes and Umbilicals: Murilo
Vaz, Coppe/ufRJ

Flexible Pipes and Umbilicals: Zhimin
Tan, GE oil & gas, Wellstream

Rigid Risers: Basim Mekha, Cuneiform
Offshore Consulting, LLC

Rigid Risers: Olav Fyrileiv, Det Norske
Veritas

Rigid Pipelines: Julian Hallai,
Exxonmobil Upstream Research
Company

Rigid Pipelines: Theodoro Netto,
COPPE/UFRJ

Subsea Structures and Equipment: Yong
Bai, Zhejiang University

Subsea Structures and Equipment:
Duane DeGeer, INTECSEA

Flow Assurance: Celso Morooka,
UNICAMP - University of Campinas

Flow Assurance: Jianlin Cai,
WorleyParsons/Advisian/INTECSEA

SYMP 5: Ocean Space Utilization

New Concepts for Ocean Space
Utilization: Bai Wei, National
University of Singapore

New Concepts for Ocean Space
Utilization: Kazuhiro Lijima, Dept of
NAOE, Osaka University

Aquaculture and Related Technology:
Pål Furset, Lader SINTEF

Aquaculture and Related Technology:
Shixiao Fu, Shanghai Jiao Tong
University

Deepsea Mining and Ocean Resources:
Sup Hong, Korea Research Institute of
Ships & Ocean Engineering

Deepsea Mining and Ocean Resources:
Tetsuo Yamazaki, Osaka Prefecture
University

Underwater Development and
Technology: Tomoya Inoue, JAMSTEC

Underwater Development and
Technology: Yoshitaka Watanabe,
JAMSTEC

Floating Systems for Renewable Energy:
Sandy Day, University of Strathclyde

Floating Systems for Renewable Energy:
Tomoki Ikoma, Nihon University

High Tide and Tsunamis: Koichi
Masuda, Nihon University

Environmental Assessment for Marine
Renewable Energy: Daisuke Kitazawa,
The University of Tokyo

Utilization of Seawater: Yasuyuki
Ikegami, Saga University

Coastal Zone Management: Shigeru
Tabeta, University of Tokyo

SYMP 6: Ocean Engineering

Towed and Undersea Cables and Pipes,
Mooring, and Buoy Technology:

Jon Mikkelsen, University of British
Columbia

Advanced Underwater Vehicles and
Design Technology: Jon Mikkelsen,
University of British Columbia

Marine Environment and Very Large
Structures: Jon Mikkelsen, University of
British Columbia

Offshore Industry: Aquaculture, Mining,
etc: Jon Mikkelsen, University of British
Columbia

Offshore Industry: Structures and
Design: Jon Mikkelsen, University of
British Columbia

Ocean Engineering Technology: Jon
Mikkelsen, University of British
Columbia

SYMP 7: Polar and Arctic Sciences and Technology

Arctic Sea Transportation: Soren Ehlers,
Hamburg University of Technology

Structures in Ice: Soren Ehlers, Hamburg
University of Technology

Vessels in Ice: Soren Ehlers, Hamburg
University of Technology

Operations in Ice: Walter Kuehnlein,
sea2ice Ltd. & Co. KG

Oil Spill Prevention/Recovery,
Evacuation and Rescue in Ice: Walter
Kuehnlein, sea2ice Ltd. & Co. KG

Numerical Ice Modeling: Regina Sopper,
Memorial University of Newfoundland

Structure-Ice-Interactions: Walter
Kuehnlein, sea2ice Ltd. & Co. KG

SYMP 8: CFD and VIV

Ship & Floating Systems: Guilherme
Vaz, MARIN, NetherlandsFree Surface

Flows: Muk Chen Ong, University of
Stavanger

Free Surface Flows: Stephen Cosgrove,
Altair

Free Surface Flows: Antonio Souto-
Iglesias, Technical University of Madrid
(UPM)

Free Surface Flows: Chih-Hua WU,
Institute of High Performance
Computing, A*STAR

Risers and Pipelines: Michael Tognarelli, BP American Production Co.

Risers and Pipelines: Partha Sharma, DNV GL

Risers and Pipelines: Mike Campbell, 2H Offshore Inc.

Risers and Pipelines: Madhusuden Agrawal, BP America

Risers and Pipelines: Rene Gabbai, Genesis Oil and Gas

Risers and Pipelines: Shan Huang, BP
VIV Physics and Suppression: Francisco Huera-Huarte, Universitat Rovira i Virgili

Advanced Computation: Rajeev Kumar Jaiman, National University of Singapore

Advanced Computation: Qin Zhang, National University of Singapore

Advanced Computation: Zhong Li, National University of Singapore

Advanced Computation: Jungao Wang, National University of Singapore

Advanced Computation: Chih-Hua, WU, Institute of High Performance Computing, A*STAR

Advanced Computation: Jang Whan Kim, Technip

SYMP 9: Ocean Renewable Energy

Wind Energy: Concepts, Design & Analysis: Erin E. Bachynski, MARINTEK

Wind Energy: Concepts, Design & Analysis: Tonio Sant, University of Malta

Wind Energy: Concepts, Design & Analysis: Lance Manuel, University of Texas at Austin

Wind Energy: Concepts, Design & Analysis: Amy Robertson, NREL

Wave Energy: Concepts, Design & Analysis: Yi-Hsiang, Yu, NREL

Wave Energy: Concepts, Design & Analysis: Pasquale Dinoi, Technical University of Madrid

Wave Energy: Concepts, Design & Analysis: Kelley Ruehl, Sandia National Laboratories

Wave Energy: Concepts, Design & Analysis: Raúl Guanche, Environmental Hydraulics Institute of Cantabria - Universidad de Cantabria

Current Energy: Concepts, Design & Analysis: Vengatesan Venugopal, Edinburgh University

Current Energy: Concepts, Design & Analysis: Madasamy Arockiasamy

Current Energy: Concepts, Design & Analysis: Michael Lawson, National Renewable Energy Laboratory (NREL)

SYMP 10: Offshore Geotechnics

Fluid-Soil-Structure Interaction: Dongsheng Jeng, South West Jiao Tong University

Anchors and Pile Foundations: Yun Wook Choo, Kongju National University

Bucket Foundations and Suction Caissons: Terry Griffiths, UWA

Spudcans and Pipelines: Amin Barari, Virginia Tech

SYMP 11: Petroleum Technology

General Petroleum Technology: Stephen Butt, Memorial University of Newfoundland

General Petroleum Technology: Mohammad Azizur Rahman, Memorial University of Newfoundland

General Petroleum Technology: M. M. Awad, Mansoura University

Drilling Mechanics: Robello Samuel, Halliburton

Coalbed Methane, Gas Hydrate, and CO₂ Sequestration: Jeonghwan Lee, Chonnam National University

Petroleum Production Systems Design and Analysis: Mayank Tyagi, Louisiana State University

Petroleum Production Systems Design and Analysis: Paulo Waltrich, Louisiana State University

Petroleum Reservoir Engineering and Management: Bernt Aadnoy, University of Stavanger

EOR (Enhanced Oil Recovery) and Reservoir Modeling: Changhyup Park, Kangwon National University

Well Drilling Fluids and Hydraulics: Ergun Kuru, University of Alberta

Well Drilling Fluids and Hydraulics: Tayfun Babadagli, University of Alberta

Unconventional Hydrocarbon Reservoirs: Arash Dahi Taleghani, Louisiana State University

Unconventional Hydrocarbon Reservoirs: Peyman Pourashshary, Sultan Qaboos University

Injection Well Operation: Arash Dahi Taleghani, Louisiana State University

Injection Well Operation: Peyman Pourashshary, Sultan Qaboos University

Innovations in Drilling, Production and Transport: Wenting Qin, Chongqing University of Science of Technology
Petroleum Production Systems Design and Operation: Celso Morooka, UNICAMP - University of Campinas
Petroleum Wells Integrity: Fernando Sebastian Flores Avila, PETROLEOS MEXICANOS

SYMP 12: Prof. Norman Jones Honoring Symposium on Impact Engineering

Structural Response to Impact and Blast Loading: Jilin Yu, University of Science and Technology of China

Structural Response to Impact and Blast Loading: Dora Karagiozova, Bulgarian Academy of Sciences

Dynamic Behavior of Materials at High Strain-Rate: Alexis Rusinek, Ecole Nationale d'Ingénieurs de Metz

Dynamic Behavior of Materials at High Strain-Rate: He-Ming Wen, University of Science and Technology of China

Lightweight Materials and Structures: Guoxing Lu, Swinburne University of Technology

Lightweight Materials and Structures: Zhihua Wang, Taiyuan University of Technology

Impact and Blast Effects with Fluid Interaction: Husain Abbas, King Saud University

Impact and Blast Effects with Fluid Interaction: Robert Birch, University of Liverpool

International Advisory Committee

R.V. Ahilan, Noble Denton, UK

R. Basu, ABS Americas, USA

R. (Bob) F. Beck, University of Michigan, USA

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Jen-Hwa Chen, Chevron Energy Technology Company, USA

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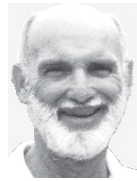


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Author Index

- A**
- Aadnoy, Bernt OMAE2016-54450 (11-5-1)
 OMAE2016-54457 (11-5-1)
 Aamlid, Olav OMAE2016-54432 (4-3-1)
 OMAE2016-54741 (4-3-2), OMAE2016-54971 (4-3-1)
 Aarsather, Karl Gunnar OMAE2016-54296 (7-11-1)
 Aasland, Tale Egeberg OMAE2016-54056 (6-9-1)
 Abadel, Aref OMAE2016-54737 (12-1-4)
 Abbas, Husain OMAE2016-54737 (12-1-4)
 OMAE2016-54901 (12-6-1)
 Abbasi Hoseini, Afshin OMAE2016-54180 (6-12-1)
 Abdullah Shuhaimy, Nurfatim OMAE2016-54207 (6-2-1)
 Abreu, Hugo OMAE2016-54005 (6-5-3)
 Abtahi, Shahriar OMAE2016-54816 (8-3-1)
 Abu Husain, Mohd Khairi OMAE2016-54200 (2-3-2)
 OMAE2016-54201 (2-3-2), OMAE2016-54204 (2-3-2)
 OMAE2016-54206 (2-5-2), OMAE2016-54207 (6-2-1)
 Abugharara, Abdelsalam OMAE2016-55141 (11-1-1)
 Adakalaraj, Peter Francis Bernad OMAE2016-54434 (2-7-1)
 OMAE2016-54701 (8-3-3)
 OMAE2016-54716 (1-3-8), OMAE2016-54750 (8-3-5)
 Adhikari, Sudarshan OMAE2016-55067 (11-3-2)
 Adytia, Didit OMAE2016-54704 (6-2-2)
 Aesoy, Vilmar OMAE2016-54445 (1-4-6)
 OMAE2016-54533 (8-2-3), OMAE2016-54886 (6-1-4)
 Aggarwal, Ankit OMAE2016-54423 (8-2-2)
 Aguilera Naveja, Luis F. OMAE2016-55009 (11-4-1)
 Agusta, Arifian OMAE2016-54658 (4-3-6)
 Ahmad, Niraku OMAE2016-54795 (10-4-1)
 Ahmad, Suhail OMAE2016-54486 (12-1-2)
 OMAE2016-54582 (2-10-2)
 Ahmed, Aziz OMAE2016-54708 (7-13-1)
 OMAE2016-54713 (1-2-1), OMAE2016-54745 (7-13-1)
 Ahmed, Salim OMAE2016-54534 (11-3-2)
 Ahmed, Syed Zakir OMAE2016-54781 (4-1-4)
 Ahn, Byoung-Kwon OMAE2016-55073 (6-6-1)
 Ai, Dongjie OMAE2016-55149 (12-1-5)
 Ai, Shangmao OMAE2016-54142 (2-13-2)
 Akinturk, Ayhan OMAE2016-54329 (2-5-1)
 Al-Salloum, Yousef OMAE2016-54737 (12-1-4)
 OMAE2016-54901 (12-6-1)
 Alagan Chella, Mayilvahanan OMAE2016-54423 (8-2-2)
 OMAE2016-54451 (8-2-3), OMAE2016-54917 (8-2-1)
 Alam, Mohammad-Reza OMAE2016-55066 (6-14-3)
 OMAE2016-55091 (6-2-3)
 Alberello, Alberto OMAE2016-54481 (2-1-1)
 Aldana Diaz, Jorge OMAE2016-54031 (3-6-1)
 Alfano, Giulio OMAE2016-54360 (4-1-2)
 Almusallam, Tarek OMAE2016-54737 (12-1-4)
 OMAE2016-54901 (12-6-1)
 Alom, Nur OMAE2016-55095 (9-3-2)
 Alsos, Hagbart S OMAE2016-54196 (4-3-5)
 OMAE2016-54855 (4-3-5)
 Alves, Marcilio OMAE2016-54471 (12-1-2)
 Alwaar, Abourawi OMAE2016-55141 (11-1-1)
 Amante, Diogo Do Amaral M. OMAE2016-54929 (2-11-3)
 Ambekar, Vighnesh OMAE2016-54339 (12-6-1)
 OMAE2016-54901 (12-6-1)
 Amdahl, Jørgen OMAE2016-54608 (7-13-2)
 OMAE2016-55053 (13-1-1)
 Amin, Islam OMAE2016-55131 (9-3-2)
 OMAE2016-55132 (9-3-2)
 Amundsen, Per Amund OMAE2016-54044 (11-7-2)
 An, Chen OMAE2016-54595 (4-4-1)
 An, Gyubaek OMAE2016-55086 (13-6-1)
 Andrillon, Yann OMAE2016-54346 (8-5-4)
 Antoine, Guillaume OMAE2016-54359 (9-3-1)
 Antony, Arun OMAE2016-54810 (8-4-3)
 Ao, Lei OMAE2016-54127 (2-11-2)
 Arai, Rei OMAE2016-54575 (5-3-1)
 OMAE2016-55016 (5-3-1)
 Arana, José Luis OMAE2016-54426 (1-4-4)
 Araujo, Paula C. OMAE2016-54274 (2-13-1)
- B**
- Baerholm, Rolf OMAE2016-54503 (8-3-4)
 OMAE2016-54829 (1-3-1), OMAE2016-54868 (1-3-5)
 Babanin, Alexander V. OMAE2016-54282 (6-13-1)
 OMAE2016-54481 (2-1-1), OMAE2016-54570 (2-1-1)
 Babarit, Aurélien OMAE2016-54130 (9-2-1)
 Bachynski, Erin E. OMAE2016-54435 (9-1-5)
 OMAE2016-54437 (9-1-5)
 OMAE2016-54640 (9-1-5), OMAE2016-54869 (8-2-1)
 Backhaus, Eldor OMAE2016-54140 (13-2-1)
 Bacocoli, Riccardo OMAE2016-54908 (13-3-1)
 Bae, Dong-Myung OMAE2016-54727 (7-13-2)
 Bae, Jun-Hong OMAE2016-54064 (2-4-1)
 Bae, Kyung-Tae OMAE2016-54739 (10-3-1)
 Baek, Seungjun OMAE2016-54284 (11-6-2)
 Baessler, Matthias OMAE2016-54362 (10-3-1)
 Bahai, Hamid OMAE2016-54360 (4-1-2)
 Bai, Xiao-Dong OMAE2016-54510 (6-8-3)
 Bai, Yong OMAE2016-54101 (2-13-1)
 OMAE2016-54111 (4-2-1)
 OMAE2016-54155 (4-3-7), OMAE2016-54460 (4-2-2)
 OMAE2016-54577 (4-1-3), OMAE2016-54588 (4-1-3)
 Bailey, Helen OMAE2016-54235 (9-2-1)
 Baker, David A. OMAE2016-54280 (4-4-1)
 Bakksjø, Hanne OMAE2016-54420 (1-3-6)
 Balakrishnan, Rajesh Reguram OMAE2016-54152 (6-1-1)
 OMAE2016-54523 (6-1-5)
 Baldaconi da Silva Bispo, Iuri OMAE2016-54956 (6-14-3)
 Bang, Chang-Seon OMAE2016-54064 (2-4-1)
 Banos, Rodrigo L. OMAE2016-54043 (9-2-2)
 Bao, Sheng OMAE2016-54269 (3-6-1)
 OMAE2016-54291 (3-2-1), OMAE2016-54715 (3-8-1)
 Baquet, Aldric OMAE2016-54485 (1-4-1)
 Barati Ghahfarokhi, Reza OMAE2016-54487 (11-8-1)
 Barbouchi, Sami OMAE2016-54145 (9-1-2)
 Barcarolo, Daniel OMAE2016-54346 (8-5-4)
 OMAE2016-54844 (1-3-5)
 Bashir, Musa OMAE2016-54849 (6-5-2)
 Batra, Apurva OMAE2016-54385 (3-4-2)
 OMAE2016-54386 (3-4-2), OMAE2016-54388 (3-4-1)
 Battley, Mark OMAE2016-54333 (6-8-2)
 Bautista, E. OMAE2016-54535 (6-14-2)
 Bautista, Juan OMAE2016-54383 (11-8-1)
 Bechtel, Anne OMAE2016-54823 (9-1-1)
 Bednarz, Martin OMAE2016-54784 (8-1-4)
 Belayneh, Mesfin OMAE2016-54450 (11-5-1)
 OMAE2016-54457 (11-5-1)
 Belson, Evyatar OMAE2016-54063 (4-1-7)
 Benjamin, Tan Jui Hang OMAE2016-54853 (8-5-1)
 Benson, Simon OMAE2016-54849 (6-5-2)
 OMAE2016-54863 (4-3-4)
- Bento, A. Rute OMAE2016-54464 (2-2-1)
 Beppu, Masuhiro OMAE2016-54256 (12-1-2)
 OMAE2016-54694 (12-1-4), OMAE2016-54969 (12-1-4)
 Berggreen, Christian OMAE2016-54197 (3-10-1)
 OMAE2016-55060 (4-1-6)
 Bernasconi, Giancarlo OMAE2016-54181 (4-3-7)
 Berthelsen, Petter Andreas OMAE2016-54640 (9-1-5)
 Berthon, Julien OMAE2016-54473 (4-1-2)
 Bertoni, Fabiano OMAE2016-54905 (4-1-1)
 Bhattacharyya, S. K. OMAE2016-54342 (8-1-1)
 OMAE2016-54404 (8-1-3)
 Bi, Chun-Wei OMAE2016-54510 (6-8-3)
 Bignonnet, Andre OMAE2016-54198 (1-4-4)
 OMAE2016-54199 (1-4-4)
 Bihs, Hans OMAE2016-54423 (8-2-2)
 OMAE2016-54451 (8-2-3), OMAE2016-54533 (8-2-3)
 OMAE2016-54675 (8-2-3), OMAE2016-54917 (8-2-1)
 Bin Muh. Saleh, Alamsyah OMAE2016-54041 (2-11-4)
 Bing, Liu OMAE2016-54103 (12-1-1)
 Binns, Jonathan OMAE2016-54172 (6-2-1)
 Birknes-Berg, Jørn OMAE2016-54927 (2-3-1)
 Bisaggio, Helio OMAE2016-54299 (4-3-2)
 Bitner-Gregersen, Elzbieta M. OMAE2016-54481 (2-1-1)
 OMAE2016-54589 (2-9-3), OMAE2016-54794 (2-1-1)
 Bittencourt, Claudio OMAE2016-54921 (9-3-3)
 Bizhani, Majid OMAE2016-54051 (11-7-1)
 Blomgren, Niklas OMAE2016-54069 (2-11-1)
 Blum, Holger OMAE2016-54162 (6-14-1)
 Bocharov, Oleg OMAE2016-54045 (11-7-1)
 Böckmann, Arne OMAE2016-54829 (1-3-1)
 Boeck, Florin OMAE2016-54830 (6-5-2)
 OMAE2016-54841 (6-5-2)
 Bokhove, Onno OMAE2016-54897 (9-1-7)
 OMAE2016-54937 (6-8-6)
 Bonakdar, Lisham OMAE2016-54162 (6-14-1)
 Bonnemaire, Basile OMAE2016-54851 (6-9-2)
 OMAE2016-54892 (6-8-6)
 Boorsma, Anne OMAE2016-54651 (1-3-4)
 Bordalo, Sergio N. OMAE2016-54070 (11-11-1)
 Borg, Michael OMAE2016-54789 (9-2-4)
 Borges Rodriguez, Antonio OMAE2016-54838 (4-3-6)
 Bose, Neil OMAE2016-54295 (8-1-1)
 OMAE2016-54811 (1-6-2)
 Bosma, Bret OMAE2016-54789 (9-2-4)
 OMAE2016-54984 (9-2-4), OMAE2016-54986 (9-2-4)
 Bourgin, Francois OMAE2016-54198 (1-4-4)
 Bowman, Jonathan OMAE2016-54385 (3-4-2)
 OMAE2016-54386 (3-4-2), OMAE2016-54388 (3-4-1)
 Boyd, Nicholas OMAE2016-54542 (1-3-8)
 OMAE2016-54544 (7-2-1)
 Bozonnet, Pauline OMAE2016-54961 (9-1-7)
 Brandao, Leonardo OMAE2016-54923 (2-12-2)
 Brehm, Andreas OMAE2016-54466 (1-3-5)
 Bromley, Peter OMAE2016-54364 (9-3-1)
 Broudic, Merin OMAE2016-54364 (9-3-1)
 Brouwer, Joris OMAE2016-54020 (6-3-1)
 Brown, Alison OMAE2016-54826 (1-4-5)
 OMAE2016-54968 (1-2-1)
 Bruneau, Stephen OMAE2016-54277 (7-11-1)
 Brunner, Stefan OMAE2016-54148 (2-10-1)
 Büchner, Anna OMAE2016-54784 (8-1-4)
 Buckham, Bradley OMAE2016-54235 (9-2-1)
 Buckholm, Petter OMAE2016-54892 (6-8-6)
 Bunes, Øyvind OMAE2016-54445 (1-4-6)
 Bunnik, Tim OMAE2016-54808 (8-2-1)
 Burgan, Bassam OMAE2016-55100 (2-9-1)
 Burke, Roger OMAE2016-54335 (4-2-2)
 OMAE2016-54456 (4-2-1)
 Burmester, Simon OMAE2016-54467 (6-8-3)
 Butt, Stephen OMAE2016-55141 (11-1-1)

