At DNV GL we enhance safety, quality, energy efficiency and environmental performance of the global shipping industry – across all vessel types and offshore structures. We invest heavily in research and development to find solutions, together with the industry, that address strategic, operational or regulatory challenges. Operating in more than 100 countries, our 13,500 professionals are dedicated to helping our customers in the maritime, oil & gas, energy and other industries to make the world safer, smarter and greener.

www.dnvgl.com
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- ASME
- NTNU
- SINTEF

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**Contact ASME:**
- asme.org

- www.facebook.com/ASME.IPTI

- @asmedotorg
Monday, June 26 (pg 32)

Opening Ceremony and Keynote Plenaries 08:30 – 9:55
Cosmos 1 & 2, Clarion

Welcome and Opening Remarks from:
Conference Chair
Technical Program Chair
OAK Division Chair
County Mayor
NTNU Pro-Rector
CEO of SINTF

Keynote Plenary One:
Technology to Shape the Future of Energy
Kjetil Skaugset, PhD, Chief Researcher Upstream and Downstream Technology, Statoil ASA

Refreshment Break 9:55 – 10:25
Space Foyer, Clarion

10:25 – 11:30
Cultural Performance

Keynote Plenaries (Continued)

Keynote Plenary Two:
Technology Outlook 2025
Pierre C. Sames, Senior Vice President, DNV GL – Group Technology and Research Director

Keynote Plenary Three:
Leading the Blue Revolution
All-Helge Aarskog, Chief Executive Officer (CEO), Marine Harvest ASA

Opening Lunch 11:30 – 13:00
Cosmos 1 & 2, Clarion

Concurrent Sessions 13:00 – 14:30
OT 1-1-1 Metocean and Environmental Loading
OT 1-7-1 Wave Loading and Motions in Extreme Seas I
SSR 2-2-1 Wave Forecast and Climate
SSR 2-7-1 Reliability of Mooring and Riser Systems I
MAT 3-1-1 Fracture Control – Analytical Approach I
PRS 4-4-2 Design
OSU 5-1-1 New Concepts for Ocean Space Utilization
OE 6-5-1 Advanced Underwater Vehicles and Design Technology I
OE 6-7-1 Computational Mechanics I
PAS 7-3-1 Arctic Frontier Regions and Structures in Ice
(IEEE) 8-4-6 Honoring Symposium Opening Session
ORE 9-1-1 Floating Wind – Experimental Studies
ORE 9-5-1 Turbine Design and Analysis
PT 11-5-1 Inflow Control Technologies in Reservoir Management
PT 11-12-1 Petroleum Production Systems Design and Operation
TM 12-1-1 Offshore Renewable Energy I

Refreshment Break 14:30 – 15:00
Space Foyer, Clarion

Concurrent Sessions 15:00 – 17:00
OT 1-7-2 Wave Loading and Motions in Extreme Seas II
SSR 2-7-2 Reliability of Mooring and Riser Systems II
MAT 3-10-1 Factors Affecting Structural Integrity
PRS 4-1-1 Flexible Pipes I
PRS 4-3-1 Pipe-Soil Interaction
OSU 5-3-1 Deepsea Mining and Underwater Technology
OE 6-5-2 Advanced Underwater Vehicles and Design Technology II
OE 6-7-2 Computational Mechanics II (DP, ROV, CRANE)
OE 6-12-2 Ocean Engineering Technology II
PAS 7-3-2 Structures in Ice and Ice Bergs
(IEEE) 8-4-1 WAV Physics - Experimental Studies
ORE 9-2-2 Structural Analysis Methods
ORE 9-5-10 Floweduced Vibration
PT 11-7-2 Well Drilling Fluids and Hydraulics-II
PT 11-12-2 Petroleum Production Systems Design and Operation
TM 12-13-4 Offshore Renewable Energy II

Lecture Series on Hydrodynamics 17:15 – 17:45
A1, BI
Hydrodynamics of Marine Structures
Professor Odd Magnus Faltinsen, Professor of Marine Hydrodynamics, Department of Marine Technology, Norwegian University of Science and Technology

Tuesday, June 27 (pg 43)

Concurrent Sessions 08:15 – 09:45
OT 1-4-1 Simulation of Floaters and Moorings
OT 1-4-6 Process and Flow Assurance
SSR 2-2-1 Probabilistic and Spectral Wave Models
SINKE 2-8-1 Reliability of Renewable Energy Systems I
SSR 2-13-1 Risk Analysis and Management I
MAT 3-12-1 Plenary and Blast Mitigation of Composite Structures
PRS 4-1-2 Flexible Pipes II
PRS 4-3-3 Thermo-Mechanical I
OSU 5-9-1 Coastal Zone Management and Utilization
OE 6-6-1 Unsteady Hydrodynamics, Vibrations, Acoustics and Propulsion I
OE 6-8-4 Fluid-Structure, Multi-Body and Wave-Body Interaction IV
PAS 7-2-1 Arctic Transportation I
(IEEE) 8-4-3 WAV Physics - Numerical Analysis II
ORE 9-1-3 Nonlinear Wave Loads I
OG 10-11-1 Seabed Properties
PT 11-1-1 Offshore Drilling and Production
TMS 12-1-2 Stochastic Dynamic Response Analysis of Marine Structures

Refreshment Break 09:45 – 10:15
Space Foyer, Clarion

Concurrent Sessions 10:15 – 11:45
OT 1-4-4 Moopools and Fatigue
OT 1-6-2 Current- and Wave-Induced Loads and Vortex-Induced Motion (VIM)*
SSR 2-3-1 Probabilistic Response Models I
SINKE 2-8-2 Reliability of Renewable Energy Systems II
SSR 2-13-2 Risk Analysis and Management II
MAT 3-13-1 Composites in Arctic Environment (Presentations only)
PRS 4-1-3 Flexible Pipes III
PRS 4-3-4 Thermo-Mechanical II
OSU 5-2-1 Aquaculture and Related Technology I
OE 6-6-2 Unsteady Hydrodynamics, Vibrations, Acoustics and Propulsion II
OE 6-8-5 Fluid-Structure, Multi-Body and Wave-Body Interaction V
PAS 7-2-2 Arctic Transportation II
(IEEE) 8-4-4 WAV Physics - CFD Simulations
ORE 9-2-5 Aerodynamics I
OG 10-2-1 Fluid-Source Structure Interaction
PT 11-7-1 Well Drilling Fluids and Hydraulics I
TM 12-13-3 VLFS

Awards Lunch 11:45 – 13:15
Cosmos 1 & 2, Clarion

Concurrent Sessions 13:15 – 14:45
OT 1-4-5 Metocean
OT 1-6-3 Wave/shipping Impact and Green-Water Load and FEA Coupling*
SSR 2-3-2 Probabilistic Response Models II
SSR 2-5-1 Reliability of Marine Structures
SSR 2-13-3 Risk Analysis and Management III
MAT 3-1-2 Fracture Control – Analytical Approach II
PRS 4-1-4 Flexible Pipes IV
PRS 4-4-1 Mechanics & Monitoring
OSU 5-2-2 Aquaculture and Related Technology II
OE 6-1-6 Advanced Ship Hydromechanics and Marine Structures I
OE 6-1-7 Currents and Wind
PAS 7-4-1 Vessels in Ice
(IEEE) 8-4-5 WAV and WAV Suppression
ORE 9-2-10 Aerodynamics II
OG 10-3-1 Pile Foundations I
PT 11-7-3 Well Drilling Fluids and Hydraulics II
TM 12-13-2 Floating Bridges I

Refreshment Break 14:45 – 15:15
Space Foyer, Clarion

Concurrent Sessions 15:15 – 17:15
OT 1-4-2 Design Optimisation
OT 1-6-1 Wave-Induced Global Load and Response* Fatigue Reliability I
SSR 2-4-1 Fatigue Reliability II
SSR 2-9-1 Extreme Loading and Responses I
MAT 3-11-1 Special Fracture Control Session Honoring Profs. Per Haagenesen and Stig Berge
PRS 4-1-10 Umbilicals and Cables II
PRS 4-3-2 Reeling
OSU 5-6-1 Tsunami and High Tide
OE 6-1-7 Advanced Ship Hydromechanics and Marine Tech VI
OE 6-1-8 Ocean Engineering Technology I
PAS 7-6-1 Risk Scale Measurement and Operations in Ice
(IEEE) 8-1-1 Floating Systems and Global Response
ORE 9-2-6 Fatigue
OG 10-4-1 Platform Foundations II
PT 11-8-1 Drilling Fluids: Improving State of The Art
TM 12-13-2 Floating Bridges II

Lecture Series on Hydrodynamics 17:30 – 18:00
A1, BI
Natural Modes in Moonpools and Gaps
Professor Bernard Molin, Institut de Recherche sur les Phénomènes Hors Equilibre, Department Structures Atmosphere Ocean, École Centrale de Marseille

Concert at Nidaros Cathedral 18:30 – 19:15
Nidaros Cathedral

*Joint session with CFD&VIV
Clarion Hotel & Congress Trondheim (Conference Venue)

Brattøra 1, 7010
Trondheim, Norway
Phone: +47 73 92 55 00
www.nordicchoicehotels.no/clarion/clarion-hotel-trondheim

First Floor

- Cosmos 1 & 2: Plenary and Lunches

Atmosphere

Luna

Living Room

Cosmos 1 & 2: Plenary and Lunches

Cosmos 1 & 2

1A

1B

1C

1D

2A

2B

2C

2D

3A

3B

3C

3D

Space

Space Foyer & Exhibition

Registration

ENTRANCE

www.omae2017.com
BI Norwegian Business School (Breakout Sessions)

Havnegata 9, Pirseteret, N-7010
Trondheim, Norway
www.bi.edu/about-bi/campus-trondheim
Downtown Trondheim

1. Clarion Hotel & Congress Trondheim (Conference Venue)
   Brattørkaia 1, 7010

2. BI Norwegian Business School (Breakout Session Rooms)
   Havnegata 9, Pirsetteret, N-7010

3. Nidaros Cathedral (Tuesday Evening Social Event)
   Bispegata 11, 7012

Trondheim Fjord

City Centre
Welcome! It is with great honour that we welcome 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 the ocean resources and mastering 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, SINTEF Ocean and NTNU 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 Tryggvasson in year 997. With its approximately 200,000 inhabitants, Trondheim is the third largest city in 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 SINTEF Ocean and NTNU’s Department of Marine Technology, is internationally renowned for its high level in research and education towards the whole spectrum of ocean industries. Important parts of the Marine Technology Centre are 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, cafes, cozy 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!

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. Atle Minsaas
Conference Co-Chair, OMAE 2017
Special Adviser, SINTEF Ocean
On behalf of the Ocean, Offshore and Arctic Engineering (OOAE) Division of the American Society of Mechanical Engineers (ASME), we would like to extend to all of you a very warm welcome to the 36th International Conference on Offshore Mechanics and Arctic Engineering (OMAE 2017) and to the wonderful city of Trondheim. This remarkable city is one of the technical centers of excellence of our industry, pioneering engineering initiatives in a large variety of disciplines, including oil and gas development, LNG and ocean transport, renewable energies and fish farming.

We hope you will also join us in acknowledging this year’s conference Chairs, Prof. Bernt Leira and Dr. Atle Minsaas and their tremendous leadership in the groundwork for the success of the conference. With the worldwide economic challenges we currently face, their leadership is inspiring. We would also like to congratulate our very good friends and life-long colleagues, Prof. Torgeir Moan, who is the recipient of this year’s Honorary Symposium (Symp 12), and Drs. Martin Larsen and Owen Oakley, who will be honored in the CFD & VIV Symposium (Symp 8). Please introduce yourselves and say hello when you meet them.

We would like to thank all of you, attendees, authors and volunteers, for the many hours of effort spent writing papers, reviewing manuscripts and taking the time to attend and participate in the conference.

The primary objective of the OOAE Division is to promote technological progress 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. One 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, while keeping a steadfast focus on reducing risk and increasing individual and community 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 downturn in the oil and gas industry, close
to 900 technical presentations in 230 technical sessions will be held during the week. As usual, this year's OMAE Conference program will include the eleven regular technical symposia: CFD and VIV; Materials Technology; Ocean Engineering; Ocean Renewable Energy; Ocean Space Utilization; Offshore Geotechnics; Offshore Technology; Petroleum Technology; Pipelines, Risers, and Subsea Systems; Polar and Arctic Sciences and Technology; and Structural Safety and Reliability. This year the conference will also host two special honorary symposia celebrating the technical accomplishments of Drs. Martin Larsen and Owen Oakley (Symp 8) and Prof. Torgeir Moan (Symp 12). We hope you get the opportunity to attend many of the inspiring presentations and participate in the discussions. A more detailed description of those symposia can be found in the following pages of this program and on the conference web site (https://www.asme.org/events/omae). In addition, the OMAE conference will include four short courses (subsidized this year by the OOA E division) as well as the ongoing student outreach program. Initiatives such as these help support the OOA E Division's objectives of continuing education and the desire to attract students and young professionals to our community.

We also encourage you to attend the "plenary lecture series on Hydrodynamics", a new initiative we are introducing this year after the traditional sessions and before the social activities. Our renowned speakers will keep you entranced and mesmerized.

Please make sure you also download the ASME planner for your mobile device. This tool will help you organize your week and keep you updated of unexpected changes or upcoming events. To download the app, simply search for "ASME Event Connect" in the app store of your choice.

We particularly would like to acknowledge 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, we would like to conclude with a very special and heartfelt “thank you” to the OMAE 2017 Conference technical leadership in organizing this year’s program. This includes especially all the Symposia Coordinators and the Topic Organizers who managed scores of session organizers and reviewers, and those who serve as session chairs this week. They worked tirelessly and committed time and effort to ensure the excellence of their respective technical sessions. We would also like to express our sincere gratitude to the OOA E division committee members which, year after year, continue to ensure that OMAE stays very relevant and of exemplary quality. It has been an amazing experience for us to be part of this exceptional group, and an honor to lead respectively both the division and the technical team 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 gratefully acknowledged here.

Again, we wish to thank everyone who is attending and/or has made a contribution to OMAE 2017 and we wish you all a very productive conference and an amazing experience in Norway.

Prof. Solomon Yim, Ph.D.  
Holcomb Professor in Structural Engineering  
Oregon State University  
ASME OOA E Division chair

Dominique Roddier, Ph.D.  
CTO, Principle Power  
OMAE 2017 Technical Program Chair
As a Mayor of Trondheim, I am very pleased to welcome you all as participants at OMAE 2017 to our city. We are very proud to host this important scientific conference in Trondheim. Our city is known as the Technology capital of Norway.

Here you find the largest university in Norway, NTNU which is an internationally leading university in marine technology. They have a close collaboration with SINTEF, which is the largest independent research organisation in Scandinavia. We also have to mention Statoil’s Research centre.

A few days ago, Trondheim had the privilege of hosting the Starmus Festival: “Life and the universe”, where leading scientists, thinkers and researchers from all over the world participated, among them Stephen Hawking, Oliver Stone, Buzz Aldrin, Larry King, Anthony Giddens and 10 Nobel Prize winners.

Trondheim is also known as the historical capital of Norway, founded by the Viking king Olav Tryggvason in the year 997. Ship technology was important a thousand years ago, and still is. No wonder that Norway still is in the international forefront when it comes to marine technology. SINTEF Ocean and NTNU as partners in the Marine Technology Centre are important players in this area.

As a Mayor, I am proud of the research community in Trondheim. Some years ago, the brain researchers May-Britt Moser and Edvard Moser at NTNU’s Kavli Institute for Systems Neuroscience received the Nobel Prize in Physiology or Medicine. We strongly believe that Trondheim will breed more Nobel Prize winners in the years to come.

I want to thank SINTEF Ocean and NTNU for organising OMAE 2017. This is one of the largest conferences ever being hosted in Trondheim. I would also like to welcome you all to the concert with the Steinmeyer organ in Nidaros Cathedral, a landmark built from 1070 to 1300 over the burial site of Saint Olav, the king of Norway in the 11th century, who became the patron saint of the nation.

Hopefully, you will all as participants at OMAE 2017 experience the hospitality of our beautiful city and its inhabitants during these days. Let me also add that Trondheim will always be glad to have researchers and scientists for long term or short term visits, so if you fall in love with Trondheim, you are all welcome to live here!

Enjoy Trondheim and I wish you all the best for the future!

Rita Ottervik
Mayor of Trondheim
Award Winners

The Subrata Chakrabarti Young Professional Award – Eduardo Ribeiro Malta

OMAE 2016 Best Paper Awards

**Offshore Technology Symposium:** OMAE2016-54485
“CFD-Based Numerical Wave Basin for Global Performance Analysis” by Guangyu Wu, Jang Whan Kim, Hyunchul Jang and Aldric Baquet

**Structures, Safety and Reliability Symposium:**
OMAE2016-54592 "First- and Second-Order Wave-Induced Dynamic Response of Submerged Floating Tunnels” by Bernt J. Leira

**Materials Technology Symposium:** OMAE2016-54341
“The Fracture Resistance Approach in Order to Prevent Brittle Failure of Offshore Structures under Arctic Environments” by Agnes Marie Horn, Erling Østby, Per Olav Moslet and Mons Hauge

**Pipelines, Risers and Subsea Systems Symposium:**
OMAE2016-54472 “H2S Consumption and the Derivation of a New Annulus Prediction Model for Offshore Flexible Pipes” by Marie Haahr, Jonas Gudme, Jacob Sonne, Sten Overby, Torben Nielsen and Adam Rubin

**Ocean Engineering Symposium:** OMAE2016-54596
“Numerical Analysis of Added Resistance on Ship in Parametric Roll Motions” by Jae-Hoon Lee, Yonghwan Kim and Min-Guk Seo

**Polar and Arctic Sciences and Technology Symposium:**
OMAE2016-54544 “Scheduling of Offshore Support Vessels on the Grand Banks” by David Molyneux and Nicholas Boyd

**CFD and VIV Symposium:** OMAE2016-54344 "Determining Side-By-Side Current Loads Using CFD and Model Tests” by Arjen Koop

**Ocean Renewable Energy Symposium:** OMAE2016-54915
“Comparing a Fracture Mechanics Model to the SN-Curve Approach for Jacket-supported Offshore Wind Turbines: Challenges and Opportunities for Lifetime Prediction” by Lisa Ziegler and Michael Muskulus

**Offshore Geotechnics Symposium:** OMAE2016-54934
“Seismic Soil-Structure Interaction Design Considerations for Offshore Platforms” by Jiun-Yih Chen, Richard Litton and Albert Ku

**Petroleum Technology Symposium:** OMAE2016-54776
“Challenges for Under-Inhibition Strategies for Offshore Gas Fields with Low Production Rates Using OLGA” by Yutaek Seo, Jakyung Kim and Daejun Chang

**Prof. Norman Jones Honoring Symposium on Impact Engineering:** OMAE2016-55106 “Mechanics Modeling and Inverse Analyses of Pulse Waves System from the View-point of Traditional Chinese Medicine” by Lili Wang and Hui Wang

**Prof. Yukio Ueda Honoring Symposium on Idealized Nonlinear Mechanics for Welding and Strength of Structures:** OMAE2016-54313 “Nonlinear Computational Welding Mechanics for Large Structures” by Kazuki Ikushima and Masakazu Shibahara
Statoil is an international energy company with operations in more than 30 countries. Our purpose is to accommodate the world’s energy needs in a responsible and sustainable way. It’s not an easy task, but nothing gets our engineers going like a challenge. After all, the greatest innovations are often spurred by the greatest challenges. It’s what inspires us to keep pushing boundaries and finding better solutions. No challenge, no change. Learn more at statoil.com

Statoil. The Power of Possible
Fundamental changes are happening in our industry. We see these changes as opportunities. With Statoil’s strong technology base and willingness to embrace new technologies, we believe we can shape the future of energy, delivering oil and gas with a low carbon footprint and new energy solutions.

World leading technology, competence, and cross-disciplinary collaboration will be key to deliver new innovative solutions. The OMAE conference brings together academia, research institutes, industry and government to share insights, inspire and calibrate views. The quality and competence at the OMAE conference makes Statoil a proud Super Platinum sponsor of OMAE 2017 in Trondheim. The city where our first research centre was established.

“... I challenge you to aim high in your research, dare to fail, and explore how your competence can create value in the industry...”

Kjetil Skaugset
Chief Researcher in Statoil
Attendee Information

Registration
The Registration Desk is located on the Space Foyer, 1st Floor, Clarion, and is open during the following hours:
Sunday, June 25: 13:00 – 20:00
Monday, June 26: 07:00 – 17:00
Tuesday, June 27: 08:00 – 17:00
Wednesday, June 28: 08:00 – 17:00
Thursday, June 29: 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 Tours and Social Events: Pre-purchased tickets for technical tours and social events are provided with your name badge.

Computer Stations
Computer stations will be available in the Exhibit area in the Space Foyer for the purpose of downloading the OMAE 2016 proceedings on to your personal USB drive.

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.

(Continued on page 16)
OMAE 2017, welcome to Trøndelag!

Norway has a long and great history as a maritime nation. The region of Trøndelag aspire to be at the center of the national effort to conquer the ocean space.

The ocean space may hold the key to our future challenges when it comes to both food, climate, minerals, food, energy and transport. With our knowledge, industry and technology environments, Trøndelag is in a great position to answer some of these challenges. For example, we have the world’s first official test bed for autonomous ships in the Trondheim fjord – a living lab for mobility innovations.

**Marine sector is today one of the region’s most significant industries, and is expected to have an even stronger position in the years to come.**
We are very happy to have you, and hope you enjoy this important conference.

SØR- TRØNDELAG COUNTY AUTHORITY
Attendee Information (Continued)

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 25.

First Aid
For medical first aid assistance, please see the Hotel’s Front Desk staff who are all trained in basic First Aid. St. Olav University Hospital is the nearest medical facility for emergencies and is located at Prinsesse Kristinas gate 3, 7030 Trondheim, approximately 3km from the conference venue.

Internet
Free Wi Fi internet is offered. The network name at Clarion is “telenor”, please see the conference registration desk for the Wi Fi password. At BI select the “BI Guest” network and complete the visitor registration form for Wi Fi access.

Lost & Found
Should you lose or misplace an item, please go to the Registration Desk for assistance or inquire at the Hotel’s Front Desk.

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 the Clarion Hotel nor the BI Norwegian Business School. Smoking is permitted outside.

Tipping Etiquette
Tipping is not compulsory in Norway. Generally, tips are not given to taxi drivers or hotel cleaning staff. If you are very satisfied with a meal service at a restaurant a tip of 10-20% can be given but is not expected.

Trondheim Guide App
Explore Trondheim – the App way. The most complete guide to the city, now also including an event calendar. A useful app for the local citizen as well as for the tourist. This intelligent travel guide brings together expert and user-generated content, a uniquely optimized and personalized itinerary planner, map integration with directions, augmented reality and exciting sharing functions.

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Quality media for maritime experts

Ship & Offshore focuses on shipbuilding, ship operation and offshore and marine technology.

Published by Hamburg-based DVV Media, this international series presents specialist information on ship technology for the global maritime industry.

As a participant of OMAE 2017 you are entitled to a FREE COPY OF OUR MAGAZINE

www.shipandoffshore.net
Welcome Reception
Date: Sunday, June 25
Time: 18:30 – 20:30
Location: Space Foyer, Clarion
Welcome Reception sponsored by Sør-Trøndelag County
OMAE 2017 kicks-off with a Norwegian welcome at the Clarion Hotel & Congress, Trondheim on Sunday evening. Catch up with old colleagues and meet new connections over drinks and appetizers in the Space foyer of the hotel. If you need post-reception dinner suggestions, come see us at the Registration Desk during the reception. Great local restaurants are just a few blocks away.

Concert at Nidaros Cathedral
Date: Tuesday, June 27
Time: 18:30 – 19:15
Location: Nidaros Cathedral
Concert sponsored by Trondheim Municipality
The City of Trondheim is pleased to invite all OMAE 2017 participants to a concert in the evening of Tuesday, June 27th at the Nidaros Cathedral, one of Trondheim’s most popular tourist attractions. The Steinmeyer organ at Nidaros Cathedral in Trondheim is one of Europe’s largest organs with almost 10,000 pipes. Trondheim Municipality is giving the concert as a gift to OMAE, and the Mayor Rita Ottervik will open the concert with a short speech. The concert starts at 18:30 and will last about 45 minutes. Following the concert it is an easy walk to downtown Trondheim to enjoy dinner in one of the many fine restaurants.

Conference Banquet
Date: Wednesday, June 28
Time: Reception 18:30 – 19:00, Dinner 19:00 – 22:00
Location: Cosmos 1 & 2, Clarion
Thanks to our local hosts who have arranged an evening of Norwegian music and dance for the Conference Banquet. The Trondheim Soloists, an internationally renowned chamber orchestra, will be accompanied by Norwegian artists Gjermund Larsen and Frode Fjellheim. Larsen is one of the most prolific young Norwegian folk musicians/composers, representing the new generation of Norwegian folk musicians. Fjellheim is a well-known jazz and traditional Norwegian musician and composer, whose credits include composing some of the music for the Disney movie, Frozen. The evening’s finale will feature a traditional Norwegian folk dance in national costumes. The evening will start with a short reception in Space Foyer at 18:30, followed by dinner and entertainment in the Cosmos ballroom, and then an after party in Space to keep the evening going.

Farewell Reception
Date: Thursday, June 29
Time: 17:30 – 19:30
Location: Cosmos 1, Clarion
Celebrate the conclusion of OMAE 2017 with a look forward to OMAE 2018 in Madrid, Spain. Participants can savor Spanish themed appetizers and drinks while enjoying flamenco dance performances. A Spanish DJ will give you a musical taste of what to expect at OMAE 2018.

Refreshment Breaks
Dates: Monday, June 26 to Thursday, June 29
Times: Various, see pages 2 and 3 for times
Locations: Space Foyer, Clarion
Refreshment breaks will take place amongst the exhibits in Space Foyer.

Accompanying Persons Program
Monday Tour Departure Point: Conference Registration Desk at 8:45 am
The Accompanying Persons Program includes admission to the Welcome Reception, the Conference Banquet, and a special sightseeing tour on Monday where attendees will start off with an informative walk through Trondheim’s city center, visiting historical sights like the Archbishops Palace, the Old Town Bridge and more. The walking part will finish at the famous Nidaros Cathedral, where participants will learn about the history of this over one thousand years old cathedral. Following the city tour, a bus will bring attendees to the Sverresborg Museum for a guided tour and lunch at the Tavern.
Sponsors & Exhibitors

HOSTS

The Norwegian University of Science and Technology
www.ntnu.edu

NTNU

The Norwegian University of Science and Technology (NTNU) has the main responsibility for higher education in technology in Norway, and it is the country’s premier institution for the education of engineers. The university offers several programmes of professional study and a broad academic curriculum in technology, social sciences, health sciences, medicine, arts and humanities, with technology playing a major role. Its research in marine technology is world-leading. According to the Times Higher Education World University Rankings, NTNU is number one of the universities producing the highest proportion of the research in collaboration with a single partner from industry: SINTEF.

SINTEF Ocean
www.sintef.no/ocean

SINTEF

SINTEF Ocean is a unit in the SINTEF group, which is the largest independent and multidisciplinary research organization in Scandinavia. Our ambition is to maintain Norway’s leading position in marine technology and biomarine research. In partnership with trade, industries and authorities, we develop future-oriented solutions for sustainable use of the resources in the ocean. This requires a multidisciplinary and holistic approach. SINTEF Ocean is a major player in the realization of the Ocean Space Centre, the knowledge centre for future ocean space technology. The new centre will continue the operations of the present Marine Technology Centre.

SUPER PLATINUM

Statoil
www.statoil.com

We are a Norwegian-based energy company with operations in more than 30 countries. Since 1972 we have explored, developed and produced oil and gas on the Norwegian continental shelf, where we are a leading operator. From the early nineties we have built a global business, with strongholds in Europe, Africa, North America and Brazil. We have developed a portfolio of new energy solutions, currently delivering wind power to 650,000 British households.

We create value through safe and efficient operations, innovative solutions and technology. Statoil’s competitiveness is founded on our values-based performance culture, with a strong commitment to transparency, cooperation and continuous operational improvement.

We are headquartered in Norway with approx. 22,000 employees worldwide, and are listed on the New York and Oslo stock exchanges.

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.

Location: Space Foyer, Clarion
Dates & Times:
- Sunday, June 25: 18:30 – 20:30
- Monday, June 26: 08:30 – 17:00
- Tuesday, June 27: 08:30 – 17:00
- Wednesday, June 28: 08:30 – 17:00
- Thursday, June 29: 08:30 – 13:30
**Sponsors (Continued)**

**GOLD**

**DNV GL**  
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Driven by our purpose of safeguarding life, property and the environment, DNV GL enables organizations to advance the safety and sustainability of their business. We provide classification, technical assurance, software and independent expert advisory services to the maritime, oil & gas and energy industries. We also provide certification services to customers across a wide range of industries.

Combining leading technical and operational expertise, risk methodology and in-depth industry knowledge, we empower our customers' decisions and actions with trust and confidence. We continuously invest in research and collaborative innovation to provide customers and society with operational and technological foresight. With origins stretching back to 1864, DNV GL’s reach today is global. Today DNV GL operates in more than 100 countries.

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*SOŘ- TRØNDELAG COUNTY AUTHORITY*

In Trøndelag we have an ambition; to become the most creative region in Europe. To get there we focus on the 3-T’s that characterize successful regions: Technology, Talent and Tolerance.

Trøndelag is a region in the centre of Norway that embraces both the new and the old; with dynamic environment for science, technology and education; a vibrant nature; and citizens who want to move forward.

The ambition, Creative Trøndelag, is about developing and building values. We focus on the people and on cultivating the diversity of ideas. Big and small—good and bad.

**MEDIA SUPPORTERS**

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**Ship & Offshore**  
Ship&Offshore
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 and headquartered in Troy, Michigan, USA the company operates globally to serve customers in a diverse range of industries including automotive, aerospace, defense, meteorology, architecture and construction, energy, electronics, and consumer goods.

HyperWorks, Altair’s open-architecture simulation platform, offers technologies to design and optimize high performance, efficient and innovative products. HyperWorks includes modeling, analysis and optimization for structures, fluids, multi-body dynamics, electromagnetics and antenna placement, model-based development, and multiphysics.