- C**
- Caille, Francois OMAE2016-54961 (9-1-7)
- Callaghan, Mark D OMAE2016-54387 (4-1-2)
- Calver, William OMAE2016-54932 (8-3-5)
- Cambos, Philippe OMAE2016-54325 (3-4-2)
- Cameron, Matthew OMAE2016-54139 (9-1-3)
- Campello, George OMAE2016-54905 (4-1-1)
- Campos, Ricardo OMAE2016-54461 (2-2-1)
- OMAE2016-54464 (2-2-1)
- Cantinelli Sevillano, Lucas OMAE2016-54088 (1-4-4)
- Cao, Bo OMAE2016-54727 (7-13-2)
- Cao, Jinchao OMAE2016-54711 (6-9-2)
- Cao, Peimin OMAE2016-54871 (4-2-3)
- OMAE2016-54970 (4-2-2)
- Card, David OMAE2016-54191 (2-13-3)
- Carrano Porto Scudino Alves, Anna Carolinna. OMAE2016-55108 (11-11-1)
- Carroll, Roselyn OMAE2016-54838 (4-3-6)
- Carvalho, Luiz Mariano OMAE2016-54449 (6-2-2)
- Cassidy, Mark J OMAE2016-54417 (10-2-1)
- OMAE2016-54513 (10-2-1), OMAE2016-55003 (10-4-1)
- Castanheira, Fernando OMAE2016-54923 (2-12-2)
- Cave, Douglas OMAE2016-55138 (3-8-1)
- Cercos-Pita, Jose L OMAE2016-54874 (8-2-2)
- Cetin, Ali OMAE2016-54763 (4-2-3)
- Cha, Minjun OMAE2016-54284 (11-6-2)
- Chabaud, Valentin OMAE2016-54435 (9-1-5)
- OMAE2016-54437 (9-1-5)
- Chabchoub, Amin OMAE2016-54481 (2-1-1)
- OMAE2016-54916 (2-2-1)
- Chai, Shuhong OMAE2016-54295 (8-1-1)
- OMAE2016-54811 (1-6-2)
- Chai, Wei OMAE2016-54233 (2-3-1)
- Chakrabarti, Partha OMAE2016-54029 (1-1-5)
- Chalkias, Dimitris OMAE2016-54119 (8-1-3)
- Chan, Wai Hong Ronald OMAE2016-54564 (8-4-3)
- Chandar, Dominic Denver John OMAE2016-54008 (8-5-3)
- Chandrasekar, Sruthi OMAE2016-54734 (6-3-2)
- Chang, Daejun OMAE2016-54703 (2-8-1)
- OMAE2016-54776 (11-11-1)
- Chang, Kuang-An OMAE2016-54837 (6-14-2)
- OMAE2016-54872 (6-8-6)
- Chang, Xin OMAE2016-54074 (8-5-3)
- OMAE2016-54075 (8-5-3)
- Chao, Wang OMAE2016-54699 (1-1-5)
- Chaves, Victor OMAE2016-54949 (2-7-1)
- Chawan, Abhijeet OMAE2016-54029 (1-1-5)
- Che Izhm, Muhammad Iqbal OMAE2016-54172 (6-2-1)
- Chen, Anqi OMAE2016-55100 (2-9-1)
- Chen, Bai Qiao OMAE2016-54245 (13-6-1)
- Chen, Chen OMAE2016-54556 (5-1-1)
- Chen, F.L OMAE2016-54366 (12-1-2)
- Chen, Hao OMAE2016-54429 (8-1-3)
- Chen, Jiefeng OMAE2016-54711 (6-9-2)
- Chen, Jing-Fu OMAE2016-54013 (6-8-1)
- Chen, Jingjie OMAE2016-54541 (2-4-2)
- Chen, Jinlong OMAE2016-54547 (4-1-2)
- OMAE2016-55151 (4-1-6)
- Chen, Jiun-Yih OMAE2016-54934 (10-2-1)
- Chen, Junwen OMAE2016-54021 (11-10-1)
- Chen, Limin OMAE2016-54780 (8-2-2)
- Chen, Pengfei OMAE2016-55068 (1-1-5)
- Chen, Si Xuan OMAE2016-55064 (2-11-1)
- Chen, Tuo-Han OMAE2016-54727 (7-13-2)
- Chen, Weixing OMAE2016-55058 (9-2-2)
- Chen, Xiao-Bo OMAE2016-54407 (6-1-5)
- OMAE2016-54415 (2-12-2)
- Chen, Xiaoshuang OMAE2016-54021 (11-10-1)
- Chen, Xing OMAE2016-54413 (12-2-1)
- Chen, Xiqia OMAE2016-54682 (4-1-4)
- Chen, Yanrong OMAE2016-54815 (8-4-2)
- Chen, Yingchun OMAE2016-54599 (4-2-3)
- Chen, Yingyu OMAE2016-54072 (2-9-1)
- Chen, Yong OMAE2016-54165 (2-9-1)
- OMAE2016-54178 (2-9-2)
- Chen, Zhen OMAE2016-54164 (13-5-1)
- OMAE2016-54272 (13-4-1)
- Chen, Zhuo OMAE2016-54708 (7-13-1)
- OMAE2016-54713 (1-2-1)
- Cheng, Bing OMAE2016-54150 (11-4-1)
- Cheng, Jie OMAE2016-55037 (6-7-1)
- Cheng, Jing-Song OMAE2016-54574 (12-1-3)
- Cheng, Jingyun OMAE2016-54871 (4-2-3)
- OMAE2016-54970 (4-2-2)
- Cheng, Peng OMAE2016-54588 (4-1-3)
- Cheng, Yuansheng OMAE2016-55122 (12-1-5)
- OMAE2016-55149 (12-1-5)
- Chernyshev, Vadim V OMAE2016-54440 (6-5-1)
- Chi, Huanpeng OMAE2016-54028 (11-10-1)
- Chick, John OMAE2016-54145 (9-1-2)
- Chin, Christopher OMAE2016-54295 (8-1-1)
- OMAE2016-54811 (1-6-2)
- Cho, Byung Jin OMAE2016-54705 (2-12-1)
- Cho, Gye-Chun OMAE2016-54213 (11-3-2)
- OMAE2016-54217 (11-3-2)
- Cho, Ho Young OMAE2016-55152 (1-4-5)
- Cho, Sang-Rai OMAE2016-54605 (12-1-3)
- Cho, Sunglin OMAE2016-54064 (2-4-1)
- Cho, Tae Min OMAE2016-54664 (2-4-1)
- Cho, Woo-Yeon OMAE2016-54340 (4-3-4)
- Choe, Jonggeun OMAE2016-54287 (11-6-2)
- Choi, Hak Kyu OMAE2016-54766 (8-5-6)
- Choi, Han Suk OMAE2016-54964 (6-1-5)
- Choi, Jae-Woong OMAE2016-55100 (2-9-1)
- Choi, Jin-Woo OMAE2016-54260 (1-2-2)
- Choi, Ki-Sub OMAE2016-55110 (6-7-1)
- Choo, Yoo Sang OMAE2016-54583 (6-8-5)
- Choo, Yun Wook OMAE2016-54739 (10-3-1)
- Choudhary, Ankit OMAE2016-54708 (7-13-1)
- OMAE2016-54716 (1-3-8)
- Christensen, Erik Damgaard OMAE2016-54429 (8-1-3)
- OMAE2016-54876 (8-2-1)
- Christiansen, Niels H OMAE2016-54846 (1-4-6)
- Christou, Marios OMAE2016-54363 (6-13-1)
- OMAE2016-54724 (1-3-6)
- Chu, Yingguang OMAE2016-54445 (1-4-6)
- OMAE2016-54448 (6-11-1)
- Chua, Kie Hian OMAE2016-54583 (6-8-5)
- Chuang, Wei-Liang OMAE2016-54872 (6-8-6)
- Chujutalli, John OMAE2016-54929 (2-11-3)
- Chun, Min Sung OMAE2016-54664 (2-4-1)
- Chunhui, Li OMAE2016-54092 (6-6-1)
- OMAE2016-54699 (1-1-5)
- Ciortan, Cosmin OMAE2016-54466 (1-3-5)
- Claro, Claudia OMAE2016-54300 (1-4-5)
- Clelland, David OMAE2016-54364 (9-3-1)
- Clément, Alain OMAE2016-54130 (9-2-1)
- Coca Suaznabar, Paola Adriana OMAE2016-54820 (11-11-1)
- Cohen, Mark OMAE2016-55111 (3-1-1)
- Colagrossi, Andrea OMAE2016-54874 (8-2-2)
- Colbourne, Bruce OMAE2016-54277 (7-11-1)
- Cole, Sean OMAE2016-54965 (1-2-1)
- Collberg, Leif OMAE2016-54238 (4-3-2)
- OMAE2016-54741 (4-3-2), OMAE2016-54971 (4-3-1)
- Collu, Maurizio OMAE2016-54628 (9-1-7)
- Condino Fajarra, André Luis OMAE2016-54987 (8-1-5)
- OMAE2016-54989 (8-4-1)
- Constantinides, Yiannis OMAE2016-54503 (8-3-4)
- OMAE2016-54871 (4-2-3), OMAE2016-54932 (8-3-5)
- OMAE2016-54945 (8-3-4), OMAE2016-54970 (4-2-2)
- Costa, Ramon Romankevicius OMAE2016-54214 (6-2-1)
- Costache, Andrei OMAE2016-54197 (3-10-1)
- Couston, Louis-Alexandre OMAE2016-55066 (6-14-3)
- Crooks, David OMAE2016-54690 (9-2-2)
- Cross-Whiter, John OMAE2016-54332 (2-8-1)
- Cross, Colin OMAE2016-54252 (4-2-2)
- OMAE2016-54253 (4-3-2)
- Cruz, Ivan OMAE2016-54300 (1-4-5)
- Cui, Jinju OMAE2016-54444 (2-11-2)
- OMAE2016-54447 (2-4-3)
- Cui, Weicheng OMAE2016-54128 (5-3-1)
- Cunny, Daniel OMAE2016-54849 (6-5-2)
- Cura-Hochbaum, Andrés OMAE2016-54865 (1-3-4)
- Curtis, Mark OMAE2016-54531 (11-8-1)
- D**
- Dadmohammadi, Younas OMAE2016-54531 (11-8-1)
- Dahi Taleghani, Arash OMAE2016-54383 (11-8-1)
- Dai, Shaoshi OMAE2016-54512 (8-5-4)
- OMAE2016-54592 (8-4-2)
- Dalane, Oddgeir OMAE2016-54303 (1-1-1)
- OMAE2016-54335 (4-2-2)
- Daley, Claude OMAE2016-54151 (7-11-1)
- OMAE2016-54277 (7-11-1)
- Dantal, Vishal OMAE2016-54838 (4-3-6)
- Dao, My Ha OMAE2016-54732 (1-3-4)
- Darcis, Philippe OMAE2016-54031 (3-6-1)
- OMAE2016-54032 (3-2-1)
- Das, Raj OMAE2016-54333 (6-8-2)
- Davidson, Michelle OMAE2016-54387 (4-1-2)
- Davudov, Davud OMAE2016-54531 (11-8-1)
- De Andrade, Jesus OMAE2016-54088 (1-4-4)
- de Andres, Adrian OMAE2016-54110 (9-2-3)
- de Arruda Martins, Clovis OMAE2016-54381 (4-1-1)
- OMAE2016-54453 (4-1-1), OMAE2016-54895 (4-1-4)
- de Barros Orsolini, Ana Luisa OMAE2016-55133 (6-1-3)
- de Barros Passos, Rafael OMAE2016-54214 (6-2-1)
- De Gracia, Luis OMAE2016-54226 (2-4-2)
- OMAE2016-54688 (2-4-2)
- De Jong, Martijn OMAE2016-54724 (1-3-6)
- De Langre, Emmanuel OMAE2016-54359 (9-3-1)
- de Lima Rego, Joao OMAE2016-54926 (8-1-4)
- de Mello, Pedro C OMAE2016-54982 (6-1-5)
- De Regt, Cees OMAE2016-55152 (1-4-5)
- de Ridder, Erik-Jan OMAE2016-54281 (9-1-5)
- De Sordi, Jérôme OMAE2016-55075 (10-3-1)
- De Vries, Igor OMAE2016-54844 (1-3-5)
- de Wilde, Jaap OMAE2016-54300 (1-4-5)
- OMAE2016-54746 (8-1-5), OMAE2016-54810 (8-4-3)
- De, Ashoke OMAE2016-54008 (8-5-3)
- DeCew, Jud OMAE2016-54146 (5-7-1)
- DeGroot, Don J OMAE2016-54476 (9-1-2)
- Dehghani Sanij, Alireza OMAE2016-54650 (7-3-1)
- Dekker, Richard OMAE2016-54148 (2-10-1)
- Del Giudice, Silvio OMAE2016-54181 (4-3-7)
- Delefortrie, Guillaume OMAE2016-54865 (1-3-4)
- Demanze, Frederic OMAE2016-54650 (4-1-3)
- Deng, Dean OMAE2016-54255 (13-6-1)
- Deng, Le OMAE2016-55092 (2-5-3)
- Deng, Yuxiang OMAE2016-54448 (6-11-1)
- Dewi, Fata OMAE2016-54195 (1-2-2)
- Dhavalikar, Sharad OMAE2016-55071 (6-8-1)
- Ding, Lin OMAE2016-54815 (8-4-2)
- Ding, Weichen OMAE2016-54870 (2-4-3)
- OMAE2016-54898 (6-9-1)
- Ding, Yuanyuan OMAE2016-54562 (12-2-1)
- Ding, Yun OMAE2016-54300 (1-4-5)
- Dirney Jr., B. L OMAE2016-54950 (4-5-1)
- do Vale Machado, Lucas OMAE2016-54470 (8-1-1)
- Dobrodeev, Aleksei OMAE2016-54099 (7-2-1)
- OMAE2016-54100 (7-11-1)
- Dodge, Michael OMAE2016-54004 (3-8-1)
- Dolny, John OMAE2016-54151 (7-11-1)
- Dong, Guo-Hai OMAE2016-54510 (6-8-3)
- Dong, Leilei OMAE2016-55093 (4-1-6)
- Dong, Sheng OMAE2016-54634 (9-1-2)
- OMAE2016-54639 (10-4-1), OMAE2016-54641 (6-14-2)
- Dong, Xiangke OMAE2016-54641 (6-14-2)
- Dong, Xinlong OMAE2016-54707 (12-6-1)
- Dong, Yue OMAE2016-54446 (9-3-1)
- Dong, Zhenwei OMAE2016-55038 (8-1-2)
- Dotta, Raul OMAE2016-54983 (1-4-5)
- Doynov, Krassimir OMAE2016-54063 (4-1-7)
- Draper, Scott OMAE2016-54797 (1-6-2)
- Du, Wenlei OMAE2016-54208 (2-3-1)
- Du, Xiaying OMAE2016-54682 (4-1-4)

Duan, Fei..... OMAE2016-54149 (9-1-3)
 Duan, Menglan OMAE2016-54396 (2-5-2)
 OMAE2016-54595 (4-4-1)
 OMAE2016-54619 (4-3-6), OMAE2016-54620 (2-11-2)
 Duan, Wenyang OMAE2016-54761 (8-5-6)
 Duffy, Jonathan OMAE2016-54295 (8-1-1)
 OMAE2016-54811 (1-6-2)
 Duggan, John OMAE2016-54063 (4-1-7)
 DuPont, Bryony OMAE2016-54973 (9-1-2)
 OMAE2016-54996 (9-2-1)
 Durowoju, Michael OMAE2016-54863 (4-3-4)
 Dutto, Paola OMAE2016-54362 (10-3-1)
 Duz, Bulent OMAE2016-54808 (8-2-1)
 Dyakov, Daniel OMAE2016-54860 (3-6-1)

E

Eastwood, Rob OMAE2016-54849 (6-5-2)
 Eatock Taylor, Rodney OMAE2016-54583 (6-8-5)
 OMAE2016-54797 (1-6-2)
 Eca, Luis OMAE2016-54005 (8-5-3)
 OMAE2016-54414 (8-5-4), OMAE2016-55159 (8-5-7)
 Efthymiou, Michalakis OMAE2016-54797 (1-6-2)
 Ehlers, Soren OMAE2016-54278 (7-4-1)
 OMAE2016-54649 (7-2-1), OMAE2016-54790 (2-10-1)
 Eidem, Mathias OMAE2016-54030 (6-8-1)
 Eidsvik, Ole OMAE2016-54642 (6-5-1)
 Eivind, Ruth OMAE2016-54589 (2-9-3)
 el Moctar, Ould OMAE2016-54793 (6-1-4)
 OMAE2016-54847 (8-1-2)
 Ellingsen, Harald OMAE2016-54646 (6-12-1)
 Ellingsen, Simen Å OMAE2016-54250 (6-1-1)
 Elsaesser, Dr. Bjoern OMAE2016-54660 (9-2-2)
 Elsanadedy, Hussein OMAE2016-54901 (12-6-1)
 Elsnab, John OMAE2016-54481 (2-1-1)
 Enomoto, Osamu OMAE2016-54693 (5-5-2)
 Eom, Taesung OMAE2016-55040 (4-3-5)
 Epsztein, Thomas OMAE2016-54650 (4-1-3)
 OMAE2016-54952 (4-1-6)
 Erezuma, Emma OMAE2016-54032 (3-2-1)
 Eriksrud, Sveinung OMAE2016-54763 (4-2-3)
 Erslund, Jon OMAE2016-54839 (1-1-2)
 Estefen, Segen OMAE2016-54929 (2-11-3)
 OMAE2016-54950 (4-5-1)
 Eto, Hiroaki OMAE2016-54693 (5-5-2)
 OMAE2016-54884 (5-1-1), OMAE2016-54958 (5-1-1)
 Evegren, Franz OMAE2016-54418 (2-11-4)
 Ewans, Kevin OMAE2016-54282 (6-13-1)
 OMAE2016-54355 (2-5-1)
 Fábregas Flavià, Francesc OMAE2016-54130 (9-2-1)
 Falzarano, Jeffrey OMAE2016-54957 (6-8-7)
 OMAE2016-55087 (6-8-7)
 Fan, She-ming OMAE2016-54518 (6-8-4)
 OMAE2016-54594 (6-1-6)
 Fang, Chuang OMAE2016-55092 (2-5-3)
 Fathi, Dariusz OMAE2016-54886 (6-1-4)
 Feld, Graham OMAE2016-54363 (6-13-1)
 Felisita, Airindy OMAE2016-54321 (8-3-4)
 Feng, Dakui OMAE2016-55018 (6-2-3)
 OMAE2016-55038 (8-1-2)
 Feng, Dianshi OMAE2016-54687 (7-12-1)
 Feng, Guoqing OMAE2016-54491 (2-9-3)
 Feng, Junkai OMAE2016-54950 (4-5-1)
 Feng, Ming OMAE2016-54023 (11-1-1)
 Feng, Peiyuan OMAE2016-54594 (6-1-6)
 Feng, Yan OMAE2016-54438 (2-5-3)
 Fernandes, Antonio Carlos OMAE2016-54214 (6-2-1)
 OMAE2016-54374 (8-3-2)
 OMAE2016-54470 (8-1-1), OMAE2016-54530 (8-1-5)
 Fernández, Jonathan OMAE2016-54426 (1-4-4)
 Fernando, Upul S. OMAE2016-54387 (4-1-2)
 Ficquet, Xavier OMAE2016-55138 (3-8-1)
 Fielding, David OMAE2016-54520 (8-5-2)
 Figueiredo, Felipe Pierrobom OMAE2016-54632 (8-4-3)
 OMAE2016-54813 (8-1-5)
 Filip, Grzegorz OMAE2016-54098 (8-5-5)

Finne, Stryk OMAE2016-54411 (1-3-5)
 Finnikov, Konstantin OMAE2016-54045 (11-7-1)
 Fjelde, Kjell Kåre OMAE2016-54293 (11-8-1)
 Fjeldstad, Arne OMAE2016-54939 (3-2-1)
 Fleming, Paul OMAE2016-54536 (9-1-4)
 Folley, Matt OMAE2016-54660 (9-2-2)
 Fonseca, Nuno OMAE2016-54420 (1-3-6)
 OMAE2016-54829 (1-3-1)
 Fontana, Casey OMAE2016-54476 (9-1-2)
 Forinash, Caitlin OMAE2016-54973 (9-1-2)
 Forser, Märten OMAE2016-54068 (2-12-1)
 Fouques, Sebastien OMAE2016-54343 (2-9-3)
 Francis, John A. OMAE2016-54387 (4-1-2)
 Franciss, Ricardo OMAE2016-54300 (1-4-5)
 Francois, Michel OMAE2016-54195 (1-2-2)
 OMAE2016-54199 (1-4-4)
 Franzini, Guilherme R. OMAE2016-54875 (4-1-8)
 Fraser, Ramsay OMAE2016-54934 (10-2-1)
 Frasquet, Miguel OMAE2016-54022 (11-10-1)
 Fredriksen, Arnt G. OMAE2016-54851 (6-8-9)
 OMAE2016-54892 (6-8-6)
 Fredriksson, David W. OMAE2016-54146 (5-7-1)
 Fritzner, Sindre OMAE2016-54817 (7-12-2)
 Froyen, Johnny OMAE2016-54293 (11-8-1)
 Fu, Guoqiang OMAE2016-54592 (8-4-2)
 Fu, Meili OMAE2016-54269 (3-6-1)
 OMAE2016-54291 (3-2-1)
 Fu, Ping OMAE2016-54637 (2-10-2)
 Fu, Qiang OMAE2016-54821 (7-3-1)
 OMAE2016-54832 (2-12-1)
 Fu, Shanshan OMAE2016-54882 (7-4-1)
 Fu, Shixiao OMAE2016-54617 (8-3-5)
 OMAE2016-54625 (6-8-5), OMAE2016-54809 (6-8-6)
 OMAE2016-54871 (4-2-3), OMAE2016-54970 (4-2-2)
 Fu, Shixiao OMAE2016-54851 (6-9-2)
 Fujarra, André Luis Condino OMAE2016-54632 (8-4-3)
 OMAE2016-54746 (8-1-5), OMAE2016-54813 (8-1-3)
 Fujii, Masayuki OMAE2016-55143 (9-3-2)
 Fujikubo, Masahiko OMAE2016-54186 (13-3-1)
 OMAE2016-54306 (2-11-1), OMAE2016-54402 (13-2-1)
 OMAE2016-54494 (13-1-1), OMAE2016-54747 (2-11-3)
 OMAE2016-54890 (5-1-1), OMAE2016-54908 (13-3-1)
 Fujimoto, Wataru OMAE2016-54768 (2-1-1)
 Fujioka, Katsunari OMAE2016-54492 (5-5-1)
 Fujiwara, Toshifumi OMAE2016-54307 (1-2-1)
 OMAE2016-54308 (1-2-2), OMAE2016-54814 (5-5-2)
 Fylling, Ivar OMAE2016-54851 (6-9-2)
 Fyrileiv, Olav OMAE2016-54741 (4-3-2)
 OMAE2016-55000 (8-3-2), OMAE2016-55010 (4-3-4)

G

Gabbassov, Renat OMAE2016-54181 (4-3-7)
 Gadallah, Ramy OMAE2016-54495 (2-4-2)
 Gadge, Sarath C. OMAE2016-55095 (9-3-2)
 Giattoti, Marco OMAE2016-54908 (13-3-1)
 Gambarine, Dennis OMAE2016-54632 (8-4-3)
 OMAE2016-54813 (8-1-5)
 Gang, Chen OMAE2016-54092 (6-6-1)
 Gangadharan, Manoj Kumar OMAE2016-54161 (6-8-2)
 Gao, Feng OMAE2016-55058 (9-2-2)
 Gao, Junliang OMAE2016-54237 (6-14-1)
 Gao, Song OMAE2016-55083 (2-13-3)
 Gao, Yangyang OMAE2016-54097 (6-8-1)
 Gao, Yun OMAE2016-54682 (4-1-4)
 Gao, Zhen OMAE2016-54499 (9-1-6)
 OMAE2016-54848 (9-1-3)
 Garbatov, Yordan OMAE2016-54240 (2-8-1)
 Gardner, Tim OMAE2016-54911 (9-2-5)
 Gaudin, Christophe OMAE2016-54417 (10-2-1)
 Gavouyere, Thierry OMAE2016-54952 (4-1-6)
 Gavrilin, Sergey OMAE2016-54276 (6-1-2)
 Gavrilov, Andrey OMAE2016-54045 (11-7-1)
 OMAE2016-54440 (6-5-1)
 Geissler, Peter OMAE2016-54362 (10-3-1)
 Geng, Baolei OMAE2016-54221 (6-8-2)

Geremias Toni, Fernando OMAE2016-54381 (4-1-1)
 Gerst, Brandon OMAE2016-54384 (3-4-1)
 OMAE2016-54385 (3-4-2)
 OMAE2016-54386 (3-4-2), OMAE2016-54388 (3-4-1)
 Gerthoffert, Arnaud OMAE2016-54195 (1-2-2)
 OMAE2016-54199 (1-4-4)
 Ghaemi, Sina OMAE2016-54051 (11-7-1)
 Ghauri, Abrar Akram OMAE2016-54293 (11-8-1)
 Ghoshal, Ritwik OMAE2016-54708 (7-13-1)
 OMAE2016-54713 (1-2-1)
 Gibson, Richard OMAE2016-54363 (6-13-1)
 Giunta, Giuseppe OMAE2016-54181 (4-3-7)
 Glejbol, Kristian OMAE2016-54197 (3-10-1)
 OMAE2016-55060 (4-1-6)
 Glomnes, Einar B. OMAE2016-55059 (1-4-1)
 Goa, Vegard OMAE2016-54632 (3-6-1)
 Golz, Matthias OMAE2016-54830 (6-5-2)
 OMAE2016-54841 (6-5-2)
 Gonçalves, Marta OMAE2016-54464 (2-2-1)
 Gonçalves, Rodolfo Trentin OMAE2016-54504 (8-4-3)
 OMAE2016-54813 (8-1-5), OMAE2016-54987 (8-1-5)
 Gong, Shiqi OMAE2016-55038 (8-1-2)
 Gopalan, Harish OMAE2016-54008 (8-5-3)
 Gordon, Robert OMAE2016-54965 (11-2-1)
 Gorter, Ward OMAE2016-54826 (1-4-5)
 OMAE2016-54968 (1-2-1)
 Gotoh, Koji OMAE2016-54173 (3-5-1)
 Goupee, Andrew OMAE2016-54281 (9-1-5)
 Grabe, Jurgen OMAE2016-54873 (10-1-1)
 Graham, Alex OMAE2016-54520 (8-5-2)
 Greco, Marilena OMAE2016-54608 (7-13-2)
 Greiner, Bill OMAE2016-55140 (1-1-1)
 Gribkovskaia, Victoria OMAE2016-54941 (1-4-6)
 Grindstad, Thorvald C. OMAE2016-54462 (9-1-6)
 Grotle, Erlend Liavaag OMAE2016-54533 (8-2-3)
 Grytoyr, Guttorm OMAE2016-54323 (8-3-5)
 Gu, Hong OMAE2016-54465 (8-1-3)
 Gu, Jiandong OMAE2016-54396 (2-5-2)
 Gu, Jiguang OMAE2016-55150 (3-10-1)
 Gu, Lang OMAE2016-54522 (8-1-2)
 Gu, Xiechong OMAE2016-54528 (8-1-2)
 OMAE2016-54594 (6-1-6), OMAE2016-54631 (6-5-1)
 Gu, Yibin OMAE2016-54269 (3-6-1)
 Guan, Hui OMAE2016-54065 (4-1-7)
 Guan, Mengzhao OMAE2016-54517 (8-4-3)
 OMAE2016-54662 (8-4-1)
 Guan, Mingkai OMAE2016-54514 (6-14-1)
 Guan, Zhongwei OMAE2016-55070 (12-1-5)
 Guanche, Raúl OMAE2016-54416 (9-1-4)
 OMAE2016-54427 (9-2-1)
 Gudme, Jonas OMAE2016-54472 (4-1-1)
 Gudmestad, Ove Tobias OMAE2016-54321 (8-3-4)
 OMAE2016-54840 (6-14-3)
 Guedes Soares, Carlos OMAE2016-54240 (2-8-1)
 OMAE2016-54241 (12-1-1), OMAE2016-54243 (2-11-2)
 OMAE2016-54245 (13-6-1), OMAE2016-54461 (2-2-1)
 OMAE2016-54464 (2-2-1), OMAE2016-54610 (6-8-5)
 Guérinel, Matthieu OMAE2016-54467 (6-8-3)
 Guha, Amitava OMAE2016-55087 (6-8-7)
 Gui, Feng OMAE2016-54384 (3-4-1)
 Gumley, Jonathan OMAE2016-54674 (2-7-1)
 Gunawan, Budi OMAE2016-54984 (9-2-4)
 Guo, Bingjie OMAE2016-54589 (2-9-3)
 Guo, Hang OMAE2016-54569 (7-13-2)
 Guo, Ji OMAE2016-55092 (2-5-3)
 Guo, Min OMAE2016-54164 (13-5-1)
 Guo, Qiuchen OMAE2016-55091 (6-2-3)
 Guo, Ying OMAE2016-54337 (9-1-7)
 Guo, Zepeng OMAE2016-54262 (6-3-1)
 Guo, Zhanyi OMAE2016-55150 (3-10-1)
 Gupta, Himanshu OMAE2016-54062 (8-4-2)
 Güzel, Bülent OMAE2016-54636 (6-8-5)
 Gylland, Knud Richard OMAE2016-54047 (11-7-1)
 OMAE2016-54048 (11-7-2)
 OMAE2016-54049 (11-7-3), OMAE2016-54050 (11-7-2)

- H**
- Ha, Yeong Su OMAE2016-54705 (2-12-1)
 OMAE2016-55062 (2-12-2)
 Haahr, Marie OMAE2016-54472 (4-1-1)
 Haakonsen, Rune OMAE2016-54063 (4-1-7)
 Hagen, Øistein OMAE2016-54927 (2-3-1)
 OMAE2016-54963 (2-5-1)
 Hagesteijn, Gerco OMAE2016-54842 (6-3-2)
 Halkyard, John OMAE2016-54810 (8-4-3)
 Hall, Matthew OMAE2016-54789 (9-2-4)
 Hals Todalshaug, Jørgen OMAE2016-54110 (9-2-3)
 Ham, Seung-Ho OMAE2016-54709 (1-4-6)
 Han, Bumwoo OMAE2016-54766 (8-5-6)
 OMAE2016-54858 (6-6-1)
 Han, Duanfeng OMAE2016-54497 (7-13-2)
 Han, Jeongmin OMAE2016-54249 (11-3-1)
 Han, Kai Jia OMAE2016-54353 (6-1-2)
 Han, Peihua OMAE2016-54588 (4-1-3)
 Han, Rui OMAE2016-54158 (2-9-1)
 Han, Sun lee OMAE2016-54224 (11-3-1)
 Haneda, Ken OMAE2016-54744 (5-5-1)
 Hannan, M A OMAE2016-54716 (1-3-8)
 OMAE2016-54745 (7-13-1)
 Hao, Xiuzi OMAE2016-54607 (6-11-1)
 Hara, Naoyuki OMAE2016-54352 (5-5-1)
 OMAE2016-55025 (5-5-2)
 Harahap, Indra OMAE2016-54795 (10-4-1)
 Harley, Phil OMAE2016-54781 (4-1-4)
 Harrigan, John OMAE2016-54301 (2-5-3)
 Harris, John OMAE2016-54377 (10-1-1)
 Harrison, Benjamin OMAE2016-54539 (4-3-1)
 Harrold, Magnus OMAE2016-54364 (9-3-1)
 Hashizume, Yutaka OMAE2016-54402 (13-2-1)
 Hassani, Vahid OMAE2016-54865 (1-3-4)
 OMAE2016-54886 (6-1-4)
 Haug, Nora OMAE2016-54746 (8-1-5)
 Hauge, Mons OMAE2016-54341 (3-4-2)
 Haugeud, Stein Atle OMAE2016-54056 (6-9-1)
 Haver, Sverre K. OMAE2016-54840 (6-14-3)
 He, Guanghua OMAE2016-54780 (8-2-2)
 OMAE2016-54783 (6-2-3), OMAE2016-54827 (8-2-2)
 He, Ran OMAE2016-55018 (6-2-3)
 He, Rui OMAE2016-54322 (9-1-1)
 He, Xu OMAE2016-54366 (12-1-2)
 Heilskov, Nicolai F. OMAE2016-55090 (8-1-4)
 Heins, Evelyn OMAE2016-54873 (10-1-1)
 Henry, Madeleine J. OMAE2016-54674 (2-7-1)
 Heo, YeongAe OMAE2016-54096 (2-9-2)
 Hepner, Gustavo OMAE2016-54300 (1-4-5)
 Hermansson, Lasse OMAE2016-54048 (11-7-2)
 Hermundstad, Elin Marita OMAE2016-54411 (1-3-5)
 OMAE2016-54868 (1-3-5)
 Hermundstad, Ole Andreas OMAE2016-54343 (2-9-3)
 Heyn, Hans-Martin OMAE2016-54738 (7-4-1)
 Hildebrandt, Arndt OMAE2016-54784 (8-1-4)
 Hiles, Clayton OMAE2016-54235 (9-2-1)
 Hirakawa, Shinichi OMAE2016-54306 (2-11-1)
 Hirakawa, Yoshiaki OMAE2016-54631 (6-5-1)
 Hironaka, Mao OMAE2016-54756 (5-7-1)
 Hoekstra, Carel F.C. OMAE2016-54273 (8-3-2)
 Hoff, Jan Roger OMAE2016-54411 (1-3-5)
 OMAE2016-54868 (1-3-5)
 Hoff, Jos van 't OMAE2016-54660 (9-2-2)
 Hoh, Hsin Jen OMAE2016-54683 (2-4-3)
 OMAE2016-54735 (2-4-1)
 Holbach, Gerd OMAE2016-54830 (6-5-2)
 OMAE2016-54841 (6-5-2)
 Holmas, Tore OMAE2016-55053 (13-1-1)
 Holmes, Samuel OMAE2016-54932 (8-3-5)
 Holtam, Colum OMAE2016-54384 (3-4-1)
 OMAE2016-54385 (3-4-2)
 OMAE2016-54386 (3-4-2), OMAE2016-54388 (3-4-1)
 Hong, Changwoo OMAE2016-54483 (11-6-2)
 Hong, Jeong OMAE2016-55023 (3-8-1)
 OMAE2016-55024 (3-5-1)
 Hong, Keyyong OMAE2016-54995 (12-6-1)
 Hong, Yi OMAE2016-54620 (2-11-2)
 Hongtao, Yuan OMAE2016-54092 (6-6-1)
 Hooijmans, Patrick OMAE2016-54842 (6-3-2)
 Horn, Agnes Marie OMAE2016-54341 (3-4-2)
 Hoshino, Satoshi OMAE2016-55004 (5-6-1)
 Hossain, Muhammad Shazzad OMAE2016-55003 (10-4-1)
 Hou, Xian-Rui OMAE2016-54316 (6-1-2)
 Hou, Xiyuan OMAE2016-54772 (2-13-1)
 Hourigan, Daniel OMAE2016-54677 (2-7-1)
 Hovda, Sigve OMAE2016-54478 (11-7-3)
 Hu, Ankang OMAE2016-54074 (8-5-3)
 OMAE2016-54075 (8-5-3)
 Hu, Anlin OMAE2016-54021 (11-10-1)
 Hu, Changhong OMAE2016-54347 (6-11-1)
 Hu, Huanghao OMAE2016-54514 (6-14-1)
 Hu, Jian OMAE2016-54522 (8-1-2)
 Hu, Qiuhaio OMAE2016-54463 (9-2-2)
 Hu, Shengnan OMAE2016-54269 (3-6-1)
 OMAE2016-54291 (3-2-1)
 Hu, Yong OMAE2016-54128 (5-3-1)
 Hu, Yuxia OMAE2016-55003 (10-4-1)
 Hu, Zhiqiang OMAE2016-54141 (1-6-2)
 OMAE2016-54149 (9-1-3), OMAE2016-54215 (12-4-1)
 OMAE2016-54247 (7-12-2), OMAE2016-54558 (6-8-4)
 Hua, Hongxing OMAE2016-54165 (2-9-1)
 OMAE2016-54178 (2-9-2)
 Huang, Baigang OMAE2016-54317 (6-1-4)
 Huang, Hui OMAE2016-54184 (13-4-1)
 Huang, Kevin OMAE2016-54765 (4-1-8)
 Huang, Liuyi OMAE2016-54549 (1-3-5)
 Huang, Shi Wen OMAE2016-55119 (2-10-2)
 Huang, Ting OMAE2016-54322 (9-1-1)
 Huang, Ting OMAE2016-54577 (4-1-3)
 Huang, Yi OMAE2016-54541 (2-4-2)
 OMAE2016-55093 (4-1-6)
 Huang, Zhenjia OMAE2016-54493 (1-3-6)
 Hughes, Richard OMAE2016-54959 (11-1-1)
 Huh, Cheol OMAE2016-54703 (2-8-1)
 Huijsmans, Rene OMAE2016-54591 (6-1-6)
 OMAE2016-54774 (1-4-6)
 Hurich, Charles OMAE2016-55141 (11-1-1)
 Huse Knudsen, Tor OMAE2016-54891 (8-3-3)
 Hussain, Anis OMAE2016-54470 (8-1-1)
 OMAE2016-54708 (7-13-1)
 OMAE2016-54713 (1-2-1), OMAE2016-54716 (1-3-8)
 Hutchison, Christopher OMAE2016-54420 (1-3-6)
 Hwang, JungOh OMAE2016-54064 (2-4-1)
 Hwang, Yoonsik OMAE2016-54721 (2-13-2)
 Hwung, Hwung-Hweng OMAE2016-54084 (6-2-1)
- I**
- Ibragimova, Zalpatov OMAE2016-54047 (11-7-1)
 OMAE2016-54050 (11-7-2)
 Ibrahim, Zainab B. OMAE2016-55114 (8-5-4)
 Ichihashi, Daichi OMAE2016-54688 (2-4-2)
 Igi, Satoshi OMAE2016-54678 (3-1-1)
 Igland, Ragnar Torvanger OMAE2016-54855 (4-3-5)
 Ignatenko, Yaroslav OMAE2016-54045 (11-7-1)
 Iijima, Kazuhiro OMAE2016-54352 (5-5-1)
 OMAE2016-54492 (5-5-1), OMAE2016-54494 (13-1-1)
 OMAE2016-54890 (5-1-1), OMAE2016-55025 (5-5-2)
 Ikeda, Yoshiho OMAE2016-54263 (6-2-2)
 Ikoma, Tomoki OMAE2016-54693 (5-5-2)
 OMAE2016-54884 (5-1-1)
 OMAE2016-54958 (5-1-1), OMAE2016-55004 (5-6-1)
 Ikushima, Kazuki OMAE2016-54313 (13-4-1)
 Imtiaz, Syed OMAE2016-54534 (11-3-2)
 Inciarte Fermin, Gioswald R. OMAE2016-55009 (11-4-1)
 Inoue, Shunji OMAE2016-54814 (5-5-2)
 Inoue, Tomoya OMAE2016-54319 (11-7-3)
 Irgens, Per-Christian OMAE2016-54652 (2-12-2)
 Irkal, Mohsin A. R. OMAE2016-54342 (8-1-1)
 Ishibashi, Kinya OMAE2016-54350 (2-11-4)
 Ishida, Shigesuke OMAE2016-54814 (5-5-2)
 Ishiwata, Junya OMAE2016-54319 (11-7-3)
 Itoh, Masaharu OMAE2016-54694 (12-1-4)
 Iturrioz, Arantza OMAE2016-54427 (9-2-1)
 Ivanovic, Ana OMAE2016-54137 (4-3-6)
 Iwashita, Hidetsugu OMAE2016-54163 (6-1-1)
- J**
- Jacobs, Markus OMAE2016-54382 (8-5-5)
 Jacquin, Erwan OMAE2016-54346 (8-5-4)
 OMAE2016-54844 (1-3-5)
 Jafarzadeh, Sepideh OMAE2016-54646 (6-12-1)
 Jagite, George OMAE2016-54415 (2-12-2)
 Jain, Amit OMAE2016-54716 (1-3-8)
 Jaiswal, Vivek OMAE2016-54965 (1-2-1)
 Jakobsen, Marion OMAE2016-54278 (7-4-1)
 Jalali, Mir Abbas OMAE2016-55066 (6-14-3)
 Jameel, Mohammed OMAE2016-54267 (1-1-2)
 OMAE2016-55114 (8-5-4)
 Jang, Beom-Seon OMAE2016-54567 (2-12-2)
 Jang, Hakun OMAE2016-54995 (12-6-1)
 Jang, Hyunchul OMAE2016-54382 (8-5-5)
 OMAE2016-54485 (1-4-1)
 OMAE2016-54493 (1-3-6), OMAE2016-54978 (8-5-6)
 Jang, Ki Bok OMAE2016-54705 (2-12-1)
 OMAE2016-55062 (2-12-2)
 Jang, Youngho OMAE2016-54123 (11-3-1)
 Jansto, Steven OMAE2016-54177 (3-10-1)
 Jaouën, Frédéric OMAE2016-54724 (1-3-6)
 Javadpour, Farzam OMAE2016-54531 (11-8-1)
 Javanmardi, Mohammadreza OMAE2016-54172 (6-2-1)
 Jeanjean, Philippe OMAE2016-54934 (10-2-1)
 Jeffrey, Henry OMAE2016-54110 (9-2-3)
 Jeong, Changeeok OMAE2016-54483 (11-6-2)
 Jeong, Cheolkyun OMAE2016-54773 (11-6-1)
 Jeong, Hyoen Su OMAE2016-54669 (1-1-3)
 Jeong, So-Won OMAE2016-55073 (6-6-1)
 Ji, Chunqun OMAE2016-54300 (1-4-5)
 Ji, Chunyan OMAE2016-54237 (6-14-1)
 Ji, Guomin OMAE2016-54431 (10-1-1)
 OMAE2016-54652 (2-12-2)
 OMAE2016-54658 (4-3-6), OMAE2016-54839 (1-1-2)
 Ji, Hae Sung OMAE2016-54669 (1-1-3)
 Ji, Zeng OMAE2016-54699 (1-1-5)
 Jiang, Chao OMAE2016-54215 (12-4-1)
 Jiang, Huanbao OMAE2016-55118 (7-12-2)
 Jiang, Meirong OMAE2016-55154 (6-9-1)
 Jiang, Weijian OMAE2016-55018 (6-2-3)
 OMAE2016-55037 (6-7-1)
 Jiang, Xi-quan OMAE2016-54413 (12-2-1)
 Jiang, Xiaoli OMAE2016-54243 (2-11-2)
 Jiang, Ying OMAE2016-55154 (6-9-1)
 Jiang, Zhe OMAE2016-54128 (5-3-1)
 Jin, Jong Dae OMAE2016-54669 (1-1-3)
 Jin, Yuting OMAE2016-54295 (8-1-1)
 OMAE2016-54811 (1-6-2)
 Jin, Zeyu OMAE2016-54165 (2-9-1)
 OMAE2016-54178 (2-9-2)
 Jing, Jiaqiang OMAE2016-54021 (11-10-1)
 Jing, Shengping OMAE2016-54234 (6-5-1)
 Jo, Sungwoo OMAE2016-54691 (2-10-1)
 Joga, Ram Kumar OMAE2016-55071 (6-8-1)
 Johannessen, Thomas B. OMAE2016-54927 (2-3-2)
 OMAE2016-54963 (2-5-1)
 Johanning, Lars OMAE2016-54145 (9-1-2)
 Johansen, Inger Lise OMAE2016-54419 (2-13-3)
 Johari, Muhammad Bukhari OMAE2016-54200 (2-3-2)
 Johnsen, Trond OMAE2016-54886 (6-1-4)
 OMAE2016-54941 (1-4-6)
 Johnsgård, Helge OMAE2016-54466 (1-3-5)
 Johnstone, Daniel OMAE2016-54677 (2-7-1)
 OMAE2016-54689 (8-4-2)
 Jonathan, Philip OMAE2016-54355 (2-5-1)
 Jones, Steve OMAE2016-55070 (12-1-5)
 Joseph, Anitha OMAE2016-54635 (1-4-1)

Joshi, Vaibhav..... OMAE2016-54695 (8-5-2)
 OMAE2016-54750 (8-3-5)
 Joy, Chinsu..... OMAE2016-54635 (1-4-1)
 Ju, Xiaogun..... OMAE2016-54783 (6-2-3)
 Jun, Minjung..... OMAE2016-55003 (10-4-1)
 Jun, Wang..... OMAE2016-54604 (12-1-3)
 Jung, Bogyong..... OMAE2016-54691 (2-10-1)
 Jung, Dongwoo..... OMAE2016-54669 (1-1-3)
 Jung, Woodong..... OMAE2016-54123 (11-3-1)
 Jurado, Alfonso..... OMAE2016-54416 (9-1-4)
 OMAE2016-54427 (9-2-1)