Orcina is a professional engineering software house specializing in the fields of offshore dynamics, risers, moorings, towed systems and installation procedures. We develop and sell leading edge commercial software packages including OrcaFlex (with VIV analysis), OrcaLay and OrcaBend. We also undertake feasibility and design studies, design audit, and engineering systems analysis. Our main product is OrcaFlex, the market-leading numerical simulation program for modelling flexible and rigid risers, moorings, cable and pipe lay, pipeline pull-in, towed arrays, installation sequences and many other systems. OrcaFlex provides the best-in-class complete design environment for offshore dynamics.

Siemens PLM Software (http://mdx.plm.automation.siemens.com/) is a leading global provider of simulation software with a vision for Multidisciplinary Design eXploration. Our simulation tools, including STAR-CCM+, allow engineers to discover better designs, faster across a wide range of disciplines including Computational Fluid Dynamics, Computational Solid Mechanics, heat transfer, particle dynamics, and reacting flow.
Through an internal merger in SINTEF, MARINTEK is now part of SINTEF Ocean. We perform ocean-related research and innovation for the ocean industries. Our ambition is to maintain and further develop Norway’s leading position in marine technological and bio marine research. In partnership with trade, industries and authorities, we develop future-oriented solutions for sustainable use of the resources in the ocean. This requires a multidisciplinary and holistic approach. The merger is an important step in the realization of the Ocean Space Centre, the knowledge centre for future ocean space technology. The new centre will continue the operations of the present Marine Technology Centre.

StressMap is the measurement services business unit of The Open University (OU) dedicated to providing specialist stress/strain measurement services to clients worldwide. We specialise in the Contour Method of residual stress measurement and testing, which can give informative insights on how to improve design and manufacturing processes while enhancing the overall structural lifetime and safety. Our services have assisted a range of industries including aerospace, power (nuclear and non-nuclear), energy, automotive and transport in taking informed decisions, which led to reduced costs and increased reliability.

VIV Solutions is the world’s leader in vortex-induced vibration suppression technologies. Our team of experts offers over seventy (70) years’ combined experience mitigating VIV in deepwater risers, tendons, umbilicals, jumpers, and pipeline spans. We specialize in the design, engineering, and manufacture of suppression products such as helical strakes and fairings and our team members have been awarded over 40 patents. Our engineers continue to make key discoveries in the field of VIV and new suppression devices. We have an extensive track record supporting projects across the globe and look forward to sharing our knowledge with you.
Technical Program
The 36th International Ocean Offshore and Arctic Engineering (OMAE) 2017 Conference is proud to dedicate a symposium in honor of Professor Carl Martin Larsen and Dr. Owen H. Oakley.

Professor Larsen was the Head of Department of Marine Technology at Faculty of Engineering Science and Technology of NTNU. Professor Larsen’s main disciplines are structural dynamics, stochastic analysis, riser design, offshore hydrodynamics and vortex induced vibrations (VIV). He is regarded as one of the leading experts in the area of VIV. Professor Larsen is also heavily involved in multiple riser engineering and industry activities such as the Norwegian Deepwater Program (NDP) and VIVANA IIP, a computer program used by the offshore industry for VIV design. He has authored and co-authored in excess of 100 publications and was the advisor of multiple MSc and PhD students since 1984.

Dr. Owen H Oakley, received his PhD in Naval Architecture and Offshore Engineering from MIT where he served as a faculty member prior to joining Chevron. At Chevron, he held various positions with increasing role and responsibility ranging from design and fabrication of floating platforms to the development and management of Deepwater technologies. Dr Oakley is widely known for pioneering CFD in the offshore industry and his leadership role in starting and defining the OMAE CFD and VIV Symposium. He is a long standing member of the OOAE division and has served as chair, conference organizer and technical chair.

The CFD and VIV symposium focuses on expanding international cooperation, understanding and promotion of efforts and disciplines in the areas of Computational Fluid Dynamics (CFD), Vortex-induced Vibrations (VIV) and Fluid Structure Interaction (FSI). This symposium addresses issues associated with the use of CFD and advanced analysis methods in offshore applications, with an additional focus on VIV and FSI. While the topics are similar to many of those in other symposia, the emphasis is on the development and implementation of advanced computations, improvement of modeling capabilities, acquisition of validation data, experimental investigations, understanding and modeling of fluid structure interaction and demonstrations of the power of advanced simulations.
The 36th International Ocean Offshore and Arctic Engineering (OMAE) 2017 Conference is proud to dedicate a Special Symposium in honor of Professor Torgeir Moan of Marine Technology at NTNU. He has been the Director of a centre of research excellence: Centre of Ships and Ocean Structures (CeSOS) and is currently senior advisor to another centre: Centre for Autonomous Marine Operations and Systems (AMOS).

Professor Moan's main disciplines are structural analysis and design, with a focus on integrated dynamic analysis and safety assessment – using numerical and experimental methods as well as in-service information. He has carried out research as well as engineering design and analyses of innovative concepts of high speed vessels, LNG and FPSO ships, oil and gas platforms, floating bridges as well as offshore wind turbines and wave energy converters.

Professor Moan has authored or co-authored approximately 650 journal and peer-reviewed conference publications (20% of which are OMAE publications), and a book on “Stochastic Dynamic Analysis of Marine Structures”, at the Cambridge University Press (2012), together with Professor Næss. He has supervised more than 400 students in their MSc thesis work and 78 candidates that have graduated with a PhD degree. Since 2001 Moan has been editor of the Journal of Marine Structures and serves on the editorial board of several other journals.

The symposium addresses safety of marine structures and operations. Experience shows that safety essentially depends on proper design codes, the attitude and competence of those doing the engineering, fabrication and operations, and the quality of the methods applied as well as quality assurance and control. Design codes should refer to ultimate and fatigue limit states and address robustness by accidental collapse or progressive collapse limit states, in connection with accidental events and deterioration due to cracks and corrosion. Moreover, in view of the increasing availability of advanced and accurate tools – if applied with insight – there is a need to develop and validate simplified methods to save time and efforts. The uncertainties of methods and data need to be accounted for in the design by using load and resistance factors or direct reliability or risk analysis. The goal of the symposium is to share knowledge about theoretical methods and operational experiences that be used to ensure future safe and efficient design and operations of various types of marine structures; such as oil and gas platforms; ships; very large floating structures like bridges, terminals; wave- and wave energy converters. Assessment of marine operations associated with sea transport and installation or decommissioning of marine structures or other marine operations is an emerging area of significant importance.
Saturday, June 24

**Time** | **Title** | **Location**
--- | --- | ---
**Short Course** 09:00 – 17:00 | The Application of CFD to Offshore Projects with Emphasis on Vortex Induced Motions – Day 1 | Cosmos 3d, Clarion

**Short Course** 09:00 – 17:00 | Fixed and Floating Offshore Wind Turbines: Dynamic Analysis and Marine Operations | Cosmos 3c, Clarion

**Short Course** 09:30 – 17:30 | Dynamics and Vibrations in Offshore Structures | Living Room 4, Clarion

17:00 – 19:00 | Outreach Team Building Exercise | Cosmos 3c, Clarion

**Short Course: 2 Day Course – Day 1**

**The Application of CFD to Offshore Projects with Emphasis on Vortex Induced Motions**

**09:00 – 17:00**

**Location:** Cosmos 3d, Clarion

**Instructor:** Dr. Sam Holmes, Red Wing Engineering, San Francisco, CA, USA

**Course Description:** This course combines a comprehensive review of fluid mechanics and numerical methods with practical considerations for integrating a computational fluid dynamics (CFD) program in offshore engineering projects. The objective is to help engineers and engineering managers implement and maintain an effective computational fluid dynamics (CFD) capability within their organization. A special emphasis is placed on vortex induced vibration (VIV) and vortex induced motion (VIM) problems. Those attending the course will receive an up to date review of the status and use of computational fluid dynamics (CFD) in some specific offshore applications along with recent developments in related diverse topics such as turbulence modeling, computer hardware and computer software selection, cloud computing, and more. The cost and benefits of CFD will also be discussed. An extensive bibliography of useful references will be handed out during the course.

**Day 1:** Because CFD is used to solve a wider range of problems than can be covered in a short time, the course focus this year will be on predicting the VIV of risers and pipelines and the VIM of platforms (floaters). Many practical examples and guidance will be given regarding these problems. The course will start with a short history of VIV including some notable past experiments and analyses relevant to the offshore industry. This will be followed by a review of turbulence models including recent developments and trends. The physics of VIV will be covered next with specific examples using CFD to solve for hydrodynamic properties of complex structures such as blowout preventers (BOP). Finally, the first day will close with a hands on workshop where CFD will be used to solve a practical problem.

**You will learn to:**
- Better understand CFD methods and tools,
- Better understand VIV and VIM physics,
- Better understand practical methods for the solution of important fluid flow and combined fluid-structure interaction problems; and
- Review the costs in dollars and labor to implement and maintain CFD expertise in house.

**Biography:** Dr. Holmes has over 40 years of engineering experience specializing in the study of fluid dynamics and the dynamic response of structures. He is the author of over 50 technical publications on topics ranging from the vortex induced vibration of risers to the dynamic buckling of thin shells. His work on the application of computational fluid dynamics to offshore problems spans the last 17 years during which he contributed to a number of developments including the first studies of three dimensional flows around flexible risers and the use of CFD to predict platform vortex induced motions. Dr. Holmes work experience began at Stanford Research Institute (now SRI International) where he studied the large plastic deformations of structures and blast effects. His most recent positions were as Vice President of Engineering Services at Acusim Software, Inc. and as a Group Leader at Applied Research Associates, Inc. He now heads his own engineering consultancy, Red Wing Engineering, Inc.
**Short Course**

**Fixed and Floating Offshore Wind Turbines: Dynamic Analysis and Marine Operations**

09:00 – 17:00

**Location: Cosmos 3c, Clarion**

Instructors: Erin Bachynski, Norwegian University of Science and Technology and Zhen Gao, Norwegian University of Science and Technology

**Course Description:** This course reviews several considerations related to design and operation of offshore wind turbines. Fundamental concepts in aerodynamic (with focus on blade element/momentum theory) and hydrodynamic (with focus on first and second order radiation-diffraction and Morison-type models) load calculation are presented. The course addresses theoretical background and important practical considerations for structural response analysis combining these load components and wind turbine control for ULS and FLS design check. Finally, marine operational issues related to transport, installation and access to wind turbines for maintenance and repair, with focus on numerical simulation of onsite installation and weather window analysis, are discussed.

**You will learn to:**

- Explain the basic wind turbine components, and types of substructures,
- Identify key external loads on offshore wind turbines and understand the theory for their estimation,
- Perform state-of-the-art global dynamic analysis of offshore wind turbines, including interactions between the wind- and wave-induced loads and responses,
- Numerically model marine operations such as installation of substructure and turbine components; and
- Evaluate weather windows for offshore wind turbine installation.

**Biographies:**

Dr. Erin Bachynski is an associate professor of marine structures in the Department of Marine Technology, Norwegian University of Science and Technology (NTNU) since 2016. She holds bachelor and master’s degrees in naval architecture and marine engineering from the University of Michigan, and a PhD from NTNU, with thesis titled “Design and Dynamic Analysis of Tension Leg Platform Wind Turbines.”

Assoc. Prof. Bachynski’s main research areas are numerical and experimental modelling of offshore wind turbine structures, including hydroelasticity, nonlinear wave loads, and structural response modelling. Previous projects include development of numerical simulation tools for offshore wind turbines, including consideration of the faults, drivetrain responses, and higher-order hydrodynamic loads, as well as real-time hybrid testing of a semi-submersible wind turbine. She has been involved in the technical organization of the OMAE Conference as a session chair and topic organizer (2015-). She also serves as a reviewer for the OMAE and ISOPE conferences and journals, as well as for Marine Structures, Ocean Engineering, and Ships and Offshore Structures.

Dr. Zhen Gao is a professor of marine structures at the Department of Marine Technology, Norwegian University of Science and Technology (NTNU) since 2015. His main research areas cover coupled dynamic analysis of offshore renewable energy devices (including offshore wind turbines, both bottom-fixed and floating, wave energy converters, floating tidal turbines and combined concepts); marine operations related to installation and maintenance for offshore wind turbines and other ocean renewable energy devices; probabilistic modeling and analysis of wind- and wave-induced loads and load effects in offshore structures; fatigue and ultimate structural reliability assessment of offshore platforms and mooring systems.

He has participated and is now participating in several research projects and educational programs on offshore renewable energy, including EU FP6 SEEWEC Project (2007-2009), EU FP7 MARINA Platform Project (2010-2014), IEA OC4 Project (2010-2012), EU FP7 MARE-WINT Project (2012-2016) and EWEM (European Wind Energy Master) Program (2012-). He is a member of the Specialist Committee V.4 Offshore Renewable Energy at ISSC for 2009-2012 (committee member) and 2012-2015, 2015-2018 (committee chair). He serves as an editorial board member for three international journals (Marine Structures, Journal of Marine Science and Application, Journal of Ship Mechanics). He is also a member of the technical committee for several international conferences, including the Scientific Committee of the Structures, Safety and Reliability Symposium at the OMAE conferences since 2011.
**Short Course**

**Dynamics and Vibrations in Offshore Structures**

09:30 – 17:30  
**Location:** Living Room 4, Clarion

Instructors: Junbo Jia, Aker Solutions and Bernt Leira, Norwegian University of Science and Technology

**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 problems 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) Newtonian dynamics and stochastic dynamics; (iii) nonlinear dynamics; (iv) characterizing ocean wave, wind and earthquake loadings and responses; (v) dynamics in assessing different limit states (extreme, fatigue, etc.) (vi) vibration mitigation measures. 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.

**You will learn to:**

- Better understand principles in the analysis and design of offshore structures with consideration for dynamic loads,
- Better understand relevant vibration mitigation measures,
- Develop an “intuition” and understanding for concepts in dynamics; and
- Offer insights through the discussion of practical dynamic problems.

**Biographies:**

Dr. Junbo Jia is an engineering expert at Aker Solutions, Norway. He is currently a committee member of ISO TC67/SC7 Offshore Structures and an invited expert group member of Eurocode 3. He is invited as guest professors, key speakers, and permanent members of PhD examination committees by various organizations and research institutes. Dr. Junbo Jia has received several national and international awards such as the Vice Admiral E.L. Cochrane award from the Society of Naval Architects and Marine Engineers (SNAME) and the Best Paper Award from Journal of Ships and Offshore Structures. He is also listed in several global versions of the Who’s Who publications. Dr. Junbo Jia is authors of three Springer engineering monographs: Essentials of Applied Dynamic Analysis, Modern Earthquake Engineering for Offshore and Onland Structures, and Soil Dynamics and Foundation Modelling – Offshore and Earthquake Engineering. He is also the editor of a handbook volume: Structural Engineering in Vibrations, Dynamics and Impacts (2017) by CRC press, U.S.A.

Bernt J. Leira is Professor at the Department of Marine Technology. His Doctoral Thesis is on structural reliability formulations involving multiple stochastic processes. He worked at SINTEF, Division of Structural Engineering for a period of 20 years related to design analysis of a variety of structures. Examples are fixed offshore platforms (e.g. jackets, jack-ups, gravity platforms), long-span bridges (e.g. suspension bridges, floating bridges, submerged tubular bridges), floating production systems and marine risers (rigid risers, non-bonded flexible risers, titanium risers). He has been project manager for a number of industry projects. He has been involved in teaching at the University level for a period of 25 years, and has held an industry Professorship from 1994 to 1999. He has held a full Professorship since 1999. Main areas of teaching are reliability methods, probabilistic load modelling, dynamic response analysis and design methods for marine structures. He has published more than 300 papers in scientific journals, conferences and books. Relevant ISO and other standardisation work comprises Dynamic Risers and Floating Production Systems.
Short Course: 2 Day Course – Day 2

The Application of CFD to Offshore Projects with Emphasis on Vortex Induced Motions

**09:00 – 17:00**

**Location:** Cosmos 3d, Clarion

**Instructor:** Dr. Sam Holmes, Red Wing Engineering, San Francisco, CA, USA

**Day 2:** The day will begin with a description of the platform VIM problem. The emphasis will be on the practical prediction of VIM including past experience with turbulence models, grid refinement, the modeling and influence of external features such as small pipes and anodes and the potential influence of surface waves. Three important and perhaps open topics will be covered in detail, 1) the influence of surface roughness 2) the problem of scaling tow tank scale solutions to full scale and 3) the modeling of sheared currents.

Following the discussion of platform VIM, the fluid-structure interaction (FSI) problem of modeling flexible bodies such as risers and jumpers will be discussed. The current limitations CFD in the treatment of long risers will be covered and specific tips will be given for setting up these problems including the selection of a structural model, the correct time step, and grid refinement. A simple method for laying out the expected frequencies in a solution will be given to assure that the solution will find the needed response modes. Finally, a method of problem set up will be given to shorten solution time and save computer resources. A closing lecture will cover some special topics such as drilling riser vibration and moon-pool fluid dynamics. At the end of day 2, a hands on workshop will allow attendees to solve flexible body problem with the use of cloud computing.

**Biography:**

Dr. Holmes has over 40 years of engineering experience specializing in the study of fluid dynamics and the dynamic response of structures. He is the author of over 50 technical publications on topics ranging from the vortex induced vibration of risers to the dynamic buckling of thin shells. His work on the application of computational fluid dynamics to offshore problems spans the last 17 years during which he contributed to a number of developments including the first studies of three dimensional flows around flexible risers and the use of CFD to predict platform vortex induced motions. Dr. Holmes work experience began at Stanford Research Institute (now SRI International) where he studied the large plastic deformations of structures and blast effects. His most recent positions were as Vice President of Engineering Services at Acusim Software, Inc. and as a Group Leader at Applied Research Associates, Inc. He now heads his own engineering consultancy, Red Wing Engineering, Inc.

**Short Course**

Problems, Challenges and Remedies in the Estimation of Extreme Response Statistics for Offshore Structures

**10:00 – 16:30**

**Location:** Space 2, Clarion

**Instructor:** Professor Arvid Naess, NTNU

**Course Description:** The estimation of extreme value statistics related to offshore engineering provides many unique challenges to the safe design of structures designated for service in the harsh environment of offshore oil fields. If these challenges are not adequately addressed, it can lead to serious consequences in terms of structural failures.

This course provides an overview of the key elements in the estimation of extreme value statistics that is relevant for the design of dynamic offshore structures. It discusses the potential pitfalls and misconceptions that are rather widespread. Recently developed robust and accurate methods for extreme value prediction will be presented, and software for practical use will be discussed and demonstrated to give participants hands on experience.

**You will learn to:**

The primary course learning objective is to provide basic understanding of the key issues involved in the estimation of extreme value statistics that are relevant for the design of dynamic offshore structures.
extreme values based on measured or simulated response time series. Following this course, the attendees should be able to:

• Understand the limitations and pitfalls in the standard approaches based on asymptotic analyses using the generalized extreme value distributions,
• Understand the limitations and pitfalls in the popular peaks-over-threshold approach to extreme value prediction,
• Know how to formulate the extreme value distribution based on the average upcrossing rate and its limitations,
• Know how to use the ACER method for accurate prediction of extreme values when the amount of data available allows for this,
• Use the ACER method as a diagnostic tool for the effect of data dependence; and
• Understand how to formulate long term statistics correctly.

Biography: Dr. Arvid Naess is professor of Mathematical Statistics and Structural Engineering at the Norwegian University of Science and Technology (NTNU) in Trondheim, Norway. During the period 2003-2012, he was in the core group at the Center for Ships and Ocean Structures at NTNU, which was a Center of Excellence in Research. His main research focus over the last decades has been on developing methodologies for safety and reliability assessment of structural systems in marine and civil engineering. An important component of this activity has been development of methods for robust and accurate estimation of extreme values based on data. He recently co-authored (with Professor Torgeir Moan) the book Stochastic Dynamics of Marine Structures.

Welcome Reception
18:30 – 20:30
Clarion Hotel & Congress
Trondheim, Space Foyer

OMAE 2017 kicks-off with a Norwegian welcome at the Clarion Hotel & Congress, Trondheim on Sunday evening. Catch up with old colleagues and make new connections over drinks and appetizers in the Space foyer of the hotel. If you need post-reception dinner suggestions, come see us at the Registration Desk during the reception. Great local restaurants are just a few blocks away.

Welcome Reception sponsored by Trondelag County
Complimentary Access to:

Journal of Offshore Mechanics and Arctic Engineering

Dear 2017 OMAE Conference Participant:

Thank you for attending the 2017 OMAE Conference in Trondheim, Norway.

I am pleased to announce that as a conference participant, from July 1 – September 30, 2017, you will receive complimentary access to the Journal of Offshore Mechanics and Arctic Engineering.

I hope that you will take advantage of the opportunity to access and download articles in your area(s) of interest.

To receive complimentary access, visit Journal of Offshore Mechanics and Arctic Engineering on The ASME Digital Collection (offshoremechanics.asmedigitalcollection.asme.org). Sign in using the email address you provided for your conference registration. Recognized customers will have full access. Should your email address not be recognized, then you will be prompted to set up an account.

If you have any questions or issues, please email GiordanoS@asme.org

Sincerely,

Solomon C. Yim
Oregon State University, Corvallis, OR, USA
Editor, ASME Journal of Offshore Mechanics and Arctic Engineering

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Monday, June 26

**OPENING CEREMONY AND KEYNOTE PLENARIES**

08:30 – 09:55
Cosmos 1 & 2, Clarion

**Opening Ceremony**

Dr. Bernt J. Leira, Conference Chair, OMAE 2017
Dr. Atle Minsaas, Conference Co-Chair, OMAE 2017
Dr. Dominique Roddier, Technical Program Chair, OMAE 2017
Solomon C. Yim, OOAЕ Division Chair
Tore O. Sandvik, County Mayor
Helge Klungland, NTNU Pro-Rector
Alexandra Bech Gjørv, CEO of SINTEF

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**Keynote Plenary One**

**Technology to Shape the Future of Energy**

Kjetil Skaugset, PhD
Chief Researcher Upstream and Downstream Technology, Statoil ASA

Shaping the future of energy takes more than policies, strategies and visions. It takes dedicated work and concrete actions. Taking on the challenge is the first step. Understanding the issue, and defining ways to solve it, the next. As complexity is vast, a great variety of solutions for different parts of the issue are needed.

Our ability to innovate, i.e. create new and valuable solutions that are taken into use, will determine if we are successful. New technology and use of competence are integral parts of this. In this context, detailed knowledge and competence within a great variety of disciplines is needed. Further, cross-disciplinary cooperation is needed in both defining the issue and provide creative processes to establish solutions.

Sustainable extraction of energy found in the ocean space will contribute in satisfying the energy demand of a growing population going forward. This lecture will discuss paths forward for technology in the energy sector with focus on offshore oil & gas and renewable energy. Examples from past, present and future technology developments taking on this challenge will be given.

Biography: Kjetil Skaugset studied at Norwegian University of Science and Technology (NTNU) and graduated with a PhD in 2003. He subsequently held post doc positions at Massachusetts Institute of Technology (MIT), and Centre for Ships and Offshore Structures (CeSOS) at NTNU. Kjetil has also worked at the Norwegian Marine Technology Research Institute (MARINTEK) in Trondheim.

Joining Statoil in 2005, he assumed responsibilities for research and development within the area of platform technology. He has since been central in several major field development projects in Statoil. Kjetil has been managing researchers within Arctic, pipeline and deep-water technology in Statoil.

Since 2012, he has been Chief Researcher at Statoil. His responsibility entails corporate technical responsibility for all new technologies between wellhead and market in the oil and gas value chain in addition to renewables, new value chains and HSE technologies. He is a board member for the Centre of Excellence Autonomous Marine Operations and Systems (AMOS) at NTNU, and heads up the national research strategy OG21 in Norway, technology target area “Future technologies for production, processing and transportation”. In addition, Kjetil is presently managing Statoil Expert Centre, an entity of corporate senior experts covering the complete value chain of Statoil’s business.
REFRESMENT BREAK
9:55 – 10:25
Space Foyer, Clarion

OPENING CEREMONIES AND KEYNOTE PLENARIES (Continued)
10:25 – 11:30
Cosmos 1 & 2, Clarion

Cultural Performance
The Trondheim Chamber Music Festival will welcome OMAE 2017 participants at the Opening Ceremonies with two performances, a musical performance and an aria from their opera repertoire.

Keynote Plenary Two

Technology Outlook 2025
Pierre C. Sames
Senior Vice President, DNV GL - Group Technology and Research Director

Technology is all around us and has infused in our way of life. It has enabled the global population to more than quadruple over the last century, and it’s effecting each and every one of us on, second by second. But we’ve just seen the beginning. Technology is now triggering a fourth industrial revolution. We are embarking on a digital transformation characterized by a fusion of technologies that will blur the lines between the physical, digital, and biological spheres. The DNV GL TO2025 deals with the probable rather than the possible. Instead it explores the impact of technology uptake in the next ten years. Technology Outlook reveals very clearly that the coming decade is all about implementation. But which technologies matter? To navigate robustly and decisively into the technological landscape of the future, we need to understand inter-linkages between different trends. And we need to assess the impact of possible future technologies and events. We need to look beyond the borders of our industries, and scan the horizon for game changers. The presentation will focus on drivers for technology – regulation, sustainability, climate change and digitalization – and on selected technologies considered to have an impact on the maritime and offshore industries.

Biography: Pierre C. Sames holds the position of Group Technology and Research Director at DNV GL. He is responsible for managing the corporate strategic research and technology development projects. His previous experience includes research into hydrodynamic extreme loads, risk analysis, shipping emissions, LNG as ship fuel, rule development and regulatory affairs as well as innovation management. He joined GL in 1995 after studying naval architecture in Hamburg.

Keynote Plenary Three

Leading the Blue Revolution
Alf-Helge Aarskog
Chief Executive Officer (CEO), Marine Harvest ASA

The presentation will include an overview of Marine Harvest as the largest salmon farming company in the world, and give the background for the vision and the way the company operates. The audience will be given an overview of the opportunities and challenges within salmon farming today, the technology used and forward looking technology in regards to solving the industry’s challenges. Currently salmon lice are the biggest challenge in the industry. Salmon lice are a natural parasite that use salmon as their host. In wild salmon populations you will almost always find the parasite attached to the salmon when the fish is in its seawater phase. The parasite dies in fresh water and catching a salmon with salmon lice attached was a sign of quality amongst salmon fishermen historically. The problem with salmon lice in farming is the abundance of hosts, and the capacity the lice has to procreate. Only in Norway the salmon farming industry spends approximately 5 billion NOK, (600 million US dollars) to deal with the challenge of salmon lice. Norway accounts for about 50 % of the global salmon farming industry, and the lice challenge is present also in other countries. A conservative estimation of the total cost and profit loss from fighting the salmon lice is in the area of 10-15 BN NOK or (1,2-1,75 Bn USD) globally. In addition, it is very likely that sea lice from farmed fish can have an impact on the wild salmon population. It is therefore of high importance to find solutions to this issue. The presentation will give a description on how Marine Harvest deals with this issue including research and development efforts to solve it as fast as possible. The presentation will end with an overview of the major advantages and challenges for this industry to grow and prosper going forward.

Biography: Alf-Helge Aarskog is Norwegian born and holds a MSC in Aquaculture from the Norwegian University of Life Sciences (UMB), as well as supplementary management education from Harvard Business School.

Mr. Aarskog has a wealth of experience in the salmon farming industry. Prior to his position in Marine Harvest ASA, he was the CEO of the Lerøy Seafood Group ASA. Other previous positions include Executive Vice President of the Lerøy Seafood Group, Managing Director of Lerøy Midnor AS and Head of Production in Fjord Seafood ASA, a company later merged with Marine Harvest ASA. He currently sits on the board of Morpol ASA.
**MONDAY OPENING LUNCH**
11:30 – 13:00
Cosmos 1 & 2, Clarion
Sponsored by DNV GL

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**CONCURRENT SESSIONS**
13:00 – 14:30

**Offshore Technology**

1-1-1 Metocean and Environmental Loading
Monday June 26  Space 3, Clarion  11:30 – 13:00
Session Chair: Jang Kim, TechnipFMC, USA
Session Co-Chair: Anil Sablok, TechnipFMC, USA
Jang Kim
TechnipFMC, Houston, TX, USA
Simulation of Passing Vessel Effects on Moored Vessel Mooring Response Due to Environmental Loads  OMAE2017-62741
Nandhini Vasudevan
Indian Institute of Technology, Madras, Chennai, TN, India
Numerical and Experimental Damping of Piston and Sloshing Motions in Moonpools  OMAE2017-62742
Jan Lührmann
Technische Universität Berlin, Berlin, Germany

1-7-1 Wave Loading and Motions in Extreme Seas I
Monday June 26  Cosmos 3a, Clarion  11:30 – 13:00
Session Chair: Arne Nestegård, DNV GL, Norway
Session Co-Chair: Reza Firoozkoohi, SINTEF Ocean, Norway
A Numerical Study On Prediction of Wave-in-Deck Impact Event Around a Tension Leg Platform in Extreme Waves  OMAE2017-62334
Bo-Woo Nam¹ Hyun Joe Kim² Sa Young Hong³
1. Korea Research Institute of Ships & Ocean Engineering, Daejoen, Korea; 2. Samsung Heavy Industries, Daejeon, Korea
Numerical Analysis of Wave Impact Loads on Semi-submersible Platform  OMAE2017-62345
Wenyang Duan¹ Shun Ma¹ Kangping Liao² Qingwei Ma³ Changhong Hu² Binbin Zhao³
1. Harbin Engineering University, Harbin, China; 2. Kyushu University, Fukuoka, Japan
Csaba Pakozdi¹ Gunnar Liain¹ Tone M. Vestbøstad¹ Ole David Økland²
Anders Østman¹ Bjørn Christian Abrahamsen¹ Carl Trygve Stansberg³
1. MARINTEK, Trondheim, Norway; 2. Statoil, Stavanger, Norway; 3. CTSTANSBERG MARINTEKNIKK, Trondheim, Norway

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**Structures, Safety and Reliability**

2-1-1 Wave Forecast and Climate
Monday June 26  Cosmos 3b, Clarion  11:30 – 13:00
Session Chair: Elzbieta M. Bitner-Gregersen, DNV GL AS, Norway
Session Co-Chair: Alexander Babanin, The University of Melbourne, Australia
Ocean Swell, How Much Do We Know  OMAE2017-61692
Alexander Babanin¹ Hayu Jiang²
1. The University of Melbourne, Melbourne, VIC, Australia; 2. Swinburne University of Technology, Melbourne, VIC, Australia
On Long Term Statistics of Ocean Storms Starting from Partitioned Sea States  OMAE2017-61750
Felice Arena¹ Valentina Laface¹ Christophe Maisondieu¹ Alessandra Romolo¹
1. Mediterranean University, Reggio Calabria, Italy; 2. IFREMER, Plouzané, France
Projected Changes in the Occurrence of Extreme and Rogue Waves in Future Climate in the North-Atlantic  OMAE2017-61795
Elzbieta M. Bitner-Gregersen, Erik Varem, Odin Gramstad
DNV GL AS, Høvik, Norway

2-7-1 Reliability of Mooring and Riser Systems I
Monday June 26  Space 2, Clarion  11:30 – 13:00
Session Chair: Ying Min Low, National University of Singapore, Singapore
Session Co-Chair: Luis Sagrilo, COPPE - Universidade Federal do Rio de Janeiro, Brazil
Extreme Response Prediction of Steel Risers Using a Four Parameter Distribution  OMAE2017-61481
Ying Min Low¹ Luis Sagrilo² Fernando Sousa² Miguel A. Calderon Ibarra²
1. National University of Singapore, Singapore; 2. COPPE - Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil
Mooring System Calibration of the Intact Condition, ULS  OMAE2017-61529
Torfinn Horte, Siril Okkenhaug, Øivind Paulshus
DNV GL, Høvik, Norway
Mooring System Calibration of the Damaged Condition, ALS  OMAE2017-61533
Torfinn Horte, Siril Okkenhaug, Øivind Paulshus
DNV GL, Høvik, Norway
Summary and Recommendations for Safe Mooring System Design in ULS and ALS  OMAE2017-61534
Torfinn Horte, Siril Okkenhaug, Øivind Paulshus
DNV GL, Høvik, Norway

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**Materials Technology**

3-1-1 Fracture Control- Analytical Approach I
Monday June 26  Living Room 4, Clarion  11:30 – 13:00
Session Chair: Xin Wang, Carleton University, Canada
Session Co-Chair: Jens Tronskar, DNV GL, Singapore

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**MONDAY OPENING LUNCH**
11:30 – 13:00
Cosmos 1 & 2, Clarion
Sponsored by DNV GL

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**CONCURRENT SESSIONS**
13:00 – 14:30

**Offshore Technology**

1-1-1 Metocean and Environmental Loading
Monday June 26  Space 3, Clarion  11:30 – 13:00
Session Chair: Jang Kim, TechnipFMC, USA
Session Co-Chair: Anil Sablok, TechnipFMC, USA
Jang Kim
TechnipFMC, Houston, TX, USA
Simulation of Passing Vessel Effects on Moored Vessel Mooring Response Due to Environmental Loads  OMAE2017-62741
Nandhini Vasudevan
Indian Institute of Technology, Madras, Chennai, TN, India
Numerical and Experimental Damping of Piston and Sloshing Motions in Moonpools  OMAE2017-62742
Jan Lührmann
Technische Universität Berlin, Berlin, Germany

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Wenyang Duan¹ Shun Ma¹ Kangping Liao² Qingwei Ma³ Changhong Hu² Binbin Zhao³
1. Harbin Engineering University, Harbin, China; 2. Kyushu University, Fukuoka, Japan
Csaba Pakozdi¹ Gunnar Liain¹ Tone M. Vestbøstad¹ Ole David Økland²
Anders Østman¹ Bjørn Christian Abrahamsen¹ Carl Trygve Stansberg³
1. MARINTEK, Trondheim, Norway; 2. Statoil, Stavanger, Norway; 3. CTSTANSBERG MARINTEKNIKK, Trondheim, Norway

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**Structures, Safety and Reliability**

2-1-1 Wave Forecast and Climate
Monday June 26  Cosmos 3b, Clarion  11:30 – 13:00
Session Chair: Elzbieta M. Bitner-Gregersen, DNV GL AS, Norway
Session Co-Chair: Alexander Babanin, The University of Melbourne, Australia
Ocean Swell, How Much Do We Know  OMAE2017-61692
Alexander Babanin¹ Hayu Jiang²
1. The University of Melbourne, Melbourne, VIC, Australia; 2. Swinburne University of Technology, Melbourne, VIC, Australia
On Long Term Statistics of Ocean Storms Starting from Partitioned Sea States  OMAE2017-61750
Felice Arena¹ Valentina Laface¹ Christophe Maisondieu¹ Alessandra Romolo¹
1. Mediterranean University, Reggio Calabria, Italy; 2. IFREMER, Plouzané, France
Projected Changes in the Occurrence of Extreme and Rogue Waves in Future Climate in the North-Atlantic  OMAE2017-61795
Elzbieta M. Bitner-Gregersen, Erik Varem, Odin Gramstad
DNV GL AS, Høvik, Norway

2-7-1 Reliability of Mooring and Riser Systems I
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Session Co-Chair: Luis Sagrilo, COPPE - Universidade Federal do Rio de Janeiro, Brazil
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Mooring System Calibration of the Intact Condition, ULS  OMAE2017-61529
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DNV GL, Høvik, Norway
Mooring System Calibration of the Damaged Condition, ALS  OMAE2017-61533
Torfinn Horte, Siril Okkenhaug, Øivind Paulshus
DNV GL, Høvik, Norway
Summary and Recommendations for Safe Mooring System Design in ULS and ALS  OMAE2017-61534
Torfinn Horte, Siril Okkenhaug, Øivind Paulshus
DNV GL, Høvik, Norway

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**Materials Technology**

3-1-1 Fracture Control- Analytical Approach I
Monday June 26  Living Room 4, Clarion  11:30 – 13:00
Session Chair: Xin Wang, Carleton University, Canada
Session Co-Chair: Jens Tronskar, DNV GL, Singapore
Mon 13:00 – 14:30

### Pipelines, Risers, and Subsea Systems

**4-4-2 Design**

**Cosmos 3d, Clarion** | 13:00–14:30

**Monday June 26**

*Best Practice Guidance for Establishing the Design Fatigue Capacity of Subsea Well Intervention System Connectors* OMAE2017-61364

**Anders Wormsen**

1. FMC Technologies, Kongsberg, Norway; 2. Statoil, Trondheim, Norway

**Optimising Foundation Skirt Geometries for Reliable Foundation Capacity and Installation** OMAE2017-61407

**Mark F Bransby** Donal O’Driscoll and Tim Drummenn

1. FMC Technologies, Kongsberg, Norway; 2. Statoil, Trondheim, Norway

**Design of Conventional and Assembled Bulkedhead for a Flowline Bundle** OMAE2017-61448

**Dasharatha Achani**

MECHOCEAN Engineering Solutions, Tønsanger, Norway

**Seismic Design of Jumpers – the Coupling Conundrum** OMAE2017-61832

**Omar Zanoli**


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### Ocean Engineering

**6-5-1 Advanced Underwater Vehicles and Design**

**Monday June 26**

*U3, BI | 13:00–14:30*

**Session Chair:** Stefan Daum, Thyssenkrupp, Germany

**Session Co-Chair:** Jon Mikkelsen, University of British Columbia, Canada

**Study of Self-Propelled Pufferfish Driven by Multiple Fins – A Comparison Between Rigid and Deformable Fins** OMAE2017-61066

**Ruoxin Li** Qing Xiao and Hao Liu

1. University of Strathclyde, Glasgow, United Kingdom; 2. Chiba University, Chiba-shi, Japan; 3. Shanghai Jiao Tong University, Shanghai, China

**The Development of MOPSO-Based Dynamic Routing Algorithm for the Inspection of Autonomous Underwater Vehicle** OMAE2017-61124

**Yu-Hsien Lin**, Lin-Chin Huang, Shao-Yu Chen

National Cheng Kung University, Tainan, Taiwan

**3D Path Following and Tracking for an Inspection Class ROV** OMAE2017-61170

**Ingrid Schjølberg**, Bent O. Arnesen, Ingrid Schjølberg, Ole Eidsvik, and Anastasios M. Lekkas

1. University of Strathclyde, Glasgow, United Kingdom; 2. Chiba University, Chiba-shi, Japan; 3. Shanghai Jiao Tong University, Shanghai, China

**State Estimation of Deep-Water Tether Management System** OMAE2017-61461

**Allan Ross Magee**

1. National University of Singapore, Singapore, Singapore; 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. MARINTEK, Trondheim, Norway

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### Ocean Space Utilization

**5-1-1 New Concepts for Ocean Space Utilization**

**Monday June 26**

*U6, BI | 13:00–14:30*

**Session Chair:** Kazuhiro Iijima, Dept of NAOE, Osaka University, Japan

**Optimal Routing of Short-distance Ferry from the Evaluation of Mooring Criteria** OMAE2017-61077

**Kenji Sasa**

Kobe University, Kobe, Japan

**A Hydrodynamic Analysis of Motion Coupling Effect of Floating Storage Tank Supported by Marine Fenders** OMAE2017-61726

**Allan Ross Magee** Ling Wan, Mengmeng Han, Jinghe Lin, and Ching Ming Wang

1. National University of Singapore, Singapore, Singapore; 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. MARINTEK, Trondheim, Norway

**Effect of Coal Loading Conditions on Elastic Behavior of LFTS** OMAE2017-61897

**Tomoki Ikoma** Koichi Masuda, Hiroaki Eto and Mitsuru Kubota

1. Nihon University, Funabashi, Japan; 2. Graduate School of Science and Technology, Nihon University; Chiba, Japan; 3. Nihon University, Chiba, Japan; 4. Obayashi Corporation, Minato, Japan

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**Ocean Renewable Energy**

**9-1-1 Floating Wind – Experimental Studies**
Monday June 26  
**U8, BI | 13:00–14:30**

Session Chair: Marco Belloli, Politecnico di Milano, Italy  
Session Co-Chair: Ilmas Bayati, Politecnico di Milano, Italy

Comparison of Real-time Hybrid Model Testing of a Braceless Semi-submersible Wind Turbine and Numerical Simulations  
OMAE2017-61211

Madjid Karimirad1 Erin E. Bachynski2 Petter A. Berthelsen2 Harald Ormberg2  
1. Queen’s University Belfast, Belfast, Northern Ireland; 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. MARINTEK, Trondheim, Norway

Model Test and Simulation Comparison for an Inclined-leg TLP Dedicated to Floating Wind  
OMAE2017-61652

François Caillé1 Pauline Bozonnet2 Timothée Perdrizet2 Yann Pairette2 Cécile Melis3  
1. Sbm Offshore, Monaco, Monaco; 2. IFP Energies nouvelles, Solaize, France

Wind Tunnel 2-DoF Hybrid/HIL Tests on the OCS Floating Offshore Wind Turbine  
OMAE2017-61763

Ilmas Bayati, Marco Belloli, Alan Facchinetti  
Politecnico di Milano, Milano, Italy

Dynamic Modelling of a Spar Buoy Wind Turbine  
OMAE2017-62246

Luigia Riefolo1 Giuseppe R. Tomasichio2 Francesco Ricciardelli3 Alberto M. Avossa4 Elena Musci1 Felice D’Alessandro2 Diego Vincenzi4  
1. Politecnica di Milano, Milan, Italy; 2. Università del Salento, Lecce, Italy; 3. Università degli Studi della Campania, Napoli, Italy; 4. Università degli Studi della Campania Luigi Vanvitelli, Aversa, Italy; 5. Autorità Idrica Pugliese, Bari, Italy

**Ocean Renewable Energy**

**9-5-1 Turbine Design and Analysis**
Monday June 26  
**U2, BI | 13:00–14:30**

Session Chair: Michael Bernitsas, University of Michigan, USA  
Session Co-Chair: Hai Sun, Deepwater Engineering Research Center, Harbin, USA

Optimal Design of Marine Current Turbine  
OMAE2017-61310

Abdus Samad, Karthikeyan Thandayutham  
Indian Institute of Technology, Madras, Chennai, TN, India

Flume-Scale Testing of an Adaptive Composite Marine Turbine System  
OMAE2017-62068

Alberto Aliseda, Ramona Barber, Craig Hill, Pavlo Babuszka, Michael Molloy, Richard Wiebe  
University of Washington, Seattle, WA, USA

A Numerical Study of Flow Around Diffusers using CFD Applied to Ocean Tidal Energy Systems  
OMAE2017-62101

Amanda Maria Bizzinotto Ferreira  
Federal University of Santa Catarina, Joinville, SC, Brazil

Optimal Design of Marine Current Turbine  
OMAE2017-61312

Abdus Samad1 Karthikeyan Thandayutham1 Nithya Venkatesan2 Elidad Avital1  
1. Indian Institute of Technology, Madras, Chennai, TN, India; 2. Vit University, Chennai, TN, India; 3. Queen Mary University of London, London, United Kingdom

A Numerical Study of the Influence of Pitch on the Performance of Vertical Axis Turbine  
OMAE2017-61376

Teresa Parra, Diego Palomar, David Pastor, Francisco Castro, Pablo Perez, Miguel Rodriguez  
University of Valladolid, Valladolid, Spain

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**Polar and Arctic Sciences and Technology**

**7-3-1 Arctic Frontier Regions and Structures in Ice**  
Monday June 26  
**A4, BI | 13:00–14:30**

Session Chair: Sören Ehlers, Hamburg University of Technology, Germany  
Session Co-Chair: Walter Kuehne, Sea2Ice Ltd. & Co. KG, Germany

Introduction to Polar and Arctic Sciences and Technology Symposium  
OMAE2017-62736

Walter Kuehne  
Sea2Ice Ltd. & Co. KG, Hamburg, Germany

Thermal Analysis of Saline Droplet Motion with Freezing in Cold Regions  
OMAE2017-61097

Ali Reza Dehghanian1 Greg Naterer, Yuri Muzychka, Kevin Pope  
Memorial University of Newfoundland, St. John’s, NL, Canada

Heat Loss of Heated Deck Elements in Cross-flow Wind  
OMAE2017-61588

Ove Tobias Gudmedstad1 Bjarte Kramme2 Jino Peechanatt2 Yassem A. Amith3  
1. University of Stavanger, Stavanger, Norway; 2. University of Stavanger, Rogaland, Norway

Winterization Issues and Measures Related to Low Temperatures, Snow and Ice for Installations Operating in the Barents Sea  
OMAE2017-62403

Solveig Gottummen1 Sigurd Robert Jacobsen1 Lars Bodberg1  

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**Numerical Simulation of Turbulent Wake Flow Over a Surface-mounted Square Cylinder**  
OMAE2017-61641

Hong Wang1 Yukam Dai2 Cai Tian1  
1. Department of Marine Technology, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway

**Estimation of Residual Stresses in Steel Welded Joints using Three Dimensional Finite Element Analysis**  
OMAE2017-62148

Suhail Ahmad, Shridyal Patel, B. P. Patel  
Indian Institute of Technology, New Delhi, Delhi, India

**Support Optimization for Piping System with Machine Learning**  
OMAE2017-62536

Jongho Ham1 Beomi Kim1 Jungeun An1 Jaewoong Choi1  
1. Samsung Heavy Industries, Seongnam-si, Korea; 2. Samsung Heavy Industries, Dueeon, Korea

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**Prof. Carl Martin Larsen and Dr. Owen Oakley Honoring Symposium on CFD & VIV**

**8-4-6 Honoring Symposium Opening Session**  
Monday June 26  
**A3, BI | 13:00–14:30**

Session Chair: Yiannis Constantinides, Chevron, USA  
Session Co-Chair: Kjetil Skaugest, Statoil, Norway

Keynote by Prof. Carl Martin Larsen  
OMAE2017-62743

Carl M Larsen  
Norwegian University of Science and Technology, Trondheim, Norway
Maximum Wave Load Cycles on Submerged Rotating Tidal Energy
Turbines – Identification of Worst Case Scenarios  OMAE2017-61569
Florian Sprenger1  Sascha Kosleck2
1. MARINTEK, Trondheim, Norway; 2. Auckland University of
Technology, Auckland, New Zealand

Petroleum Technology

11-5-1 Inflow Control Technologies in Reservoir
Management

Monday June 26  Cosmos 3c, Clarion  |  13:00–14:30
Session Chair: Bernt Aadnoy, University of Stavanger, Norway

The Next Generation Technology for Automatic Inflow Control
OMAE2017-62301
Trygve Rinde1  Vegar Gruner1  Thorleif Lager1  Rune Killie1  Tron Solberg1  Mikkel Bakli1
1. Acona Flow Technology AS, Porsgrunn, Norway; 2. Acona AS,
Porsgrunn, Norway; 3. Acona Flow Technology AS, Skien, Norway

Autonomous Tool for Downhole Water Production Management
OMAE2017-62441
Bjorn Skaare
Statoil ASA, Trondheim, Norway

ICD/AICD Technology versus Reservoir Properties  OMAE2017-62533
Torgeir Moan1  Benn Voll2
1. University of Stavanger, Stavanger, Norway; 2. B&T Well Design WLL, Manama, Bahrain

Autonomous Flow Control Device Modelling and Completion
Optimisation  OMAE2017-62587
David Davies1  Khazif Muradon2  Eltazy Eltaher2  Peter J Grassick1
1. Heriot-Watt University, Edinburgh, United Kingdom; 2. RPS Energy, London, United Kingdom

Petroleum Technology

11-12-1 Petroleum Production Systems Design and
Operation

Monday June 26  Space 1, Clarion  |  13:00–14:30
Session Chair: Celso K. Morooka, UNICAMP - University of Campinas, Brazil

Experimental Study of Phase Inversion Phenomena in Electrical
Submersible Pumps Under Oilwater Flow  OMAE2017-61865
Marcelo S. Castro, Jorge Luiz Biazussi, William Monte
Verde, Natan A. V. Bulgarelli, Antonio Bannwart
University of Campinas, Campinas, SP, Brazil

An Element-based Finite Volume Technique using Impes
and Fully Implicit Approaches for 3D Oil-Water
Flows with Hybrid Grids  OMAE2017-62410
Clovis R. Maliska, Taisa B. Pacheco, Antônio F . C. Silva
Federal University of Santa Catarina, SC, Brazil

Effects in Free Water Knockout Separator Caused by FPSO Motions in
Ocean Waves  OMAE2017-62518
Celso K. Morooka, Catharine Fernandez Martins
University of Campinas, Campinas, SP, Brazil

Visualization of Oil Droplets Within ESP Impellers  OMAE2017-62424
Marcelo S. Castro, Jorge Luiz Biazussi, William Monte Verde,
Rodolfo M. Perissinotto, Antonio Bannwart
University of Campinas, Campinas, SP, Brazil

Torgeir Moan Honoring Symposium

12-1-1 Offshore Renewable Energy I

Monday June 26  A2, B1 |  13:00–14:30
Session Chair: Carlos Guedes Soares, Centre for Marine
Technology and Ocean Engineering (CENTEC), Portugal
Session Co-Chair: Erin E. Bachynski, Norwegian
University of Science and Technology, Norway

Development of the Hywind Concept  OMAE2017-62710
Bjorn Skaare
Statoll ASA, Trondheim, Norway

Summary and Conclusions of the Full Life-Cycle of the WindFloat FOWT
Prototype Project  OMAE2017-62561
Dominique Roddier, Antoine Peiffer, Alexa Aubault, Christian Carmelli
Principle Power Inc., Emeryville, CA, USA

Numerical Modelling and Analysis of a Hybrid-Spar
Floating Wind Turbine  OMAE2017-62578
Tomoya Utsunomiya1  Iku Sato2  Osamu Kobayashi3  Takashi Shiraiishi4  Takashi Harada4
1. Kyoto University, Fukuoka, Japan; 2. Toda Corporation, Tokyo, Japan;
3. Hitachi, Ltd., Hitachi, Japan; 4. Hitachi, Ltd., Tokyo, Japan

Offshore Wind Turbine Nonlinear Wave Loads and Their Statistics
OMAE2017-61184
Paul Sclavounous, Yu Ma, David Larson, Yu Zhang
Massachusetts Institute of Technology, Cambridge, MA, USA

REFRESHMENT BREAK
14:30 – 15:00
Space Foyer, Clarion

CONCURRENT SESSIONS
15:00 – 17:00

Offshore Technology

1-7-2  Wave Loading and Motions in Extreme Seas II

Monday June 26  Cosmos 3a, Clarion  |  15:00–17:00
Session Chair: Karl Erik Kaasen, SINTEF Ocean, Norway
Session Co-Chair: Csaba Pakodzi, MARINTEK, Norway

Simplified Models for Analysis of Semi-submersible in Storm Sea
States Compared with Model Tests  OMAE2017-62319
Jørn Birknes-Berg, Erik Falkenberg, Arne Nestegård, Limin Yang
DNV GL, Havik, Norway

Wave Drift Forces and Low Frequency Damping on the Exwave
Semisubmersible  OMAE2017-62439
Paul Fonseca1  Carl Trygve Stanberg2
1. MARINTEK, Trondheim, Norway; 2. CTSTANSBERG MARINTEKNIK, Trondheim, Norway

Wave Drift Forces and Low Frequency Damping on the Exwave FPSO
OMAE2017-62540
Nuno Fonseca1  Carl Trygve Stanberg2
1. MARINTEK, Trondheim, Norway; 2. CTSTANSBERG MARINTEKNIK, Trondheim, Norway

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Simulation of Low Frequency Motions in Severe Sea States Accounting for Wave-Current Interaction Effects  
OMAE2017-62550  
Babak Ommani1  
Nuno Fonseca2  
Carl Trygve Stambberg2  
1. MARINTEK, Trondheim, Norway; 2. CTSTANSBERG MARINTEKNIK, Trondheim, Norway

Structures, Safety and Reliability

2-1-2  Rogue Waves  
Monday June 26  
Cosmos 3b, Clarion  |  15:00–17:00  
Session Chair: Alexander Babanin, The University of Melbourne, Australia  
Session Co-Chair: Elzbieta M. Bitner-Gregersen, DNV GL AS, Norway

Rogue Waves in Wind Seas: an Experimental Model in an Annular Wind-Wave Flume  
OMAE2017-61156  
Alessandro Toffoli1  
Davide Proment2  
Hayder Salman2  
Jaak Mambaliu2  
Ettore Stramignoni2  
Renato Forza2  
Massimiliano Manfrin3  
Miguel Onorato3  
1. The University of Melbourne, Parkville, VIC, Australia; 2. University of East Anglia, Norwich, United Kingdom; 3. X.U. Leuven, Hereleer, Belgium; 4. Universita degli Studi di Torino, Turin, Italy

Three Dimensional Velocity Field Underneath a Breaking Rogue Wave  
OMAE2017-62261  
Mohammad-Reza Alam1  
Quichan Guo2  
University of California at Berkeley, Berkeley, CA, USA

Rogue Waves and the Shape of the Ocean Wave Power Spectrum  
OMAE2017-62217  
Al Osborne1  
Sonia Ponce de Leon1  
1. Nonlinear Waves Inc., Arlington, VA, USA; 2. UTL-Technical University of Lisbon, Lisboa, Portugal

Prediction of Oceanic Rogue Waves Through Tracking Energy Fluxes  
OMAE2017-62621  
Mohammad-Reza Alam1  
Quichan Guo2  
University of California at Berkeley, Berkeley, CA, USA

Materials Technology

3-10-1  Factors Affecting Structural Integrity  
Monday June 26  
Living Room 4, Clarion  |  15:00–17:00  
Session Chair: Koji Gotoh, Kyushu University, Japan  
Session Co-Chair: Yan-Hui Zhang, TWI Limited, United Kingdom

Recent Experiences with Cracking of Load Bearing Dissimilar Metal Welds on Subsea Production Systems  
OMAE2017-61176  
Michael Dodge1  
Lars M. Haldorsen1  
Gisle Ronvik1  
Kasra Sotoudeh1  
1. TWI Ltd., Cambridge, United Kingdom; 2. Statoil ANS, Stavanger, Norway; 3. Statofil, Trondheim, Norway

Performance Evaluation of Air-backed Metallic Circular Plates Subjected to Close-in Underwater Explosion  
OMAE2017-62179  
Ganchao Chen1  
Yuansheng Cheng1  
Pan Zhang1  
Jun Liu1  
Changtao Zhang1  
Tianyu Zhou2  
Huazhong University of Science and Technology, Wuhan, China

The Fracture Resistance Approach to Rationalize Overall Temperature and Wall Thickness Effects on Fracture Toughness for Design of Offshore Structures Under Arctic Conditions  
OMAE2017-62188  
Agnes Marie Horn1  
Erling Østby1  
Odd Magne Akselsen1  
Mons Hauge1  
1. DNV GL, Oslo, Norway; 2. DNV GL, Hawk, Norway; 3. SINTEF Materials and Chemistry, Trondheim, Norway; 4. Statofil, Ranheim, Norway

A Study on the Wear Performance of the Mooring Chain for Floating Wind Turbine  
OMAE2017-62195  
Koji Gotoh1  
Koji Murakami2  
Masataka Nakagawa2  
Tomoaki Utsunomiya2  
1. National University of Singapore, Singapore, Singapore; 2. Kyushu University, Fukuoka, Japan

Effect of GMAW Heat Input on the Microstructure and Mechanical and Fatigue Behavior of Dissimilar Welds of Ultrahigh Strength Steel and Duplex Stainless Steel  
OMAE2017-62466  
Hamed Tasalloti Kashani1  
Mohammad Dabiri2  
Paul Kah3  
Jukka Martikainen4  
1. DNV GL, Høvik, Norway; 2. DNV GL, Oslo, Norway; 3. SINTEF Materials and Chemistry, Trondheim, Norway; 4. Statoil ANS, Stavanger, Norway

Structures, Safety and Reliability

2-7-2  Reliability of Mooring and Riser Systems II  
Monday June 26  
Space 2, Clarion  |  15:00–17:00  
Session Chair: Luis Sargiolo, COPPE-Federal University of Rio De Janeiro, Brazil  
Session Co-Chair: Ying Min Low, National University of Singapore, Singapore

Prediction of Low Failure Probabilities with Application to Marine Risers  
OMAE2017-61574  
Ying Min Low1  
Xiaodong Zhang2  
Chang Ghee Koh3  
1. National University of Singapore, Singapore, Singapore; 2. Kepkel and Offshore Marine Technology, Singapore, Singapore

Structural Reliability Analysis for Offshore Drilling Riser System Operability  
OMAE2017-61375  
Ying Min Low1  
Xiaodong Zhang2  
Chang Ghee Koh3  
Peter Francis4  
Bermad Adaka1  
Hezhen Yang1  
1. National University of Singapore, Singapore, Singapore; 2. Kepkel and Offshore Marine Technology, Singapore, Singapore; 3. University of Texas at Austin, Austin, TX, USA

Pipelines, Risers, and Subsea Systems

4-1-1  Flexible Pipes I  
Monday June 26  
Space 3, Clarion  |  15:00–17:00  
Session Chair: Svein Sævik, Norwegian University of Science and Technology, Norway  
Session Co-Chair: Zhimin Tan, GE Oil & Gas, Wellstream, USA

Fatigue Analyses of a Flexible Riser Considering End Fitting Effects  
OMAE2017-61792  
George Campbell1  
Fernando Sousa2  
Jose Renato de Sousa2  
1. Petrobras, Rio de Janeiro, RJ, Brazil; 2. COPPE - Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil

Wake Shielding Model Effect on Riser Dynamic Response  
OMAE2017-62557  
Bernt Leira, Dag Myrhauge, Ping Fu  
Norwegian University of Science and Technology, Trondheim, Norway

Distributed Wake Oscillator Model  
OMAE2017-62143  
Ying Min Low1  
Narakorn Srinil2  
Lance Manuel3  
Hyeong Uk Lim4  
1. National University of Singapore, Singapore, Singapore; 2. Newcastle University, Newcastle upon Tyne, United Kingdom; 3. University of Texas at Austin, Austin, TX, USA
Radial Instability of Flexible Pipes with Defects in the High Resistance Bandage and External Sheath OMAE2017-61850
Marcelo Tavora Borges1 Amauri Mosquera1 Otaviano Talgatti2
1. STRESSTEC - LAMEF, Porto Alegre, RS, Brazil; 2. LAMEF - UFRGS, Porto Alegre, RS, Brazil

Effect of CO₂ Gas Flow Rate on Corrosion of High Strength Steels for Flexible Pipes OMAE2017-61970
Ricardo Ribeiro1 John Rothwell1 Shiladitya Paul1 Carlos E. F. Kwietniewski1
1. The Welding Institute, Cambridge, United Kingdom; 2. LAMEF, Porto Alegre, RS, Brazil

An Improved Lazy Wave Flexible Riser System for Shallow Water Application OMAE2017-61905
Zhimin Tan1 Yucheng Hou2 Joel Witt3
1. GE Oil & Gas, Wellstream, Houston, TX, USA; 2. GE Oil & Gas, Houston, TX, USA; 3. Witt Ltd, Benfleet, United Kingdom

Pipelines, Risers, and Subsea Systems

4-3-1 Pipe-Soil Interaction

Monday June 26
Cosmos 3d, Clarion | 15:00–17:00
Session Chair: Celso K. Morooka, UNICAMP - University of Campinas, Brazil

Numerical Investigation of Electro-Kinetic Effect on Pipe-Soil Interaction OMAE2017-61003
Hakuri N. Joshua1 Fuat Kara2
1. Cranfield University, Bedford, United Kingdom
2. Politecnico di Bari, Italy

Poro-elastic-plastic Modelling of Uplift Resistance of Shallowly-buried Pipelines OMAE2017-61218
Fu-Ping Gao1 Qi Wengang2 Shi Yuming3
1. Chinese Academy of Sciences, Beijing, China; 2. Institute of Mechanics, Chinese Academy of Sciences, Beijing, China

Pipeline Loads and a Design Approach in Areas of Seabed Subsidence OMAE2017-61298
Knut Reed1 Hermann Moshagen2
1. Reinertsen AS, Trondheim, Norway; 2. BHM Engineering Services, Trondheim, Norway

On-bottom Stability Analysis of Subsea Pipelines under Combined Irregular Waves and Currents OMAE2017-61363
Muk Chen Ong1 Guomin Ji2 Lijing Li3
1. University of Stavanger, Stavanger, Norway; 2. SINO-French Engineering School, Beijing University of Aeronautics and Astronautics, Beijing, China; 3. Institute of Mechanics, Chinese Academy, Beijing, China

Soil-pipe Interaction Models for the Simulation of Buried Steel Pipeline Behaviour Against Geohazards OMAE2017-61539
Spyros A. Karamanos1 Gregory C. Sarvanis1 Elisabetta Mecozzi1
Antonio Lucci1 Polymikis Vazouras2 Panos Dakoulas3
1. University of Thessaly, Volos, Greece; 2. Centro Sviluppo Materiali S.p.A., Rome, Italy

Ocean Space Utilization

5-3-1 Deepsea Mining and Underwater Technology

Monday June 26
U6, BI | 15:00–17:00
Session Chair: Tetsuo Yamazaki, Osaka Prefecture University, Japan