K

Kabra, Saurabh..... OMAE2016-54004 (3-8-1)
 Kaeding, Patrick..... OMAE2016-54140 (13-2-1)
 OMAE2016-54186 (13-3-1)
 Kakalis, Nikolaos M..... OMAE2016-54921 (9-3-3)
 Kalinin, Yaroslav..... OMAE2016-54440 (6-5-1)
 Kalogirou, Anna..... OMAE2016-54937 (6-8-6)
 Kamath, Arun..... OMAE2016-54423 (8-2-2)
 OMAE2016-54451 (8-2-3)
 OMAE2016-54675 (8-2-3), OMAE2016-54917 (8-2-1)
 Kang, Chang-Wei..... OMAE2016-54190 (8-4-1)
 OMAE2016-54517 (8-4-3)
 Kang, HeonYong..... OMAE2016-54995 (12-6-1)
 Kang, Iloh..... OMAE2016-54249 (11-3-1)
 Kang, Jichuan..... OMAE2016-55083 (2-13-3)
 Kang, Joe M..... OMAE2016-54167 (11-6-1)
 OMAE2016-54773 (11-6-1)
 Kang, Yongtian..... OMAE2016-54765 (4-1-8)
 Kanou, Yasuhide..... OMAE2016-54508 (3-3-1)
 Kapsenberg, Geert..... OMAE2016-54808 (8-2-1)
 Kar, Apurba..... OMAE2016-55071 (6-8-1)
 Karagiozova, Dora..... OMAE2016-54471 (12-1-2)
 Karamanos, Spyros A..... OMAE2016-55157 (4-3-4)
 Karimirad, Madjid..... OMAE2016-54640 (9-1-5)
 OMAE2016-54652 (2-12-2)
 Karjadi, Erwan..... OMAE2016-54432 (4-3-1)
 Karlsson, Daniel..... OMAE2016-54068 (2-12-1)
 Karunakaran, Daniel..... OMAE2016-54300 (1-4-5)
 OMAE2016-54321 (8-3-4)
 Kashiwagi, Masashi..... OMAE2016-54163 (6-1-1)
 Kataoka, Shinnosuke..... OMAE2016-54256 (12-1-2)
 Katayama, Shino..... OMAE2016-54508 (3-3-1)
 Kato, Naomi..... OMAE2016-54714 (6-5-2)
 Katsui, Tokihiro..... OMAE2016-54319 (11-7-3)
 Kawamura, Yasumi..... OMAE2016-54508 (3-3-1)
 Kawanishi, Toshimasa..... OMAE2016-54756 (5-7-1)
 Kelessidis, Vassilios..... OMAE2016-54071 (11-7-2)
 Kelmanson, Mark..... OMAE2016-54897 (9-1-7)
 Khan, Niaz Bahadur..... OMAE2016-55114 (8-5-4)
 Khoo, Boo Cheong..... OMAE2016-54442 (8-5-1)
 Khorasanchi, Mahdi..... OMAE2016-54145 (9-1-2)
 Ki, Seil..... OMAE2016-54483 (11-6-2)
 Kidogawa, Mitsuhiko..... OMAE2016-54350 (2-11-4)
 Kim, Ah-Ram..... OMAE2016-54217 (11-3-2)
 Kim, Boo Ki..... OMAE2016-54664 (2-4-1)
 OMAE2016-54666 (1-1-2), OMAE2016-54669 (1-1-3)
 Kim, Do Kyun..... OMAE2016-54543 (2-5-1)
 Kim, Ekaterina..... OMAE2016-54608 (7-13-2)
 Kim, Eungsoo..... OMAE2016-54656 (9-1-6)
 OMAE2016-54657 (9-1-1)
 Kim, Gwan Hoon..... OMAE2016-54861 (6-1-6)
 Kim, Gyuyoung..... OMAE2016-54742 (12-1-4)
 Kim, Hak-Sung..... OMAE2016-54213 (11-3-2)
 Kim, Hongseop..... OMAE2016-54742 (12-1-4)
 Kim, HyeSeong..... OMAE2016-54858 (6-6-1)
 Kim, Hyun Joe..... OMAE2016-54664 (2-4-1)
 OMAE2016-54666 (1-1-2), OMAE2016-54669 (1-1-3)
 Kim, Hyunho..... OMAE2016-54726 (11-4-1)
 Kim, Hyunmin..... OMAE2016-54151 (7-11-1)
 Kim, Jaejun..... OMAE2016-54167 (11-6-1)
 Kim, Jakyung..... OMAE2016-54776 (11-11-1)

Kim, Jang Whan..... OMAE2016-54382 (8-5-5)
 OMAE2016-54485 (1-4-1)
 OMAE2016-54493 (1-3-6), OMAE2016-54978 (8-5-6)
 Kim, Jeong-Du..... OMAE2016-54567 (2-12-2)
 Kim, Jeongmin..... OMAE2016-54858 (6-6-1)
 Kim, Ji-Hye..... OMAE2016-55073 (6-6-1)
 Kim, Jin-Ki..... OMAE2016-55152 (1-4-5)
 Kim, Juhyeon..... OMAE2016-54224 (11-3-1)
 Kim, Ki-Seok..... OMAE2016-54340 (4-3-4)
 Kim, Ki-Su..... OMAE2016-55072 (6-7-1)
 Kim, Kihong..... OMAE2016-54249 (11-3-1)
 Kim, Kyeong-Ryun..... OMAE2016-54605 (12-1-3)
 Kim, Kyong-Hwan..... OMAE2016-54995 (12-6-1)
 Kim, Kyung-Sung..... OMAE2016-54964 (6-1-5)
 Kim, Minsu..... OMAE2016-55040 (4-3-5)
 Kim, Moo-Hyun..... OMAE2016-54260 (1-2-2)
 OMAE2016-54964 (6-1-5), OMAE2016-54995 (12-6-1)
 Kim, MunGyu..... OMAE2016-55152 (1-4-5)
 Kim, Myung-Hyun..... OMAE2016-54740 (3-5-1)
 OMAE2016-55110 (6-7-1)
 Kim, Sanghwan..... OMAE2016-54717 (2-12-1)
 Kim, Se-Joon..... OMAE2016-54217 (11-3-2)
 Kim, Seungjun..... OMAE2016-54666 (1-1-2)
 Kim, Sewon..... OMAE2016-54260 (1-2-2)
 Kim, So-Yoon..... OMAE2016-55110 (6-7-1)
 Kim, Sung-Kyoon..... OMAE2016-55072 (6-7-1)
 Kim, Yonghwan..... OMAE2016-54596 (6-1-6)
 Kim, Youngbok..... OMAE2016-55069 (1-4-5)
 Kim, Youngho..... OMAE2016-55003 (10-4-1)
 Kim, Younghun..... OMAE2016-54691 (2-10-1)
 Kimiaei, Mehrdad..... OMAE2016-54210 (4-2-1)
 Kimura, Yasuhiro..... OMAE2016-55143 (9-3-2)
 Kingston, Ed..... OMAE2016-55138 (3-8-1)
 Kishi, Takuma..... OMAE2016-54792 (5-6-1)
 Kishida, Tomoyuki..... OMAE2016-54958 (5-1-1)
 Kishore, R. Krishna..... OMAE2016-55062 (2-12-2)
 Kitazawa, Daisuke..... OMAE2016-54852 (5-7-1)
 Kjersem, Geir Lasse..... OMAE2016-54851 (6-9-2)
 Klæbo, Frank..... OMAE2016-54652 (2-12-2)
 Kleissen, Frank..... OMAE2016-54926 (8-1-4)
 Klinkenberg, Yvette..... OMAE2016-54020 (6-3-1)
 Knapp, Thomas..... OMAE2016-54784 (8-1-4)
 Ko, Han H.H..... OMAE2016-54494 (13-1-1)
 Koga, Eishi..... OMAE2016-55143 (9-3-2)
 Koh, Chan Ghee..... OMAE2016-54434 (2-7-1)
 Kolaparthi, Satish C..... OMAE2016-55095 (9-3-2)
 Komperød, Magnus..... OMAE2016-54105 (4-1-7)
 OMAE2016-54106 (4-1-8)
 Konovessis, Dimitrios..... OMAE2016-54772 (2-13-1)
 Konradsen, Bjørn..... OMAE2016-54091 (4-1-7)
 Koo, Bonjun..... OMAE2016-54382 (8-5-5)
 OMAE2016-54978 (8-5-6)
 Koo, Jeong Bon..... OMAE2016-54705 (2-12-1)
 Koop, Arjen..... OMAE2016-54005 (8-5-3)
 OMAE2016-54281 (9-1-5), OMAE2016-54344 (8-1-1)
 OMAE2016-54746 (8-1-5), OMAE2016-54810 (8-4-3)
 OMAE2016-54987 (8-1-5), OMAE2016-55158 (8-5-7)
 Korkmaz, Fatih C..... OMAE2016-54636 (6-8-5)
 Kramer, Matthew..... OMAE2016-54382 (8-5-5)
 Kramer, Morten Mejlhede..... OMAE2016-54455 (9-2-3)
 Krijger, Jan-Willem..... OMAE2016-54119 (8-1-3)
 Krishnan, Gopala..... OMAE2016-54772 (2-13-1)
 Krishnankutty, P..... OMAE2016-54259 (8-5-2)
 OMAE2016-54311 (6-1-1), OMAE2016-54312 (6-1-3)
 Kristiansen, David..... OMAE2016-54296 (7-11-1)
 Kristiansen, Trygve..... OMAE2016-54420 (1-3-6)
 Ku, Albert..... OMAE2016-54934 (10-2-1)
 Kubiczek, Jan M..... OMAE2016-54790 (2-10-1)
 Kubota, Mitsuru..... OMAE2016-54958 (5-1-1)
 Kuehnlein, Walter..... OMAE2016-55156 (7-3-1)

Kumar Jaiman, Rajeev..... OMAE2016-54190 (8-4-1)
 OMAE2016-54442 (8-5-1)
 OMAE2016-54517 (8-4-3), OMAE2016-54662 (8-4-1)
 OMAE2016-54695 (8-5-2), OMAE2016-54701 (8-3-3)
 OMAE2016-54708 (7-13-1), OMAE2016-54713 (1-2-1)
 OMAE2016-54732 (1-3-4), OMAE2016-54736 (8-5-1)
 OMAE2016-54750 (8-3-5), OMAE2016-54853 (8-5-1)
 Kumar, Dhiraj..... OMAE2016-55140 (11-1-1)
 Kumar, Gaurav..... OMAE2016-54008 (8-5-3)
 Kurian, Velluruzhathil John..... OMAE2016-54399 (1-4-1)
 OMAE2016-54543 (2-5-1)
 Kurnia, Ruddy..... OMAE2016-54365 (6-8-3)
 Kuroyanagi, Akio..... OMAE2016-54393 (5-6-1)
 Kurts, Phillip..... OMAE2016-54689 (8-4-2)
 Kuru, Ergun..... OMAE2016-54051 (11-7-1)
 Kushnir, Dmitry..... OMAE2016-54075 (11-7-1)
 Kusinski, Greg..... OMAE2016-54970 (4-2-2)
 Kvamme, Bjarte O..... OMAE2016-54840 (6-14-3)
 Kvarme, Stig Olav..... OMAE2016-54196 (4-3-5)
 OMAE2016-54855 (4-3-5)
 Kwon, Kangkyu..... OMAE2016-54858 (6-6-1)
 Kwon, Seungmin..... OMAE2016-54721 (2-13-2)
 Kwon, Sunil..... OMAE2016-54154 (11-3-1)
 Kyllingstad, Lars Tandle..... OMAE2016-54886 (6-1-4)
 Kymmell, Jelte..... OMAE2016-54826 (1-4-5)
 OMAE2016-54968 (1-2-1)
 Kyriakides, Stelios..... OMAE2016-54539 (4-3-1)
 OMAE2016-54866 (4-3-1)

L

La Cava, William..... OMAE2016-54332 (2-8-1)
 Lacaze, Jean-Baptiste..... OMAE2016-54166 (1-1-1)
 Lackner, Matthew..... OMAE2016-54332 (2-8-1)
 Lader, Pål Furset..... OMAE2016-54146 (5-7-1)
 Lambroskos, Kostas..... OMAE2016-54382 (8-5-5)
 Landon, Melissa..... OMAE2016-54476 (9-1-2)
 Langford, Thomas..... OMAE2016-55075 (10-3-1)
 Lardeau, Sylvain..... OMAE2016-54297 (8-5-5)
 Larsen, Carl M..... OMAE2016-54424 (1-3-4)
 Lavieri, Rodrigo S..... OMAE2016-54176 (6-13-1)
 OMAE2016-54983 (1-4-5)
 Law, Yun Zhi..... OMAE2016-54853 (8-5-1)
 Lawrence, Lawrence..... OMAE2016-54704 (6-2-2)
 Lawson, Michael..... OMAE2016-54751 (9-2-3)
 OMAE2016-55046 (9-2-4)
 Le Cunff, cedric..... OMAE2016-54198 (1-4-4)
 Le Touzé, David..... OMAE2016-54844 (1-3-5)
 Lebreton, Laurent..... OMAE2016-54926 (8-1-4)
 Ledoux, Alain..... OMAE2016-54346 (8-5-4)
 Lee, Byung-Hyuk..... OMAE2016-54964 (6-1-5)
 Lee, Changsoo..... OMAE2016-54268 (11-6-1)
 Lee, Chon Gee..... OMAE2016-55077 (3-3-1)
 Lee, Dong Yeon..... OMAE2016-54664 (2-4-1)
 OMAE2016-54666 (1-1-2), OMAE2016-54669 (1-1-3)
 Lee, Eunkyung..... OMAE2016-55084 (3-4-1)
 OMAE2016-55153 (3-10-1)
 Lee, Hyesoo..... OMAE2016-54123 (11-3-1)
 Lee, Jae Bong..... OMAE2016-54721 (2-13-2)
 Lee, Jae Hyuk..... OMAE2016-54340 (4-3-4)
 Lee, Jae W..... OMAE2016-54284 (11-6-2)
 Lee, Jae-Hoon..... OMAE2016-54596 (6-1-6)
 Lee, Jin..... OMAE2016-54717 (2-12-1)
 Lee, Jin Tae..... OMAE2016-54605 (12-1-3)
 Lee, Jiyoung..... OMAE2016-54287 (11-6-2)
 Lee, Joo-Sung..... OMAE2016-54605 (12-1-3)
 Lee, Jooyong..... OMAE2016-54217 (11-3-2)
 Lee, Jung H..... OMAE2016-54481 (2-1-1)
 Lee, Sanggyu..... OMAE2016-54742 (12-1-4)
 Lee, Seongmin..... OMAE2016-54249 (11-3-1)
 Lee, Seung Rok..... OMAE2016-54154 (11-3-1)
 Lee, Seung-Jae..... OMAE2016-54858 (6-6-1)
 Lee, Wang K..... OMAE2016-55152 (1-4-5)
 Lee, Youngsoo..... OMAE2016-54224 (11-3-1)
 Lei, Song..... OMAE2016-54700 (8-3-1)

- Leira, Bernt OMAE2016-54233 (2-3-1)
 OMAE2016-54598 (2-3-1), OMAE2016-54637 (2-10-2)
 Lekkala, Malakonda Reddy..... OMAE2016-54502 (8-3-4)
 Lemaire, Sebastien..... OMAE2016-54414 (8-5-4)
 Lemmer, Frank OMAE2016-54920 (9-1-4)
 Lemu, Hirpa OMAE2016-54042 (9-2-3)
 OMAE2016-54043 (9-2-2)
 Lengwinat, Antonio OMAE2016-54865 (1-3-4)
 Lennblad, Johan..... OMAE2016-54746 (8-1-5)
 Levold, Erik..... OMAE2016-54238 (4-3-2)
 Li, Bing-qiang OMAE2016-54446 (9-3-1)
 Li, Bingwei OMAE2016-54507 (12-1-3)
 Li, Chenfeng..... OMAE2016-55094 (2-11-3)
 Li, Congmin..... OMAE2016-55037 (6-7-1)
 Li, Fang OMAE2016-54407 (6-1-5)
 Li, FangQiu OMAE2016-54396 (2-5-2)
 Li, Haoran..... OMAE2016-54599 (4-2-3)
 Li, Hongwei..... OMAE2016-54038 (11-5-1)
 Li, Hongxia OMAE2016-55109 (6-1-3)
 Li, Huajia OMAE2016-54727 (7-13-2)
 Li, Huajun..... OMAE2016-54617 (8-3-5)
 Li, Hui OMAE2016-54356 (6-3-2)
 OMAE2016-54407 (6-1-5), OMAE2016-54525 (6-8-4)
 Li, Jiayi OMAE2016-54142 (2-13-2)
 Li, Jide..... OMAE2016-54208 (2-3-1)
 Li, Jun..... OMAE2016-54558 (6-8-4)
 OMAE2016-54764 (1-1-3), OMAE2016-54809 (6-8-6)
 Li, Lanjing OMAE2016-54431 (10-1-1)
 Li, Lei..... OMAE2016-54821 (7-3-1)
 OMAE2016-54832 (2-12-1)
 Li, Qianru OMAE2016-54228 (11-6-1)
 Li, Qiao..... OMAE2016-54263 (6-2-2)
 Li, Qingming OMAE2016-54251 (12-1-1)
 OMAE2016-54507 (12-1-3)
 Li, Runpei..... OMAE2016-54809 (6-8-6)
 Li, Shiqiang..... OMAE2016-55006 (12-4-1)
 Li, Siqi OMAE2016-54216 (2-13-2)
 Li, Wei OMAE2016-54576 (6-8-4)
 Li, Wei OMAE2016-54711 (6-9-2)
 Li, Wenyuan OMAE2016-54624 (2-4-1)
 Li, Xin OMAE2016-54499 (9-1-6)
 Li, Xin OMAE2016-54558 (6-8-4)
 Li, Yan OMAE2016-54250 (6-1-1)
 Li, Yan OMAE2016-54579 (6-9-2)
 Li, Yan OMAE2016-54150 (11-4-1)
 Li, Yang OMAE2016-54144 (2-13-2)
 Li, Yanyao OMAE2016-54111 (4-2-1)
 OMAE2016-54155 (4-3-7)
 Li, Ye..... OMAE2016-54463 (9-2-2)
 Li, Ying OMAE2016-54063 (4-1-7)
 Li, Yinggang OMAE2016-54366 (12-1-2)
 Li, Yinghui OMAE2016-54391 (6-1-3)
 Li, Yugang OMAE2016-54541 (2-4-2)
 Li, Yuxing OMAE2016-54150 (11-4-1)
 Li, Yuzhu..... OMAE2016-54911 (9-2-5)
 Li, Zhigang OMAE2016-55154 (6-9-1)
 Li, Zhong..... OMAE2016-54442 (8-5-1)
 Liang, Boyuan OMAE2016-54790 (2-10-1)
 Liang, Peng OMAE2016-54682 (4-1-4)
 Liang, Rong OMAE2016-54272 (13-4-1)
 Liang, Wei OMAE2016-54265 (13-5-1)
 Liang, Xiaoyang..... OMAE2016-54631 (6-5-1)
 Liang, Yibo OMAE2016-54609 (1-1-3)
 Liao, Kangping OMAE2016-54347 (6-11-1)
 OMAE2016-54761 (8-5-6)
 Liao, Shenfei OMAE2016-54554 (12-4-1)
 Lie, Halvor OMAE2016-54323 (8-3-5)
 OMAE2016-54503 (8-3-4)
 OMAE2016-54851 (6-9-2), OMAE2016-54892 (6-8-6)
 Liew, MS..... OMAE2016-54543 (2-5-1)
 Liljegren, André..... OMAE2016-54067 (2-9-2)
 Lim, Ho Joon OMAE2016-54382 (8-5-5)
 Lim, Kian Yew..... OMAE2016-54732 (1-3-4)
 Lim, Seojin OMAE2016-54167 (11-6-1)
 Lim, Teck-Bin Arthur..... OMAE2016-54190 (8-4-1)
 OMAE2016-54517 (8-4-3)
 Lin, Tsung-Yueh OMAE2016-55008 (9-1-6)
 Lin, Yifan OMAE2016-54634 (9-1-2)
 Lin, Yu-Hsien OMAE2016-54013 (6-8-1)
 Lin, Zhiliang OMAE2016-54668 (6-2-2)
 OMAE2016-54856 (6-2-3)
 Lin, Zi OMAE2016-54113 (9-1-3)
 Lindahl, Ola..... OMAE2016-54067 (2-9-2)
 Lindemann, Thomas..... OMAE2016-54140 (13-2-1)
 OMAE2016-54186 (13-3-1)
 Linder, Samuel OMAE2016-54746 (8-1-5)
 Lindstad, Haakon OMAE2016-54941 (1-4-6)
 Litton, Richard OMAE2016-54934 (10-2-1)
 Liu, Bin OMAE2016-54241 (12-1-1)
 Liu, Bin..... OMAE2016-54695 (8-5-2)
 OMAE2016-54736 (8-5-1)
 Liu, Binghe..... OMAE2016-54211 (12-1-1)
 Liu, Bo OMAE2016-54507 (12-1-3)
 Liu, Dongxi OMAE2016-54465 (8-1-3)
 Liu, Fan OMAE2016-54682 (4-1-4)
 Liu, Feng OMAE2016-54497 (7-13-2)
 Liu, Fushun..... OMAE2016-54711 (6-9-2)
 OMAE2016-54821 (7-3-1), OMAE2016-54832 (2-12-1)
 Liu, Gang OMAE2016-55093 (4-1-6)
 Liu, Guijie OMAE2016-55068 (1-1-5)
 Liu, Han..... OMAE2016-54528 (8-1-2)
 OMAE2016-54631 (6-5-1)
 Liu, Houfa..... OMAE2016-54396 (2-5-2)
 Liu, Jianhu OMAE2016-55149 (12-1-5)
 Liu, Jiayue OMAE2016-54210 (4-2-1)
 Liu, Jun OMAE2016-54707 (12-6-1)
 Liu, Jun OMAE2016-55122 (12-1-5)
 OMAE2016-55149 (12-1-5)
 Liu, Kun OMAE2016-54215 (12-4-1)
 Liu, Liqin OMAE2016-54337 (9-1-7)
 Liu, Matt OMAE2016-54252 (4-2-2)
 OMAE2016-54253 (4-3-2)
 Liu, Minghao OMAE2016-54569 (7-13-2)
 Liu, Mingyue OMAE2016-54609 (1-1-3)
 OMAE2016-54764 (1-1-3)
 Liu, Renwei OMAE2016-54409 (7-12-1)
 Liu, Songhua OMAE2016-54111 (4-2-1)
 Liu, Weiwei..... OMAE2016-54465 (8-1-3)
 Liu, Xiaoyan OMAE2016-54128 (5-3-1)
 Liu, Xiyang OMAE2016-54208 (2-3-1)
 Liu, Yafei OMAE2016-54866 (4-3-1)
 Liu, Yingyi OMAE2016-54237 (6-14-1)
 OMAE2016-54347 (6-11-1)
 Liu, Yisi..... OMAE2016-54772 (2-13-1)
 Liu, Yucheng OMAE2016-55116 (12-1-5)
 Liu, Yujie OMAE2016-54957 (6-8-7)
 Liu, Yunlong OMAE2016-54183 (6-6-1)
 OMAE2016-54441 (6-8-3)
 Liu, Zhendong..... OMAE2016-54262 (6-3-1)
 Lizhu, Hao OMAE2016-54407 (6-1-5)
 Lomonaco, Pedro..... OMAE2016-54984 (9-2-4)
 London, Tyler OMAE2016-54004 (3-8-1)
 Long, Xiaoyan..... OMAE2016-55067 (11-3-2)
 Lopez, Facundo OMAE2016-54905 (4-1-1)
 Lorio, Diego A. OMAE2016-54905 (4-1-1)
 Losada, Iñigo OMAE2016-54421 (9-1-4)
 OMAE2016-54427 (9-2-1)
 Lotsberg, Inge OMAE2016-54939 (3-2-1)
 Lou, Huangjie..... OMAE2016-54269 (3-6-1)
 OMAE2016-54291 (3-2-1), OMAE2016-54715 (3-8-1)
 Lourenço, Marcelo Igor..... OMAE2016-54950 (4-5-1)
 Low, Ying Min..... OMAE2016-54236 (4-2-1)
 OMAE2016-54434 (2-7-1)
 Lu, Guoxing..... OMAE2016-55019 (12-4-1)
 Lu, Guoyun OMAE2016-55006 (12-4-1)
 Lu, Haining..... OMAE2016-54558 (6-8-4)
 OMAE2016-54764 (1-1-3)
 Lu, Li-Feng OMAE2016-54556 (5-1-1)
 Lu, Ping OMAE2016-54021 (11-10-1)
 Lu, Po-Ying OMAE2016-54013 (6-8-1)
 Lu, Qingzhen OMAE2016-55151 (4-1-6)
 Lu, Wei OMAE2016-54569 (7-13-2)
 Lu, Xiaolong OMAE2016-54491 (2-9-3)
 Lu, Xikui OMAE2016-54409 (7-12-1)
 Lu, Yang OMAE2016-54561 (2-5-2)
 Lu, Yongjian OMAE2016-54505 (1-2-2)
 Lu, Yu OMAE2016-54074 (8-5-3)
 OMAE2016-54075 (8-5-3)
 Lu, Yu-bin..... OMAE2016-54413 (12-2-1)
 Lu, Yutian OMAE2016-54577 (4-1-3)
 Luan, Chenyu OMAE2016-54848 (9-1-3)
 Luczko, Ewelina OMAE2016-54235 (9-2-1)
 Lukassen, Troels Vestergaard OMAE2016-55060 (4-1-6)
 Lund, Bjørnar OMAE2016-54046 (11-7-1)
 OMAE2016-54047 (11-7-1), OMAE2016-54048 (11-7-2)
 OMAE2016-54049 (11-7-3), OMAE2016-54050 (11-7-2)
 Lundrigan, Brian OMAE2016-54911 (9-2-5)
 Luo, Pingya OMAE2016-54040 (11-10-1)
 Luo, Xiaolan OMAE2016-54620 (2-11-2)
 Luo, Yu..... OMAE2016-54164 (13-5-1)
 OMAE2016-54247 (7-12-2), OMAE2016-54272 (13-4-1)
 Lv, Baicheng..... OMAE2016-54624 (2-4-1)
 Lv, Yang OMAE2016-55019 (12-4-1)
 Lyckegaard, Anders OMAE2016-55060 (4-1-6)
- M**
- Ma, Gang OMAE2016-54144 (2-13-2)
 Ma, Kuk Yeol..... OMAE2016-54705 (2-12-1)
 Ma, Ming..... OMAE2016-54452 (13-1-1)
 Ma, Ning OMAE2016-54444 (2-11-2)
 OMAE2016-54447 (2-4-3)
 OMAE2016-54518 (6-8-4), OMAE2016-54528 (8-1-2)
 OMAE2016-54594 (6-1-6), OMAE2016-54631 (6-5-1)
 Ma, Ninshu OMAE2016-54184 (13-4-1)
 Ma, Q. W. OMAE2016-54169 (1-3-1)
 OMAE2016-54475 (1-3-1)
 Ma, Shengwei OMAE2016-54190 (8-4-1)
 Ma, Wei OMAE2016-54382 (8-5-5)
 Ma, Yong OMAE2016-54446 (9-3-1)
 Macadre, Laura-Mae OMAE2016-54834 (9-3-3)
 OMAE2016-54836 (9-3-3)
 Maddox, Stephen J. OMAE2016-54193 (3-2-1)
 Madhi, Farshad OMAE2016-55050 (9-2-5)
 Maeda, Shunsuke OMAE2016-54673 (13-2-1)
 Maekawa, Akira OMAE2016-54184 (13-4-1)
 Magee, Allan Ross OMAE2016-54716 (1-3-8)
 OMAE2016-54732 (1-3-4)
 Mahmoud, Omar OMAE2016-54071 (11-7-2)
 Mai, Quang A. OMAE2016-54232 (2-8-1)
 Maillet, Jeromine OMAE2016-54110 (9-2-3)
 Maki, Kevin OMAE2016-54098 (8-5-5)
 Makri, Isabella Maria OMAE2016-54363 (6-13-1)
 Malenica, Sime OMAE2016-54415 (2-12-8)
 Malgorn, Gaël OMAE2016-54836 (9-3-3)
 Mangal, Lalu OMAE2016-54635 (1-4-1)
 Mansour, Alaa M. OMAE2016-55140 (1-1-1)
 Manteghi, Siakzar OMAE2016-54193 (3-8-1)
 Manuel, Lance OMAE2016-54623 (8-4-1)
 OMAE2016-54628 (9-1-7)
 OMAE2016-54656 (9-1-6), OMAE2016-54657 (9-1-1)
 Mao, Tiancong..... OMAE2016-54038 (11-5-1)
 Mao, Wengang OMAE2016-54226 (2-4-2)
 OMAE2016-54688 (2-4-2)
 Marcollo, Hayden OMAE2016-54689 (8-4-2)
 Marines Garcia, Israel OMAE2016-54031 (3-6-1)
 OMAE2016-54032 (3-2-1)
 Maron, Adolfo OMAE2016-54865 (1-3-4)
 Marques dos Santos, Felipe OMAE2016-54449 (6-2-2)
 Martini, Michele OMAE2016-54416 (9-1-4)
 Martins, Marcelo OMAE2016-54274 (2-13-1)
 Martinsen, Lars Olav OMAE2016-54321 (8-3-4)
 Masuda, Koichi OMAE2016-54693 (5-5-2)
 OMAE2016-54756 (5-7-1)
 OMAE2016-54791 (5-6-1), OMAE2016-54884 (11-10-1)
 OMAE2016-54958 (5-1-1), OMAE2016-55004 (5-6-1)
 Masuda, Mitsuhiro OMAE2016-54791 (5-6-1)
 OMAE2016-54792 (5-6-1), OMAE2016-54805 (5-5-2)