Experimental Studies of Pressure Loss for Large Particle Slurry Transport in Oscillating Pipe for Subsea Mining OMAE2017-61238
Motoki Araki1 Satoru Takano1 Solario Masamobu1 Shigeo Kanada2 Masao Oka2 Hiroki Sasagawa3
1. National Maritime Research Institute, Tokyo, Japan; 2. National Maritime Research Institute, Mita, Japan

Ocean Engineering

6-5-2 Advanced Underwater Vehicles and Design Technology II

Monday June 26
U3, BI | 15:00–17:00
Session Chair: Yu-Hsien Lin, National Cheng Kung University, Taiwan
Session Co-Chair: Jon Mikkelsen, University of British Columbia, Canada

Non-Linearly Restoring Performance of Catenary Mooring-Line under Consideration of its Dynamic Behaviors OMAE2017-61651
Weimin Chen1 Shuangxi Guo2 Yilun Li3 Yiqin Fu4
1. Institute of Mechanics, Chinese Academy of Sciences, Beijing, China; 2. AVIC Composite Corporation LTD, National Key Laboratory of Advanced Composites, Beijing, China; 3. Sino-French Engineering School, Beijing University of Aeronautics and Astronautics, Beijing, China; 4. Key Laboratory of Mechanics in Fluid Solid Coupling System, Institute of Mechanics, Chinese Academy, Beijing, China

Underwater Positioning Using Near Surface Long Baseline Transponder’s Induced by Wave Motion OMAE2017-61742
Ingrid Schijbeld, Stian Skaalvik Sandøy, Martin Ludvigsen, Erik Kristian Thon Frimanslund
Norwegian University of Science and Technology, Trondheim, Norway

Vision Localization for Subsea Intervention OMAE2017-61773
Ingrid Schijbeld, Eirik Hexeberg Henriksen, Tor B Gjersvik
Norwegian University of Science and Technology, Trondheim, Norway

Effective Power and Speed Loss of Underwater Vehicles in Close Proximity to Regular Waves OMAE2017-62056
Stefan Daum1 Martin Greve1 Renato Skeij2
1. Thyssenkrupp Marine Systems, Kiel, Germany; 2. MARINTEK, Trondheim, Norway
Ocean Engineering

6-7-2 Computational Mechanics II (DP, ROV, CRANE)
Monday June 26

Session Chair: Joel Sena Sales Junior, Universidade Federal do Rio de Janeiro, Brazil
Session Co-Chair: Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil
Co-Simulation of a Marine Offshore Vessel in DP-Operations including Hardware-in-the-Loop (HIL) OMAE2017-61164
Stian Skjong, Eilif Pedersen
Norwegian University of Science and Technology, Trondheim, Norway
Manoeuvring Study of a Remotely Operated Vehicle Using CFD and Time-domain Simulations OMAE2017-61898
Juan A. Ramírez-Macias1 Persijn Brongers2 Rafael E. Vásquez2
1. Universidad Pontificia Bolivariana, Medellin, Colombia; 2. MARIN, Wageningen, Netherlands
A Methodology for DP Capability Studies on Remotely Operated Vehicles OMAE2017-61938
Asgiir Johan Sørensen1 Svein Sævik2 Juan A. Ramírez-Macias1 Rafael E. Vásquez2
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Universidad Pontificia Bolivariana, Medellin, Colombia
Crane Rig: an Experimental Setup for Developing and Verifying New Control Methods for Marine Crane Operations OMAE2017-62010
Stian Skjong, Eilif Pedersen, Thomas Haraldsen Evang
Norwegian University of Science and Technology, Trondheim, Norway
Design and Performance Investigation of the Energy Recovering Rudder Bulb-turbine Device OMAE2017-62485
Chunhui Wang, Fenglei Han, Ankang Hu
Harbin Engineering University, Harbin, China

Ocean Engineering

6-12-2 Ocean Engineering Technology II
Monday June 26

Session Chair: Knut Beck Engebretsen, Aker Solutions, Norway
Calculation of the Hydrostatic and Structural Integrity of Docking Sequences OMAE2017-61368
Hendrik Dankowski1 Charlott Weltzien2
1. Pella Sietas, Hamburg, Germany; 2. Hamburg University of Technology, Hamburg, Germany
Cyber Security Issues in Navigation Systems of Marine Vessels from Control Perspective OMAE2017-61771
Vahid Hassanip1 Naveena Crasta2 Antonio M. Pascoal2
1. MARINTEK, Trondheim, Norway; 2. Instituto Superior Técnico, Lisbon, Portugal
Holistic Energy Mapping Methodology for Reduced Fuel Consumption and Emissions OMAE2017-61945
Serena Lim, Alan J Murphy, Kayan Pazouki
Newcastle University, Newcastle upon Tyne, United Kingdom
Complementarity of Data-driven and Simulation Modeling Based on the Power Plant Model of the Offshore Vessel OMAE2017-62027
Stian Skjong1 Anna Swider2 Eilif Pedersen3
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Rolls-Royce Marine AS, Hjørungavåg, Norway
Control of Ship Crane Head Motion Using Three-axis Compensator OMAE2017-62326
Tor Arne Johansen1 Espen Skjøng2 Vegard Henriksen1 Audun Rainé1
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Ulstein, Ålesund, Norway

Polar and Arctic Sciences and Technology

7-3-2 Structures in Ice and Ice Bergs
Monday June 26

Session Chair: Daniela Myland, The Hamburg Ship Model Basin (HSVA), Germany
Review of Ice Load Standards and Comparison with Measurements OMAE2017-61735
Leon Kellner, Hauke Herrmring, Michael Ring
Hamburg University of Technology, Hamburg, Germany
Study of Local Ice Loads Measured at Norströmsgrund Lighthouse OMAE2017-62416
Petr Zvyagin1 Gesa Ziemer2
1. Peter the Great S. Petersburg Polytechnic University, St. Petersburg, Russia; 2. Hamburg Ship Model Basin, Hamburg, Germany
A Study on an Iceberg Drift Trajectory OMAE2017-62159
Francesco Scibilia1 Leif Erik Andersson2 Lars Imsland3
1. Statoil ASA, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway

Prof. Carl Martin Larsen and Dr. Owen Oakley Honoring Symposia on CFD & VIV

8-4-1 VIV Physics – Experimental Studies
Monday June 26

Session Chair: Rolf Baarholm, Statoil / Norwegian Deepwater Programme, Norway
Vortex-induced Motion of a Free Standing Riser below the Critical Mass Ratio OMAE2017-61399
Cheslav Balash1 Curtis Flourage2
1. Edith Cowan University, Perth, WA, Australia; 2. Australian Maritime College, University of Tasmania, Launceston, TAS, Australia
Prototype Reynolds Number VIV Tests on a Full-scale Rigid Riser OMAE2017-61415
Decao Yin1 Halvor Lie1 Rolf Baarholm2
1. SINTEF Ocean, Trondheim, Norway; 2. Statoil / Norwegian Deepwater Programme, Stjørdal, Norway
Response Variability in Flexible Cylinder VIV Model Test Data OMAE2017-61516
Themistocles L. Resvanis, J. Kim Vandiver
Massachusetts Institute of Technology, Cambridge, MA, USA
Hydrodynamics of Flexible Pipe with Staggered Buoyancy Elements Undergoing Vortex-induced Vibrations OMAE2017-61265
Shixiao Fu1 Mengmeng Zhang1 Huajie Ren1 Leijian Song1 Jie Wu2 Halvor Lie2
1. Shanghai Jiao Tong University, Shanghai, China; 2. SINTEF Ocean AS, Trondheim, Norway
Ocean Renewable Energy

9-2-2 Structural Analysis Methods

Monday June 26  U8, BI  15:00–17:00

Session Chair: Michael Borg, DTU Wind Energy, Denmark
Session Co-Chair: Senu Sirnivas, National Renewable Energy Laboratory, USA

Investigation on High-order Coupling Rigid-flexible Multi-body Dynamics of Floating Wind Turbine  OMAE2017-61074
Zhiquiang Hu1 Gailing Liu2 Jiiaoh Chen3
1. School of Marine Science & Technology, Newcastle University, Newcastle upon Tyne, United Kingdom; 2. Shanghai Jiao Tong University, Shanghai, China

Elastic Deformations of Floaters for Offshore Wind Turbines: Dynamic Modelling and Sectional Load Calculations  OMAE2017-61466
Henrik Bredsmo1 Michael Borg2 Anders M Hansen3
1. DTU Wind Energy, Kgs. Lyngby, Denmark; 2. DTU Wind Energy, Roskilde, Denmark

Assessing Mechanical Stresses in Dynamic Power Cables for Floating Offshore Wind Farms  OMAE2017-61630
Jean Marc Leroy1 Fabien Caleyron2 Yann Poirret2, Nadege Brusselle Dupont1
1. IFP Energies Nouvelles, Solaize, France

Effect of the Beam Element Geometric Formulation on the Wind Turbine Performance and Structural Dynamics  OMAE2017-61779
Madjid Karimirad1 Petter A. Berthelsen1 Virgile Delhaye2
1. Queen’s University Belfast, Belfast, Northern Ireland; 2. MARINTEK, Trondheim, Norway

An Accurate System Reduction Framework for Offshore Jacket Foundation Design  OMAE2017-62276
Martin B. Nielsen1 Ronnie Røstrup Pedersen2 Dawid Augustyn3
1. Ramboll Offshore Wind, Copenhagen, Denmark; 2. Ramboll Offshore Wind, Esbjerg, Denmark

Petroleum Technology

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

Monday June 26  Cosmos 3c, Clarion  15:00–17:00

Session Chair: Vassilios C. Kelessidis, Petroleum Institute, United Arab Emir.
Session Co-Chair: Ergun Kuru, University of Alberta, Canada

Theoretical Basis for Prediction of Drilling Fluid Removal in Annuli  OMAE2017-61030
Jan David Ytrehus1 Bjørnar Lund2 Arild Saasen3
1. SINTEF Petroleum, Trondheim, Norway; 2. SINTEF Petroleum Research, Trondheim, Norway; 3. University of Stavanger, Stavanger, Norway

Movement of a Sphere on a Flat Wall in Non-Newtonian Shear Flow  OMAE2017-61131
Roland May1 Yaroslav Ignatenko2 Oleg Bocharov3
1. Baker Hughes, Lower Saxony, Germany; 2. Baker Hughes, Novosibirsk, Russia

Experimental Investigation of Friction and Hydraulics in Non-circular Wellbores with Oil Based Drilling Fluid  OMAE2017-62024
Jan David Ytrehus1 Bjørnar Lund2 Ali Taghipour2
1. SINTEF Petroleum, Trondheim, Norway; 2. SINTEF Petroleum Research, Trondheim, Norway

Ocean Renewable Energy

9-5-10 Flow-induced Vibration

Monday June 26  U2, BI  15:00–17:00

Session Chair: Sascha Kosleck, Auckland University of Technology, New Zealand
Session Co-Chair: Chunning Ji, Tianjin University, China

Two Tandem Cylinders with Passive Turbulence Control in FIM: Power Conversion using Nonlinear Piecewise Restoring Force  OMAE2017-61544
Hai Sun1 Chunchu Ma2 Marinos Bernitsas1
1. Harbin Engineering University, Harbin, China; 2. Jiangsu Maritime Institute, Anhui, China, USA; 3. Northильно High School, Northville, MI, USA

Two Tandem Cylinders with Passive Turbulence Control in FIM: Classification of Shear Layer, Vortex, and Body Interactions  OMAE2017-62116
Michael Bernitsas, Mert Turkol University of Michigan, Ann Arbor, MI, USA

Two Tandem Cylinders with Passive Turbulence Control in FIM: Relation of Oscillation Patterns to Frequency Response  OMAE2017-62131
Hai Sun1 Michael Bernitsas2 Kai Lan2
1. Deepwater Engineering Research Center, Harbin, Ann Arbor, MI, USA; 2. University of Michigan, Ann Arbor, MI, USA

Interactive Flow-Induced Motion of Two Staggered, Low Mass-Ratio Cylinders in the TrSL3 Flow Regime (2.5x104<RE<1.2x105): Smooth Cylinders  OMAE2017-62166
Hai Sun1 Michael Bernitsas2 Chunning Ji3 Wanhai Xu4
1. Deepwater Engineering Research Center, Harbin, Ann Arbor, MI, USA; 2. University of Michigan, Ann Arbor, MI, USA; 3. Tianjin University, Tianjin, China

Multiple Tandem Cylinders with Passive Turbulence Control in FIM: Enhancing Hydrokinetic Energy Harnessing through Natural Frequency Adjustment  OMAE2017-62271
Hai Sun1 Michael Bernitsas2 Eun Soo Kim3 Hongrae Park4
1. Harbin Engineering University, Harbin, China; 2. University of Michigan, Ann Arbor, MI, USA; 3. Daewoo Shipbuilding and Marine Engineering, Seoul, Korea

Two Tandem Cylinders with Passive Turbulence Control in FIM Power Conversion: CFD with Experimental Verification of Interaction  OMAE2017-62271
Hai Sun1 Michael Bernitsas2 Wenjun Ding3 Wanhai Xu4
1. Deepwater Engineering Research Center, Harbin, Ann Arbor, MI, USA; 2. University of Michigan, Ann Arbor, MI, USA; 3. Tianjin University, Tianjin, China

Flow-Induced Motion (FIM) of Two Staggered, Low Mass-Ratio Cylinders with Passive Turbulence Control in the TrSL3 Flow Regime (2.5X104<RE<1.2X105)  OMAE2017-62693
Hai Sun1 Michael Bernitsas2 Wenjun Ding3 Chunning Ji3 Wanhai Xu4
1. Harbin Engineering University, Harbin, China; 2. University of Michigan, Ann Arbor, MI, USA; 3. Tianjin University, Tianjin, China
Lightweight Hollow Glass Microspheres Drilling Fluid Flow through Nozzles OMAE2017-62132
Stefan Miska1 Evren Ozbayoglu2 Mengjiao Yu2 Nicholas Takach2 Okan Kirgil4 Clara Mata4
1. University of Tulsa Drilling Research Projects, Tulsa, OK, USA; 2. University of Tulsa, Petroleum Engineering, Tulsa, OK, USA; 3. University of Tulsa, Chemistry Department, Tulsa, OK, USA; 4. Turkish Petroleum Corporation, Ankara, Turkey; 5. 3M Advanced Materials Division, St. Paul, MN, USA

Investigation of Suspended Particles Around an Obstacle in Vertical Pipe Flow – Comparison Study Experimental and Simulation OMAE2017-62244
Milad Khatibi1 Rune Time1 Alexander Busch1 Stein Tore Johansen1

Petroleum Technology
11-12-2 Petroleum Production Systems Design and Operation

Monday June 26 Space 1, Clarion | 15:00–17:00

Session Chair: Sergio N. Bordalo, UNICAMP - University of Campinas, Brazil

Experimental Study Liquid-Liquid Flow Through Upward Vertical to Horizontal Transition OMAE2017-62409
Ricardo Mazza, Fabio K Sugimoto
UNICAMP, Campinas, SP, Brazil

On the Numerical Modeling of Slug and Intermittent Flows in Oil and Gas Production OMAE2017-62407
Angela O Nieckele1 Joao N.E. Carneiro2
1. PUC-Rio, Rio de Janeiro, RJ, Brazil; 2. Instituto SINTEF do Brasil, Rio de Janeiro, RJ, Brazil

Case Studies of Petroleum Production Systems with the Flow Performance Index (FPFI) OMAE2017-62176
Sergio N. Bordalo1 Jose Ricardo P. Mendes1 Kazuo Miura1 Sergio Fernando Celis Ariza2
1. University of Campinas, Campinas, SP, Brazil; 2. Consorcio Microacueductos Ambientales, Huitla, Colombia

Experimental Study of the Minimum Pressure Necessary to Start-up the Flow of a Gelled Waxy Crude Oil OMAE2017-62438
Charlie Van Der Geest1 Vanessa C. Bizotto Guersoni1 Luiz Antônio Simões Salomão Junior1 Antonio Bannwart1
1. University of Campinas - School Mechanical Engineering, Campinas, SP, Brazil; 2. Center for Petroleum Studies, Campinas, SP, Brazil; 3. Repsol - Sinoppec, Rio de Janeiro, RJ, Brazil; 4. University of Campinas, Campinas, SP, Brazil

Torgeir Moan Honoring Symposium
12-13-4 Offshore Renewable Energy II

Monday June 26 A2, BI | 15:00–17:00

Session Chair: Zhen Gao, Norwegian University of Science and Technology, Norway
Session Co-Chair: Erin E. Bachynski, Norwegian University of Science and Technology, Norway

Wave-Energy Conversion Avoiding Destructive Wave Interference OMAE2017-62292
Johannes Falnes
Norwegian University of Science and Technology, Trondheim, Norway

Dynamic Response of a Combined Mono-pile Wind Turbine and Heave-type Wave Energy Converter System OMAE2017-62718
Wei Li1 Nianxin Ren1 Ying Zhu2 Zhe Ma2
1. Powerchina Huadong Engineering Corporation Limited, Hangzhou, China; 2. Dalian University of Technology, Dalian, China

Whirling Motion of Monopile Offshore Wind Turbines Subjected to Harmonic and Random Base Excitation OMAE2017-62711
Zhicheng Cai1 Xiangyuan Zheng1
1. Tsinghua University, Division of Ocean Science and Technology, Shenzhen, China; 2. Division of Ocean Science and Technology, Tsinghua University Shenzhen Graduate School, Shenzhen, China

On Tower Top Axial Acceleration and Drivetrain Responses in a Spar-type Floating Wind Turbine OMAE2017-62314
Erin E. Bachynski1 Amir Rasekhi Nejad2 Torgeir Moan2
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Norwegian University of Science and Technology, Ctr for Ships & Ocean Structures, Trondheim, Norway

Simulating Large-scale Fatigue Test Specimens for Offshore Wind Monopiles OMAE2017-62717
Athanasios Kolios1 Feargal Brennan2 Isaac Tavares3
1. Cranfield University, Bedford, United Kingdom; 2. Cranfield University, Cranfield, United Kingdom; 3. Centrica Distributed Energy & Power, Windsor, United Kingdom

Lecture Series on Hydrodynamics
17:15 – 17:45 A1, B1

Hydrodynamics of Marine Structures
Professor Odd Magnus Faltinsen, Professor of Marine Hydrodynamics, Department of Marine Technology, Norwegian University of Science and Technology

Odd Magnus Faltinsen
### Tuesday, June 27

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## Offshore Technology

### 1-4-1 Simulation of Floaters and Moorings

**Tuesday June 27**

**Session Chair:** Mamoun Naciri, Single Buoy Moorings Inc, Monaco  
**Session Co-Chair:** Hans Cozijn, MARIN, Netherlands

**Dynamic Simulation and Control of an Active Roll Reduction System Using Free-flooding Tanks with Vacuum Pumps**  
OMAE2017-61292  
Jiafeng Xu1 Zhenghu Ren1 Yue Li1 Karl Henning Halkie1 Roger Skjetne2  
1. Norwegian University of Science and Technology, Ålesund, Norway;  
2. Norwegian University of Science and Technology, Trondheim, Norway

**Simplifying Neural Network Based Model for Ship Motion Prediction: a Comparative Study of Sensitivity Analysis**  
OMAE2017-61474  
Guoyuan Li1 Houxiang Zhang1 Xu Cheng2 Chen Diao2 Shengyong Chen3 Mengna Liu2  
1. Norwegian University of Science and Technology, Ålesund, Norway;  
2. Norwegian University of Science and Technology, Trondheim, Norway;  
3. Tianjin University of Technology, Tianjin, China

**Floating Stability During Installation of Gravity Base Structures**  
OMAE2017-62287  
Minuk Jung, Keum-Seok Kang  
KEPO, Daejeon, Korea

**Investigations Into Fatigue Performance of Offshore Mooring Chains**  
OMAE2017-62218  
Andrew E Potts, Gary Farrow, Daniel Washington  
AMOG Consulting, Notting Hill, VIC, Australia

### 1-4-6 Process and Flow Assurance

**Tuesday June 27**

**Session Chair:** Simo Makiharhu, University of California Berkeley, USA  
**Session Co-Chair:** Patrick Schrijvers, MARIN, Netherlands

**A Numerical Simulation of Rapid Depressurization in Pressure Vessels Incorporating Nucleate Boiling of a Hydrocarbon Mixture**  
OMAE2017-61609  
Ahnin Park1 Youngsub Lim1 Yoonae Ko2  
1. Seoul National University, Gayang-si, Korea; 2. Seoul National University, Seoul, Korea

**Optimal Process Design of Onboard Bog Partial Reliquefaction System for LNG Carriers**  
OMAE2017-61819  
Youngsub Lim, Chulmin Hwang  
Seoul National University, Seoul, Korea

## Structures, Safety and Reliability

### 2-2-1 Probabilistic and Spectral Wave Models

**Tuesday June 27**

**Session Chair:** Felice Arena, Mediterranea University, Italy  
**Session Co-Chair:** Alexander Babanin, The University of Melbourne, Australia

**Analysis of Short Term and Long Term Wave Statistics by Time Domain Simulations**  
OMAE2017-61510  
Kjersst Brusendorf1 Jørn Birkenes-Berg2 Gunnar Lian1 Øistein Hagen1 Ida Haoy Grue3  
1. Statoil, Stavanger, Norway; 2. DNV GL, Havik, Norway; 3. DNV GL AS, Havik, Norway

**Joint Time-frequency Analysis of Small Scale Ocean Storms by an Application of Harmonic Wavelet Transforms**  
OMAE2017-61761  
Felice Arena1 Valentina Laface1 Ioannis A. Kougioumtzoglou2  
1. Mediterranea University, Reggio Calabria, Italy; 2. Columbia University, New York, NY, USA

**Wind and Wave Climate in Open Sea and Coastal Waters**  
OMAE2017-61854  
Elzbieta M. Bitner-Gregersen  
DNV GL AS, Havik, Norway

**Climatic Forecasting of Wind and Waves Using Fuzzy Inference Systems**  
OMAE2017-61968  
Erik Vanem1 Christos Stefanakos2  
1. DNV GL, Havik, Norway; 2. SINTEF, Trondheim, Norway
Joint: Structures, Safety and Reliability and Ocean Renewable Energy

2-8-1 Reliability of Renewable Energy Systems I

Tuesday June 27 | Cosmos 3b, Clarion | 08:15–09:45

Session Chair: Philipp R. Thies, University of Exeter, United Kingdom
Session Co-Chair: Marcelo Martins, University of São Paulo, Brazil

Reliability of Renewable Energy Systems I

Friday June 23 | Living Room 4, Clarion | 08:15–09:45

Session Chair: Zhimin Tan, GE Oil & Gas, Wellstream, USA
Session Co-Chair: Svein Sævik, Norwegian University of Science and Technology, Norway

Materials Technology

3-12-1 Plenary and Blast Mitigation of Composite Structures

Tuesday June 27 | Living Room 4, Clarion | 08:15–09:45

Session Chair: Christian Berggreen, Technical University of Denmark, Denmark
Session Co-Chair: Valentina Lopresto, Department of Chemical, Materials and Production Engineering – University of Naples Federico II, Italy

Composites for Marine Structures in Extreme Environments (Plenary)
OMAE2017-62265
Yapa D Rajapakse
Office of Naval Research (ONR 332), Arlington, VA, USA

Blast Resilience of Composite Sandwich Structures with Hybrid Skin and Novel Core Constructions
OMAE2017-62672
John P. Dear, Emily Rolfe
Imperial College London, London, United Kingdom

Pipelines, Risers, and Subsea Systems

4-1-2 Flexible Pipes II

Tuesday June 27 | Space 3, Clarion | 08:15–09:45

Session Chair: Zhihim Tan, GE Oil & Gas, Wellstream, USA
Session Co-Chair: Svein Sævik, Norwegian University of Science and Technology, Norway

Pipeline Regulations in the Norwegian Petroleum Industry – Experiences, Follow-up and Statistical Summaries
OMAE2017-61234
Trond Sundby, Kjell Arild Anfinsen
Petroleum Safety Authority Norway, Stavanger, Norway

Verification Scheme for Unbonded Flexible Pipes: Definition, Implementation and Reflection of API 17J
OMAE2017-61916
Fabien Conti, François Migeon, Aymeric David
Bureau Veritas, Neuilly sur Seine, France

Optimizing the Design of Unbonded Flexible Pipelines with More Realistic Predictions of pH and H$_2$S Content in the Annulus
OMAE2017-61129
Li Ke$^1$, Carol Taravel-Condat$^2$, Jean Kittel$^2$, Rémy Mingant$^2$, Virginie Querez$^2$, Claude Duret-Thual$^2$
$^1$TechnipFMC, Lysaker, Norway; $^2$IAD, Research Institute for Energy Systems, Lille, France

Integrity Management of Flexible Riser: Tailormade Strategies to Address Operational Challenges
OMAE2017-62762
Olivier Delcroix, Hany Elota
TechnipFMC, Lysaker, Norway
Stresses in Tensile Armour Layers of Unbounded Flexible Risers Loaded with External Pressure: Application to Lateral Buckling Mode
OMAE2017-61133
Pascal Estrier1 Jean Marc Leroy1 Kristof Vanisikoski1 Fabien Caleyron1
Alexandre Damiens1 Martin Guiton1 Pascal Duchêne1
1. Technip, Le Trait, France; 2. IFP Energies Nouvelles, Solaize, France

Ocean Engineering
6-6-1 Unsteady Hydrodynamics, Vibrations, Acoustics and Propulsion I
Tuesday June 27 U3, BI 08:15–09:45
Session Chair: Mohammad Rahmati, Brunel University, United Kingdom
Roll Damping Analysis of In-Field FPSO Roll Response OMAE2017-61075
Harish Pillai1 Robert Scott1 Arjan Voogt1
1. Chevron, Houston, TX, USA; 2. Chevron, Cypress, TX, USA; 3. MARIN, Houston, TX, USA
Hydrodynamic Damping and Added Mass of Modern Screw Propellers OMAE2017-61470
Stefan Krüger, Wilfried Abele
Hamburg University of Technology, Hamburg, Germany
Analysis of the Blockage Effect on a Cavitation Tunnel Using CFD Tools OMAE2017-61545
Eduardo Tadashi Katsuno, Joao Dantas
Institute for Technological Research, São Paulo, SP, Brazil

Ocean Engineering
6-8-4 Fluid-Structure, Multi-Body and Wave-Body Interaction IV
Tuesday June 27 U5, BI 08:15–09:45
Session Chair: Pierre Ferrant, Ecole Centrale De Nantes/CNRS, France
Experimental and Numerical Investigation of Tsunami-like Waves on Horizontal Circular Cylinders OMAE2017-61787
Giuseppe Tripepi1 Francesco Aristodemo1 Paolo Vetelli1
Calogero Pace1 Andrea Solano1 Carlo Giordano1
1. Università della Calabria, Arcavacata di Rende, Italy; 2. Università di Bologna, Bologna, Italy
Numerical Investigation on Wave Induced Vortex Dynamics around Cylindrical Pile with Considering Varying Keulegan-Carpenter Number OMAE2017-61948
Mohammad Mohammad Beigi Kasvaei1 Mohammad Hossein Kazeminezhad1
Abbas Yeganeh-Bakhtiary1
1. Iranian National Institute for Oceanography and Atmospheric Science, Tehran, Iran; 2. School of Civil Engineering Iran University of Science & Technology, Tehran, Iran
Numerical Study on Vortex-Induced Motions of Semi-submersibles with Various Types of Columns OMAE2017-62355
Longfei Xiao, Lu Haining, Mingyue Liu, Yufeng Kou
Shanghai Jiao Tong University, Shanghai, China
Effect of Sacrificial Anodes on Waveloads and Responses of a Jacket Platform OMAE2017-61591
Kasthuri Nallayarasu, Panneer Selvam Rajamanickam
Indian Institute of Technology, Madras, Chennai, TN, India
Polar and Arctic Sciences and Technology

7-2-1 Arctic Transportation I

Tuesday June 27  
Session Chair: Rudiger U. Franz Von Bock Und Polach, Technical University of Hamburg, Germany  
Session Co-Chair: Sören Ehlers, Hamburg University of Technology, Germany  
Multidisciplinary Approach to Design and Analysis of Arctic Marine Transport Systems OMAE2017-61951  
Alex Topaj, Aleksander A. Kondratenko, Oleg V. Tarovik, Andrey A. Bakharev, Andrey V. Kosorotov, Andrey B. Krestyantsen  
Rylov State Research Centre, St. Petersburg, Russia  
H. Elizabeth Lindstad¹, Victoria Gribkovskaia², Trond Johnsen³  
1. SINTEF Ocean AS, Trondheim, Norway; 2. MARINTEK, Trondheim, Norway; 3. Statoil ASA, Trondheim, Norway  
Subsurface Ice Transport at a Transversally Towed Ship Model OMAE2017-61841  
Rudiger U. Franz Von Bock Und Polach¹, Li Zhou², Xu Bai³  
1. Hamburg University of Technology, Hamburg, Germany; 2. Jiangsu University of Science and Technology, Zhenjiang, China  
Communications Challenges in the Arctic: Oil and Gas Operations Perspective OMAE2017-61211  
Tu Duc Ho¹, Kay Endre Fjørtoft²  
1. SINTEF Ocean, Trondheim, Norway; 2. MARINTEK, Trondheim, Norway  

Prof. Carl Martin Larsen and Dr. Owen Oakley Honoring Symposia on CFD & VIV

8-4-3 VIV Physics – Numerical Analysis II

Tuesday June 27  
Session Chair: Jie Wu, SINTEF Ocean, Norway  
Session Co-Chair: Themistocles L. Resvani, MIT, USA  
Quantifying Uncertainties in Phenomenological Model of Two-dimensional VIV Using Multivariate Monte Carlo Simulations OMAE2017-61058  
Narakorn Srinil, Francesca Tagliaferri  
Newcastle University, Newcastle upon Tyne, United Kingdom  
A Non-Iterative Method for Vortex Induced Vibration Prediction of Marine Risers OMAE2017-61216  
Shixiao Fu, Ziqi Lu, Mengmeng Zhang, Haojie Ren, Leijian Song  
Shanghai Jiao Tong University, Shanghai, China  
Numerical Investigation on Vessel Motion-Induced VIV for a Free-hanging Riser Under Small Keulegan-Carpenter Numbers OMAE2017-61705  
Muk Chen Ong, Jungang Wang, Rohan Shabu Joseph, Jasna B. Jakobsen  
University of Stavanger, Stavanger, Norway  
A Physics-based Model for VIV Analysis OMAE2017-62483  
Efstathios Konstantinidis  
University of Western Macedonia, Kozani, Greece