- Mat Soom, Ezanizam..... OMAE2016-54206 (2-5-2)
 Matha, Denis..... OMAE2016-54920 (9-1-4)
 Matsui, Ryosuke..... OMAE2016-54308 (1-2-2)
 Matsumoto, Toshiyuki..... OMAE2016-54350 (2-11-4)
 Matsuo, Miki..... OMAE2016-54319 (11-7-3)
 Matsuzawa, Ryo..... OMAE2016-54694 (12-1-4)
 May, Roland..... OMAE2016-54045 (11-7-1)
 McConochie, Jason..... OMAE2016-54570 (2-1-1)
 McDougall, Aaron..... OMAE2016-54121 (6-8-2)
 McElman, Sarah..... OMAE2016-54281 (9-1-5)
 McGaughy, Tom..... OMAE2016-54231 (3-1-1)
 McNab, John..... OMAE2016-54781 (4-1-4)
 McNatt, Cameron..... OMAE2016-54130 (9-2-1)
 McNatt, Tobin..... OMAE2016-54452 (13-1-1)
 Mekha, Basim..... OMAE2016-54918 (4-2-3)
 Meldi, Marcello..... OMAE2016-55155 (8-5-6)
 Melis, Cecile..... OMAE2016-54961 (9-1-7)
 Méliot, Mickaël..... OMAE2016-54473 (4-1-2)
 Méndez, F..... OMAE2016-54535 (6-14-2)
 Mendis, Priyan..... OMAE2016-54901 (12-6-1)
 Mendonca, Heloisa..... OMAE2016-54453 (4-1-1)
 Meng, Jigang..... OMAE2016-54028 (11-10-1)
 Meng, Xiangdun..... OMAE2016-55058 (9-2-2)
 Meng, Xiangyin..... OMAE2016-54085 (8-3-1)
 Menon, Mahesh..... OMAE2016-54849 (6-5-2)
 Mercier, Richard..... OMAE2016-54872 (6-8-6)
 Metrikine, Andrei V..... OMAE2016-54511 (8-3-3)
 Mhamed, Souli..... OMAE2016-54608 (7-13-2)
 Michelen, Carlos..... OMAE2016-54986 (9-2-4)
 Michelin, Sébastien..... OMAE2016-54359 (9-3-1)
 Miheaye, Komla..... OMAE2016-55152 (1-4-5)
 Milakovic, Aleksandar-Saša..... OMAE2016-54278 (7-4-1)
 OMAE2016-54649 (7-2-1)
 Min, Baehyun..... OMAE2016-54773 (11-6-1)
 Min, Hyunseong..... OMAE2016-54149 (9-1-3)
 Minami, Kiyokazu..... OMAE2016-54791 (5-6-1)
 OMAE2016-54792 (5-6-1), OMAE2016-54805 (5-5-2)
 Minguez, Matthieu..... OMAE2016-55155 (8-5-6)
 Minoretti, Arianna..... OMAE2016-54030 (6-8-1)
 OMAE2016-54056 (6-9-1)
 Mishra, Brajendra..... OMAE2016-55084 (3-4-1)
 OMAE2016-55153 (3-10-1)
 Miura, Kazuo..... OMAE2016-54820 (11-11-1)
 Miyanaawala, Tharindu Pradeeptha..... OMAE2016-54662 (8-4-1)
 Mizukami, Yoichi..... OMAE2016-54852 (5-7-1)
 Mizukami, Yuki..... OMAE2016-55025 (5-5-2)
 Mo, Brage..... OMAE2016-54093 (6-12-1)
 OMAE2016-54168 (6-12-1)
 Moan, Torgeir..... OMAE2016-54499 (9-1-6)
 OMAE2016-54848 (9-1-3)
 Mobasher Amini, Mohammad..... OMAE2016-54374 (8-3-2)
 Moghanloo, Rouzbeh..... OMAE2016-54531 (11-8-1)
 OMAE2016-54540 (11-6-2)
 Mohamad Badry, Ahmad Badarudin Bin..... OMAE2016-55114 (8-5-4)
 Mohd Zaki, Noor Irza..... OMAE2016-54200 (2-3-2)
 OMAE2016-54201 (2-3-2), OMAE2016-54204 (2-3-2)
 OMAE2016-54206 (2-5-2), OMAE2016-54207 (6-2-1)
 Mollin, Bernard..... OMAE2016-54166 (1-1-1)
 Moller, Patrik..... OMAE2016-54110 (9-2-3)
 Molter, Lars..... OMAE2016-54790 (2-10-1)
 Molyneux, David..... OMAE2016-54542 (1-3-8)
 OMAE2016-54544 (7-2-1)
 Momenti, Aline M..... OMAE2016-54813 (8-1-5)
 Montewka, Jakob..... OMAE2016-54882 (7-4-1)
 Monty, Jason P..... OMAE2016-54481 (2-1-1)
 Morana, Roberto..... OMAE2016-54004 (3-8-1)
 Moreno, Javier..... OMAE2016-54139 (9-1-3)
 Morooka, Celso..... OMAE2016-54820 (11-11-1)
 Morrea, Silvia..... OMAE2016-54181 (4-3-7)
 Moslet, Per Olav..... OMAE2016-54341 (3-4-2)
 Mota-Solis, Noe..... OMAE2016-54032 (3-2-1)
 Motogi, Hisaya..... OMAE2016-55143 (9-3-2)
 Muis Alie, Muhammad Zubair..... OMAE2016-54041 (2-11-4)
 Mukhlas, Nurul'Azizah..... OMAE2016-54204 (2-3-2)
 Müller, Kolja..... OMAE2016-54920 (9-1-4)
 Munir, Adnan..... OMAE2016-54338 (8-3-2)
 Munkeby, Jan..... OMAE2016-54892 (6-8-6)
 Murai, Motohiko..... OMAE2016-54744 (5-5-1)
 Murakawa, Hidekazu..... OMAE2016-54184 (13-4-1)
 OMAE2016-54255 (13-6-1), OMAE2016-54265 (13-5-1)
 OMAE2016-54743 (13-5-1), OMAE2016-55135 (13-4-1)
 Murphy, Alan..... OMAE2016-54849 (6-5-2)
 Muskulus, Michael..... OMAE2016-54462 (9-1-6)
 OMAE2016-54915 (9-1-1)
 Mustafa, Wahyuddin..... OMAE2016-54041 (2-11-4)
 Mustapha, Ashri..... OMAE2016-54715 (3-8-1)
 Muzychka, Yuri..... OMAE2016-54054 (7-3-1)
 Myers, Andrew..... OMAE2016-54476 (9-1-2)
 Myhr, Anders..... OMAE2016-54056 (6-9-1)
 Myrhaug, Dag..... OMAE2016-54451 (8-2-3)
 OMAE2016-54637 (2-10-2)
 OMAE2016-54643 (8-5-2), OMAE2016-54644 (6-14-2)
 Myrseth, Velaug..... OMAE2016-54050 (11-7-2)
- N**
- Naaijen, Peter..... OMAE2016-54591 (6-1-6)
 Naciri, Mamoun..... OMAE2016-54844 (1-3-5)
 Naess, Arvid..... OMAE2016-54233 (2-3-1)
 Najafian, Gholamhossein..... OMAE2016-54200 (2-3-2)
 OMAE2016-54201 (2-3-2), OMAE2016-54204 (2-3-2)
 OMAE2016-54206 (2-5-2), OMAE2016-54207 (6-2-1)
 Nakacho, Kenji..... OMAE2016-54184 (13-4-1)
 Nakajima, Mayumi..... OMAE2016-54884 (5-1-1)
 Nakamura, Hikaru..... OMAE2016-54969 (12-1-4)
 Nakatani, Naoki..... OMAE2016-54575 (5-3-1)
 OMAE2016-55016 (5-3-1)
 Nallayarasu, S..... OMAE2016-54342 (8-1-1)
 OMAE2016-54404 (8-1-3)
 OMAE2016-54779 (1-1-1)
 Nam, Jeongsoo..... OMAE2016-54742 (12-1-4)
 Nam, Mi Hee..... OMAE2016-54683 (1-1-3)
 Nan, Zhao..... OMAE2016-54092 (6-6-1)
 Nangong, Zijun..... OMAE2016-54507 (12-1-3)
 Nascimento, Paula T..... OMAE2016-54923 (2-12-2)
 Nasr-El-Din, Hisham..... OMAE2016-54071 (11-7-2)
 Naterer, Greg..... OMAE2016-54054 (7-3-1)
 Naturel, Jérôme..... OMAE2016-54952 (4-1-6)
 Nawik, Adisak..... OMAE2016-54487 (11-8-1)
 Nestybe, Anders..... OMAE2016-54892 (6-8-6)
 Nestegård, Arne..... OMAE2016-54411 (1-3-5)
 OMAE2016-54829 (1-3-1), OMAE2016-55000 (8-3-2)
 Netto, Theodoro..... OMAE2016-54299 (4-3-2)
 Newman, Howard..... OMAE2016-55152 (1-4-5)
 Nezamian, Abe..... OMAE2016-54257 (2-5-2)
 Ng, ChengYee..... OMAE2016-54399 (1-4-1)
 Ngo, Tuan..... OMAE2016-54901 (12-6-1)
 Nguyen, Hoai-Nam..... OMAE2016-54455 (9-2-3)
 Nguyen, Hoang-Huy..... OMAE2016-54564 (8-4-3)
 Nguyen, Vinh-Tan..... OMAE2016-54008 (8-5-3)
 OMAE2016-54564 (8-4-3)
 Nguyen, Xuan Chi..... OMAE2016-55152 (1-4-5)
 Nicolson, Robert J..... OMAE2016-54667 (2-5-2)
 Nielsen, Jørgen..... OMAE2016-54886 (6-1-4)
 Nielsen, Torben..... OMAE2016-54472 (4-1-1)
 Nihei, Yasunori..... OMAE2016-54263 (6-2-2)
 OMAE2016-54352 (5-5-1)
 OMAE2016-54492 (5-5-1), OMAE2016-55025 (5-5-2)
 Nimura, Tadashi..... OMAE2016-54308 (1-2-2)
 Ning, Dezhi..... OMAE2016-54113 (9-1-3)
 Nishimoto, Kazuo..... OMAE2016-54882 (7-4-1)
 Niu, Zhiliang..... OMAE2016-54507 (12-1-3)
 Niu, Zhiyou..... OMAE2016-54144 (2-13-2)
 Nizamani, Z..... OMAE2016-54543 (2-5-1)
 Noh, Sung Hwan..... OMAE2016-54667 (2-10-1)
 OMAE2016-54691 (2-10-1)
 Norman, Rosemary..... OMAE2016-54796 (9-3-1)
 Norris, Eric..... OMAE2016-54903 (2-11-3)
 Nose, Takehiko..... OMAE2016-54282 (6-13-1)
 Nott, Phil..... OMAE2016-54781 (4-1-4)
 Nuernberg, Martin..... OMAE2016-54516 (9-3-3)
 Nugraha, Andi Mursid..... OMAE2016-54041 (2-11-4)
- O**
- O'Sullivan, Jim..... OMAE2016-54382 (8-5-5)
 Obisesan, Abayomi..... OMAE2016-54301 (2-5-3)
 Ochoa Lara, Ismael O..... OMAE2016-54070 (11-11-1)
 Ogawa, Hiroaki..... OMAE2016-54306 (2-11-1)
 OMAE2016-54402 (13-2-1)
 Ogawa, Naoki..... OMAE2016-54184 (13-4-1)
 Ohta, Takahiko..... OMAE2016-54184 (13-4-1)
 Oi, Kenji..... OMAE2016-54678 (3-1-1)
 Okazaki, Soichiro..... OMAE2016-54969 (12-1-4)
 Oksina, Anna..... OMAE2016-54186 (13-3-1)
 Olalo, Leonardo T..... OMAE2016-54739 (10-3-1)
 Oliveira, Nara..... OMAE2016-54299 (4-3-2)
 Ommani, Babak..... OMAE2016-54420 (1-3-6)
 Ong, Muk Chen..... OMAE2016-54194 (4-1-7)
 OMAE2016-54431 (10-1-1)
 OMAE2016-54502 (8-3-4), OMAE2016-54617 (8-3-5)
 OMAE2016-54643 (8-5-2), OMAE2016-54644 (6-14-2)
 Orimolade, Adekunle Peter..... OMAE2016-54840 (6-14-3)
 Osawa, Naoki..... OMAE2016-54226 (2-4-2)
 OMAE2016-54495 (2-4-2), OMAE2016-54508 (3-2-1)
 OMAE2016-54688 (2-4-2), OMAE2016-54743 (13-5-1)
 Østby, Erling..... OMAE2016-54341 (3-4-2)
 Östman, Anders..... OMAE2016-54839 (1-1-2)
 OMAE2016-54869 (8-2-1)
 Otsuka, Fumikazu..... OMAE2016-54756 (5-7-1)
 Otte Filho, Olaf O..... OMAE2016-54875 (4-1-8)
 Ottesen, Torfinn..... OMAE2016-54816 (8-3-1)
 Ou, Shaowu..... OMAE2016-54625 (6-8-5)
 OMAE2016-54809 (6-8-6)
 Oumeraci, Hocine..... OMAE2016-54162 (6-14-1)
 Overby, Sten..... OMAE2016-54472 (4-1-1)
 Overstake, Meg..... OMAE2016-54466 (1-3-5)
 Øvrebo, Stig..... OMAE2016-54839 (1-1-2)
 Oyejobi, Damilola O..... OMAE2016-54267 (1-1-2)
 Ozaki, Masahiko..... OMAE2016-54505 (1-2-2)
- P**
- Paalvast, Mark..... OMAE2016-54826 (1-4-5)
 OMAE2016-54968 (1-2-1)
 Paboeuf, Stephane..... OMAE2016-54834 (9-3-3)
 OMAE2016-54836 (9-3-3)
 Paik, Jeom Kee..... OMAE2016-54452 (13-1-1)
 OMAE2016-54667 (2-10-1), OMAE2016-54691 (2-10-1)
 OMAE2016-54717 (2-12-1), OMAE2016-54755 (4-5-1)
 Pakozdi, Csaba..... OMAE2016-54839 (1-1-2)
 OMAE2016-54869 (8-1-5)
 Pan, Jianqiang..... OMAE2016-55122 (12-1-5)
 Pan, Jin..... OMAE2016-55119 (2-10-2)
 Pan, Yipeng..... OMAE2016-54685 (3-3-1)
 Pan, Zhiyuan..... OMAE2016-54353 (6-1-2)
 OMAE2016-54411 (1-3-5)
 Pang, John Hock Lye..... OMAE2016-54683 (2-4-3)
 OMAE2016-54735 (2-4-1)
 Pang, Liang..... OMAE2016-54870 (2-4-3)
 OMAE2016-54898 (6-9-1)
 Pang, S. D..... OMAE2016-54397 (7-13-1)
 OMAE2016-54687 (7-12-1)
 Papanikolaou, Apostolos..... OMAE2016-54847 (8-1-2)
 Papatheocharis, Theocharis..... OMAE2016-55157 (4-3-4)
 Paranhos Pasqualino, Ilson..... OMAE2016-55108 (11-11-1)
 Park, Changhyup..... OMAE2016-54167 (11-6-1)
 OMAE2016-54268 (11-6-1)
 Park, Jaehyun..... OMAE2016-54858 (6-6-1)
 Park, Jeong-Ung..... OMAE2016-55086 (13-6-1)
 Park, Jeongyeol..... OMAE2016-54740 (3-5-1)
 Park, Jihye..... OMAE2016-54167 (11-6-1)
 Park, Jinhyung..... OMAE2016-54275 (2-13-3)
 Park, Jong-Chun..... OMAE2016-54964 (6-1-5)
 Park, Jongsik..... OMAE2016-55003 (10-4-1)
 Park, JooShin..... OMAE2016-54705 (2-12-1)
 OMAE2016-55062 (2-11-2)
 Park, Juwoon..... OMAE2016-54726 (11-4-1)
 Park, Sang-Hyun..... OMAE2016-54605 (12-1-3)
 Park, Semyung..... OMAE2016-54332 (2-8-1)

Park, Soobin OMAE2016-54268 (11-6-1)
 Park, Sung-In OMAE2016-54721 (2-13-2)
 Park, Yongjun OMAE2016-54167 (11-6-1)
 Parmentier, Guy OMAE2016-54325 (3-4-2)
 Pascali, Raresh OMAE2016-54777 (4-5-1)
 Passano, Elizabeth OMAE2016-54816 (8-3-1)
 Patel, Shivdayal OMAE2016-54486 (12-1-2)
 OMAE2016-54582 (2-10-2)
 Pattarini, Giorgio OMAE2016-54044 (11-7-2)
 Pauw, Willemijn OMAE2016-54134 (6-3-1)
 OMAE2016-54774 (1-4-6)
 Pavlou, Dimitrios G. OMAE2016-54194 (4-1-7)
 Paz, Claudio M. OMAE2016-54950 (4-5-1)
 Pedersen, Birger Skogeng OMAE2016-54448 (6-11-1)
 Pedersen, Eilif OMAE2016-54445 (1-4-6)
 OMAE2016-54533 (8-2-3), OMAE2016-54886 (6-1-4)
 Pei, Zhiyong OMAE2016-54494 (13-1-1)
 Peiffer, Antoine OMAE2016-54536 (9-1-4)
 Peña, Blanca OMAE2016-54121 (6-8-2)
 Peng, Cheng OMAE2016-54149 (9-1-3)
 OMAE2016-55140 (1-1-1)
 Peng, Heather OMAE2016-54911 (9-2-5)
 Peng, Tao OMAE2016-54625 (6-8-5)
 Perdikaris, Philip C. OMAE2016-55157 (4-3-4)
 Perdrizet, Timothée OMAE2016-54961 (9-1-7)
 Pereboom, Hajo OMAE2016-54318 (4-4-1)
 Pereira, Filipe OMAE2016-54005 (8-5-3)
 OMAE2016-54414 (8-5-4)
 Perera, Lokukaluge P. OMAE2016-54093 (6-12-1)
 OMAE2016-54168 (6-12-1)
 Perez Moran, German OMAE2016-54920 (9-1-4)
 Peric, Milovan OMAE2016-54297 (8-5-5)
 Pesce, Celso P. OMAE2016-54875 (4-1-8)
 Petersen, Ole S. OMAE2016-55090 (8-1-4)
 Pezet, Peter OMAE2016-54689 (8-4-2)
 Phadke, Amal OMAE2016-54746 (8-1-5)
 Piehl, Henry OMAE2016-54649 (7-2-1)
 Pillai, Ajit C. OMAE2016-54145 (9-1-2)
 Pirling, Thilo OMAE2016-54387 (4-1-2)
 Pistidda, Alessio OMAE2016-54273 (8-3-2)
 Platt, Andrew OMAE2016-54751 (9-2-3)
 Plenker, Désirée OMAE2016-54873 (10-1-1)
 Podryabinkin, Evgeny OMAE2016-54045 (11-7-1)
 Poedjono, Benny OMAE2016-54044 (11-7-2)
 Poh, Leong Hien OMAE2016-54397 (7-13-1)
 OMAE2016-54400 (7-13-1)
 Poinette, Yann OMAE2016-54961 (9-1-7)
 Posada, Catalina OMAE2016-54954 (11-4-1)
 Potts, Andrew E. OMAE2016-54674 (2-7-1)
 OMAE2016-54677 (2-7-1), OMAE2016-54689 (8-4-2)
 Pouraria, Hassan OMAE2016-54755 (4-5-1)
 Pournara, Aglaia E. OMAE2016-55157 (4-3-4)
 Prabowo, Aditya Rio OMAE2016-54727 (7-13-2)
 Prevc, Matej OMAE2016-54069 (2-11-1)
 Provasi, Rodrigo OMAE2016-54381 (4-1-1)
 Pu, Dr Yongchang OMAE2016-54863 (4-3-4)
 Pytte, Trond OMAE2016-54763 (4-2-3)

Q

Qian, Xudong OMAE2016-54708 (7-13-1)
 OMAE2016-54713 (1-2-1), OMAE2016-54745 (7-13-1)
 Qiao, Hongdong OMAE2016-54460 (4-2-2)
 Qiao, Yue OMAE2016-54497 (7-13-2)
 Qin, Hongde OMAE2016-54607 (6-11-1)
 Qin, Jiangtao OMAE2016-55065 (8-2-3)
 Qin, Wenting OMAE2016-54040 (11-10-1)
 Qiu, Wei OMAE2016-54911 (9-2-5)
 Qiu, Yu OMAE2016-54337 (9-1-7)
 Qu, Yan OMAE2016-54765 (4-1-8)
 Qu, Yang OMAE2016-54511 (8-3-3)
 Queiroz Filho, Asdrubal OMAE2016-54956 (6-14-3)
 Quémeiner, Yann OMAE2016-55008 (9-1-6)
 Quintanilla, Hector OMAE2016-54031 (3-6-1)
 OMAE2016-54032 (3-2-1)
 Quon, Eliot OMAE2016-54751 (9-2-3)

R

Raba, Alexander OMAE2016-54823 (9-1-1)
 Race, Julia OMAE2016-54863 (4-3-4)
 Raghupathi, Laks OMAE2016-54355 (2-5-1)
 Rahm, Michael OMAE2016-54418 (2-11-4)
 Rahman, Mohammad Azizur OMAE2016-54379 (11-1-1)
 OMAE2016-54534 (11-3-2)
 Rahmati, MT OMAE2016-54360 (4-1-2)
 OMAE2016-55054 (8-5-1)
 Rajamanickam, Pannee Selvam OMAE2016-54627 (1-3-8)
 Rameesha, TV OMAE2016-54311 (6-1-1)
 OMAE2016-54312 (6-1-3)
 Ramirez Rodriguez, Arturo OMAE2016-55009 (11-4-1)
 Ramirez, Miguel A M OMAE2016-54530 (8-1-5)
 Ramli Sulong, Nor Hafizah OMAE2016-54267 (1-1-2)
 Rampazzo, Fabiano OMAE2016-54983 (1-4-5)
 Rampi, Lucile OMAE2016-54195 (1-2-2)
 OMAE2016-54198 (1-4-4), OMAE2016-54199 (1-4-4)
 Randell, David OMAE2016-54355 (2-5-1)
 Randolph, Mark OMAE2016-54210 (4-2-1)
 Rao, Jing OMAE2016-55093 (4-1-6)
 Rao, Mahesh J. OMAE2016-54404 (8-1-3)
 Rasheed, Sherif OMAE2016-54479 (13-1-1)
 OMAE2016-54480 (13-3-1), OMAE2016-54743 (13-5-1)
 Rathour, Swarn Singh OMAE2016-54714 (6-5-2)
 Ratnayake, R.M. Chandima OMAE2016-54504 (3-6-1)
 OMAE2016-54537 (3-10-1), OMAE2016-54860 (3-6-1)
 Ravi, Vignesh OMAE2016-54152 (6-1-1)
 Rawlins, Sheldon OMAE2016-54044 (11-7-2)
 Read, Alex OMAE2016-54297 (8-5-5)
 Reaves, Kristopher OMAE2016-54777 (4-5-1)
 Reisser, Julia OMAE2016-54926 (8-1-4)
 Ren, Huilong OMAE2016-54262 (6-3-1)
 OMAE2016-54356 (6-3-2), OMAE2016-54407 (6-1-5)
 OMAE2016-54491 (2-9-3), OMAE2016-54525 (6-8-4)
 OMAE2016-54550 (6-3-2), OMAE2016-55094 (2-11-3)
 Reum, Ola OMAE2016-54839 (1-1-2)
 Rhee, Shin OMAE2016-54766 (8-5-6)
 OMAE2016-54858 (6-6-1), OMAE2016-54861 (6-1-6)
 Rheem, Chang-Kyu OMAE2016-54319 (11-7-3)
 OMAE2016-54693 (5-5-2)
 Ribeiro Machado da Silva, Vinicius OMAE2016-54949 (2-7-1)
 Ribeiro Malta, Eduardo OMAE2016-54895 (4-1-4)
 Ribolla Masetti, Felipe OMAE2016-54982 (6-1-5)
 Rigo, Philippe OMAE2016-54232 (2-8-1)
 Rijken, Oriol OMAE2016-54746 (8-1-5)
 Rindarøy, Martin OMAE2016-54886 (6-1-4)
 Ringsberg, Jonas OMAE2016-54067 (2-9-2)
 OMAE2016-54068 (2-12-1), OMAE2016-54069 (2-11-1)
 Ritz, Sebastian OMAE2016-54830 (6-5-2)
 OMAE2016-54841 (6-5-2)
 Rizopoulou, Konstantina OMAE2016-54449 (6-2-2)
 Rizzo, Cesare OMAE2016-54908 (13-3-1)
 Robertson, Bryson OMAE2016-54235 (9-2-1)
 Robles Cortes, Jorge F. OMAE2016-55009 (11-4-1)
 Rocha, Thiago P. OMAE2016-54983 (1-4-5)
 Roddier, Dominique OMAE2016-54062 (8-4-2)
 Rognebakke, Olav OMAE2016-54466 (1-3-5)
 OMAE2016-54589 (2-9-3)
 Roh, Myung-Il OMAE2016-54709 (1-4-6)
 OMAE2016-55072 (6-7-1)
 Romac, Remi OMAE2016-55138 (3-8-1)
 Rongère, François OMAE2016-54130 (9-2-1)
 Ronold, Knut O. OMAE2016-54939 (3-2-1)
 Roosen, Dorus Karel OMAE2016-54591 (6-1-6)
 Rosas, Marco OMAE2016-54923 (2-12-2)
 Rose, Stephen Marcus OMAE2016-54363 (6-13-1)
 Rosen, Jeremy OMAE2016-54677 (2-7-1)
 Rosetti, Guilherme OMAE2016-54982 (6-1-5)
 OMAE2016-54987 (8-1-5), OMAE2016-54989 (8-4-1)
 Rosli, Roslyna OMAE2016-54796 (9-3-1)
 Rosten, Trond OMAE2016-54146 (5-7-1)
 Roy, Matthew J. OMAE2016-54387 (4-1-2)

Ruan, Weidong OMAE2016-54111 (4-2-1)
 OMAE2016-54155 (4-3-7), OMAE2016-54460 (4-2-2)
 OMAE2016-54577 (4-1-3), OMAE2016-54588 (4-1-3)
 Rubin, Adam OMAE2016-54472 (4-1-1)
 Ruehl, Kelley OMAE2016-54984 (9-2-4)
 OMAE2016-54986 (9-2-4)
 Ruggeri, Felipe OMAE2016-54994 (6-7-1)
 Ruijia, Zhou OMAE2016-54699 (1-1-5)
 Ruiz Valdes, Hector Olmedo OMAE2016-54743 (13-5-1)
 Russo, Massimiliano OMAE2016-54323 (8-3-5)
 OMAE2016-54932 (8-3-5)
 Rypien, David OMAE2016-54777 (4-5-1)
 Ryu, Yonghee OMAE2016-55100 (2-9-1)

S

Saasen, Arild OMAE2016-54044 (11-7-2)
 OMAE2016-54047 (11-7-1), OMAE2016-54048 (11-7-2)
 OMAE2016-54049 (11-7-3), OMAE2016-54050 (11-7-2)
 Sabiron, Guillaume OMAE2016-54455 (9-2-3)
 Sablok, Anil OMAE2016-54303 (1-1-1)
 OMAE2016-54335 (4-2-2)
 Sabodash, Olga A. OMAE2016-54018 (7-12-1)
 OMAE2016-54089 (7-3-1)
 Sadasue, Teruki OMAE2016-54678 (3-1-1)
 Sade, Juswan OMAE2016-54041 (2-11-4)
 Sadjina, Severin OMAE2016-54886 (6-1-4)
 Sæther, Lars Ove OMAE2016-54435 (9-1-5)
 OMAE2016-54437 (9-1-5)
 Sagerup, Trond OMAE2016-54817 (7-12-2)
 Sagrilo, Luis OMAE2016-54949 (2-7-1)
 Saha, Ujjwal K. OMAE2016-55095 (9-3-2)
 Sahoo, Prasanta OMAE2016-54685 (3-3-1)
 Sainte-Rose, Bruno OMAE2016-54926 (8-1-4)
 Sakai, Megumi OMAE2016-54890 (5-1-1)
 Salleh, Hilman OMAE2016-54283 (3-3-1)
 Salwa, Tomasz OMAE2016-54897 (9-1-7)
 Samanta, Asokendu OMAE2016-54339 (12-6-1)
 Sangesland, Sigbjørn OMAE2016-54088 (1-4-4)
 OMAE2016-54478 (11-7-3)
 Santala, Markku OMAE2016-54945 (8-3-4)
 Santana Castelpoggi, Felipe OMAE2016-55133 (6-1-5)
 Santos, Caio C. P. OMAE2016-54875 (4-1-8)
 Sarmiento, Javier OMAE2016-54427 (9-2-1)
 Sasa, Kenji OMAE2016-54556 (5-1-1)
 OMAE2016-55143 (9-3-2)
 Sato, Chiaki OMAE2016-54884 (5-1-1)
 OMAE2016-54958 (5-1-1)
 Sauder, Thomas OMAE2016-54435 (9-1-5)
 OMAE2016-54437 (9-1-5)
 Savik, Svein OMAE2016-54196 (4-3-5)
 OMAE2016-54424 (1-3-4), OMAE2016-54547 (4-1-2)
 OMAE2016-54658 (4-3-6), OMAE2016-54891 (8-3-3)
 Sayer, Philip OMAE2016-54113 (9-1-3)
 Sayindla, Sneha OMAE2016-54047 (11-7-1)
 OMAE2016-54048 (11-7-2)
 Sazonov, Kirill OMAE2016-54099 (7-2-1)
 OMAE2016-54100 (7-11-1)
 Scharnke, Jule OMAE2016-54300 (1-4-5)
 Schaumann, Peter OMAE2016-54823 (9-1-1)
 Schellin, Thomas OMAE2016-54847 (8-1-2)
 Schewe, Guenter OMAE2016-54382 (8-5-5)
 Schjølberg, Ingrid OMAE2016-54642 (6-5-1)
 Schleder, Adriana M. OMAE2016-54274 (2-13-1)
 Schlipf, David OMAE2016-54536 (9-1-4)
 Schubert, Jerome OMAE2016-54023 (11-1-1)
 Sekse, Jorunn Hillestad OMAE2016-54030 (6-8-1)
 OMAE2016-54056 (6-9-1)
 Senga, Hidetaka OMAE2016-54714 (6-5-2)
 Sengupta, Piyali OMAE2016-54434 (2-7-1)
 Senthil Kumar, N. OMAE2016-54779 (1-1-1)
 Seo, Hyeong Jun OMAE2016-54154 (11-3-1)
 Seo, Jeonghwa OMAE2016-54858 (6-6-1)
 OMAE2016-54861 (6-1-6)

Seo, Jung Kwan	OMAE2016-54667 (2-10-1)	Sørensen, John D.	OMAE2016-54232 (2-8-1)	Tannuri, Eduardo A.	OMAE2016-54176 (6-13-1)
.....	OMAE2016-54691 (2-10-1)	Sorvaag, Christian	OMAE2016-54839 (1-1-2)	.....	OMAE2016-54956 (6-14-3)
.....	OMAE2016-54717 (2-12-1),	Sotoudeh, Kasra	OMAE2016-54004 (3-8-1)	.....	OMAE2016-54982 (6-1-5),
.....	OMAE2016-54796 (9-3-1)	Sourina, Olga	OMAE2016-54772 (2-13-1)	Tao, Longbin	OMAE2016-54085 (8-3-1)
Seo, Kwangcheol	OMAE2016-54796 (9-3-1)	Souto-Iglesias, Antonio	OMAE2016-54874 (8-2-2)	.....	OMAE2016-54113 (9-1-3),
Seo, Min-Guk	OMAE2016-54596 (6-1-6)	Sprenger, Florian	OMAE2016-54847 (8-1-2)	.....	OMAE2016-54516 (9-3-3)
Seo, Youngkyun	OMAE2016-54703 (2-8-1)	.....	OMAE2016-54865 (1-3-4)	Tarasov, Valerii V.	OMAE2016-54609 (1-1-3),
Seo, Yutaek	OMAE2016-54726 (11-4-1)	Srinivasamurthy, Sharath	OMAE2016-54352 (5-5-1)	.....	OMAE2016-55137 (4-5-1)
.....	OMAE2016-54776 (11-11-1)	Srinivasan, Nagan	OMAE2016-54627 (1-3-8)	Tatsumi, Akira	OMAE2016-54306 (2-11-1)
Serre, Eric	OMAE2016-55155 (8-5-6)	Sriramula, Srinivas	OMAE2016-54137 (4-3-6)	.....	OMAE2016-54402 (13-2-1)
Shakir, Alaa	OMAE2016-55070 (12-1-5)	.....	OMAE2016-54301 (2-5-3)	.....	OMAE2016-54747 (2-11-3),
Shang, Zhaohui	OMAE2016-54460 (4-2-2)	Stanko, Milan	OMAE2016-54088 (1-4-4)	Tavouktsoglou, Nicholas	OMAE2016-54377 (10-1-1)
Shangguan, Qiyang	OMAE2016-54815 (8-4-2)	Stansberg, Carl Trygve	OMAE2016-54411 (1-3-5)	Taylor, Kyle	OMAE2016-54487 (11-8-1)
Shao, Yanlin	OMAE2016-55059 (1-4-1)	.....	OMAE2016-54829 (1-3-1),	Taylor, Paul	OMAE2016-54797 (1-6-2)
Sharma, Partha	OMAE2016-54965 (1-2-1)	.....	OMAE2016-54839 (1-1-2)	Teng, Mange	OMAE2016-54497 (7-13-2)
Sharonov, Nikolay	OMAE2016-54440 (6-5-1)	Steele, Amanda	OMAE2016-54945 (8-3-4)	Teng, Xiao	OMAE2016-54413 (12-2-1)
Sharp, Chris	OMAE2016-54996 (9-2-1)	Steen, Sverre	OMAE2016-54180 (6-12-1)	Teng, Yao	OMAE2016-54821 (7-3-1)
Shen, Jing	OMAE2016-54607 (6-11-1)	.....	OMAE2016-54276 (6-1-2)	.....	OMAE2016-54832 (2-12-1)
Shen, Linwei	OMAE2016-54701 (8-3-3)	Sterenborg, Joost	OMAE2016-54810 (8-4-3)	Teo, Fwu Chyi	OMAE2016-54397 (7-13-1)
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Shen, Tong	OMAE2016-54540 (11-6-2)	Strand, Ida	OMAE2016-54146 (5-7-1)	Thiagarajan, Krish	OMAE2016-54139 (9-1-3)
Shen, Wanggang	OMAE2016-54668 (6-2-2)	Strohaecker, Telmo R.	OMAE2016-54905 (4-1-1)	Thibaux, Philippe	OMAE2016-54432 (4-3-1)
Shen, Yan	OMAE2016-54685 (3-3-1)	Su, Biao	OMAE2016-54296 (7-11-1)	Thilleul, Olivia	OMAE2016-54844 (1-3-5)
Shen, Yongming	OMAE2016-54298 (6-14-1)	Su, Jian	OMAE2016-54595 (8-4-1)	Thodla, Ramgopal	OMAE2016-54384 (3-4-1)
Shepherd, William	OMAE2016-54781 (4-1-4)	Sugahara, Ryo	OMAE2016-54393 (5-6-1)	.....	OMAE2016-54386 (3-4-2),
Shi, Chen	OMAE2016-54623 (8-4-1)	Sugimoto, Kei	OMAE2016-54350 (2-11-4)	.....	OMAE2016-54388 (3-4-1)
Shi, Chu	OMAE2016-54247 (7-12-2)	Suk, Hwasoo	OMAE2016-54773 (11-6-1)	Thomas, Sharman	OMAE2016-54457 (11-5-1)
Shi, Weichao	OMAE2016-54796 (9-3-1)	Suleymanov, Magomed	OMAE2016-54504 (3-6-1)	Thompson, Frank	OMAE2016-54959 (11-1-1)
Shibahara, Masakazu	OMAE2016-54313 (13-4-1)	Sumida, Tetsuya	OMAE2016-55143 (9-3-2)	Thorenz, Kristin	OMAE2016-54139 (9-1-3)
Shibata, Taiki	OMAE2016-54969 (12-1-4)	Sun, Hua	OMAE2016-54133 (2-9-2)	Thorsen, Mats Jørgen	OMAE2016-54891 (8-3-3)
Shigemitsu, Toshiyuki	OMAE2016-54350 (2-11-4)	Sun, Hui	OMAE2016-54208 (2-3-1)	Thys, Maxime	OMAE2016-54435 (9-1-5)
Shimizu, Seiji	OMAE2016-55143 (9-3-2)	Sun, Liping	OMAE2016-54142 (2-13-2)	.....	OMAE2016-54437 (9-1-5),
Shimozato, Kohei	OMAE2016-54308 (1-2-2)	.....	OMAE2016-54144 (2-13-2)	Tian, Kang	OMAE2016-54640 (9-1-5)
Shin, Hyun Joon	OMAE2016-54861 (6-1-6)	.....	OMAE2016-54216 (2-13-2),	Tian, Shouceng	OMAE2016-54028 (11-10-1)
Shin, Yun Sup	OMAE2016-55075 (10-3-1)	.....	OMAE2016-54295 (8-1-1)	Tian, Wei	OMAE2016-54540 (11-6-2)
Shin, Yung-Sup	OMAE2016-54903 (2-11-3)	.....	OMAE2016-54561 (2-5-2),	Tian, Xiaojie	OMAE2016-55068 (1-1-5)
Shiotani, Kazuhiko	OMAE2016-54508 (3-3-1)	Sun, Peng	OMAE2016-54549 (1-3-5)	Tian, Xinghui	OMAE2016-54417 (10-2-1)
Shorter, Phil	OMAE2016-54520 (8-5-2)	Sun, Shuzheng	OMAE2016-54208 (2-3-1)	.....	OMAE2016-54513 (10-2-1)
Shugan, Igor	OMAE2016-54084 (6-2-1)	Sun, Tao	OMAE2016-54324 (9-2-5)	Tian, Zhaoli	OMAE2016-54441 (6-8-3)
Siddiqui, Nadeem	OMAE2016-54737 (12-1-4)	Sun, Yanlong	OMAE2016-54262 (6-3-1)	Tjok, Komin	OMAE2016-55067 (11-3-2)
Sigmund, Sebastian	OMAE2016-54793 (6-1-4)	.....	OMAE2016-54550 (6-3-2)	Toffoli, Alessandro	OMAE2016-54481 (2-1-1)
Silva, Manuel	OMAE2016-54022 (11-10-1)	Sung, Gilyong	OMAE2016-54224 (11-3-1)	Tognarelli, Michael	OMAE2016-54062 (8-4-2)
Silveira, Elena	OMAE2016-54426 (1-4-4)	Sung, Seungun	OMAE2016-54666 (1-1-2)	.....	OMAE2016-54932 (8-3-5)
Simmons, Asher	OMAE2016-54984 (9-2-4)	Sung, Wonmo	OMAE2016-54123 (11-3-1)	Toh, Kimihiro	OMAE2016-54673 (13-2-1)
Simons, Richard R.	OMAE2016-54377 (10-1-1)	Surendran, S.	OMAE2016-54152 (6-1-1)	Tom, Nathan	OMAE2016-55046 (9-2-4)
Simos, Alexandre N.	OMAE2016-54956 (6-14-3)	OMAE2016-54523 (6-1-5)	OMAE2016-55050 (9-2-5)
.....	OMAE2016-54994 (6-7-1)	T		Tomaselli, Pietro D.	OMAE2016-54876 (8-2-1)
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Singh, Manander	OMAE2016-54582 (2-10-2)	Taghipour, Ali	OMAE2016-54046 (11-7-1)	Torres Meza, Gerardo	OMAE2016-55009 (11-4-1)
Sinn, Philipp	OMAE2016-54784 (8-1-4)	.....	OMAE2016-54047 (11-7-1)	Tronskar, Jens	OMAE2016-55077 (3-3-1)
Simnivas, Senu	OMAE2016-54789 (9-2-4)	.....	OMAE2016-54048 (11-7-2),	Trygland, Eirik	OMAE2016-54643 (8-5-2)
Sitepu, Ganding	OMAE2016-54041 (2-11-4)	.....	OMAE2016-54049 (11-7-3)	Tsang, Kin Shun	OMAE2016-54683 (2-4-3)
Sivabalan, P.	OMAE2016-54523 (6-1-5)	Takada, Atsushi	OMAE2016-54508 (3-3-1)	OMAE2016-54735 (2-4-1)
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Sivebæk, Ion M.	OMAE2016-54197 (3-10-1)	Takashi Yuba, Douglas Gustavo	OMAE2016-55133 (6-1-3)	Tsubogo, Takashi	OMAE2016-54263 (6-2-2)
Skedsmo, Lars Erik Moene	OMAE2016-54504 (3-6-1)	Takeda, Yosuke	OMAE2016-54575 (5-3-1)	.....	OMAE2016-54896 (6-1-4)
Skjetne, Roger	OMAE2016-54738 (7-4-1)	.....	OMAE2016-55016 (5-3-1)	Tsukada, Yoshiaki	OMAE2016-54336 (6-3-1)
Skjong, Stian	OMAE2016-54886 (6-1-4)	Takeno, Seiru	OMAE2016-54508 (3-3-1)	Tsumura, Shuichi	OMAE2016-54173 (3-5-1)
Slocum, Scott	OMAE2016-54493 (1-3-6)	Tan, Soon Keat	OMAE2016-54097 (6-8-1)	Tu, Ying	OMAE2016-54462 (9-1-6)
Slot, Harmen	OMAE2016-54318 (4-4-1)	Tan, Sue Ben	OMAE2016-54701 (8-3-3)	Tuhajian, Siti Nor Adha	OMAE2016-54399 (1-4-1)
Smienk, Henk	OMAE2016-54273 (8-3-2)	OMAE2016-54750 (8-3-5)	Turco Neto, Eugenio	OMAE2016-54534 (11-3-2)
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Smilden, Emil	OMAE2016-54845 (9-1-4)	Tanabe, Naoto	OMAE2016-54714 (6-5-2)	U	
Smith, Simon	OMAE2016-54004 (3-8-1)	Tanaka, Satoyuki	OMAE2016-54495 (2-4-2)	Ueno, Michio	OMAE2016-54336 (6-3-1)
Smith, Victor	OMAE2016-54838 (4-3-6)	Tanaka, Toshinari	OMAE2016-54714 (6-5-2)	Ulveseter, Jan Vidar	OMAE2016-54424 (1-3-4)
Sohn, Jung-Min	OMAE2016-54727 (7-13-2)	Tanaka, Yoshiteru	OMAE2016-54306 (2-11-1)	Uthaug, Eirik	OMAE2016-54941 (1-4-6)
Sollund, Håvar	OMAE2016-55000 (8-3-2)	.....	OMAE2016-54402 (13-2-1)	V	
.....	OMAE2016-55010 (4-3-4)	Tang, Benny	OMAE2016-54846 (1-4-6)	V, Hari Krishnan	OMAE2016-54259 (8-5-2)
Soman Sundar, S.	OMAE2016-54627 (1-3-8)	Tang, Bing	OMAE2016-55118 (7-12-2)	v.d. Meij, Karola	OMAE2016-54842 (6-3-2)
Son, Daewoong	OMAE2016-54422 (9-2-5)	Tang, Gao	OMAE2016-54577 (4-1-3)	Vada, Torgeir Kirkhorn	OMAE2016-54353 (6-1-2)
Song, Ming	OMAE2016-54608 (7-13-2)	Tang, Jun	OMAE2016-54298 (6-14-1)	.....	OMAE2016-54411 (1-3-5)
Song, Seung-Uck	OMAE2016-54605 (12-1-3)	Tang, Wenying	OMAE2016-54465 (8-1-3)	van 't Veer, Riaan	OMAE2016-54651 (1-3-4)
Song, Zhao Jun	OMAE2016-54117 (2-11-4)	Tang, Yanli	OMAE2016-54549 (1-3-5)	Van Beek, Pieter	OMAE2016-54318 (4-4-1)
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Sonne, Jacob	OMAE2016-54472 (4-1-1)	OMAE2016-54579 (6-9-2)		
Sopper, Regina	OMAE2016-54277 (7-11-1)	Taniguchi, Tomoki	OMAE2016-54814 (5-5-2)		
Sørensen, Asgeir J.	OMAE2016-54845 (9-1-4)				