Ocean Renewable Energy

9-1-3 Nonlinear Wave Loads I

Tuesday June 27  
Session Chair: Signe Schlaer, Technical University of Denmark, Denmark  
Session Co-Chair: Henrik Bredmose, DTU Wind Energy, Denmark  
Comparing Different Approaches for Calculating Wave Impacts on a Mono-Pile Turbine Foundation OMAE2017-61182  
Erik-Jan de Ridder¹, Simon Burmester¹, Christof Wehmeyer², Erik Asp³, Philipp Gujer⁴  
1. MARIN, Wageningen, Netherlands; 2. Ramboll, Esbjerg, Denmark; 3. DNV GL, Hellerup, Denmark; 4. DNV GL, Hamburg, Germany  
Simulation of Wave Impacts at Belwind Offshore Wind Farm and Comparison with Full-scale Measurements OMAE2017-61305  
Tim Bunnik¹, Wout Weijtjens², Christof Devriendt²  
1. MARIN, Wageningen, Netherlands; 2. OWI-Jab, Leuven, Belgium  
Impact of New Slamming Wave Design Method on the Structural Dynamics of a Classic, Modern and Future Offshore Wind Turbine OMAE2017-61654  
Johan Peeringa, Koen Hermans  
Energy Research Centre of The Netherlands, Petten, Netherlands  
Summary of the Joint Industry Project Wave Impact on Fixed Foundations (WiFi JIP) OMAE2017-62040  
Erik-Jan de Ridder¹, Tim Bunnik¹, Bo Terp Paulsen², Christof Wehmeyer³  
1. MARIN, Wageningen, Netherlands; 2. Delft, Delft, Netherlands; 3. Ramboll, Esbjerg, Denmark; 4. DNV GL, Hellerup, Denmark; 5. DNV GL, Hamburg, Germany; 6. Energy Research Centre of The Netherlands, Petten, Netherlands

Offshore Geotechnics

10-1-1 Seabed Properties

Tuesday June 27  
Session Chair: Manuela Kanitz, Hamburg University of Technology, Germany  
Application of an New Framework for Predicting the Variation in Clay Resistance and Stiffness Accounting for Remoulding and Reconsolidation OMAE2017-61695  
David J. White, Zefeng Zhou, Conleth O’Loughlin  
University of Western Australia, Perth, WA, Australia  
On the Axial Holding Capacity of Torpedo Bases in Clay OMAE2017-62517  
Jose Renato M de Sousa¹, Gilberto Ellwanger², Rachel G B C Genzani³  
1. Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 2. COPPE - Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 3. Petrobasa, Rio de Janeiro, RJ, Brazil  
Experimental Study of Push Coring Forces During Sediment Extraction Using a Robot Manipulator OMAE2017-61933  
Juan A. Ramirez-Macias¹, Jose A. Escudero, David Rozo, Julio C. Correa  
Universidad Pontificia Bolivariana, Medellin, Colombia
Petroleum Technology

11-1-1 Offshore Drilling and Production
Tuesday June 27  
Session Chair: Steven Butt, Memorial University of Newfoundland, Canada  
Session Co-Chair: Mohammad Rahman, Memorial University of Newfoundland, Canada  
Investigation of Pressure Losses in Eccentric Inclined Annuli  
OMAE2017-62310  
Vassiliou C. Kelementis1 Sayeed Rushd2 Aziz Rahman3 Rasel Sultan4  
1. Petroleum Institute, Abu Dhabi, United Arab Emirates; 2. Texas A&M University (Qatar), Doha, Qatar; 3. Memorial University of Newfoundland, St. John’s, NL, Canada  
Review of Asphaltene: What Do We Know So Far  
OMAE2017-62366  
Abdulaziz Al-Qasim, Mohammed Alaskan  
Saudi Aramco, Dhahran, Saudi Arabia  
Robust Control for Heave Compensator with the use of Kalman Filter-based Disturbances Estimator  
OMAE2017-61573  
Tassio M. Linhares, William H Cuelar, José O. A. Limaverde  
Filho, Eugênio L. F. Fortaleza, José A. R. Vargas  
Brasilia University, Brasilia, DF, Brazil  
An Investigation of Pressure and Production Data Using Decline and Type Curve Analysis  
OMAE2017-62472  
M. Enamul Hossain1 Arifur Rahman1 Fatema Akter Happy1 Mahbub Alam Hira2  
1. Memorial University of Newfoundland, St. John’s, NL, Canada; 2. Shahjalal University of Science and Technology, Sylhet, Bangladesh  

Torgeir Moan Honoring Symposium

12-1-2 Stochastic Dynamic Response Analysis of Marine Structures  
Tuesday June 27  
Session Chair: Yousheng Wu, China Ship Scientific Research Center, China  
Session Co-Chair: Hideyuki Suzuki, The University of Tokyo, Japan  
Efficient Evaluation of Long-term Response for Design of Components of Offshore Structures  
OMAE2017-61444  
Luis Sagrilo1 Paulo M. Videiro1  
1. COPPE - Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 2. Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil  
A Preliminary Study of a Rigid Semi-submersible Fish Farm for Open Seas  
OMAE2017-61520  
Muk Chen Ong, Lin Li  
University of Stavanger, Stavanger, Norway  
Numerical Investigation Into Uncertainty of Wave-induced Vibration of Large Container Ships Due to Ship Operation  
OMAE2017-62336  
Masahiko Fukubu1 Kazuhiro lijima2 Rika Ueda3  
1. Osaka University, Suita, Japan; 2. Dept of NAOE, Osaka University, Osaka, Japan  
Coupled Analysis of Offloading System in West Africa Sea  
OMAE2017-62467  
Youwei Kang1 Lei Li2 Bing Wang3 Yanfei Deng1 Yunhe Zhai3  
1. CIMC Offshore (Group) Co.Ltd, Shenzhen, China; 2. Yantai CIMC Raffles Offshore Ltd, Yantai, China; 3. Harbin Engineering University, Harbin, China  

REFRESHMENT BREAK

09:45 – 10:15  
Space Foyer, Clarion  

CONCURRENT SESSIONS

10:15 – 11:45  

Offshore Technology

1-4-4 Moonpools and Fatigue  
Tuesday June 27  
Session Chair: Bastien Abeil, MARIN, Netherlands  
Session Co-Chair: Joost Sterenberg, MARIN, Netherlands  
Moonpool Behavior of a Stationary Vessel in Waves and a Method to Increase Operability  
OMAE2017-61289  
Jan-William Krüger, Dimitris Chalkias  
Gustoms, Schiedam, Netherlands  
Experimental and Numerical Study on the Flow Reduction in the Moonpool of Floating Offshore Structure  
OMAE2017-62451  
Seung-Ho Yang1 Seon-Oh Yoo2 Hyun Joe Kim2 Dong-Yeon Lee2 Boorki Kim2  
1. Ulsan College, Ulsan, Korea; 2. Samsung Heavy Industries, Daegoean, Korea  
Sensitivity Study of Calculated Jacket Fatigue Life due to Long Term Distribution of Wave Heights  
OMAE2017-61783  
Olestein Hagen1 Hege Halseth Bang1 Terje Nynb1 Siri Hoel Smesrud1  
1. DNV GL, Havik, Norway; 2. StatOil ASA, Bergen, Norway; 3. StatOil ASA, Fornebu, Norway  

Joint: Offshore Technology and Prof. Carl Martin Larsen and Dr. Owen Oakley Honoring Symposia on CFD & VIV

1-6-2 Current- and Wind-Induced Loads and Vortex-Induced Motion (VIM)  
Tuesday June 27  
Session Chair: Arjen Koop, MARIN, Netherlands  
Session Co-Chair: Daniel Barcarolo, Hydrocean, France  
Yaw Galloping of a TLWP Platform under High Speed Currents by Analytical Methods and its Comparison with Experimental Results  
OMAE2017-61909  
Antonio Carlos Fernandes1 Miguel Ramirez2 Francisco Lamas2  
1. Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 2. BRASFEIS, Angra dos Reis, Brazil; 3. InterMoor do Brasil, Rio de Janeiro, RJ, Brazil  
Numerical and Experimental Wind Loads Modelling: from Very Complex Offshore Topside Geometries to Simple Bluff Body Representations  
OMAE2017-62025  
Daniel Barcarolo1 David Chilloz2 Mathieu Duchesne2 Christian Barre2  
Graham Knapp2 Benjamin Rousse2 François Petrie2 Alain Ledoux2 Olivier Langerard2  
1. Hydrocean, Nantes, France; 2. DORIS Engineering, Paris, France; 3. CSTB, Nantes, France; 4. Oceanide, La Seyne sur Mer, France; 5. Total, Courbevoie, France  

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A Step Towards a Reduced Order Modelling of Flow Characterized by Wakes Using Proper Orthogonal Decomposition  OMAE2017‑62435

Mandar Tabil1, Eivind Fom1, Adil Rasheed1, Trond Kvamsdal2, 1. SINTEF Digital, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway

CFD Study of Fully Coupled Mooring and Riser Effects on Vortex-induced Motion of Semi-submersible  OMAE2017‑62433

Guangyu Wu1, Hynchul Jang2, Johyun Kyoung2, Jang Kim3, Hongmei Yan1
1. Chevron, Houston, TX, USA; 2. Technip, Houston, TX, USA; 3. TechnipFMC, Houston, TX, USA

Structures, Safety and Reliability

2-3-1 Probabilistic Response Models I
Tuesday June 27  Space 2, Clarion  |  10:15–11:45
Session Chair: Lance Manuel, University of Texas at Austin, USA
Session Co-Chair: Ahmad Suhail, Indian Institute of Technology, India

Design Approach for Turret-moored Vessels in Highly Variable Squal Conditions  OMAE2017‑61005
Philip Jonathan1, Alison Brown1, Ward Gorter1, Peter Tromans2, Luc Vanderschuren3, Paul Verlaan1
1. Shell Global Solutions UK, Manchester, United Kingdom; 2. Shell Research Ltd, Aberdeen, United Kingdom; 3. Shell Global Solutions B.V., Rijswijk, Netherlands; 4. Ocean Wave Engineering Ltd, Hants, United Kingdom

Long Term Analysis of Semi Submersible Offset  OMAE2017‑61642
Sverre Haver1, Sindre Schafroth Sandbakken2, Kjell Larsen1
1. Norwegian University of Science and Technology, Stavanger, Norway; 2. BW Offshore, Oslo, Norway; 3. Norwegian University of Science and Technology, Trondheim, Norway

Ice-Related Causes of a Vessel Navigation Disruption Event on the Umiak I during March 28-30, 2016  OMAE2017‑62304
Rocky Taylor1, Ian Turnbull2, Pascale Bourbonnais2, Marie-Andree Giguere2
1. Memorial University of Newfoundland, St. John’s, NL, Canada; 2. C-CORE, St. John’s, NL, Canada; 3. Fednav, Ltd., Montreal, QC, Canada

Hongxia Li, Yi Huang, Xiaoyu Zhou
Dalian University of Technology, Dalian, China

2-3-2 Probabilistic Response Models II
Tuesday June 27  A1, BI  |  10:15–11:45
Session Chair: John P. Dear, Imperial College London, United Kingdom
Session Co-Chair: Arun Shukla, The University of Rhode Island, USA

Low Temperature Face/Core Fracture Toughness Characterization of Debonded PVC Foam Cored Sandwich Composites in Naval Vessels Operating in Arctic Regions  OMAE2017‑62328
Christian Berggreen1, Arash Farshidi1, 1. Danish Hydraulic Institute, Harsholm, Denmark

Real-Time Data for Risk Assessment in the Offshore Oil & Gas Industry  OMAE2017‑61486
Nicola Paltrinieri1, Gabriele Landucci2, Pietro Salvo Rossi1
1. Norwegian University of Science and Technology and Trondheim, Norway; 2. University of Pisa, Pisa, Italy

Technology Qualification of Offshore Wind Turbine Supporting Concrete Constructions: Mitigation of Future Catastrophic Incidents via Quantification of Unknown  OMAE2017‑62173
R.M. Chandima Ratnayake, S.M. Samindi M.K. Samarakoona
University of Stavanger, Stavanger, Norway

On Maintainability of Winterised Plants Operating in the Arctic Regions  OMAE2017‑61526
Massoud Naseri
University of Tromsø The Arctic University of Norway, Tromsø, Norway

Identification and Optimization of Most Relevant Variables when Creating a Maintenance Strategy of an Offshore Wind Farm  OMAE2017‑61776
Marcelo Martins1, Ana Beatriz Zanforlin2, Adriana M. Schleder1
1. University of São Paulo, São Paulo, SP, Brazil; 2. Naval Architecture and Ocean Engineering Department – University of São Paulo, São Paulo, SP, Brazil

Structures, Safety and Reliability

2-13-1 Risk Analysis and Management II
Tuesday June 27  Living Room 4, Clarion  |  10:15–11:45
Session Chair: Halbo Chen, Lloyd’s Register Consulting - Energy Inc., China
Session Co-Chair: Adriana M. Schleder, University of São Paulo, Brazil

Low-velocity Impact Characterization of Air and Water-backed Concrete Constructions: Mitigation of Future Catastrophic Incidents via Quantification of Unknown  OMAE2017‑62173
R.M. Chandima Ratnayake, S.M. Samindi M.K. Samarakoona
University of Stavanger, Stavanger, Norway

On Maintainability of Winterised Plants Operating in the Arctic Regions  OMAE2017‑61526
Massoud Naseri
University of Tromsø The Arctic University of Norway, Tromsø, Norway

Identification and Optimization of Most Relevant Variables when Creating a Maintenance Strategy of an Offshore Wind Farm  OMAE2017‑61776
Marcelo Martins1, Ana Beatriz Zanforlin2, Adriana M. Schleder1
1. University of São Paulo, São Paulo, SP, Brazil; 2. Naval Architecture and Ocean Engineering Department – University of São Paulo, São Paulo, SP, Brazil

Materials Technology

3-13-1 Composites in Arctic Environment
Tuesday June 27  Living Room 4, Clarion  |  10:15–11:45
Session Chair: Arun Shukla, The University of Rhode Island, USA
Session Co-Chair: John P. Dear, Imperial College London, United Kingdom

Low Temperature Face/Core Fracture Toughness Characterization of Debonded PVC Foam Cored Sandwich Composites in Naval Vessels Operating in Arctic Regions  OMAE2017‑62238
Christian Berggreen, Arash Farshidi
Technical University of Denmark, Kongens Lyngby, Denmark

Low-velocity Impact Characterization of Air and Water-backed Marine Composites in Extreme Conditions: Damage Investigations and Residual Strength Evaluation  OMAE2017‑62732
Valentina Luprèsto
Department of Chemical, Materials and Production Engineering – University of Naples Federico II, Naples, Italy
Impact Behavior of Composite Sandwich Structures in Arctic Condition
OMAE2017-62586
Kwek Tze Tan, Bing Li, Mohammed Elamin
The University of Akron, Akron, OH, USA

Long-term Degradation of Composite Laminates in Offshore Applications Described by a Multi-scale Approach OMAE2017-62685
Andreas Echtermeyer, Abedin Gagni, Andrei Krauklis
Norwegian University of Science and Technology, Trondheim, Norway

Polypropylene Hybrid Composite Laminates Reinforced with Poly(Lactic Acid)/Flax Fabric: Mechanical Properties and Morphological Issues OMAE2017-62607
Pietro Russo1, Valentina Lopresto2, Ilaria Papa3, Antonio Langella4, Fabrizio Sarasini5, Jacopo Tirillil6
1. Institute for Polymers, Composites and Biomaterials – National Research Council, Pisa, Italy; 2. Department of Chemical, Materials and Production Engineering – University of Naples Federico II, Naples, Italy; 3. Department of Chemical Engineering Materials Environment – Sapienza University of Rome, Rome, Italy

**Pipelines, Risers, and Subsea Systems**

4-3-4 Thermo-Mechanical II
Tuesday June 27
Space 3, Clarion | 10:15–11:45

**Session Chair:** Segen Estefen, COPPE - Universidade Federal do Rio de Janeiro, Brazil

**Session Co-Chair:** Theodoro Netto, COPPE - Universidade Federal do Rio de Janeiro, Brazil

**An Improved Approach for Modelling Reliability of Buckle Formation for Subsea Pipelines** OMAE2017-61377
Ali Haghighi1, Jitender Rai2, Yann Le Maou3, John Olligphant4
1. Technip, Aberdeenshire, United Kingdom; 2. Technip, Paris, France

**Benefits and Deep Water Install-ability Challenges of Residual Curvature Method for Lateral Buckling Mitigation** OMAE2017-61387
Henk Smienk1, Erwan Karjadi2, Phil Cooper2, Ferry Kortekaas3

**Validation of Residual Curvature Installation for Lateral Buckling Management Using Structural Reliability Analysis (SRA)** OMAE2017-61541
Martin Teigen1, Malik Ibrahim2
1. RCM Consulting AS, Svartskog, Norway; 2. Independent Contractor, Banten, Indonesia

**Through-life Reliability Design of Light HP/HT Pipelines on Soft Sloping Seabed with Buckling, Anchoring and Route Bend Stability Issues** OMAE2017-61826
Emil Maschner, Yunxiao Wang
Wood Group, Staines-upon-Thames, United Kingdom

**Ocean Space Utilization**

5-2-1 Aquaculture and Related Technology I
Tuesday June 27
U6, B1 | 10:15–11:45

**Session Chair:** Pål Furset Lader, SINTEF Ocean, Norway

**Application of Wake Shielding Effects with a Finite Element Net Model in Determining Hydrodynamic Loading on Aquaculture Net Pens** OMAE2017-61330
Adam Turner1, Ryan Nicoll2
1. Dynamic Systems Analysis Ltd., Halifax, NS, Canada; 2. Dynamic Systems Analysis Ltd., Victoria, BC, Canada

**Tensile Strength of Nylon Netting Subjected to Various Concentrations of Disinfecting Chemicals** OMAE2017-61519
Heidi Moe Fore1, Stine Wiborg Dahlé2, Rune H. Gaarder2
1. SINTEF Fisheries and Aquaculture, Trondheim, Norway; 2. SINTEF Materials and Chemistry, Oslo, Norway

**Water Tank and Field Tests on the Performance of a Submersible Fish Cage for Farming Silver Salmon** OMAE2017-61631
Daisuke Kitazawa1, Yoichi Mizukami1, Makoto Kanekura1, Youko Takeuchi2
1. The University of Tokyo, Tokyo, Japan; 2. Nichimo Co, Ltd., Tokyo, Japan; 3. Nichimo Co, Ltd., Yamaguchi, Japan

**Drag on Nets Fouled with Blue Mussel (Mytilus edulis) and Sugar Kelp (Saccharina latissima) and Parameterization of Fouling** OMAE2017-62030
Lars C. Gansel1, Stine Wiborg Dahlé1, Kristine Braaten Steinholden1, Per C. Endresen1, Erik Svendsen1, Silje Forbord2, Østen Jensen2
1. Norwegian University of Science and Technology, Aalesund, Norway; 2. SINTEF Fisheries and Aquaculture, Trondheim, Norway; 3. SINTEF Ocean, Trondheim, Norway; 4. Statoil, Trondheim, Norway
Ocean Engineering

6-6-2 Unsteady Hydrodynamics, Vibrations, Acoustics and Propulsion II

Tuesday June 27

Session Chair: Mohammad Rahmati, Brunel University, United Kingdom

Study on the Hydrodynamic Efficiency of Flexible Flapping Foils at Different Operating Parameters OMAE2017-61194
Parameswaran Krishnankutty, Anties K Martin
Indian Institute of Technology, Madras, Chennai, TN, India

Large Eddy Simulation of the Wake behind an Ellipsoid at 45° Incidence Angle OMAE2017-61578
Fanchen Zhang1 Zongxin Yu1 Zhiguo Zhang1 Xianzhuo Wang1 Hao Liu1
1. Huazhong University of Science and Technology, Wuhan, China; 2. School of Naval Architecture & Ocean Engineering, Wuhan, China

On Unsteady Viscous Flows OMAE2017-62465
Jian-Jun Shu
Nanyang Technological University, Singapore, Singapore

Numerical Investigation of Propeller Noise from Tip Vortex Cavitation OMAE2017-62629
Wencai Zhu, Hongtao Gao, Yuchao Song
Dalian Maritime University, Dalian, China

Ocean Engineering

6-8-5 Fluid-Structure, Multi-Body and Wave-Body Interaction V

Tuesday June 27

Session Chair: Pierre Ferrant, Ecole Centrale De Nantes/ONRS, France

Solving 2-D Fluid-Structure Interaction Problem by a Coupled Particle Method OMAE2017-61136
Wei Qiu, Heather Peng, Ruosi Zha
Memorial University of Newfoundland, St. John’s, NL, Canada

A Study of 3D Flexible Caudal Fin for Fish Propulsion OMAE2017-61528
Qiang Zhu1 Qing Xiao1 Guangyu Shi1
1. University of California, San Diego, CA, USA; 2. University of Strathclyde, Glasgow, United Kingdom

The Role of a Structural Mode Shape Based Interaction Law to Suppress Added Mass Instabilities in Partitioned Strongly Coupled Elastic Structure-Fluid System OMAE2017-62075
Rene Huijsmans1 Arthur E.P. Veldman2 Seyed Matin
1. University of California, San Diego, CA, USA; 2. University of Strathclyde, Glasgow, United Kingdom

Study on Application of CFD and FEM coupling method to Evaluate Dynamic Response of Ship under Severe Wave Condition OMAE2017-61553
Kazuhito Iijima1 Tomoki Takami1
1. Dept. of NAOE, Osaka University, Osaka, Japan; 2. National Maritime Research Institute, National Institute of Maritime, Port and Aviation Technology, Tokyo, Japan

Polar and Arctic Sciences and Technology

7-2-2 Arctic Transportation II

Tuesday June 27

Session Chair: Inge Norstad, SINTEF Ocean, Norway
Session Co-Chair: Sören Ehlers, Hamburg University of Technology, Germany

Simulation of Normal Differentiable Process of Ice Loads OMAE2017-62240
Petr Zyvagin
Peter the Great S. Petersburg Polytechnic University, St. Petersburg, Russia

Numerical Prediction of Ship-Ice Interaction OMAE2017-61814
Sören Ehlers1 Bernt Leira2 Malte Hahn1 Hendrik Dankowskii Sandro Ercegi Thomas Rung2 Michael Huisman1 Henrik Sjøblom2 Wei Chai2

Numerical Solution of Rapid Freezing of Sea Water on Cold Substrates OMAE2017-62191
Greg Naterer, Yuri Muzychka, Saeed Reza Dehghani
Memorial University of Newfoundland, St. John’s, NL, Canada

Prof. Carl Martin Larsen and Dr. Owen Oakley Honoring Symposia on CFD & VIV

8-4-4 VIV Physics – CFD Simulations

Tuesday June 27

Session Chair: Muk Chen Ong, University of Stavanger, Norway
Session Co-Chair: Allan Ross Magee, National University of Singapore, Singapore

The Effect of Gap Space on Flow Induced Motions of Two Bluff Bodies in Tandem OMAE2017-62144
Lin Ding, Haibo Wang, Qinfeng Zou, Li Zhang, Chunmei Wu
Chongqing University, Chongqing, China

Investigation on Standing and Travelling Wave Response Patterns in Long Flexible Risers OMAE2017-61590
Rajeev Kumar Jaiman1 Anurag Yenduri1 Vaibhav Joshi1 Pardha Saradhi Gurugubelli2 Peter Francis Bernad Adakkaraj3

Interaction Between IL and CF VIV – on the Importance of Orbital Direction OMAE2017-62404
Kjetil Skaugset1 Carl M Larsen2 Kristoffer H. Aronsen2 Zhiyong Huang2

Analysis of Unsteady Hydrodynamics Related to Vortex Induced Vibrations on Bluff-Bodied Offshore Structure OMAE2017-61207
Mandar Tabibi1 Adil Rasheed2 Franz Georg Fuchs2
1. SINTEF Digital, Trondheim, Norway; 2. SINTEF Applied Mathematics, Trondheim, Norway; 3. SINTEF Digital, Oslo, Norway
Ocean Renewable Energy

9-2-5 Aerodynamics I
Tuesday June 27

Session Chair: Tonio Sant, University of Malta, Malta
Session Co-Chair: Denis Matha, Ramboll, Germany

A Coupled CFD/Multibody Dynamics Analysis Tool for Offshore Wind Turbines with Aeroelastic Blades OMAE2017-61062
Atilla Incecik, Yuanchuan Liu, Qing Xiao
University of Strathclyde, Glasgow, United Kingdom

Load Reduction on Offshore Wind Turbines by Aerodynamic Flaps OMAE2017-61308
Nilanj Saha, Shilpa Thakur
Indian Institute of Technology, Madras, Chennai, TN, India

A Numerical Study of the Influence of Solidity on the Performance of Vertical Axis Turbine OMAE2017-61372
Teresa Parra1, David Pastor1 Armando Gallegos2 Cristobal Uzarraga2 Alvaro Alonso3 Miguel P. Santos4
1. University of Valladolid, Valladolid, Spain; 2. University of Guanajuato, Salamanca, Mexico; 3. Tecnologico de Durango, Durango, Mexico; 4. Universidad Catolica San Antonio de Murcia, Murcia, Spain

A GIS Based Approach for the Evaluation of Offshore Wind Power Potential for Western Coast of India OMAE2017-61594
Nagababu Garlapati, Sohil Parsana, Nishil Radadia, Mohak Sheth
Pandit Deendayal Petroleum University, Gandhinagar, GJ, India

A Formulation for the Unsteady Aerodynamics of Floating Wind Turbines, with Focus on the Global System Dynamics OMAE2017-61925
Ilmas Bayati, Marco Belloli, Luca Bernini, Alberto Zasso
Politecnico di Milano, Milano, Italy

Petroleum Technology

11-7-1 Well Drilling Fluids and Hydraulics I
Tuesday June 27

Session Chair: Ergun Kuru, University of Alberta, Canada
Session Co-Chair: Vassilios C. Kelessidis, Petroleum Institute, United Arab Emir.