- van der Hout, Arne OMAE2016-54724 (1-3-6)
- van Deyzen, Alex OMAE2016-54774 (1-4-6)
- van Drunen, Joris OMAE2016-54273 (8-3-2)
- van Essen, Sanne OMAE2016-54134 (6-3-1)
- van Hinsberg, Nils OMAE2016-54171 (8-5-5)
- OMAE2016-54382 (8-5-5)
- van Zwanenberg, Michael OMAE2016-54849 (6-5-2)
- Van Zwijnsvoorde, Thibaut OMAE2016-54865 (1-3-4)
- Vanem, Erik OMAE2016-54314 (2-2-1)
- Vargas, Pedro OMAE2016-54195 (1-2-2)
- OMAE2016-54198 (1-4-4), OMAE2016-54199 (1-4-4)
- Vaz, Guilherme OMAE2016-54005 (8-5-3)
- OMAE2016-54414 (8-5-4)
- OMAE2016-54808 (8-2-1), OMAE2016-54989 (8-4-1)
- Vedeld, Knut OMAE2016-55000 (8-3-2)
- OMAE2016-55010 (4-3-4)
- Venkatachalam, Sriram OMAE2016-54161 (6-8-2)
- OMAE2016-54734 (6-3-2)
- Vestbøstad, Tone M. OMAE2016-54839 (1-1-2)
- Vidal Sánchez, Enrique OMAE2016-54455 (9-2-3)
- Vieira, Daniel P. OMAE2016-54983 (1-4-5)
- Villoria, Bruno OMAE2016-54433 (2-9-3)
- Vinayan, Vimal OMAE2016-54810 (8-4-3)
- Violante-Carvalho, Nelson OMAE2016-54449 (6-2-2)
- Vishnubhotla, Srinivas. OMAE2016-54965 (1-2-1)
- OMAE2016-54971 (4-3-1)
- Voitkunskaia, Anna OMAE2016-54439 (7-2-1)
- Volent, Zsolt OMAE2016-54146 (5-7-1)
- Vosooghi, Navid OMAE2016-54137 (4-3-6)
- Vryzas, Zisis OMAE2016-54071 (11-7-2)
- W**
- Waal, Olaf OMAE2016-54724 (1-3-6)
- Wadadar, Debashis OMAE2016-54339 (12-6-1)
- Wahab, M.M.A OMAE2016-54543 (2-5-1)
- Wake, Geoff OMAE2016-54570 (2-1-1)
- Waldron, Benson OMAE2016-54921 (9-3-3)
- Walker, Karen M. OMAE2016-54280 (4-4-1)
- Walters, Carey L. OMAE2016-54148 (2-10-1)
- Waltrich, Paulo OMAE2016-54954 (11-4-1)
- OMAE2016-54959 (11-1-1)
- Wan, Jun OMAE2016-54682 (4-1-4)
- Wan, Rong OMAE2016-54549 (1-3-5)
- Wan, Zhiqiang OMAE2016-54142 (2-13-2)
- Wang, Beiqiao OMAE2016-54707 (12-6-1)
- Wang, Bin OMAE2016-54499 (9-1-6)
- Wang, Bin OMAE2016-54576 (6-8-4)
- Wang, Bo OMAE2016-54903 (2-11-3)
- Wang, Changfeng OMAE2016-54562 (12-2-1)
- Wang, Chao OMAE2016-54522 (8-1-2)
- Wang, Chong OMAE2016-54607 (6-11-1)
- Wang, Chunsheng OMAE2016-54150 (11-4-1)
- Wang, Dazheng OMAE2016-54780 (8-2-2)
- Wang, Deyu OMAE2016-54127 (2-11-2)
- OMAE2016-54133 (2-9-2)
- OMAE2016-54444 (2-11-2), OMAE2016-54447 (2-4-3)
- Wang, Di OMAE2016-54356 (6-3-2)
- OMAE2016-54525 (6-8-4)
- OMAE2016-54550 (6-3-2)
- Wang, Fang OMAE2016-54101 (2-13-1)
- Wang, Feng OMAE2016-54335 (4-2-2)
- OMAE2016-54456 (4-2-1)
- Wang, Genwei OMAE2016-54629 (12-2-1)
- OMAE2016-55006 (12-4-1)
- Wang, Guoliang OMAE2016-54497 (7-13-2)
- Wang, Haikun OMAE2016-55149 (12-1-5)
- Wang, Hui OMAE2016-55106 (12-2-1)
- Wang, Jiadong OMAE2016-54827 (8-2-2)
- Wang, Jin OMAE2016-54465 (8-1-3)
- Wang, Jinghua OMAE2016-54169 (1-3-1)
- OMAE2016-54475 (1-3-1)
- Wang, Jungao OMAE2016-54617 (8-3-5)
- OMAE2016-54701 (8-3-3), OMAE2016-54750 (8-3-5)
- Wang, Kunpeng OMAE2016-54236 (4-2-1)
- Wang, Lidong OMAE2016-54547 (4-1-2)
- OMAE2016-55151 (4-1-6)
- Wang, Lili OMAE2016-55106 (12-2-1)
- Wang, Lu OMAE2016-54422 (9-2-5)
- Wang, Lubing OMAE2016-54211 (12-1-1)
- Wang, Mengyun OMAE2016-54234 (6-5-1)
- Wang, Ning OMAE2016-55019 (12-4-1)
- Wang, Peng OMAE2016-54554 (12-4-1)
- Wang, Qian OMAE2016-55065 (8-2-3)
- Wang, Qing OMAE2016-54150 (11-4-1)
- Wang, Qing OMAE2016-54569 (7-13-2)
- Wang, Qiyu OMAE2016-54309 (6-9-1)
- Wang, Rongquan OMAE2016-54221 (6-8-2)
- Wang, Shilong OMAE2016-54562 (12-2-1)
- Wang, Shiping OMAE2016-54158 (2-9-1)
- OMAE2016-54183 (6-6-1)
- Wang, Shuqing OMAE2016-54821 (7-3-1)
- OMAE2016-54832 (2-12-1)
- Wang, Taiping OMAE2016-54223 (5-7-1)
- Wang, Wenhua OMAE2016-54499 (9-1-6)
- Wang, Wenming OMAE2016-54599 (4-2-3)
- Wang, Wenping OMAE2016-54701 (8-3-3)
- OMAE2016-54708 (7-13-1), OMAE2016-54713 (1-2-1)
- Wang, Xianzhou OMAE2016-55018 (6-2-3)
- Wang, Xiaotian OMAE2016-54348 (2-11-1)
- OMAE2016-54438 (2-5-3)
- Wang, Xin OMAE2016-55111 (3-1-1)
- Wang, Xinxin OMAE2016-54549 (1-3-5)
- Wang, Xu OMAE2016-54491 (2-9-3)
- Wang, Xuefeng OMAE2016-54625 (6-8-5)
- Wang, Yang OMAE2016-54616 (2-13-1)
- Wang, Yanlin OMAE2016-54624 (2-4-1)
- Wang, Yi OMAE2016-54619 (4-3-6)
- Wang, Yihe OMAE2016-54400 (7-13-1)
- Wang, Yijun OMAE2016-54774 (1-4-6)
- Wang, Yingying OMAE2016-54396 (2-5-2)
- Wang, Yiwen OMAE2016-54610 (6-8-5)
- Wang, Yonggang OMAE2016-54707 (12-6-1)
- Wang, Zhen Yu OMAE2016-54550 (6-3-2)
- Wang, Zhenkui OMAE2016-54579 (6-9-2)
- Wang, Zhifeng OMAE2016-54641 (6-14-2)
- Wang, Zhihua OMAE2016-54629 (12-2-1)
- OMAE2016-55006 (12-4-1)
- Wang, Zhilin OMAE2016-55018 (6-2-3)
- Waseda, Takuji OMAE2016-54768 (2-1-1)
- OMAE2016-54916 (2-2-1)
- Watai, Rafael OMAE2016-54994 (6-7-1)
- Watanabe, Yoshitaka OMAE2016-54975 (5-3-1)
- Weber, John OMAE2016-54333 (6-8-2)
- Wedekemper, Facundo J. OMAE2016-54905 (4-1-1)
- Wei, Bai OMAE2016-54716 (1-3-8)
- OMAE2016-54745 (7-13-1)
- Wei, Chengzhu OMAE2016-54391 (6-1-3)
- Wei, Fangyi OMAE2016-54463 (9-2-2)
- Wei, Wei OMAE2016-54625 (6-8-5)
- OMAE2016-54809 (6-8-6)
- Wei, Zhang OMAE2016-54092 (6-6-1)
- OMAE2016-54699 (1-1-5)
- Wei, Zhi-Jun OMAE2016-54065 (4-1-7)
- Wei, Zifan OMAE2016-54234 (6-5-1)
- Wen, He-Ming OMAE2016-54574 (12-1-3)
- Wendel, Åsta O. OMAE2016-54196 (4-3-5)
- Wenqi, Zhang OMAE2016-54604 (12-1-3)
- Werner, Benjamin OMAE2016-54047 (11-7-1)
- OMAE2016-54050 (11-7-2)
- Weymouth, Gabriel OMAE2016-54190 (8-4-1)
- Whitehead, John OMAE2016-54959 (11-1-1)
- Whitehouse, Richard OMAE2016-54377 (10-1-1)
- Wijaya, Andreas P. OMAE2016-54496 (6-13-1)
- William, Kristov I. OMAE2016-54508 (3-3-1)
- Withers, Philip J. OMAE2016-54387 (4-1-2)
- Wojtanowicz, Andrew OMAE2016-54040 (11-10-1)
- Wolgamot, Hugh OMAE2016-54797 (11-6-2)
- Won, Jonghwa OMAE2016-55003 (10-4-1)
- Woo, Wanchuck OMAE2016-55086 (13-6-1)
- Wooliscroft, Marc OMAE2016-54098 (8-5-5)
- Wright, Alan OMAE2016-55046 (9-2-4)
- Wu, Bing OMAE2016-54616 (2-13-1)
- Wu, Cheng OMAE2016-54021 (11-10-1)
- Wu, Chih-Hua OMAE2016-54190 (8-4-1)
- Wu, Chui-Jie OMAE2016-54065 (4-1-7)
- Wu, Chunfa OMAE2016-54300 (1-4-5)
- OMAE2016-55140 (1-1-1)
- Wu, Da OMAE2016-54226 (2-4-2)
- Wu, Guangyu OMAE2016-54382 (8-5-5)
- OMAE2016-54485 (1-4-1)
- Wu, Helen OMAE2016-54338 (8-3-2)
- Wu, Jie OMAE2016-54502 (8-3-4)
- OMAE2016-54503 (8-3-4)
- Wu, Shanghua OMAE2016-55151 (4-1-6)
- Wu, Shaobo OMAE2016-54558 (6-8-4)
- Wu, Weiguo OMAE2016-54610 (6-8-5)
- Wu, Wenhua OMAE2016-54624 (2-4-1)
- Wu, Xingru OMAE2016-54540 (11-6-2)
- Wu, Yao OMAE2016-54514 (6-14-1)
- Wu, Yun-Ta OMAE2016-54837 (6-14-2)
- Wu, Zhirong OMAE2016-54579 (6-9-2)
- X**
- Xia, Shuyan OMAE2016-54603 (5-5-1)
- Xiang, Da OMAE2016-54629 (12-2-1)
- Xiang, Xu OMAE2016-54030 (6-8-1)
- Xiao, Longfei OMAE2016-54609 (1-1-3)
- OMAE2016-54764 (1-1-3)
- Xiao, Zhijian OMAE2016-55038 (8-1-2)
- Xiaobo, Wei OMAE2016-54550 (6-3-2)
- Xiaowei, Chen OMAE2016-54103 (12-1-1)
- Xie, Bin OMAE2016-54150 (11-4-1)
- Xie, Yingchun OMAE2016-55068 (1-1-5)
- Xie, Yiqun OMAE2016-54309 (6-9-1)
- Xiong, Minghao OMAE2016-54599 (4-2-3)
- Xiong, Xiao OMAE2016-54379 (11-1-1)
- Xiongliang, Yao OMAE2016-54604 (12-1-3)
- Xiongwei, Cui OMAE2016-54604 (12-1-3)
- Xu, Daolin OMAE2016-54603 (5-5-1)
- Xu, Feng OMAE2016-54101 (2-13-1)
- Xu, Jianfeng OMAE2016-54971 (4-3-1)
- Xu, Jun OMAE2016-54211 (12-1-1)
- Xu, Li OMAE2016-55118 (7-12-2)
- Xu, Ming Cai OMAE2016-54117 (2-11-4)
- OMAE2016-55064 (2-11-1), OMAE2016-55119 (2-10-2)
- Xu, Mubing OMAE2016-54303 (1-1-1)
- Xu, Pei-Bao OMAE2016-54574 (12-1-3)
- Xu, Pengpeng OMAE2016-54324 (9-2-5)
- Xu, Qiaowei OMAE2016-54141 (1-6-2)
- Xu, Tiao-Jian OMAE2016-54510 (6-8-3)
- Xu, Weijun OMAE2016-54348 (2-11-1)
- OMAE2016-54438 (2-5-3)
- Xu, Xiang-Dong OMAE2016-54415 (2-12-2)
- Xu, Yan OMAE2016-54446 (9-3-1)
- Xu, Yanan OMAE2016-54862 (6-14-3)
- Xue, Yanzhuo OMAE2016-54409 (7-12-1)
- Y**
- Yabumoto, Satoru OMAE2016-54678 (3-1-1)
- Yamamoto, Yoshihito OMAE2016-54969 (12-1-4)
- Yamanoi, Jun OMAE2016-54744 (5-5-1)
- Yamazaki, Tetsuo OMAE2016-54575 (5-3-1)
- OMAE2016-55016 (5-3-1)
- Yan, Jun OMAE2016-55151 (4-1-6)
- Yan, Kun OMAE2016-54387 (4-1-2)
- Yan, Liu OMAE2016-54262 (6-3-1)
- Yan, Shiqiang OMAE2016-54169 (1-3-1)
- OMAE2016-54475 (1-3-1)
- Yan, Xiping OMAE2016-54324 (9-2-5)
- OMAE2016-54616 (2-13-1), OMAE2016-54882 (7-4-1)
- Yan, Zhiduo OMAE2016-54898 (6-9-2)
- Yang, Ji OMAE2016-55065 (8-2-3)
- Yang, Jianmin OMAE2016-54113 (9-1-3)
- Yang, Kang OMAE2016-54097 (6-8-1)
- Yang, Liming OMAE2016-54707 (12-6-1)

- Yang, Nana OMAE2016-55150 (3-10-1)
 Yang, Ray-Yeng OMAE2016-54084 (6-2-1)
 Yang, Songlin OMAE2016-54234 (6-5-1)
 Yang, Wenlong OMAE2016-54711 (6-9-2)
 Yang, Wenlong OMAE2016-54821 (7-3-1)
 OMAE2016-54832 (2-12-1)
 Yang, Zhaoqing OMAE2016-54223 (5-7-1)
 Yang, Zhixun OMAE2016-54547 (4-1-2)
 OMAE2016-55151 (4-1-6)
 Yao, Tetsuya OMAE2016-54506 (13-2-1)
 Yao, Weigang OMAE2016-54442 (8-5-1)
 Yao, Xiongliang OMAE2016-54072 (2-9-1)
 OMAE2016-55150 (3-10-1)
 Yasuda, Akihiro OMAE2016-54480 (13-3-1)
 Yasuda, Eiji OMAE2016-54163 (6-1-1)
 Ye, Naiquan OMAE2016-54547 (4-1-2)
 Ye, Qianyun OMAE2016-54815 (8-4-2)
 Yen Kai Sun, Pascal OMAE2016-54834 (9-3-3)
 OMAE2016-54836 (9-3-3)
 Yenduri, Anurag OMAE2016-54708 (7-13-1)
 OMAE2016-54713 (1-2-1)
 Yeter, Baran OMAE2016-54240 (2-8-1)
 Yeung, Ronald W. OMAE2016-54422 (9-2-5)
 OMAE2016-55050 (9-2-5), OMAE2016-55055 (6-8-7)
 Yi, Hong OMAE2016-54391 (6-1-3)
 Yin, Caiyu OMAE2016-54165 (2-9-1)
 OMAE2016-54178 (2-9-2)
 Yin, Changshan OMAE2016-54097 (6-8-1)
 Yin, Decao OMAE2016-54323 (8-3-5)
 Yin, Hanjun OMAE2016-55154 (6-9-1)
 Yin, Qilin OMAE2016-54639 (10-4-1)
 Yong, Yang OMAE2016-54092 (6-6-1)
 Yoo, Dong Hoon OMAE2016-55152 (1-4-5)
 Yoon, Joon Young OMAE2016-54721 (2-13-2)
 Yoon, Young-Cheol OMAE2016-54340 (4-3-4)
 Yoshie, Muneo OMAE2016-54714 (6-5-2)
 Yoshikawa, Takao OMAE2016-54673 (13-2-1)
 You, Jikun OMAE2016-55059 (1-4-1)
 You, Young-Jun OMAE2016-54260 (1-2-2)
 You, Yunxiang OMAE2016-54334 (6-1-2)
 Younis, Bassam OMAE2016-54512 (8-5-4)
 OMAE2016-54592 (8-4-2)
 Youssef, Samy A.M. OMAE2016-54667 (2-10-1)
 Ytrehus, Jan David OMAE2016-54046 (11-7-1)
 OMAE2016-54047 (11-7-1), OMAE2016-54048 (11-7-2)
 OMAE2016-54049 (11-7-3), OMAE2016-54050 (11-7-2)
 Yu, Alan OMAE2016-54456 (4-2-1)
 Yu, Bin OMAE2016-54216 (2-13-2)
 Yu, Dong OMAE2016-54783 (6-2-3)
 Yu, Jianxing OMAE2016-55154 (6-9-1)
 Yu, Jilin OMAE2016-54554 (12-4-1)
 OMAE2016-54562 (12-2-1)
 Yu, Liwei OMAE2016-54594 (6-1-6)
 Yu, Shui-sheng OMAE2016-54413 (12-2-1)
 Yu, T.X. OMAE2016-54366 (12-1-2)
 Yu, Weiwei OMAE2016-54385 (3-4-2)
 OMAE2016-54386 (3-4-2), OMAE2016-54388 (3-4-1)
 Yu, Xiaochuan OMAE2016-54764 (1-1-3)
 Yu, Xichong OMAE2016-54150 (11-4-1)
 Yu, Yi-Hsiang OMAE2016-54751 (9-2-3)
 OMAE2016-54789 (9-2-4)
 OMAE2016-54986 (9-2-4), OMAE2016-55046 (9-2-4)
 Yu, Yue-min OMAE2016-54518 (6-8-4)
 Yu, Zhang OMAE2016-54619 (4-3-6)
 Yu, Zongxin OMAE2016-55037 (6-7-1)
 Yuan, Hengliang OMAE2016-54063 (4-1-7)
 Yuan, Lin OMAE2016-54539 (4-3-1)
 Yuan, Minjie OMAE2016-54348 (2-11-1)
 Yuan, Shuai OMAE2016-54111 (4-2-1)
 OMAE2016-54588 (4-1-3)
 Yuck, Raehyoung OMAE2016-54666 (1-1-2)
 Yue, Jingxia OMAE2016-54226 (2-4-2)
 Yue, Jixiang OMAE2016-54619 (4-3-6)
 Yue, Qianjin OMAE2016-54547 (4-1-2)
 OMAE2016-54624 (2-4-1), OMAE2016-55151 (4-1-6)
 Yuhan, Wang OMAE2016-54699 (1-1-5)
Z
 Zaman, M Hasanat OMAE2016-54329 (2-5-1)
 Zaspalis, Vassilis OMAE2016-54071 (11-7-2)
 Zelenak, Paul OMAE2016-54231 (3-1-1)
 Zhai, Jiawei OMAE2016-54576 (6-8-4)
 Zhai, Jinjin OMAE2016-54639 (10-4-1)
 Zhang, Aman OMAE2016-54158 (2-9-1)
 Zhang, Changzai OMAE2016-55122 (12-1-5)
 Zhang, Dagang OMAE2016-54765 (4-1-8)
 Zhang, Dapeng OMAE2016-54002 (6-8-7)
 Zhang, Dehe OMAE2016-54827 (8-2-2)
 Zhang, Di OMAE2016-54882 (7-4-1)
 Zhang, Fan OMAE2016-54558 (6-8-4)
 Zhang, Haicheng OMAE2016-54603 (5-5-1)
 Zhang, Hongyang OMAE2016-54512 (8-5-4)
 Zhang, Houxiang OMAE2016-54448 (6-11-1)
 Zhang, Jianhua OMAE2016-54309 (6-9-1)
 Zhang, Jicheng OMAE2016-54228 (11-6-1)
 Zhang, Jin OMAE2016-54687 (7-12-1)
 Zhang, Jun OMAE2016-54149 (9-1-3)
 Zhang, Kaihong OMAE2016-54356 (6-3-2)
 OMAE2016-54525 (6-8-4)
 Zhang, Kang OMAE2016-54620 (2-11-2)
 Zhang, Lailai OMAE2016-55118 (7-12-2)
 Zhang, Li OMAE2016-54815 (8-4-2)
 Zhang, Liang OMAE2016-54765 (4-1-8)
 Zhang, Pan OMAE2016-55122 (12-1-5)
 OMAE2016-55149 (12-1-5)
 Zhang, Qi OMAE2016-55093 (4-1-6)
 Zhang, Rongyu OMAE2016-54512 (8-5-4)
 Zhang, Shuai OMAE2016-54183 (6-6-1)
 Zhang, Tianyu OMAE2016-54128 (5-3-1)
 Zhang, Tianyu OMAE2016-54155 (4-3-7)
 Zhang, Wei OMAE2016-54514 (6-14-1)
 Zhang, Xiaodong OMAE2016-54434 (2-7-1)
 Zhang, Xiaorui OMAE2016-54337 (9-1-7)
 Zhang, Xin OMAE2016-54641 (6-14-2)
 Zhang, Xinshu OMAE2016-54334 (6-1-2)
 Zhang, Xinyue OMAE2016-54561 (2-5-2)
 Zhang, Xu OMAE2016-54216 (2-13-2)
 Zhang, Yan OMAE2016-54379 (11-1-1)
 Zhang, Yanhui OMAE2016-54193 (3-2-1)
 Zhang, Yantao OMAE2016-54624 (2-4-1)
 Zhang, Yunxing OMAE2016-54761 (8-5-6)
 Zhang, Zhenhua OMAE2016-55137 (4-5-1)
 Zhang, Zhigang OMAE2016-54783 (6-2-3)
 Zhang, Zhiguo OMAE2016-55037 (6-7-1)
 OMAE2016-55038 (8-1-2)
 Zhang, Zihao OMAE2016-54780 (8-2-2)
 Zhao, Binbin OMAE2016-54761 (8-5-6)
 Zhao, Changjian OMAE2016-54507 (12-1-3)
 Zhao, Chuntian OMAE2016-54155 (4-3-7)
 Zhao, Dapeng OMAE2016-54478 (11-7-3)
 Zhao, Fenfang OMAE2016-54549 (1-3-5)
 Zhao, Guoliang OMAE2016-54409 (7-12-1)
 Zhao, Jiangbin OMAE2016-54324 (9-2-5)
 Zhao, Longmao OMAE2016-55006 (12-4-1)
 Zhao, Luman OMAE2016-54709 (1-4-6)
 Zhao, Ming OMAE2016-54338 (8-3-2)
 Zhao, Wenhua OMAE2016-54797 (1-6-2)
 Zhao, Yanjie OMAE2016-55122 (12-1-5)
 Zhao, Yi OMAE2016-54619 (4-3-6)
 Zhao, Yun-Peng OMAE2016-54510 (8-8-3)
 Zhao, Zhijuan OMAE2016-54579 (6-9-2)
 Zheng, Tianyuan OMAE2016-54417 (10-2-1)
 OMAE2016-54513 (10-2-1)
 Zheng, Xiang Yuan OMAE2016-54700 (6-3-1)
 Zheng, Yingying OMAE2016-54732 (1-3-4)
 Zheng, Zhijun OMAE2016-54554 (12-4-1)
 OMAE2016-54562 (12-2-1)
 Zhong, Qian OMAE2016-55055 (6-8-7)
 Zhou, Cheng Ming OMAE2016-54356 (6-3-2)
 Zhou, Chongyao OMAE2016-54765 (4-1-8)
 Zhou, Fenghua OMAE2016-54707 (12-6-1)
 Zhou, Juntao OMAE2016-54475 (1-3-1)
 Zhou, Lilan OMAE2016-55065 (8-2-3)
 Zhou, Tao OMAE2016-54513 (10-2-1)
 Zhou, Xiaoyu OMAE2016-55109 (6-1-3)
 Zhou, Xueqian OMAE2016-55094 (2-11-3)
 Zhu, Bohai OMAE2016-55109 (6-1-3)
 Zhu, Hongzhong OMAE2016-54347 (6-11-1)
 Zhu, Keqiang OMAE2016-54002 (6-8-7)
 Zhu, Ling OMAE2016-54366 (12-1-2)
 Zhu, Qi OMAE2016-54038 (11-5-1)
 Zhu, Xian-Kui OMAE2016-54230 (3-1-1)
 OMAE2016-54231 (3-1-1)
 Zhu, Zhiyao OMAE2016-55094 (2-11-3)
 Ziegler, Lisa OMAE2016-54915 (9-1-1)
 Zio, Enrico OMAE2016-54882 (7-4-1)
 Zou, Lu-yao OMAE2016-55092 (2-5-3)
 Zou, Zaojian OMAE2016-54316 (6-1-2)
 OMAE2016-54317 (6-1-4)
 Zuccolo, Ricardo OMAE2016-55140 (1-1-1)
 Zueck, Robert OMAE2016-54990 (8-3-1)
 Zvyagin, Petr OMAE2016-54100 (7-11-1)
 OMAE2016-54436 (7-12-1), OMAE2016-54439 (7-2-1)
 Zymaris, Alexandros OMAE2016-54921 (9-3-3)

Session Index

Offshore Technology

1-1-1	Spars, FPSO and Semi-Subs	Monday June 20
1-1-2	TLPs	Monday June 20
1-1-3	Semi-Subs	Tuesday June 21
1-1-5	Fixed Structures and Jack-up Rigs	Tuesday June 21
1-2-1	Mooring System Design and Analysis	Tuesday June 21
1-2-2	Dynamic Positioning and Model tests	Tuesday June 21
1-3-1	Non-linear Wave and Wave Effects	Tuesday June 21
1-3-4	Numerical Methods and Experiments	Tuesday June 21
1-3-5	Computational Fluid Dynamics and Wave-Current Interaction	Tuesday June 21
1-3-6	FLNG/FPSO	Wednesday June 22
1-3-8	Platform/Ship Motions	Wednesday June 22
1-4-1	Model Testing & Numerical Simulations	Wednesday June 22
1-4-4	Fatigue	Wednesday June 22
1-4-5	Platform/Ship Motions and Design Optimisations	Thursday June 23
1-4-6	Design Tools	Thursday June 23
1-6-2	Vessel Motions and Sloshing	Thursday June 23

Structures, Safety and Reliability

2-1-1	Abnormal or Rogue Waves	Monday June 20
2-2-1	Probabilistic and Spectral Wave Models	Monday June 20
2-3-1	Probabilistic Response Models I	Monday June 20
2-3-2	Probabilistic Response Models II	Monday June 20
2-4-1	Fracture and Fatigue Reliability I	Wednesday June 22
2-4-2	Fracture and Fatigue Reliability II	Wednesday June 22
2-4-3	Fracture and Fatigue Reliability III	Wednesday June 22
2-5-1	Reliability of Marine Structures I	Tuesday June 21
2-5-2	Reliability of Marine Structures II	Tuesday June 21
2-5-3	Reliability of Marine Structures III	Tuesday June 21
2-7-1	Reliability of Mooring and Riser Systems	Tuesday June 21
2-8-1	Reliability of Renewable Energy Systems	Wednesday June 22
2-9-1	Extreme Loading and Responses I	Thursday June 23
2-9-2	Extreme Loading and Responses II	Thursday June 23
2-9-3	Extreme Loading and Responses III	Thursday June 23
2-10-1	Collision and Crashworthiness I	Wednesday June 22
2-10-2	Collision and Crashworthiness II	Wednesday June 22
2-11-1	Ultimate Strength I	Tuesday June 21
2-11-2	Ultimate Strength II	Tuesday June 21
2-11-3	Ultimate Strength III	Tuesday June 21
2-11-4	Ultimate Strength IV	Tuesday June 21
2-12-1	Structural Analysis and Optimization I	Wednesday June 22
2-12-2	Structural Analysis and Optimization II	Wednesday June 22
2-13-1	Risk Analysis and Management I	Thursday June 23
2-13-2	Risk Analysis and Management II	Thursday June 23
2-13-3	Risk Analysis and Management III	Thursday June 23

Materials Technology

3-1-1	Fracture Assessment and Control	Tuesday June 21
3-2-1	Fatigue Performance and Testing	Wednesday June 22
3-3-1	Integrity Management and Life Extension	Tuesday June 21
3-4-1	Materials Performance in Sour Environment	Monday June 20
3-4-2	Materials Performance in Challenging Environment	Tuesday June 21
3-5-1	Fatigue Strength and Evaluation	Tuesday June 21
3-6-1	Advances in Welding and Inspection	Monday June 20
3-8-1	Residual Stresses - Measurement and Analysis	Wednesday June 22
3-10-1	Advances in Materials Technology	Wednesday June 22

Pipelines, Risers, and Subsea Systems

4-1-1	Flexible Pipes I	Monday June 20
4-1-2	Flexible Pipes II	Monday June 20
4-1-3	Flexible Pipes III	Tuesday June 21
4-1-4	Flexible Pipes IV	Tuesday June 21
4-1-6	Flexible Pipes V	Tuesday June 21
4-1-7	Umbilicals and Cables I	Tuesday June 21
4-1-8	Umbilicals and Cables II	Wednesday June 22
4-2-1	Rigid Riser I	Thursday June 23
4-2-2	Rigid Riser II	Thursday June 23
4-2-3	Rigid Riser III	Thursday June 23
4-3-1	Bending and Reeling	Wednesday June 22
4-3-2	Buckling and Collapse	Wednesday June 22
4-3-4	Fatigue and Fracture	Wednesday June 22
4-3-5	Impact	Thursday June 23
4-3-6	Pipe-Soil Interaction	Thursday June 23
4-3-7	Leak Detection Systems	Thursday June 23
4-4-1	Subsea Systems	Monday June 20
4-5-1	Flow Assurance	Monday June 20

Ocean Space Utilization

5-1-1	New Concepts for Ocean Space Utilization	Monday June 20
5-3-1	Deepsea Mining and Underwater Development Technology	Monday June 20
5-5-1	Floating Systems for Renewable Energy I	Tuesday June 21
5-5-2	Floating Systems for Renewable Energy II	Tuesday June 21
5-6-1	High Tide and Tsunamis	Tuesday June 21
5-7-1	Environmental Assessment and Ecosystem	Tuesday June 21

Ocean Engineering

6-1-1	Advanced Ship Hydromechanics and Marine Technology I	Monday June 20
6-1-2	Advanced Ship Hydromechanics and Marine Technology II	Monday June 20
6-1-3	Advanced Ship Hydromechanics and Marine Technology III	Tuesday June 21
6-1-4	Advanced Ship Hydromechanics and Marine Technology IV	Tuesday June 21
6-1-5	Advanced Ship Hydromechanics and Marine Technology V	Tuesday June 21
6-1-6	Advanced Ship Hydromechanics and Marine Technology VI	Tuesday June 21
6-2-1	Wave Mechanics and Wave Effects I	Wednesday June 22
6-2-2	Wave Mechanics and Wave Effects II	Wednesday June 22
6-2-3	Wave Mechanics and Wave Effects III	Wednesday June 22
6-3-1	Model Tests I	Tuesday June 21
6-3-2	Model Tests II	Tuesday June 21
6-5-1	Advanced Underwater Vehicles and Design Technology I	Wednesday June 22
6-5-2	Advanced Underwater Vehicles and Design Technology II	Wednesday June 22
6-6-1	Unsteady Hydrodynamics, Vibrations, Acoustics, and Propulsion	Tuesday June 21
6-7-1	Computational Mechanics and Design Applications	Wednesday June 22
6-8-1	Fluid-Structure, Multi-body and Wave-body Interaction I	Tuesday June 21
6-8-2	Fluid-Structure, Multi-body and Wave-body Interaction II	Tuesday June 21
6-8-3	Fluid-Structure, Multi-body and Wave-body Interaction III	Tuesday June 21
6-8-4	Fluid-Structure, Multi-body and Wave-body Interaction IV	Tuesday June 21
6-8-5	Fluid-Structure, Multi-body and Wave-body Interaction V	Wednesday June 22
6-8-6	Fluid-Structure, Multi-body and Wave-body Interaction VI	Wednesday June 22
6-8-7	Fluid-Structure, Multi-body and Wave-body Interaction VII	Wednesday June 22
6-9-1	Marine Environment and Very Large Structures I	Thursday June 23
6-9-2	Marine Environment and Very Large Structures II	Thursday June 23
6-11-1	Offshore Industry: Structures and Design	Thursday June 23
6-12-1	Ocean Engineering Technology	Tuesday June 21
6-13-1	Ocean Measurement and Data Interpretation	Wednesday June 22
6-14-1	Coastal Engineering I	Thursday June 23
6-14-2	Coastal Engineering II	Thursday June 23
6-14-3	Coastal Engineering III	Thursday June 23

Polar and Arctic Sciences and Technology

7-2-1 Arctic Sea Transportation	Tuesday June 21
7-3-1 Structures in Ice	Tuesday June 21
7-4-1 Vessels in Ice and Oil Spills	Tuesday June 21
7-11-1 Ice model tests and structure-ice-interactions	Tuesday June 21
7-12-1 Numerical Ice Modeling I	Wednesday June 22
7-12-2 Numerical Ice Modeling II	Wednesday June 22
7-13-1 Structure-Ice-Interaction I	Wednesday June 22
7-13-2 Structure-Ice-Interactions II	Wednesday June 22

CFD and VIV

8-1-1 Ship Motions	Monday June 20
8-1-2 Ship Propulsion and Manoeuvring	Tuesday June 21
8-1-3 Floating Systems I	Tuesday June 21
8-1-4 Floating Systems II	Tuesday June 21
8-1-5 VIM & VIV	Tuesday June 21
8-2-1 Free Surface Flows-I	Wednesday June 22
8-2-2 Free Surface Flows-II	Wednesday June 22
8-2-3 Free Surface Flows-III	Wednesday June 22
8-3-1 Risers and Pipelines I	Monday June 20
8-3-2 Risers and Pipelines II	Tuesday June 21
8-3-3 Risers and Pipelines III	Tuesday June 21
8-3-4 Risers and Pipelines IV	Tuesday June 21
8-3-5 Risers and Pipelines V	Thursday June 23
8-4-1 Cylinder VIV	Wednesday June 22
8-4-2 VIV Suppression and Control	Tuesday June 21
8-4-3 Interference, Proximity and Geometry Effects	Thursday June 23
8-5-1 Physics of Gap and Seabed Proximity	Wednesday June 22
8-5-2 Modeling of Fluid-Structure Interaction and VIV Suppression	Wednesday June 22
8-5-3 Verification, Validation and Uncertainty Quantification	Wednesday June 22
8-5-4 Bluff Body Flows and Turbulence Modeling	Wednesday June 22
8-5-5 High Re Workshop I	Thursday June 23
8-5-6 High Re Workshop II	Thursday June 23
8-5-7 High Re Workshop Panel Discussion	Thursday June 23

Ocean Renewable Energy

9-1-1 Bottom-fixed Offshore Wind Turbines - I	Monday June 20
9-1-2 Resource Assessment and Wind Farm Optimization	Tuesday June 21
9-1-3 FOWT Modeling and Analysis	Tuesday June 21
9-1-4 Design and Control	Wednesday June 22
9-1-5 Model Testing and Simulation	Wednesday June 22
9-1-6 Bottom Fixed Offshore Wind Turbines - II	Thursday June 23
9-1-7 VAWTs and New FOWT Systems	Thursday June 23
9-2-1 Modeling of Arrays	Monday June 20
9-2-2 Model Tests, New Concepts and Designs	Tuesday June 21
9-2-3 Practical Aspects	Wednesday June 22
9-2-4 Prediction Tools	Wednesday June 22
9-2-5 Concepts and Optimization	Thursday June 23
9-3-1 Concepts, Model Tests and Analysis	Tuesday June 21
9-3-2 Vertical Axis Systems	Wednesday June 22
9-3-3 Site and Environmental Assessment	Wednesday June 22

Offshore Geotechnics

10-1-1 Fluid-Soil-Structure Interaction	Wednesday June 22
10-2-1 Anchors and Pile Foundations	Wednesday June 22
10-3-1 Bucket Foundations and Suction Caissons	Wednesday June 22
10-4-1 Spudcans and Pipelines	Wednesday June 22

Petroleum Technology

11-1-1 General Petroleum Technology	Tuesday June 21
11-3-1 Coalbed Methane and CO2 Sequestration	Wednesday June 22
11-3-2 Gas Hydrates	Wednesday June 22
11-4-1 Petroleum Production Systems Design and Analysis	Thursday June 23
11-5-1 Petroleum Reservoir Engineering and Management	Monday June 20
11-6-1 EOR and Reservoir Evaluation (Technical Session)	Thursday June 23
11-6-2 Fluid Transport and Simulation	Thursday June 23
11-7-1 Well Drilling Fluids and Hydraulics - I	Tuesday June 21
11-7-2 Well Drilling Fluids and Hydraulics - II	Tuesday June 21
11-7-3 Well Drilling Hydraulics and Mechanics	Tuesday June 21
11-8-1 Unconventional Reservoirs: Production, Well Control and Injection	Monday June 20
11-10-1 Innovations in Drilling, Production and Transport	Wednesday June 22
11-11-1 Petroleum Production System Design and Operation	Wednesday June 22

Prof. Norman Jones Honoring Symposium on Impact Engineering

12-1-1 Structural Response I	Tuesday June 21
12-1-2 Structural Response II	Tuesday June 21
12-1-3 Structural Response III	Wednesday June 22
12-1-4 Structural Response IV	Wednesday June 22
12-1-5 Structural Response V	Wednesday June 22
12-2-1 Dynamic behaviour I	Tuesday June 21
12-4-1 Lightweight Materials and Structures I	Wednesday June 22
12-6-1 Impact and Blast Effects with Fluid Interaction	Tuesday June 21

Prof. Yukio Ueda Honoring Symposium on Idealized Nonlinear Mechanics for Welding and Strength of Structures

13-1-1 Idealized Structural Unit Method	Tuesday June 21
13-2-1 Ultimate Strength and Progressive Collapse	Tuesday June 21
13-3-1 Idealized Structural Units	Tuesday June 21
13-4-1 Computational Welding Mechanics	Wednesday June 22
13-5-1 Inherent Strain/Deformation Methods	Wednesday June 22
13-6-1 Welding Residual Stresses and Distortion	Wednesday June 22

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