Effect of Elastic Properties of the Fluids on the Particle Settling Velocity OMAE2017-61192
Ergun Kuru, Sumanth Kumar Arnipally
University of Alberta, Edmonton, AB, Canada

Investigation of High Pressure Effect on Drilling Fluid Rheology OMAE2017-61449
Muzaffer Gorkem Gokdemir1 Selcuk Erkekol1 Huseyin Ali Dogan2

Impact of Viscoelastic Characteristics of Oil Based Muds and Synthetic Based Muds on Cuttings Settling and Slip Velocities OMAE2017-62129
Roland May1 Stefan Miska2 Eren Dizbayegil Mehmet Cagri Altindal1 Mengjiao Yu1 Nicholas Takach2
1. Baker Hughes, Lower Saxony, Germany; 2. University of Tulsa Drilling Research Projects, Tulsa, OK, USA; 3. University of Tulsa - Petroleum Engineering, Tulsa, OK, USA; 4. Turkish Petroleum Corporation, Ankara, Turkey; 5. The University of Tulsa, Chemistry Department, Tulsa, OK, USA

Torgeir Moan Honoring Symposium

12-13-3 VLFS
Tuesday June 27

Session Chair: Kazuhiro Iijima, Dept of NAOE, Osaka University, Japan
Session Co-Chair: Sverre Steen, Norwegian University of Science and Technology, Norway

Multi-purpose Offshore-Platforms: Past, Present and Future Research and Developments OMAE2017-62691
Bernt Leira
Norwegian University of Science and Technology, Trondheim, Norway

State-of-Art Review on Hydroelastic Responses of VLFS OMAE2017-62680
Chao Tian, Jun Ding, Yousheng Wu, Zhiwei Li, Xinyun Ni, Xiaofeng Wu
China Ship Scientific Research Centre, Wuxi, China

Technical Challenge on VLFS in Japan after Megafloat Project OMAE2017-62663
Hideyuki Suzuki1 Kazuhiro Iijima2 Hitodieto Harada3 Takumi Natsum3 Katsuya Maeda4 Tatuya Hayashi5
1. The University of Tokyo, Kashiwa, Japan; 2. Dept of NAOE, Osaka University, Osaka, Japan; 3. Research Association J-DEP, Tokyo, Japan; 4. Japan Marine United, Tokyo, Japan; 5. National Maritime Research Institute, Tokyo, Japan; 6. ClassNK, Tokyo, Japan

Hydrodynamic Analysis of Multiple Floating Pontoons with Different Joint Gaps to Waves in Different Water Depth OMAE2017-62719
Xujun Chen1 Yufi Miao2 Xuefeng Tang3
1. PLA University of Science and Technology, Nanjing, China; 2. China Ship Scientific Research Centre, Wuxi, China
AWARDS LUNCH
11:45 – 13:15
Cosmos 1 & 2, Clarion

CONCURRENT SESSIONS
13:15 – 14:45

Offshore Technology
1-4-5 Metocean
Tuesday June 27  
Space 1, Clarion | 13:15–14:45
Session Chair: Gus Jeans, Oceanalysis Ltd., United Kingdom
Session Co-Chairs: Jule Scharmke, Netherlands and Alessio Mariani, Woodside Energy Ltd

Metocean Design Criteria Considerations in South China Sea by Adopting Multivariate Extreme Value Theory OMAE2017-62541
Linbin Li1 Hongtao Li2 Ping Li1* Qi Zhu2 Qi Zhang1 Chunqi Zhou1
1. China Classification Society, Beijing, China; 2. Offshore Engineering Technology Center of China Classification Society, Tianjin, China

The Application of Nonlinear Fourier Analysis to Soliton Quantification for Offshore Engineering OMAE2017-61943
Gus Jeans1 Wenting Xiao2 Al Osborne3 Chris Jackson1 Doug Mitchell1
1. Oceanalysis Ltd, Wallingford, United Kingdom; 2. ExxonMobil Upstream Research Company, Spring, TX, USA; 3. Nonlinear Waves Inc., Arlington, VA, USA

A Novel Approach to the Development of Squall Database for Mooring Response Based Analysis OMAE2017-61764
Gus Jeans1 Alessio Mariani2 Grant Elliott3 Geoff Wake3 James Whelan2
1. Oceanalysis Ltd, Wallingford, United Kingdom; 2. Woodside Energy Ltd, Perth, WA, Australia

Joint: Offshore Technology and Prof. Carl Martin Larsen and Dr. Owen Oakley Honoring Symposia on CFD & VIV

1-6-3 Wave/Sloshing Impact and Green-Water Load and FEA Coupling
Tuesday June 27  
Cosmos 3a, Clarion | 13:15–14:45
Session Chair: Nicolas Couty, Hydrocean, France
Session Co-Chair: Joop Helder, MARIN, Netherlands

Numerical Methodologies to Simulate Water Entry of Offshore Subsea Structures in the Splash Zone OMAE2017-62735
Nicolas Couty
Hydrocean, Nantes, France

CFD Based Multi-disciplinary Optimization Design of High-performance Deep Sea Seismic Vessel OMAE2017-62657
Jiankui Qian, Xiaofei Mao, Minghao Wu, Wenru Zhang
Wuhan University of Technology, Wuhan, China

CFD Verification and Validation Study for a Captive Bullet Entry in Calm Water OMAE2017-61666
Guilherme Vaz, Antonio Maximiano, Jule Scharmke
MARIN, Wageningen, Netherlands

Sloshing and Swirling in Partially Filled Prismatic Tanks OMAE2017-61562
Gustavo Karuka1 Arai Makoto1 Hideyuki Ando2
1. Yokohama National University, Yokohama, Japan; 2. Monohakobi Technology Institute, Tokyo, Japan

Study of an Entrapped Air Pocket Due to Sloshing Using Experiments and Numerical Simulations OMAE2017-62390
Odd Magnus Faltinsen1 Reza Firoozkoohi2 Bjørn Christian Abrahamsen2
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. MARINTEK, Trondheim, Norway

Structures, Safety and Reliability
2-3-2 Probabilistic Response Models II
Tuesday June 27  
Space 2, Clarion | 13:15–14:45
Session Chair: Ahmad Suhail, Indian Institute of Technology, India
Session Co-Chair: Lance Manuel, University of Texas at Austin, USA

Erik Vanem
DNV GL, Havik, Norway

Long Term Analysis of TLP Extreme Tendon Tensions using a Coupled Model and Comparison with the Contour Line Approach OMAE2017-61213
Isabel Jiménez Puente, Gunnar Lian
Statoil, Stavanger, Norway

Long-term Extreme Response Analysis of Marine Structures Using Inverse SORM OMAE2017-61409
Bernt Leira, Finn-Iidar G. Giske, Ole Bieuch
Norwegian University of Science and Technology, Trondheim, Norway

A Novel Approach of Acoustic Emission Localization in Offshore Structure OMAE2017-61886
Weilei Mu, Wensheng Gu, Dingxin Leng, Zhenxing Zou
Ocean University of China, Qingdao, China

Structures, Safety and Reliability
2-5-1 Reliability of Marine Structures
Tuesday June 27  
Cosmos 3b, Clarion | 13:15–14:45
Session Chair: Nianzhong Chen, Newcastle University, United Kingdom
Session Co-Chair: Srinivas Sriramula, University of Aberdeen, United Kingdom

Safety of Pipelines Subjected to Deterioration Processes Modelled Through Dynamic Bayesian Networks OMAE2017-61969
Carlos Guedes Soares, Angelo Teixeira, Oscar Palencia
Centre for Marine Technology and Ocean Engineering, Lisboa, Portugal

Joint: Offshore Technology and Prof. Carl Martin Larsen and Dr. Owen Oakley Honoring Symposia on CFD & VIV

1-6-3 Wave/Sloshing Impact and Green-Water Load and FEA Coupling
Tuesday June 27  
Cosmos 3a, Clarion | 13:15–14:45
Session Chair: Nicolas Couty, Hydrocean, France
Session Co-Chair: Joop Helder, MARIN, Netherlands

Numerical Methodologies to Simulate Water Entry of Offshore Subsea Structures in the Splash Zone OMAE2017-62735
Nicolas Couty
Hydrocean, Nantes, France

CFD Based Multi-disciplinary Optimization Design of High-performance Deep Sea Seismic Vessel OMAE2017-62657
Jiankui Qian, Xiaofei Mao, Minghao Wu, Wenru Zhang
Wuhan University of Technology, Wuhan, China

CFD Verification and Validation Study for a Captive Bullet Entry in Calm Water OMAE2017-61666
Guilherme Vaz, Antonio Maximiano, Jule Scharmke
MARIN, Wageningen, Netherlands

Sloshing and Swirling in Partially Filled Prismatic Tanks OMAE2017-61562
Gustavo Karuka1 Arai Makoto1 Hideyuki Ando2
1. Yokohama National University, Yokohama, Japan; 2. Monohakobi Technology Institute, Tokyo, Japan

Study of an Entrapped Air Pocket Due to Sloshing Using Experiments and Numerical Simulations OMAE2017-62390
Odd Magnus Faltinsen1 Reza Firoozkoohi2 Bjørn Christian Abrahamsen2
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. MARINTEK, Trondheim, Norway

Structures, Safety and Reliability
2-3-2 Probabilistic Response Models II
Tuesday June 27  
Space 2, Clarion | 13:15–14:45
Session Chair: Ahmad Suhail, Indian Institute of Technology, India
Session Co-Chair: Lance Manuel, University of Texas at Austin, USA

Erik Vanem
DNV GL, Havik, Norway

Long Term Analysis of TLP Extreme Tendon Tensions using a Coupled Model and Comparison with the Contour Line Approach OMAE2017-61213
Isabel Jiménez Puente, Gunnar Lian
Statoil, Stavanger, Norway

Long-term Extreme Response Analysis of Marine Structures Using Inverse SORM OMAE2017-61409
Bernt Leira, Finn-Iidar G. Giske, Ole Bieuch
Norwegian University of Science and Technology, Trondheim, Norway

A Novel Approach of Acoustic Emission Localization in Offshore Structure OMAE2017-61886
Weilei Mu, Wensheng Gu, Dingxin Leng, Zhenxing Zou
Ocean University of China, Qingdao, China

Structures, Safety and Reliability
2-5-1 Reliability of Marine Structures
Tuesday June 27  
Cosmos 3b, Clarion | 13:15–14:45
Session Chair: Nianzhong Chen, Newcastle University, United Kingdom
Session Co-Chair: Srinivas Sriramula, University of Aberdeen, United Kingdom

Safety of Pipelines Subjected to Deterioration Processes Modelled Through Dynamic Bayesian Networks OMAE2017-61969
Carlos Guedes Soares, Angelo Teixeira, Oscar Palencia
Centre for Marine Technology and Ocean Engineering, Lisboa, Portugal
Structural Reliability Assessment of Grounded Oil Tanker in the Adriatic Sea  
OMAE2017-62278
Maro Ćorak1 Joska Paravanu2 Carlos Guedes Soares3 1. Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb, Zagreb, Croatia; 2. Instituto Superior Tecnico, Universidade de Lisboa, Lisbon, Portugal

Structural Reliability Analysis Applied on Steel Ships for Rule Partial Safety Factors Calibration  
OMAE2017-61677
Quentin Derbanne, Alexis Benhamou, Jérôme de Lauzon Bureau Veritas, Neuilly sur Seine, France

Structures, Safety and Reliability  
2-13-3 Risk Analysis and Management III  
Tuesday June 27  
A1, B1 | 13:15–14:45
Session Chair: Marcelo Martins, University of São Paulo, Brazil  
Session Co-Chair: Ingrid B. Utne, Department of Marine Technology, NTNU, Norway

A Risk Assessment of a Novel Bulk Cargo Ship-to-Ship Transfer Operation Using the Functional Resonance Analysis Method  
OMAE2017-61535
Lauchlan Clarke1 Gregor Macfarlane1 Irene Penesis1 Jonathan Duffy2 Shinshuke Matsubara2 Ross J Ballantyne3 1. Australian Maritime College, University of Tasmania, Launceston, TAS, Australia; 2. Australian Maritime College, Newnham, TAS, Australia; 3. Sea Transport Corporation, Runway Bay, TAS, Australia

Development of a Simulator Training Platform for Fish Farm Operations  
OMAE2017-62023
Karl Gunnar Aarsaether1 Ingunn Marie Holmen1 Trine Thorvaldsen2 1. SINTEF Fisheries and Aquaculture, Trondheim, Norway; 2. SINTEF Fisheries and Aquaculture, Tromsø, Norway

Risk Management of Autonomous Marine Systems and Operations  
OMAE2017-61645
Ingrid Schjalberg1 Asgeir Johan Sørensen1 Ingrid B. Utne2 1. Norwegian University of Science and Technology, Norway; 2. Department of Marine Technology, Norwegian University of Science and Technology, Trondheim, Norway

Research on Monitoring Point Layout of Health Monitoring System of the Icebreaker  
OMAE2017-62491
Youzhen Wang, Guoping Feng, Pengfei Li Harbin Engineering University, Harbin, China

Materials Technology  
3-1-2 Fracture Control – Analytical Approach II  
Tuesday June 27  
Living Room 4, Clarion | 13:15–14:45
Session Chair: Xin Wang, Carleton University, Canada  
Session Co-Chair: Xiaohui Wang, American Bureau of Shipping, USA

Three-Dimensional Finite Element Analysis of a Mixed Mode I/II Fracture Test Specimen: Asymmetric Four-Point Shear Specimen  
OMAE2017-61475
Xin Wang, Mark Cohen Carleton University, Ottawa, ON, Canada

Surrogate Model for Predicting Stress Intensity Factor: a Novel Application to Oil and Gas Industry  
OMAE2017-61091
Arvind Keprate1 R.M. Chandima Ratnayake2 Shankar Sankararaman3 1. University of Stavanger, Stavanger, Norway; 2. SGT Inc., NASA Ames Research Center, Moffett, CA, USA

Comparing Different Metamodelling Approaches to Predict Stress Intensity Factor of a Semi-Elliptic Crack  
OMAE2017-62333
Arvind Keprate1 R.M. Chandima Ratnayake2 Shankar Sankararaman3 1. University of Stavanger, Stavanger, Norway; 2. SGT Inc., NASA Ames Research Center, Moffett, CA, USA

Elastic-Plastic Interaction of a Griffith Crack with a Circular Inclusion and Nearby Edge Dislocation  
OMAE2017-62637
Mu Fan1 Cun-Fa Gao2 Zhongmin Xiao3 1. Nanjing University of Aeronautics and Astronautics, Nanjing, China; 2. Nanyang Technological University, Singapore, Singapore

Pipelines, Risers, and Subsea Systems  
4-1-4 Flexible Pipes IV  
Tuesday June 27  
Space 3, Clarion | 13:15–14:45
Session Chair: Anh Tuan Do, TECHNIP, France  
Session Co-Chair: Celso Pesce, University of São Paulo - Escola Politecnica, Brazil

Development of a Flexible Riser System for Ultra-deep Water  
OMAE2017-61458
Zhimin Tan1 Yucheng Hou1 Jiabei Yuan2 1. GE Oil & Gas, Westhill, United Kingdom; 2. GE Oil & Gas, Houston, TX, USA

Loading Combination Screening Using Probabilistic Determination of Load-case Matrices  
OMAE2017-61384
Paul Sicic1 Joao Falcao Alegrias2 Neill Renton3 1. TechnipFMC Innovation & Technology Center, Rueil Malmaison, France; 2. TechnipFMC UK Ltd, Westhill, United Kingdom; 3. Genesis, Aberdeen, United Kingdom

Dynamic Behavior of Flexible vs Rigid Spools During Seismic Loading Events  
OMAE2017-61837
Per Damaleth1 Christian Kaurn1 Jacob Dybwad2 Hans Panjaitan2 1. Wood Group Kenny Horge, Hoenvik, Norway; 2. Wood Group Kenny Horge AS, Lilleaker, Norway

UHB of Flexible Flowlines – Design and Analysis  
OMAE2017-61185
Matt Liu, Colin Cross Aker Solutions, London, United Kingdom

Pipelines, Risers, and Subsea Systems  
4-4-1 Mechanics and Monitoring  
Tuesday June 27  
Cosmos 3d, Clarion | 13:15–14:45
Session Chair: Sven Savvik, Norwegian University of Science and Technology, Norway  
Session Co-Chair: Zhimin Tan, GE Oil & Gas, Wellstream, USA

Force Absorbed by Materials of Varied Hardness from Dropped Objects: An Application to Subsea Structures  
OMAE2017-61251
Cheslav Balash1 Guy MacLean2 David MacLean3 1. Edith Cowan University, Perth, WA, Australia; 2. Australian Maritime College, University of Tasmania, Launceston, TAS, Australia; 3. FLXMAE, Singapore, Singapore
Development and Testing of a Friction-Based Post-Installable Fiber-Optic Monitoring System for Subsea Applications OMAE2017-61494
Nicole Bentley1, Henry Yang2, David Brower3, Syu Q. Le1, Calvin H. Seaman2
1. NASA Johnson Space Center, Houston, TX, USA; 2. Aerodyne Industries / NASA Johnson Space Center, Houston, TX, USA; 3. Astro Technology Inc, Houston, TX, USA

Qualification of Reactive Flex Joint on offshore Drill Rig OMAE2017-61780
Timothy Kendo1, Håvar Istad1, Richard Verley1, Arve Bjerset1
1. StatOil ASA, Trondheim, Norway; 2. FMC Technologies, Kongsberg, Norway; 3. FMC Kongsberg Subsea AS, Kongsberg, Norway

Subsea Structural Monitoring with Machine Vision OMAE2017-61796
Kristian Audhun
4subsea, Hvalstad, Norway

Ocean Space Utilization

5-2-2 Aquaculture and Related Technology II Tuesday June 27 U6, BI | 13:15–14:45
Session Chair: Shixiao Fu, Shanghai Jiao Tong University, China

Environment Description in Design of Fish Farms at Exposed Locations OMAE2017-61531
David Kristiansen, Pål Fursset Lader, Biao Su, Vegard Aksnes, Hans Bjelland
SINTEF Ocean, Trondheim, Norway

Classification of Aquaculture Locations in Norway with Respect to Wind Wave Exposure OMAE2017-61659
David Kristiansen1, Pål Fursset Lader1, Hans Bjelland1, Dag Myrhaug2, Morten Alves3
1. SINTEF Ocean, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. SINTEF Fisheries and Aquaculture AS, Trondheim, Norway

A Preliminary Study of a Vessel-shaped Offshore Fish Farm Concept OMAE2017-61665
Muk Chen Ong1, Lin Li1, Zhiyu Jiang2
1. The University of Tokyo, Tokyo, Japan; 2. Norwegian University of Science and Technology, Trondheim, Norway

Numerical Simulation of Motion-controlled Fishery Boat with Harvesting Wave Energy OMAE2017-61824
Daisuke Kitazawa1, Takero Yoshida1, Sota Kanno1, Jialin Han1, Teruo Maeda2
1. The University of Tokyo, Tokyo, Japan; 2. SINTEF Ocean, Trondheim, Norway

Polar and Arctic Sciences and Technology

7-4-1 Vessels in Ice Tuesday June 27 A4, BI | 13:15–14:45
Session Chair: Ian Turnbull, C-CORE, Canada
Session Co-Chair: Walter Kuehnlein, Sea2ice Ltd. & Co. KG, Germany

Comparative Study of Motions and Drift Forces of Ships in Waves and Current OMAE2017-61878
Florian Sprenger1, Bryan Selvik2, Dariusz Fathi2, Elian Marita Hermundstad3, Ian Roger Hoff1
1. MARINTEK, Trondheim, Norway; 2. SINTEF Ocean, Trondheim, Norway

Ship Vertical Loads from Using an Adaptive Mesh Pressure Integration Technique for Froude-Krylov Forces Calculation OMAE2017-62613
Carlos Guedes Soares, José Miguel Rodrigues
Centre for Marine Technology and Ocean Engineering, Lisbon, Portugal
Prof. Carl Martin Larsen and Dr. Owen Oakley Honoring Symposia on CFD & VIV

8-4-5  VIM and VIV Suppression

Tuesday June 27  A3, BI  |  13:15–14:45

Session Chair: Shixiao Fu, MARINTEK, Norway
Session Co-Chair: Elizabeth Passano, MARINTEK, Norway

Vortex-induced Vibrations of a Cylinder with a Control Rod in its Wake OMAE2017-61471
Francisco Hueba-Huarte1 Jose I. Jiménez-González2
1. Universitat Rovira i Virgili, Tarragona, Spain; 2. Universidad de Jaén, Jaén, Spain

Control of Flow-Induced Motion in Multi-coulnm Platform by Near-Wake Jets OMAE2017-61605
Rajeev Kumar Jaiman1 Pei Feng Ma2 Narendran Kumar1
Mengzhao Guan1 Harinidu Pradeeptha Miyawala1
1. National University of Singapore, Singapore, Singapore; 2. Keppel Offshore and Marine, Singapore, Singapore

VIV Suppression Device Development and the Perils of Reynolds Number OMAE2017-62690
Don Allen1 Nicole Liu2
1. VIV Solutions LLC, Richmond, VA, USA; 2. Shell Oil Co., Houston, TX, USA

Prediction of Vortex Shedding Control by Means of Splitter Plates OMAE2017-62707
Bassam Yonis1 Shaoshi Dai1 Hongyang Zhang1 Rongyu Zhang1
1. University of California, Davis, Davis, CA, USA; 2. Harbin Engineering University, Harbin, China

Ocean Renewable Energy

9-2-10  Aerodynamics II

Tuesday June 27  U8, BI  |  13:15–14:45

Session Chair: Lance Manuel, University of Texas at Austin, USA
Session Co-Chair: Lene Eliassen, Norwegian University of Science and Technology, Norway

Design of an Offshore Three-Bladed Vertical Axis Wind Turbine for Wind Tunnel Experiments OMAE2017-61512
Sukanta Roy1 Hubert Branger1 Christopher Luneau2 Denis Bourras3 Benoit Paillard4
1. IRFHE, CNRS, Aix-Marseille University, Marseille, France; 2. CNRS, Institut Pythées: Observatoire des Sciences de l’Hiver, Marseille, France; 3. Aix-Marseille University, CNRS/INSU, IRD, Mediterranean Institute of Oceanography, Marseille, France; 4. EOLFI, Paris, France

Wind Farm Modelling in a Realistic Environment using a Multiscale Approach OMAE2017-61686
Mandar Tabib1 Adil Rasheed1 Jørn Kristiansen1
1. SINTEF Digital, Trondheim, Norway; 2. Norwegian Meteorological Institute, Oslo, Norway

On the Interactions Between Windfarms and Marine Boundary Layer OMAE2017-61588
Mandar Tabib1 Eivind Fonn1 M.Salman Siddiqui1 Adil Rasheed1 Trond Kramsdal2
1. SINTEF Digital, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway

Study on Influence of Vortex Induced Loads on the Motion of Spar-type Wind Turbine Based on Aero-Hydro-Vortex-Mooring Coupled Model OMAE2017-62620
Liqin Liu, Yan Li, Yougang Tang, Weichen Jin, Xiaoju Qu
Tianjin University, Tianjin, China

Offshore Geotechnics

10-3-1  Pile Foundations I

Tuesday June 27  U2, BI  |  13:15–14:45

Session Chair: Amin Barari, Virginia Tech, USA

A Web Based Application for the Lateral Analysis of Pile (LAP) Foundations OMAE2017-61600
James Doherty
University of Western Australia, Perth, WA, Australia

Design, Construction, and Installation of Off-shore Wind Turbine with Tripod Suction Bucket Foundation OMAE2017-62250
Sangchul Bang1 Moosung Ryu1 Jun Shin Lee1 Daein Kwag1
1. South Dakota School of Mines & Technology, Rapid City, SD, USA; 2. Korea Electric Power Corporation Research Institute, Daejeon, Korea; 3. ADVACT, Anyang, Korea

Undrained Capacity of Suction Piles Subjected to Moment Loading OMAE2017-63280
John Oliphant, Saeed Abyaneh, Justin Kennedy, Alasdair Macomachie
Technip, Aberdeen, United Kingdom

Petroleum Technology

11-7-3  Well Drilling Fluids and Hydraulics-III

Tuesday June 27  Cosmos 3c, Clarion  |  13:15–14:45

Session Chair: Ergun Kuru, University of Alberta, Canada
Session Co-Chair: Vassilios C. Kelessidis, Petroleum Institute, United Arab Emir.

Ditch Magnet Performance OMAE2017-61026
Kjartan M. Stremo1 Jan Egil Pallin1 Gudmund Aaker1 Helge Hodne1 Arild Saasen1
1. University of Stavanger, Stavanger, Norway; 2. Saepg AS, Tiller, Norway; 3. Schlumberger Oilfield Services, Tananger, Norway

Wellbore Dynamics of Kick Evolution Considering Hydrate Phase Transition on Gas Bubbles Surface During Deep Water Drilling OMAE2017-61125
Xiaohui Sun, Baogiang Sun, Zhiyuan Wang
China University of Petroleum, Qingdao, China

Probabilistic Flow Modelling Approach for Kick Tolerance Calculations OMAE2017-61391
Kjell Kåre Bjørkevoll1 Jan Eivind Fonn1 Trond Kramsdal2
1. SINTEF Digital, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway

www.omae2017.com  |  55
Torgeir Moan Honoring Symposium

12-13-1 Floating Bridges I

Tuesday June 27

Session Chair: Bernt Leira, Norwegian University of Science and Technology, Norway
Session Co-Chair: Halvor Lie, SINTEF Ocean AS, Norway
Overview of Floating Bridge Projects in Norway OMAE2017-62714
Mathias Eide
Norwegian Public Roads Administration, Stavanger, Norway

Prof. Torgeir Moan and the Record Breaking Fjord Crossings in Norway OMAE2017-62659
Børre Jakobsen, Lidvard Skorpa, Håvard Østlid
1. Norwegian Public Roads Administration, Stavanger, Norway; 2. Skorpa Rådgiving AS, Stavanger, Norway; 3. Østlid Consult, Fetsund, Norway

Simplified hydrodynamic calculation of a Submerged Floating Tube Bridge across the Digermunnd of Norway OMAE2017-61189
Arianna Minoretti, Xu Xiang, Mathias Eide
Mikhail Vodolazkin
Tale Egeberg Aasland, Kjell Håvard Belsvik
1. Norwegian Public Roads Administration, Vadsø, Norway; 2. Norwegian Public Roads Administration, Stavanger, Norway; 3. Norwegian University of Science and Technology, Trondheim, Norway

Concrete Pontoon Optimization for a Side Anchored Straight Floating Bridge OMAE2017-62698
Byvind Nedreba, Bernt Serby, Arnt G. Fredriksen, Basile Bonnemaire
Per Norum Larsen, Mads Fredrik Heiervang, Pål Grothe Sandnes, Anders Nestøby
1. Norwegian Public Roads Administration, Leikanger, Norway; 2. TechnipFMC, Houston, TX, USA; 3. Technip, Houston, TX, USA

REFRESHMENT BREAK
14:45 – 15:15
Space Foyer, Clarion

CONCURRENT SESSIONS
15:15 – 17:15

Offshore Technology and Prof. Carl Martin Larsen and Dr. Owen Oakley Honoring Symposia on CFD & VIV

1-4-2 Design Optimisation

Tuesday June 27

Session Chair: Betsy Seiffert, Florida Atlantic University, USA
Session Co-Chair: Erik Jan de Ridder, MARIN, Netherlands
LESS=MOOR: A Time-efficient Computational Tool to Assess the Behaviour of Moored Ships in Waves OMAE2017-61278
Yijun Wang, Alex Van Deyzen, Benno Beimers
Royal Haskoning DHV, Rotterdam, Netherlands

Optimization of Mooring Systems for Floating Offshore Platforms Considering Seabed Obstacles OMAE2017-61482
Bruno da Fonseca Monteiro, Carl Horst Albrecht, Beatriz Souza L. Pires de Lima, Breno Pinheiro Jacob
Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil

Multi-objective Optimization of Subsea Pipeline Routes in Shallow Waters OMAE2017-61483
Juliana Baioco, Carl Horst Albrecht, Beatriz Souza L. Pires de Lima
Breno Pinheiro Jacob, Djalele Rocha
1. Federal University of Rio de Janeiro / UFF, Rio de Janeiro, RJ, Brazil; 2. Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 3. Petrobras, Rio de Janeiro, RJ, Brazil

Thruster-wave Interaction – Model Tests in Open Water and under a Ship Hull OMAE2017-62168
Hans Cozin, Jin Woo Choi, Young-Jun You
1. MARIN, Wageningen, Netherlands; 2. DSME, Seoul, Korea

Joint: Offshore Technology and Prof. Carl Martin Larsen and Dr. Owen Oakley Honoring Symposia on CFD & VIV

1-6-1 Wave-Induced Global Load and Response

Tuesday June 27

Session Chair: Jang Kim, TechnipFMC, USA
Session Co-Chair: Guangyu Wu, Chevron, USA
Zhenjia (Jerry) Huang, Jan Kim, Aldric Baquet
1. ExxonMobil Upstream Research Company, Spring, TX, USA; 2. TechnipFMC, Houston, TX, USA; 3. Technip, Houston, TX, USA

Numerical Simulation of Wave Interaction with a Hinged Multi-module Floating Structure OMAE2017-62739
Ya bin Li, Dalian University of Technology, Dalian, China

Simulation of Passing Vessel Effects on Moored Vessel Mooring Response Due to Environmental Loads OMAE2017-65593
S Nallayarasu, Nandhini Vasudevan
Indian Institute of Technology, Madras, Chennai, TN, India

Numerical and Experimental Damping of Piston and Sloshing Motions in Moonpools OMAE2017-61617
Andrés Cara-Hochbaum, Pablo Carrica, Jan Löhmann
1. Technische Universität Berlin, Berlin, Germany; 2. University of Iowa, Iowa City, IA, USA

Numerical Simulation of Wave Interaction with a Hinged Multi-module Floating Structure OMAE2017-61079
Bing Ren, Ya bin Li
1. Dalian University of Technology, Dalian, China; 2. Tianjin University, Tianjin, China

Benchmark Studies of Wave Run-up and Forces on a Truncated Square Cylinder OMAE2017-62358
Wei Qiu, Heather Peng, Md. Ashim Ali
Memorial University of Newfoundland, St. John’s, NL, Canada

A New and Efficient Approach to Design Floating Bodies in Waves Using the Swense Level-set Method OMAE2017-62734
Mikael Berton
Lemma, Toulouse, France
### Structures, Safety and Reliability

#### 2-4-1 Fatigue Reliability I
**Tuesday June 27**  
**Cosmos 3b, Clarion | 15:15–17:15**

**Session Chair:** Bruna Nabuco, DHRTC DTU, Denmark  
**Session Co-Chair:** Iordan Garbatov, Universidade de Lisboa, Portugal

**Research on Ship Structural Fatigue Damage under Nonlinear Wave Bending Moment**  
OMAE2017-62228  
Jingxia Yue (Lei)¹, Wengang Mao², Chi Zhang³, Liuta Peng⁴, Wei Dong⁴, Zhentao Zhu⁴  
1. Wuhan University of Technology, Wuhan, China; 2. Chalmers University of Technology, Gothenburg, Sweden; 3. National University of Singapore, Singapore, Singapore; 4. China Ship Development and Design Centre, Wuhan, China; 5. Shanghai Bestway Marine Engineering Research and Design Company, Shanghai, China

**A Method for Fatigue Evaluation of Trimaran Cross Structure with the Influence of Slaming**  
OMAE2017-62492  
Huilong Ren, Zhe Li, Kai Jin  
Harbin Engineering University, Harbin, China

**Study on the Remaining Fatigue Life of FPSO Based on Spectral Analysis**  
OMAE2017-61428  
YaKang Peng, Huilong Ren, Lei Ya, Xudong Liu, Xiaoxiong Sun  
Harbin Engineering University, Harbin, China

**Fatigue Damage Estimation of Welded Joints Considering Mechnanochemical Interaction**  
OMAE2017-62315  
Gang Liu, Yi Huang, Jingjie Chen, Leilei Dong, Zhiyuan Li, Qi Zhang  
Dalian University of Technology, Dalian, China

### Materials Technology

#### 3-11-1 Special Fracture Control Session Honoring Prof. Per Haagensen and Stig Berge
**Tuesday June 27**  
**Living Room 4, Clarion | 15:15–17:15**

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

**A Tribute to the Extraordinary Research Work Carried Out by Prof. Per Jahn Haagensen and Prof. Stig Berge at the Norwegian University of Science and Technology NTNU**  
OMAE2017-62189  
Agnes Marie Horn¹, Kenneth A. Macdonald²  
1. DNV GL, Oslo, Norway; 2. University of Stavanger, Stavanger, Norway

**Statistical Analysis of Fatigue Test Data**  
OMAE2017-62212  
Carol Johnston  
TWI Ltd, Cambridge, United Kingdom

**Residual Stresses Redistribution in Girth Weld Pipe After Reduction of the Wall Thickness**  
OMAE2017-61181  
Xavier Ficquet, Remi Romjac, Ed Kingston, Karim Serafsl  
Vequer Limited, Bristol, United Kingdom

**Property Evaluation of Q345 Welded Steel by Tangential Residual Magnetic Field**  
OMAE2017-62169  
Sheng Bao¹, Ashri Mustapha², Shizhuang Bao³, Huangjie Lou³, Meili Fu³  
1. Zhejiang University, Zhejiang, China; 2. Petronas, Kuala Lumpur, Malaysia; 3. Zhejiang University, Hangzhou, China; 4. Institute of Structural Engineering, Zhejiang University, Hangzhou, China

**Assessment of Fatigue Strength of Welded Connections in Thick Plates**  
OMAE2017-61143  
Inge Lotsberg¹, Kashif Toor²  
1. DNV GL, Havik, Norway; 2. Dong Energy, Fredericia, Denmark

### Pipelines, Risers, and Subsea Systems

#### 4-1-11 Umbilicals and Cables II
**Tuesday June 27**  
**Space 3, Clarion | 15:15–17:15**

**Session Chair:** Jun Yan, Dalian University of Technology, China  
**Session Co-Chair:** Alan Dobson, Technip Umbilicals, United Kingdom

**Calculating Arc Length and Curvature of Helical Elements in Bent Cables and Umbilicals using Fourier Series**  
OMAE2017-61102  
Magnus Romked  
Nexans Norway AS, Halden, Norway

**Torsion Instability of Offshore Cables During Installation**  
OMAE2017-61135  
Svein Svevik¹, Evgenii Koloskho²  
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Design and Research Institute VNIPIgazdobycha, Gazprom Subsidiary, Saratov, Russia

**Consistent Free Span VIV Fatigue Analysis of Umbilicals**  
OMAE2017-61812  
Mário Caruso, Nils Sedahl, Xu Han  
DNV GL, Havik, Norway

**The Effect on Dynamic Steel Tube Umbilical Fatigue Performance Associated with Designing for Elevated Temperature**  
OMAE2017-61895  
Jamie Fletcher-Woods, Lewis Ballou, Luke Noble  
Technip Umbilicals, Newcastle upon Tyne, United Kingdom
**TUESDAY**

**15:15 – 17:15**

**Proposed Methodology for Fatigue Testing on Umbilical Round Armor Wir**

George Campello, Marianna R. Tagliani, Tiago B. Coer, João Carlos B. Bertoncello, Facundo Argeillo, Gustavo Matosa, Afonso Reguly.  
1. Petrobras, Rio de Janeiro, RJ, Brazil; 2. Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, Brazil; 3. LAMEF/UFRGS, Porto Alegre, RS, Brazil

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**Pipelines, Risers, and Subsea Systems**

**4-3-2 Reeling**

**Tuesday June 27**

**Cosmos 3d, Clarion | 15:15–17:15**

**Session Chair: Julian Hallai, Exxonmobil Upstream Research Company, USA**

**Installation of the Residual Curvature Method for Reeled Pipe in Pipe**  
OMAE2017-61924  
Ross Barnes, Angus McRae, Jitender Rai, Gareer Abdelmageed.  
1. Technip UK Ltd, Westhill, United Kingdom; 2. Technip, Aberdeen, United Kingdom; 3. Technip Norge AS, Lysaker, Norway

**Reelability and Wall Thickness Optimization of HFI Pipeline Against the Sensitivity of Variation in Mismatch Parameters**  
OMAE2017-62016  
Dasharatha Achani, Vladimir Andreev.  
1. MEOCEAN Engineering Solutions, Tananger, Norway; 2. Balanced Solutions AS, Oslo, Norway

**Post-Reeled Behaviour of Pipelines with Global Buckling Mitigation by the Residual Curvature Method**  
OMAE2017-62481  
Xinhai Qi, Martin Gallegillo, Nicolas Messias.  
1. Technip UK Ltd, Westhill, United Kingdom; 2. Technip, Aberdeen, United Kingdom; 3. Technip Norge AS, Lysaker, Norway

**Wrinkling Failure of Lined Pipe During Reeling**  
OMAE2017-62699  
Stelios Kyriakides, Lin Yuan.  
University of Texas at Austin, Austin, TX, USA

**Advantages of Generating Pipeline Local Residual Curvature During Reel-lay Installation in Deep Water**  
OMAE2017-62631  
Per Nystrom, Odd Martin Lyngsaunet, Pal Forz.  
1. IKM Ocean Design AS, Sandnes, Norway; 2. IKM Ocean Design AS, Trondheim, Norway

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**Ocean Space Utilization**

**5-6-1 Tsunami and High Tide**

**Tuesday June 27**

**U6, BI | 15:15–17:15**

**Session Chair: Koichi Masuda, Nihon University, Japan**

**Session Co-Chair: Koji Takahashi, Port and Airport Research Institute, Japan**

**A Fundamental Study on the Optimal Design of the Floating Tsunami Protection Wharf – About the Floating Body Length**  
OMAE2017-61754  
Mitsuhiko Masuda, Koichi Masuda, Kiyokazu Minami.  
1. Tokyo University of Marine Science and Technology, Tokyo, Japan; 2. Nihon University, Funabashi, Japan

**A Fundamental Research on Countermeasure of Disaster Mitigation and Impact Force to Cause Drifting Ship**  
OMAE2017-62178  
Tomoki Ikoma, Koichi Masuda, Hiroaki Eto, Akhiro Matsuoka, Yasuhito Aida, Kazuki Murata.  
1. Nihon University, Funabashi, Japan; 2. Port and Airport Research Institute, Yokosuka, Japan

**Experimental and Numerical Study On Pressure Fluctuations of Air-water Two-Phase Flow in Underground Pipeline Caused By Tsunami**  
OMAE2017-62415  
Kenya Takahashi, Takeshi Nishihata, Keisuke Oda.  
Penta-Ocean Construction Co., Ltd., Nantshihubaba-shi, Japan

**A Study on Development of Dynamic Tsunami Hazard Map for Mooring Vessels in Port**  
OMAE2017-62186  
Tomoki Ikoma, Koichi Masuda, Hiroaki Eto, Kazuki Murata, Daisuke Kaneko, Masatoshi Ishibashi.  	Nihon University, Funabashi, Japan

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**Ocean Engineering**

**6-1-7 Advanced Ship Hydromechanics and Marine Technology VI**

**Tuesday June 27**

**U3, BI | 15:15–17:15**

**Session Chair: Sanne Van Essen, MARIN, Netherlands**

**Digitalization of Sea going Vessels under High Dimensional Data Driven Models**  
OMAE2017-61011  
Lokukaluge P. Perera, Brage Mo.  
SINTEF Ocean, Trondheim, Norway

**Prediction of Propeller Tip Vortex Flow Based on OpenFOAM**  
OMAE2017-61146  
1. Memorial University of Newfoundland, St. John’s, NL, Canada; 2. Chalmers University of Technology, Gothenburg, Sweden

**An Automated System for Fleet Benchmarking and Assessment of Technical Condition**  
OMAE2017-61219  
1. SINTEF Ocean, Trondheim, Norway; 2. Veritas Petroleum Services (VPS), Oslo, Norway; 3. Veritas Petroleum Services (VPS), Singapore, Singapore

**Outcomes from a Study of Validation of Ship Specific Models for Shiphandling Simulators**  
OMAE2017-61400  
Tor E. Berg, Orjan Selvik.  
1. Berg Shiphandling Services, Trondheim, Norway; 2. MARINTEK, Trondheim, Norway

**Gap Resonance Between Two Non-identical Boxes**  
OMAE2017-62480  
Zou Li, Sheng-Chao Jiang, Tie-Zhi Sun, Chang-Feng Liu.  
1. Dalian University of Technology, Dalian, China; 2. Dalian Ocean University, Dalian, China

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**Ocean Engineering**

**6-12-1 Ocean Engineering Technology I**

**Tuesday June 27**

**U5, BI | 15:15–17:15**

**Session Chair: Vahid Hassani, SINTEF, Norway**

**Benchmark Study of Five Optimisation Algorithms for Weather Routing**  
OMAE2017-61022  
Helong Wang, Wengang Mao, Leif Eriksson.  
Chalmers University of Technology, Gothenburg, Sweden

**Data-driven Real-time Decision Support and its Application to Hybrid Propulsion Systems**  
OMAE2017-61031  
Karl-Johan Reite, Jarle Ladstein, Joakim Haugen.  
SINTEF Ocean, Trondheim, Norway
A Winch Reference Control System for Semi-Pelagic Triple Trawling – With Full-Scale Sea Trials
Joakim Haugen, Eduardo Grimaldo, Svein H. Gjerund
SINTEF Ocean, Trondheim, Norway

A Bézier Curve based Ship Trajectory Optimization for Close-range Maritime Operations
OMAE2017-61171
Guoyuan Li, Houxiang Zhang
Norwegian University of Science and Technology, Ålesund, Norway

A Submerged Floating Tube Bridge Concept for the Bjørnafjord Crossing – Marine Operations
OMAE2017-61309
Arianna Minoretti1, Knut Beck Engbreten1, Stein Alte Haugerud1, Kristoffer Kjelisa Jakobseen1
1. Norwegian Public Road Administration, Vadø, Norway; 2. Aker Solutions, Sandøi, Norway; 3. Dr. Techn Olav Olsen, Lysaker, Norway; 4. Aker Solutions AS, Lysaker, Norway

A CFDbased Fully-Coupled Floater-Mooring-Riser Analysis for Station Keeping
OMAE2017-61634
Rajeev Kumar Jaiman1, Anurag Yenduri1, Pandha Gurugubelli1
Ritwik Ghoshal1, Yulong Li1, Yun Zhi Law1, Chen Zhou1

Hydrodynamics and Capture Efficiency of Floating Plastic Cleanup Booms: Part II, 2D Vertical Capture Efficiency and CFD Validation
OMAE2017-62012
Bruno Sainte-Rose1, Roberto Brambini1, Benedicte Dommergues1, Rene Mettler1, Zaki Abiza2
1. The Ocean Cleanup Foundation, Delft, Netherlands; 2. Dassault Systemes, Madrid, Spain

Validation of Open-source SPH Code Dualsphysics for Numerical Simulations of Water Entry and Exit of a Rigid Body
OMAE2017-61221
Sergei Buruchenko1, Ricardo Lanelas1
1. South Ural State University, Smezhinsk, Russia; 2. Universidade de Lisboa, Lisboa, Portugal

Polar and Arctic Sciences and Technology

7-6-1 Full Scale Measurement and Operations in Ice
Tuesday June 27

Session Chair: Ian Turnbull, C-CORE, Canada
Session Co-Chair: Walter Kuehnlein, Sea2ice Ltd. & Co. KG, Germany

Co-occurrence Probability Analysis of Sea Ice at Yingkou and Huludao Observation Stations of China
OMAE2017-61353
Sheng Dong, Shanshan Tao, Zhifei Wang, Ri Zhang
Ocean University of China, Qingdao, China

Application of Confidence Regions to Ice Ridge Keel Data Statistical Assessment
OMAE2017-62253
Petr Zvyagin1, Jakko Heinonen2
1. Peter the Great S. Petersburg Polytechnic University, St. Petersburg, Russia; 2. VTT, Espoo, Finland

Calculation of Time-to-Freeze for Liquids in Pipes
OMAE2017-62000
Ove Tobias Gudmestad1, Bjarte Kramme2, Jino Peechanatt1
1. University of Stavanger, Stavanger, Norway; 2. University of Stavanger, Rogaland, Norway

Prof. Carl Martin Larsen and Dr. Owen Oakley Honoring Symposia on CFD & VIV

8-1-1 Floating Systems and Global Response
Tuesday June 27

Session Chair: Stephen Cosgrove, Altair Engineering, USA
Session Co-Chair: Samuel Holmes, Redwing Engineering, USA

Experimental Study on Flow Around an Array of Four Cylinders with Different Section Geometries
OMAE2017-61014
Hideyuki Suzuki, Rodolfo T. Gonçalves, Shinichiro Hirabayashi
The University of Tokyo, Kashiwanoha, Kashiwa-shi, Japan

Progression of CFD Applications in the Offshore Industry
OMAE2017-62697
Yiannis ConstantiNides
Chevron, Houston, TX, USA

Ocean Renewable Energy

9-2-6 Fatigue
Tuesday June 27

Session Chair: Madjid Karimirad, Queen’s University Belfast, Northern Ireland
Session Co-Chair: Sungmoon Jung, FAMU-FSU College of Engineering, USA

A Fast and Practical Method for Predicting the Fatigue Life of Offshore Wind Turbine Jacket Support Structures
OMAE2017-61339
Chaoxu Han, Yongliang Ma, Xinqiang Qu, Binbin Qiu, Peijiang Qin
Harbin Engineering University, Harbin, China

Fracture Mechanics Based Fatigue Assessment for a Spar-type Floating Wind Turbine
OMAE2017-61568
Nianzhong Chen, Chi-Yu Chien
FAMU-FSU College of Engineering, Tallahassee, FL, USA

Calibration of Long-term Time-domain Load Generation for Fatigue Life Assessment of Offshore Wind Turbine
OMAE2017-61747
Bryan Nelson1, Tsung-Yueh Lin1, Yann Quemener1, Chi-Yu Chien1, Hsin-haou Huang2
1. Research Department, CR Classification Society, Taipei, Taiwan; 2. CR Classification Society, Taipei, Taiwan; 3. National Taiwan University, Taipei, Taiwan

Low Cycle Fatigue Analysis of Offshore Wind Turbines Subjected to Keeping
OMAE2017-62039
Sungmoon Jung, Gholamreza Amirinia
FAMU-FSU College of Engineering, Tallahassee, FL, USA

Efficient Algorithm for Discretization of Metocean Data into Bins of Arbitrary Size and Dimension
OMAE2017-62077
Antoine Peffler, Samuel Kanner, Alexis Aubault, Bingbin Yu
Principle Power Inc., Emeryville, CA, USA
Offshore Geotechnics

10-4-1 Pile Foundations II
Tuesday June 27
U2, BI | 15:15–17:15

Session Chair: Sangchul Bang, South Dakota School of Mines & Technology, USA
Experimental Evaluation of the Natural Frequency of an Offshore Wind Turbine’s Scaled Model OMAE2017-61423
Laura Kerner1 Jean-Claude Dupla1 Gowendar Cumune2 Jean Canou1
Jean-Michel Pereira1 Pierre Argoul1 Selim Benfieldou1
1. ENPC, Champs-sur-Marne, France; 2. Laboratoire Navier, Ecole des Ponts, Champs-sur-Marne, France; 3. IFSTTAR, Champs-sur-Marne, France; 4. Laboratoire Navier, Champs-sur-Marne, France
An Automated Approach for Designing Monopiles Subjected to Lateral Loads OMAE2017-61683
James Doherty, Barry Lehane
University of Western Australia, Perth, WA, Australia
Effects of Lateral Cycling of Monopiles in Soft Clay OMAE2017-62201
James Doherty, Barry Lehane, Pauline Truong
University of Western Australia, Perth, WA, Australia
Supporting the Engineering Analysis of Offshore Wind Turbines Through Advanced Soil-structure 3D Modelling OMAE2017-62469
Omar Zanol1 Federico Pisano2 Simone Corciulo1
1. D’Appolonia S.p.A, San Donato Milanese, Italy; 2. TU Delft, Delft, Netherlands

Petroleum Technology

11-8-1 Drilling Fluids: Improving State of The Art
Tuesday June 27
Cosmos 3c, Clarion | 15:15–17:15

Session Chair: Heike Strauss, TU Bergakademie Freiberg, Germany
Session Co-Chair: Nedijka Gaurina-Medimurec, University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering, Croatia (Hrvatska)
The Influence of SiO2 and TiO2 Nanoparticles on the Properties of Water-Based Mud OMAE2017-61726
Nedijka Gaurina-Medimurec1 Borivoje Palić2 Petar Mijić2
1. University of Zagreb, Zagreb, Croatia; 2. University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering, Zagreb, Croatia
New Drilling Mud for Drilling in Clay Rocks OMAE2017-61476
Sławomir Wysocki, Rafał Wiśniowski, Magdalena Gaczol
AGH University of Science and Technology, Krakow, Poland
Carsten Freese
TU Bergakademie Freiberg, Germany
Application of Outcrops Rock Samples in Laboratory Research of Shale Drilling Fluid Interaction OMAE2017-62649
Borivoje Palić, Nedijka Gaurina-Medimurec, Uroš Barudžija, Petar Mijić
University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering, Zagreb, Croatia
Electric Impulse Drilling – Future-Orientated HT/HP Analysis of Drilling Fluids OMAE2017-61108
Franziska Lehmann1 Erik Anders2 Anne Schulz2 Katja Beier2
1. TU Bergakademie Freiberg, Freiberg, Germany; 2. Technical University of Dresden, Dresden, Germany
**Wednesday, June 28**

**CONCURRENT SESSIONS**

08:15 – 09:45

**Offshore Technology**

1-1-3 Offshore Platforms Loading, Fabrication and Maintenance

Wednesday June 28 | Cosmos 3d, Clarion | 08:15–09:45

Session Chair: Allan Ross Magee, National University of Singapore, Singapore
Session Co-Chair: R.M. Chandima Ratnayake, University of Stavanger, Norway

Comparison of Field Measurement and Numerical Simulation of the T-Shaped Barge Motions during the Topside Floatover Installation [OMAE2017-61313]
Shaohua Zhu¹ Hanbing Luo² Wentai Yu³ Peng Xie³ Alan M. Wang¹ Huailiang Li⁴
1. China Offshore Oil Engineering Co. Ltd., Tianjin, China; 2. Tianjin University, Tianjin, China

Next Generation Hull-platform “NOAH-FPSO Hull” Based on Modular Design and Construction Concept [OMAE2017-61784]
Shigeru Tanaka, Kotaro Takano
Mitsui Engineering and Shipbuilding Co., Ltd., Tokyo, Japan

R.M. Chandima Ratnayake, Kundan Kumar
University of Stavanger, Stavanger, Norway

Column Slamming Loads from Steep and Breaking Waves on a Large TLP [OMAE2017-61786]
Gunmar Lian¹ Terje Peder Stavang² Tone M. Vestbestad³ Ole David Økland⁴
1. Statoil, Stavanger, Norway; 2. Statoil ASA, Stjørdal, Norway; 3. MARINTEK, Trondheim, Norway

**Bayesian Estimation of Directional Wave-Spectrum Using Vessel Movements and Wave-Probes: Proposal and Preliminary Experimental Validation** [OMAE2017-61241]
Pedro Cardozo de Mello, Eduardo Tannuri, Alexandre Simoes, Guilherme Franzini, Felipe Lopes de Souza, Jordi Mas-Soler
University of São Paulo, São Paulo, SP, Brazil

**Offshore Technology**

1-3-1 Nonlinear Wave and Wave Effects

Wednesday June 28 | Cosmos 3a, Clarion | 08:15–09:45

Session Chair: Longfei Xiao, Shanghai Jiao Tong University, China
Session Co-Chair: Zhenjia (Jerry) Huang, Exxonmobil Upstream Research Company, USA

Wave Impact Experiment of a GBS Model in Large Waves [OMAE2017-61473]
Zhenjia (Jerry) Huang¹ Qiuchen Guo²
1. ExxonMobil Upstream Research Company, Spring, TX, USA; 2. University of California at Berkeley, Berkeley, CA, USA

Driven Nonlinear Potential Flow with Wave Breaking at Shallow-water Beaches [OMAE2017-61974]
Onno Bokhove, Floriane Gidel, Mark Kelmanson
University of Leeds, Leeds, United Kingdom

Semi-Empirical Crest Distributions of Long-Crested Nonlinear Waves of Three-Hour Duration [OMAE2017-61226]
Zhenjia (Jerry) Huang¹ Qiuchen Guo²
1. ExxonMobil Upstream Research Company, Spring, TX, USA; 2. University of California at Berkeley, Berkeley, CA, USA

Preliminary Evaluation of the Effectiveness of Using Artificial Reefs to Reduce Breaking Wave Impact on Offshore Structures [OMAE2017-61975]
Longbin Tao¹ Julie Caroe Kristoffersen² Charlotte Loedsen Andersens³ Ida Skov Milthers³ Christos Thomas Georgakis¹
1. Newcastle University, Newcastle upon Tyne, United Kingdom; 2. University of Aarhus, Aarhus, Denmark; 3. University of Aarhus, Department of Engineering, Aarhus, Denmark

**Structures, Safety and Reliability**

2-4-2 Fatigue Reliability II

Wednesday June 28 | Cosmos 3b, Clarion | 08:15–09:45

Session Chair: Jingxia Yue (Le), Wuhan University of Technology, China
Session Co-Chair: Guang Zou, Lloyd’s Register, United Kingdom

Shrikarpagam D
Indian Institute of Technology, Madras, Chennai, TN, India

Bayesian Estimation of Directional Wave-Spectrum Using Vessel Movements and Wave-Probes: Proposal and Preliminary Experimental Validation [OMAE2017-61241]
Pedro Cardozo de Mello, Eduardo Tannuri, Alexandre Simoes, Guilherme Franzini, Felipe Lopes de Souza, Jordi Mas-Soler
University of São Paulo, São Paulo, SP, Brazil

**Wednesday June 28**
Reliability Analysis of Offshore Structures Using OMA Based Fatigue Stresses OMAE2017-61730
Amina Aissami1, Rune Brucker2, Bruna Nabuco3, Marius Tarpa1
1. DHI/DTU, Kgs. Lyngby, Denmark; 2. Technical University of Denmark, Copenhagen, Denmark

Ove Tobias Gudmestad, Ashish Aeran
University of Stavanger, Stavanger, Norway

Ashish Aeran, Sudath C. Sinwardane, Ove Kjetil Mikkelsen, Ivar Langen
University of Stavanger, Stavanger, Norway

Materials Technology

Structures, Safety and Reliability

2-9-2 Extreme Loading and Responses II

Wednesday June 28 Space 2, Clarion | 08:15–09:45
Session Chair: Sverre Haver, Norwegian University of Science and Technology, Norway
Session Co-Chair: Tetsuo Okada, Yokohama National University, Japan

On the Distribution of Horizontal Wave Impact Loads on Offshore Structures OMAE2017-62057
Oistein Hagen, Thomas B. Johannessen, Øystein Lande
DNV GL, Havik, Norway

Transverse Deformation of Pressurised Pipes with Different Axial Loads OMAE2017-62507
Magnus Langseth, Håvar Ilstad, Leibniz Universität Hannover, Hannover, Germany

Experimental Study on Hydroelastic Impact of One Wedge with Stiffened Panels OMAE2017-61457
Liu Ning, HuLong Ren, Chuannui Dong, Qiang Wang
Harbin Engineering University, Harbin, China

High Cycle Fatigue Damage Evaluation of Steel Pipelines Based on Microhardness Changes During Cyclic Loads OMAE2017-62677
Ilson Pasquale1, Geovana Drumond1, Bianca Finheiro2
1. COPPE - Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 2. Universidade Lille 1, Villeneuve d’Ascq, France

Fatigue Assessment of Drill Pipes OMAE2017-62696
Per J. Haagensen1, Terje Ivar Grottum2
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Statoil, Bergen, Norway

Pipelines, Risers, and Subsea Systems

4-1-5 Flexible Pipes V

Wednesday June 28 Space 3, Clarion | 08:15–09:45
Session Chair: Murilo Vaz, Universidade Federal do Rio de Janeiro, Brazil
Session Co-Chair: José Renato M de Sousa, Universidade Federal do Rio de Janeiro, Brazil

The Installation of Flexible Risers and Flowlines Systems with PLET on the Subsea End OMAE2017-61279
Kee Chien Ting1, Kishor Chavan2, Samuel Balmford1, Daniel Sullivan2
1. Subsea 7, Sutton, United Kingdom; 2. Subsea 7, Surrey, United Kingdom; 3. Subsea 7, Houston, TX, USA

Parametric Analysis of Crushing and Squeezing Loads Over a Flexible Pipe During Installation Procedure OMAE2017-62167
Clovis de Arruda Martins1, Heloisa Guedes Mendonça2
1. University of São Paulo, São Paulo, SP, Brazil; 2. Leibniz Universität Hannover, Hannover, Germany

Pipelines, Risers, and Subsea Systems

4-2-1 Analysis I

Wednesday June 28 Space 1, Clarion | 08:15–09:45
Session Chair: Aravind Nair, DNV GL, USA
Reliability Based ECA Flaw Acceptance Criteria and Safety Factors of Risers and Flowlines OMAE2017-61028
S.H. Mark Chang1, Yohann Miglio2, Xinhai Qi3
1. Genesis/Technip Group, Houston, TX, USA; 2. Technip, Houston, TX, USA

Wellhead Monitoring – Measured Fatigue Damage Validation OMAE2017-61081
Stuart Killbourn1, Elizbar B. Kebede2, John D. Henderson2, Gavin Chomczuk1, Andrew S. Mosley2, David Bolger3, James V. Maher4
1. Fugro GEOS Ltd, Glasgow, United Kingdom; 2. BP Exploration & Production, Sunbury-on-Thames, United Kingdom; 3. ASMosley & Co, Insch, United Kingdom; 4. Trendsetter Vulcan Offshore, Houston, TX, USA
Seabed Trench Formation Under Steel Catenary Risers and its Influence on Fatigue Life in Touchdown OMAE2017-61088
Hodjat Shiri, Rahim Shoghi
Memorial University of Newfoundland, St. John’s, NL, Canada

Deterministic Fatigue Analysis for Rigid Riser System Including Associated Supports OMAE2017-62431
Xu Han, Linlin Jiao, Jun Liu
DNV GL, Høvik, Norway

Nonlinear Dynamics in Free-hanging Riser OMAE2017-62198
Dongho Jung, Yongju Kwon
Korea Research Institute of Ships and Ocean Engineering, Daegon, Korea

Nonlinear Dynamic Analysis of Deepwater Risers with the Irregular Seabed OMAE2017-62531
Sun Liping, Ma Gang, Wang Hongwei, Zhang Yulin
Harbin Engineering University, Harbin, China

Joint: Ocean Space Utilization and Ocean Renewable Energy

5-5-1 Floating System for Renewable Energy I

Wednesday June 28

Session Chair: Motohiko Murai, Yokohama National University, Japan

Characteristics of Motion Behaviours and the Primary Conversion of a Floating OWC Type WEC with Projecting-Walls OMAE2017-62011
Tomoki Ikoma, Koichi Masuda, Hiroaki Eto
Nihon University, Funabashi, Japan

Numerical Study on Expected Electrical Power of Linear Wave Energy Converter in Arrange Condition OMAE2017-61656
Motohiko Murai, Qiao Li, Syu Kuwada
Yokohama National University, Yokohama, Japan

Hydroelastic Response of Very Large Floating Structures (VLFS) Connected with Wind Turbines OMAE2017-61099
Nilanjan Saha, Sibin Muhamed B N
Indian Institute of Technology, Madras, Chennai, TN, India

Ocean Engineering

6-3-1 Model Tests I – Wave Loads

Wednesday June 28

Session Chair: Joop Helder, MARIN, Netherlands
Session Co-Chair: Parameswaran Krishnankutty, Indian Institute of Technology Madras, India

Reproduction of Monopile Ringing Events in Reduced-Duration Model Tests OMAE2017-61034
Trygve Kristiansen, Erin E. Bachynski
Norwegian University of Science and Technology, Trondheim, Norway

Kuang-An Chang, Wei-Liang Chuang, Richard Mercier
Texas A&M University, College Station, TX, USA

Experimental Investigation of the Green Water Loads on a Wave-piercing Tumblehome Ship OMAE2017-61338
Hui Li, Baoli Deng, Huadong Zhao, Shuzheng Sun, WenLei Du
Harbin Engineering University, Harbin, China

Experiments on Stability of Concrete Armour Units at Convex Corner Trunk OMAE2017-61429
Young-Taek Kim1 Jong-In Lee2
1. Korea Institute of Civil Engineering and Building Technology, Goyang, Korea; 2. Chonnam National University, Yeosu, Korea

Ocean Engineering

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

Wednesday June 28

Session Chair: Torgeir Kirkhorn Vada, DNV GL, Norway

Application of a Hybrid Boussinesq-Panel Model for Motion Predictions of a Moored Sevan-Floater in Finite Water Depth OMAE2017-61327
Jikun You, Einar Bernt Glommes
Sevan Marine AS, Oslo, Norway

Second Order Wave Loads on TLP – Tad Multi – Body System OMAE2017-62002
Miguel A. M. Ramírez1 Antonio Carlos Fernandes2
1. BrasFELS, Rio de Janeiro, RJ, Brazil; 2. Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil

Modelling of Nonlinear Wave-Buoy Dynamics Using Constrained Variational Methods OMAE2017-61966
Onno Bokhove1 Anna Kalogirou2 David Ham3
1. University of Leeds, Leeds, United Kingdom; 2. University of East Anglia, Norwich, United Kingdom; 3. Imperial College London, London, United Kingdom

The Influence of Damping on the VIV Suppression of a Circular Cylinder Fitted with Flexible Shrouds OMAE2017-61235
Gustavo R. S. Assi, Murilo M. Cicolin
University of São Paulo, São Paulo, SP, Brazil

Polar and Arctic Sciences and Technology

7-7-1 Ice Management

Wednesday June 28

Session Chair: Petr Zvyagin, Peter the Great St. Petersburg Polytechnic University, Russia
Session Co-Chair: Walter Kuehnlein, Sea2ice Ltd. & Co. KG, Germany

A Particle Filter SLAM Approach to Online Iceberg Drift Estimation from an AUV OMAE2017-61639
Roger Skjelten, Petter Norgren
Norwegian University of Science and Technology, Trondheim, Norway

A System for Automated Vision-Based Sea-ice Concentration Detection and Floe-size Distribution Indication from an Icebreaker OMAE2017-61822
Hans-Martin Heyn1 Roger Skjelten, Martin Knoche2 Qin Zhang2
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Technische Universität München, München, Germany
The Ice Management Tactics Development and Navigation Simulation of Ice Management Operations on the Modern Training Complex OMAE2017-62021
Mikhail Kazantsev, Marina Karulina, Evgeny Karulin, Aleksander Proniashkin Krylov State Research Center, St. Petersburg, Russia
Identification of Potentially Unmanageable Ice Features OMAE2017-62509
Svetlana Shafrova1, Dmitri Matskivetch1, Curtis Holub1, Ted Kokkinis1  
1. ExxonMobil Upstream Research Company, Spring, TX, USA; 2. ExxonMobil Upstream Research Company, Houston, TX, USA

Prof. Carl Martin Larsen and Dr. Owen Oakley Honoring Symposia on CFD & VIV
8-2-1 Free Surface Modeling
Wednesday June 28  A3, BI | 08:15–09:45
Session Chair: Tim Bunnik, MARIN, Netherlands  
Session Co-Chair: Guylherme Vaz, MARIN, Netherlands
Three Dimensional Numerical Study of Various Geometries of Breakwaters on Wave Energy Dissipation OMAE2017-61016
Sergei Buruchenko  
South Ural State University, Smezhinsk, Russia
Free-Surface Flow Simulations with Interactively Moving Objects OMAE2017-61173
Arthur E.P. Veldman1, Henk Seubers1, Peter Van der Plas1, Joop Helder2  
1. University of Groningen, Groningen, Netherlands; 2. MARIN, Wageningen, Netherlands
Arun Kamath1, Hans Bibs1, Weizhi Wang2, Divind A. Amtsen3  
1. Norwegian University of Science and Technology, Sor Trondelag, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway
CFD Modeling of Subsea Gas Releases Using an Improved Bubble Drag Law OMAE2017-62679
Partha Sharma1, Mustafa Kara1, Mazdak Parsi1, Anchal Jatale2  
1. DNV GL, Katy, TX, USA; 2. Det Norske Veritas (U.S.A.), Inc., Katy, TX, USA; 3. ANSYS Inc., Houston, TX, USA

Ocean Renewable Energy
9-3-1 Innovative Concepts
Wednesday June 28  A1, BI | 08:15–09:45
Session Chair: Ann Dallman, Sandia National Laboratories, USA  
Session Co-Chair: Nicolas Tomey-Bozo, MaREI  
Centre - University College Cork, Ireland
Analysis of Wave-Powered Reverse Osmosis System and its Economic Availability in United States OMAE2017-62136
Yi-Hsiang Yu, Dale Jenne  
National Renewable Energy Laboratory, Golden, CO, USA
Conceptual Design and Analysis of a Submerged Wave Energy Device in Shallow Water OMAE2017-62174
R. Gengis Ertekin1, Masoud Haystavdavoodi1, Jason T. Thies3  
1. Harbin Engineering University, Harbin, China; 2. University of Dundee, Dundee, United Kingdom; 3. Texas A&M University, Galveston, TX, USA
A New Class of Wave Energy Device with No Moving Parts in the Water OMAE2017-62220
Hayden Marcello, Andrew E Potts, Paul Sincock, Adrian Eassom, Jon Gamley, Nicholas Boustead, Genevieve Beck  
AMOG Consulting, Notting Hill, VIC, Australia
Development of a Novel Floater to Power Take-off Connection for Wave Energy Converters Based on a Belt-pulley System OMAE2017-62589
Mohammad Rahmati1, Robin Kusch1, Jan P Peckolt2, Jan Pütz1, Julius Schay3  
1. Brunel University London, Uxbridge, United Kingdom; 2. University of Northumbria, Newcaslte upon Tyne, United Kingdom; 3. NEMOS GmbH, Duisburg, Germany

Offshore Geotechnics
10-5-1 Buckets, Suction Caissons and Skirted Foundations
Wednesday June 28  U2, BI | 08:15–09:45
Session Chair: Joe G. Tom, University of Western Australia, Australia
Advanced Approaches for Coupled Deformation-Seepage-Analyses of Suction Caisson Installation OMAE2017-61378
Jürgen Grabe1, Marc Stampfli1, Britta Bienen2  
1. Hamburg University of Technology, Hamburg, Germany; 2. Centre for Offshore Foundation Systems, Perth, WA, Australia
Geotechnical Design of Vertically Loaded Hybrid Suction-Gravity Anchors OMAE2017-61563
Majid Hesar1, Raquel Maciel1, Arnt E Aasvang, Mark Willumsen  
1. Subsea 7, Sutton, United Kingdom; 2. Subsea 7, Rio de Janeiro, RJ, Brazil
A Reliability Based Stiffness Analysis for the Application During Installation of Suction Caissons for Offshore Wind Turbines OMAE2017-62043
Hendrik Sturm1, Alfrea Mirdamadi2  
1. Norwegian Geotechnical Institute, Oslo, Norway; 2. Norwegian Geotechnical Institute, INC., Houston, TX, USA

Petroleum Technology
11-2-1 Drilling Mechanics I
Wednesday June 28  Cosmos 3c, Clarion  | 08:15–09:45
Session Chair: Jorge Sampiao, Colorado School of Mines, USA
Analysis of Shallow Conductor Dynamics and Subsea Wellhead Stability Considering Sand Liquefaction OMAE2017-61015
Deqiang Tian  
China's University of Petroleum, Beijing, China
Temperature Dependent Torque and Drag for 3-D Wells: Model Description and Field Case Study OMAE2017-61230
Bernt Adnøy, Ekaterina Wiktorski, Dan Sui, Martin Tveiterå  
University of Stavanger, Stavanger, Norway
Study of the Influence of Shale Anisotropy Orientation on Directional Drilling Performance in Shale OMAE2017-62071
Stephen Butt, Abdelsalam Abuharara, John Molgaard, Charles Hurich  
Memorial University of Newfoundland, St. John’s, NL, Canada
Torgeir Moan Honoring Symposium

12-2-1 Modelling and Analysis of Marine Operations I

Wednesday June 28 A2, BI | 08:15–09:45

Session Chair: Karl Henning Halse, Norwegian University of Science and Technology, Norway

Session Co-Chair: Tormod Bae, DNV GL, Norway

A Numerical Study on the Effect of a Flopper Stopper on the Motions of a Jack-Up Barge During Leg Lowering OMAE2017-62044
Zhen Gao1 Lin Li2 Zhiyu Jiang3
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. University of Stavanger, Stavanger, Norway; 3. NTNU, Trondheim, Norway

Hydrodynamic Coefficients for Suction Anchors During Installation Operations OMAE2017-62447
Peter Christian Sandvik1 Freydis Solas2 Erling Myhre3
1. PC Sandvik Marine, Trondheim, Norway; 2. SINTEF Ocean, Trondheim, Norway; 3. SINTEF Ocean, Trondheim, Norway

Design Parameters for Increased Operability of Offshore Crane Vessels OMAE2017-62307
Sverre Steen1 Florian Sprenger1 Martin Gutsch1
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. MARINTEK, Trondheim, Norway

REFRESHERMENT BREAK
09:45 – 10:15
Space Foyer, Clarion

CONCURRENT SESSIONS
10:15 – 11:45

Offshore Technology

1-1-5 Spars, FPSOs and Multi Column Floaters

Wednesday June 28 Cosmos 3a, Clarion | 10:15–11:45

Session Chair: Anil Sablok, TechnipFMC, USA
Session Co-Chair: Jang Kim, TechnipFMC, USA

A Preliminary Assessment of the Use of a Large Semi-submersible Platform as a Motion-Based Wave Sensor OMAE2017-61454
Pedro Cardoso de Mello, Eduardo Tannuri, Alexandre Simos, Felipe Lopes de Souza, Jordi Mas-Soler
Universidade de Sao Paulo, Sao Paulo, SP, Brazil

Vortex Induced Motion of a Dry Tree Semisubmersible OMAE2017-61653
Jaime Hui Choo Tan, Yih Jeng Teng, Fatheiah Kiprawi
TechnipFMC, Kuala Lumpur, Malaysia

Effect of Wind Loads and Damping on Heading Stability of FPSOs OMAE2017-62134
Krish Thiagarajan1 Razieh Zangeneh1 Matthew Cameron1
1. University of Maine, Orono, ME, USA; 2. University of Maine, Old Town, ME, USA

Sub-Arctic Low Motions Concrete Floating Structures OMAE2017-62662
Anil Sablok1 Erik Blixtveit Holm2
1. TechnipFMC, Houston, TX, USA; 2. Dr. Techn Olav Olsen AS, Lysekil, Norway

Offshore Technology

1-3-2 Numerical Methods and Experiments – I

Wednesday June 28 Cosmos 3a, Clarion | 10:15–11:45

Session Chair: Jan-Willem Krijger, Gustomsc, Netherlands
Session Co-Chair: Xinliang Tian, Shanghai Jiao Tong University, China
Session Co-Chair: Antonio Souto-Iglesias, Technical University of Madrid, Spain

Numerical Studies on Slosh-Induced Loads using Coupled Algorithm for Sloshing and 3D Ship Motions OMAE2017-61159
Debabrata Sen1 Jairam Saripilli1
1. Indian Institute of Technology, Kharagpur, Kharagpur, WB, India;
2. Indian Register of Shipping, Mumbai, MH, India

Experimental Determination of the Effect of Bow Shape on the Wave Drift Load OMAE2017-61361
Riaan Van ‘t Veer1 Anne Boorsma1 Rene Huijsmans2 Kees Aalbers3
1. SBM Offshore, Schiedam, Netherlands; 2. SBM Schiedam BV, Schiedam, Netherlands; 3. Ship Hydromechanics & Structures, Delft, Netherlands

Limitations in Scaling Towing Tests for Simple Pontoon Shapes OMAE2017-61465
Jan-Willem Krijger, Dimitris Chalkias
Gustomsc, Schiedam, Netherlands

Experimental and Numerical Investigation of Sloshing in Marine LNG Fuel Tanks OMAE2017-61554
Vilmar Assay, Erelt Liisgląd Grote
Norwegian University of Science and Technology, Ålesund, Norway

Combined Experimental and Numerical Studies of Multi-channel Inlet Design for Ocean Basin OMAE2017-61762
Allan Ross Magee1 My Ha Dao2 Yingying Zheng2 Tuyen Le Quang2

Structures, Safety and Reliability

2-4-3 Fatigue Reliability III

Wednesday June 28 Cosmos 3b, Clarion | 10:15–11:45

Session Chair: Vorden Garbatov, Universidade de Lisboa, Portugal
Session Co-Chair: Lei Yu, Harbin Engineering University, China

Prediction of Residual Stresses in Mooring Chains and its Impact on Fatigue Life OMAE2017-61720
Vengatesan Venugopal1 Imanol Martinez Perez2 Philippe Bastid2
1. The University of Edinburgh, Edinburgh, United Kingdom; 2. TWI Ltd, Cambridge, United Kingdom
Parameter Calibration in Dynamic Simulations of Power Cables in Shallow Water to Improve Fatigue Damage Estimation  OMAE2017-61821
Vincent Arna, Charles Spraul, Patrice Carrtraud, Christian Berhault
Ecole Centrale de Nantes, Nantes, France

Development of Probabilistic Fracture Mechanics Method for Fatigue Life Prediction Based on EIFS Concept  OMAE2017-61994
Guang Zou¹ Kian Banisoleiman² Arturo González³ 1. Lloyd's Register, Southampton, United Kingdom; 2. University College of Dublin, Dublin, Ireland

Research for Calculation of Dynamic Stress Intensity Factor Based on Maximum Crack Opening Displacement Under Impact Loads  OMAE2017-62375
Yugang Li, Yi Huang, Jingjie Chen
Dalian University of Technology, Dalian, China

**Structures, Safety and Reliability**

**2-9-3  Extreme Loading and Responses III**

**Wednesday June 28**

**Space 2, Clarion | 10:15–11:45**

**Session Chair:** Vanessa Katsardis, University of Thessaly, Greece  
**Session Co-Chair:** Thomas B. Johannessen, DNV GL, Norway

**A Study on Forced Vibration of Double Bottom Structure Due to Whipping on an Ultra Large Container Ship**  OMAE2017-61149
Tetsuo Okada¹ Yohi Kawasakis¹ Hiroaki Kobayakawas¹ Ichiro Amayas¹ Tetsuji Miyashitas¹ Isao Nekis¹ 1. Yokohama National University, Yokohama, Japan; 2. Japan Marine United Corporation, Tokyo, Japan; 3.  Japan Marine United Corporation, Tsu, Japan; 4. IEM Co., Ltd., Kure, Japan

**Experimental Research on Hydroelasto-buckling Response of Ship Model in Extreme Wave by Changing Wave Length**  OMAE2017-61844
Weiqin Liu, Xueqin Song, Songbo Wang
Wuhan University of Technology, Wuhan, China

**Study on Ship Manoeuvring in Adverse Sea State**  OMAE2017-61935
Elizbieta M. Bitner-Gregersen, Odin Gramstad, Bingjie Guo 1. Aqualine, Trondheim, Norway; 2. Statoil ASA, Stjørdal, Norway; 3. MSSI, Limerick, Ireland; 4. Imperial College, London, United Kingdom

**Concrete Modeling for Extreme Wave Slam Events**  OMAE2017-61331

**Materials Technology**

**3-2-2  Fatigue Performance II**

**Wednesday June 28**

**Living Room 4, Clarion | 10:15–11:45**

**Session Chair:** Xiaohui Wang, American Bureau of Shipping, USA  
**Session Co-Chair:** Carol Johnston, TWI Ltd, United Kingdom

**Scale Effects Influence on the Fatigue Crack Growth of an Offshore Steel**  OMAE2017-61818
Nahuel Micone¹ Wim De Wael² 1. Urgent - Laboratory Soete, Gent, Belgium; 2. Ghent University, Zwijnaarde, Belgium

Fatigue and Strength Performance of Underwater Fillet Welds and Broco® Underwater Cutting Edges  OMAE2017-62235
Pedro Vargas¹ Steven Altsadt² Max Lewis³ 1. Chevron Energy Technology Company, Houston, TX, USA; 2. Wiss Janney Elstner Assoc Inc, Houston, TX, USA; 3. SBM Offshore US, Inc., Houston, TX, USA

Evaluation of the Effect of Different Mean Stress Levels on the Fatigue Resistance of OCTG Premium Threaded Connections  OMAE2017-62418
Carol Johnston¹ Yoshinori Ando¹ Yosuke Oku³ Masaaki Sugino³ 1. TWI Ltd, Cambridge, United Kingdom; 2. Nippon Steel & Sumitomo Metal Corporation, Wakayama City, Japan; 3. Nippon Steel & Sumitomo Metal Corporation, Amagasaki-city, Japan

Low Cycle Fatigue of Subsea Mechanically Lined Pipeline  OMAE2017-62487
Aurelien Pepin¹ Tomasz Tkaczyk² Noel O'Dowd³ Kamran Nikkini³ 1. TECHNIP UK, Aberdeen, United Kingdom; 2. Technip, Westhill, United Kingdom; 3. MSSI, Limerick, Ireland; 4. Imperial College, London, United Kingdom

**Pipelines, Risers, and Subsea Systems**

**4-1-6  Flexible Pipes VI**

**Wednesday June 28**

**Space 3, Clarion | 10:15–11:45**

**Session Chair:** Jose Renato M de Sousa, Federal University of Rio de Janeiro, Brazil  
**Session Co-Chair:** Murilo Vaz, UFRJ, Brazil

**Consistent VIV Assessment Methodology for Unbonded Flexible Risers**  OMAE2017-62554
Faycal Ferdi¹ Neil Willis² Marco Pulaiafto³ 1. Intecsea, Knaphill, United Kingdom; 2. Intecsea, Woking, United Kingdom

**Lazy-Wave Buoyancy Length Reduction Based on Fatigue Reliability Analysis**  OMAE2017-62316
Vincius Ribeiro Machado da Silva, Luís V.S. Sagroló, Mário A. Vignoles COPPE - Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil

**Flexible Risers Lifetime Extension: Riser In-service Monitoring and Advanced Analysis Techniques**  OMAE2017-62700
Hany Elosta¹ Thierry Gavouyere² Pierrick Garniere³ 1. TechnipFMC, Lysaker, Norway; 2. Technip, Le Trait, France; 3. TechnipFMC, Marseille, France

**Pipelines, Risers, and Subsea Systems**

**4-2-2  Analysis II**

**Wednesday June 28**

**Space 1, Clarion | 10:15–11:45**

**Session Chair:** Olav Fyrileiv, DNV GL, Norway  
**Session Co-Chair:** Jose Renato M de Sousa, Federal University of Rio de Janeiro, Brazil

**Calculation of VIV Fatigue of Multi-Pipe Risers**  OMAE2017-61089
Dara Williams, Feargal Kenny Wood Group, Galway, Ireland

**Does More Top Tension Reduce VIV?**  OMAE2017-61435
Leixin Ma¹ J. Kim Vandiver² 1. Massachusetts Institute of Technology, Boston, MA, USA; 2. Massachusetts Institute of Technology, Cambridge, MA, USA

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clarity: The text is clear and readable, with proper formatting and layout.
Case Study of Reduction of Drag and VIV on Full Scale Drilling Risers with LGS Profiles  OMAE2017‑62219
Daniel Johnstone, Hayden Marcello, Andrew E. Potts, Phillip Kurs. AMOG Consulting, Notting Hill, VIC, Australia

Numerical Investigation of Fluid Flow Past a Circular Cylinder with 9 Small Control Rods  OMAE2017‑62563
Zhenhua Song
DOE, Daqing, China

Numerical Evaluation of VIV Suppression by 2 Small Control Rods  OMAE2017‑62564
Zhenhua Song
DOE, Daqing, China

Dynamic Behavior of a Seawater Intake Riser  OMAE2017‑62109
Celso K. Moroka, Patricia M. Sakugawa
University of Campinas, Campinas, SP, Brazil

Ocean Space Utilization

5-5-2 Floating System for Renewable Energy II  
Wednesday June 28  U6, BI  |  10:15–11:45
Session Chair: Qing Xiao, The University of Strathclyde, United Kingdom
Session Co-Chair: Hiroaki Eto, Nihon University, Japan

Interaction between Advanced Spar and Regular Waves  OMAE2017‑61788
Shingo Yamana1, Yasunori Nihira2, Takayuki Hirai3, Akira Sou4
1. Kobe University, Kobe, Japan; 2. Osaka Prefecture University / The University of Tokyu, Sakai, Japan

Dynamic Modeling and Characteristic of Energy Extraction from Multiple Buoys Supporting a Flexible Runway  OMAE2017‑61549
Haicheng Zhang1, Daolin Xu2, Qihua Lu3
1. Hunan University, Changsha, China; 2. Changsha Research Institute of Mining and Metallurgy Co. LTD, Hunan, China

The Influence of an Arrangement of an Array of Semi-submersible Type FOWTs to Their Hydrodynamic Responses  OMAE2017‑61614
Motohiko Murai1, Kensaku Takashashi2
1. Yokohama National University, Yokohama, Japan; 2. American Bureau of Shipping, Yokohama, Japan

Ocean Engineering

6-3-3 Model Tests III – Modelling Techniques  
Wednesday June 28  U3, BI  |  10:15–11:45
Session Chair: David Molyneux, Memorial University of Newfoundland, Canada
Session Co-Chair: Julie Scharnke, MARIN, Netherlands

Wave and Current Generation in Wave Tanks with Axial-flow Pumps  OMAE2017‑61404
Aurélien Babari, Vincent Arnal, Simon Delvoye, Jeroen Wackers, Laurent Davoust, Félicien Bonnefoy
Ecole Centrale de Nantes, Nantes, France

Modeling, Parameter Identification and Thruster-Assisted Position Mooring of C/S Inocean Cat 1 Drillship  OMAE2017‑61896
Hans-Martin Heyn, Roger Skjetne, Jon Bjørne, Andreas Reason Dahl, Preben Frederich Norwegian University of Science and Technology, Trondheim, Norway

Testing Marine Renewable Energy Devices in an Advanced Multi-directional Combined Wave-current Environment  OMAE2017‑62052
Donald Noble1, Tom Bruce2, Thomas Davey2, Samuel Daycott3

Wave-induced Current in a Seakeeping Basin  OMAE2017‑62203
Sanne Van Essen1, Wim Lafbe2
1. MARIN, Wageningen, Netherlands; 2. Code Product Solutions, Schinnen, Netherlands

Ocean Engineering

6-8-2 Fluid-Structure, Multi-Body and Wave-Body Interaction II  
Wednesday June 28  U5, BI  |  10:15–11:45
Session Chair: Nuno Fonseca, MARINTEK, Norway

Investigation of Free Surface Damping Models with Applications to Gap Resonance Problems  OMAE2017‑61288
Zhiyuan Pan1, Torgeir Kirkhorn Vada1, Kevin Markeng2
1. DNV GL - Software, Havik, Norway; 2. DNV GL, Havik, Norway; 3. University of Oslo, Oslo, Norway

Application of a Boundary Element Method for Wave-body Interaction Problems Considering the Non-linear Water Surface  OMAE2017‑61852
Daniel Ferreira Gonzalez1, Moustafa Abdel-Maksoud2, Jonas Bechthold3
1. Hamburg University of Technology, Hamburg, Germany; 2. Institute For Fluid Dynamics and Ship Theory, University of Technology, Hamburg, Germany

Improvement on the Accuracy of Mean Drift Force Calculation  OMAE2017‑62321
Jeffrey Falzarano, Yujie Liu
Texas A&M University, College Station, TX, USA

Frequency Domain Analysis of the Interactions Between Multiple Ships with Nonzero Speed in Waves or Current-wave Interactions  OMAE2017‑62322
Jeffrey Falzarano, Yujie Liu
Texas A&M University, College Station, TX, USA

Polar and Arctic Sciences and Technology

7-11-1 Ice Model Tests  
Wednesday June 28  A4, BI  |  10:15–11:45
Session Chair: Eleanor Bailey, C-CORE, Canada
Session Co-Chair: Walter Kuehnlein, Sea2ice Ltd. & Co. KG, Germany

Experimental and Numerical Models of Wave Reflection and Transmission by an Ice Floe  OMAE2017‑61248
Filippo Nelli1, Alessandro Toffoli2, David M. Skene3, Luke G. Bennetts4, Mike H. Meylan5, Jason P. Monty6
1. Swinburne University of Technology, Hawthorn, VIC, Australia; 2. The University of Melbourne, Parkville, VIC, Australia; 3. University of Adelaide, Adelaide, SA, Australia; 4. University of Newcastle, Callaghan, NSW, Australia
Wave Attenuation Due to Ice Cover: an Experimental Model in a Wave-ice Flume OMAE2017-61548
Alberto Alberelli1 Filippo Nelli1 Alessandro Toffoli2 Luke G. Bennetts3 Mike H. Meylan1 Jason P. Monty1 Azam Dolatshah1 Laura Bruneau1
1. Swinburne University of Technology, Hawthorn, VIC, Australia; 2. The University of Melbourne, Parkville, VIC, Australia; 3. University of Adelaide, Adelaide, SA, Australia; 4. University of Newcastle, Callaghan, NSW, Australia; 5. Memorial University of Newfoundland, St. John’s, NL, Canada

An Experimental Method for Model Propeller-Ice Interaction in Air: Concept and First Results OMAE2017-62248
Daniela Myland1 Constantin Bach2
1. The Hamburg Ship Model Basin, Hamburg, Germany; 2. Hamburg University of Technology, Hamburg, Germany

Model Ice: A Review of its Capacity and Identification of Knowledge Gaps OMAE2017-61808
David Molyneux1 Rudiger U. Franz Von Bock Und Polach1
1. Memorial University of Newfoundland, St. John’s, NL, Canada; 2. Hamburg University of Technology, Hamburg, Germany

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**Prof. Carl Martin Larsen and Dr. Owen Oakley Honoring Symposia on CFD & VIV**

**8-2-2 Free Surface Loading and Structure Interaction**

Wednesday June 28 A3, BI | 10:15–11:45

Session Chair: Guilherme Vaz, MARIN, Netherlands
Session Co-Chair: Tim Bunnik, MARIN, Netherlands

Numerical Simulations of Regular and Irregular Wave Forces on a Horizontal Semi-submerged Cylinder OMAE2017-61405
Muk Chen Ong1 Shengnan Liao1 Charlotte Obhra1 Sophiek Seng1
1. University of Stavanger, Stavanger, Norway; 2. Bureau Veritas, Neuilly sur Seine, France

Extreme Wave Generation, Breaking and Impact Simulations with REEF3D OMAE2017-61524
Arun Kamath1 Hans Bihs2 Mayilvahanan Alagan Chella2 Øivind A. Amtsen2
1. Norwegian University of Science and Technology, Sør-Trøndelag, Norway; 2. DTU Wind Energy, Kgs. Lyngby, Denmark

Computation of Wave Impact Pressures and Kinematics During Plunging Breaking Wave Interaction with a Vertical Cylinder Using CFD Modelling OMAE2017-61657
Hans Bihs1 Mayilvahanan Alagan Chella2 Øivind A. Amtsen2 Dag Myrhaug2
1. Norwegian University of Science and Technology, Sor-Trøndelag, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway

Validation Study of Smoothed Particle Hydrodynamics in Fluid and Structure Interaction and the Comparison to Boundary Element Method OMAE2017-62285
Krish Thiagarajan1 Matthew Cameron2 Nhu Nguyen1
1. University of Maine, Orono, ME, USA; 2. Swinburne University of Technology, Hawthorn, VIC, Australia

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**Ocean Renewable Energy**

**9-1-9 Nonlinear Wave Loads II**

Wednesday June 28 U8, BI | 10:15–11:45

Session Chair: Erin E. Bachynski, Norwegian University of Science and Technology, Norway
Session Co-Chair: Tim Bunnik, MARIN, Netherlands

Extreme Value Analyses of Dynamic Response Parameters of a Wind Tower Structure Under Short-term Nonlinear Irregular Seastate OMAE2017-61495
Luis Sagrilo1 Leonardo Nascimento2 Gilberto Ellwanger1
1. COPPE - Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 2. Bureau Veritas, Rio de Janeiro, RJ, Brazil

Experimental and Numerical Statistics of Storm Wave Forces on a Monopile Turbine in Uni- and Multidirectional Seas OMAE2017-61676
Henrik Bredmose1 Signe Schlaer2 Amin Ghadirian1
1. DTU Wind Energy, Kgs. Lyngby, Denmark; 2. Technical University of Denmark, Kgs. Lyngby, Denmark

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**Ocean Renewable Energy**

**9-3-2 Control Strategies**

Wednesday June 28 A1, BI | 10:15–11:45

Session Chair: Ryan Coe, Sandia National Laboratories, USA
Session Co-Chair: Yi-Hsiang Yu, National Renewable Energy Laboratory, USA

Constraints Implementation in the Application of Reinforcement Learning to the Reactive Control of a Point Absorber OMAE2017-61294
Enrico Anderlini1 Mohammad Abusara1 David I. M. Forehand3 Elva Bannon4
1. IDCORE / University of Edinburgh, Edinburgh, United Kingdom; 2. University of Exeter, Penryn, United Kingdom; 3. University of Edinburgh, Edinburgh, United Kingdom; 4. Wave Energy Scotland, Inverness, United Kingdom

An Assessment of WEC Control Performance Uncertainty OMAE2017-61912
Giorgio Bacelli1 Ryan Coe2 Osama Abdelkhalik2 David Wilson3
1. Sandia National Laboratories, Albuquerque, NM, USA; 2. Michigan Technological University, Houghton, MI, USA; 3. Bureau Veritas, Rio de Janeiro, RJ, Brazil

Experimental Study on Dynamic Control of Oscillation Characteristics of a Spar-buoy OMAE2017-61612
Tohio Iseki
Tokyo University of Marine Science and Technology, Tokyo, Japan
An Efficient Convex Formulation for Model Predictive Control on Wave-energy Converters OMAE2017-62375
Qian Zhong, Ronald W. Yeung
University of California at Berkeley, Berkeley, CA, USA

A Novel Model for Catenary Drilling and Drill String Induced Stresses OMAE2017-62427
Catalin Teodoriu1 Arash Asgharzadeh2 1. The University of Oklahoma, Norman, OK, USA; 2. TU Clausthal, Clausthal-Zellerfeld, Germany

Offshore Geotechnics

10-6-1 Anchors and Pipelines
Wednesday June 28 U2, BI | 10:15–11:45
Session Chair: Federico Pisanò, Delft University of Technology, Netherlands
Effect of Drainage on Upheaval Buckling Susceptibility of Buried Pipelines OMAE2017-61046
Joe G. Tom, David J. White
University of Western Australia, Perth, WA, Australia

Jun Liu, Yuqin Zhang
Dalian University of Technology, Daian, China

Particle Finite Element Method for Analysis of Jack-up Spudcan Penetration OMAE2017-61699
Chang Xiaokai
Tianjin University, Tianjin, China

Model Testing of Pipelines on Soft Soil OMAE2017-61995
Thomas Langford1 Vishal Dantal2 Noel Boylan3 Victor Smith1 1. NGI, Oslo, Norway; 2. NGI, Houston, TX, USA; 3. NGI, Perth, WA, Australia

Numerical Simulation of Motion of Rotating Drill Pipe due to Magnus Effect in Riserless Drilling OMAE2017-62327
Tomoya Inoue1 Hiroyoshi Suzuki2 Miki Y. Matsu31 Thaw Tar4 Hidetaka Senga5 Kazuyasu Wada1 1. JAMSTEC, Yokohama, Japan; 2. Kobe University, Kobe, Japan; 3. The University of Tokyo, Tokyo, Japan

Mathematical Analysis of Stable Range of Drilling in Riserless Drilling System OMAE2017-62337
Tomoya Inoue, Miki Y. Matsu31, Hide Sakaguchi JAMSTEC, Yokohama, Japan

12-2-2 Modelling and Analysis of Marine Operations II
Wednesday June 28 A2, BI | 10:15–11:45
Session Chair: Zhen Gao, Norwegian University of Science and Technology, Norway
Session Co-Chair: Florian Sprenger, MARINTEK, Norway

Numerical Study for a Catamaran Gripper-monopile Mechanism of a Novel Offshore Wind Turbine Assembly Installation Procedure OMAE2017-62342
Houxiang Zhang, Karl Henning Halse, Hans Petter Hildre, Lars Ivar Hatedal
Norwegian University of Science and Technology, Ålesund, Norway

Application of Model Predictive Control on Wire Overload Protection During Marine Lifting Operation OMAE2017-62003
Zhen Gao, Zhengru Ren, Roger Skjetne
Norwegian University of Science and Technology, Trondheim, Norway

The Consequence Method – an Approach for Estimating Roll Damping in Transportation Fatigue Analyses OMAE2017-62649
Erik Falkenberg, Limin Yang, Tormod Bøe DNV GL, Havik, Norway

Torgeir Moan Honoring Symposium

12-2-2 Modelling and Analysis of Marine Operations II
Wednesday June 28 A2, BI | 10:15–11:45
Session Chair: Zhen Gao, Norwegian University of Science and Technology, Norway
Session Co-Chair: Florian Sprenger, MARINTEK, Norway

Keynote Plenary

Technology and Competence Enabling Field Developments
Stein Olav Drange, Vice President Facilities Technology, Statoil Research and Technology

Biography: Drange joined Hydro (later Statoil) in 1993 after ten years in Aker Engineering. He has held various leadership positions within research and development, technology innovation and technical services.

Drange is currently vice president of Facilities Technology in Research and Technology in Statoil. He holds a Master of Structural Engineering from the Norwegian University of Science and Technology in Trondheim.

Stein Olav Drange
CONCURRENT SESSIONS
13:15 – 14:45

Offshore Technology

1-1-6  Fixed Structures and Jack-up Rigs
Wednesday June 28  Cosmos 3d, Clarion  |  13:15–14:45
Session Chair: Partha Chakrabarti, Zentech Inc, USA
Session Co-Chair: Kjersti Bruserud, Statoil, Norway

Research on the Performance of Deep Water Jack-up
Preloading in Wave OMAE2017-61035
Chang Gao, Hongtao Li, Qilei Tian, Song Liu
Offshore Engineering Technology Center of China Classification Society, Tianjin, China

Nonlinear Random Wave Time Domain Analysis of Jack-up
Rigs Including Foundation OMAE2017-61966
Partha Chakrabarti, Deepak Sankar Somasundaram, Abhijeet Chawan
Zentech Inc., Houston, TX, USA

Study of Offshore Jacket Platform Attached with Tuned Liquid Column
Gas Damper OMAE2017-62373
Polu Sathish1 A S Sajith2
1. Vignan's Foundation for Science Technology & Research University, Guntur, AP, India; 2. National Institute of Technology Calicut, Calicut, KL, India

Extreme Loads on a Jacket Based on S-Joint Metocean Data
OMAE2017-61100  
Kjersti Bruserud
Statoil, Stavanger, Norway

Offshore Technology

1-3-3  Platform/Ship Motions
Wednesday June 28  Cosmos 3a, Clarion  |  13:15–14:45
Session Chair: Wenhua Zhao, University of Western Australia, Australia
Session Co-Chair: Onno A.J. Peters, Baggermaatschappij Boskalis B.V., Netherlands

Economical Proposal for an Offshore Logistic Hub OMAE2017-61019
Antonio Carlos Fernandes1 Peyman Asgari2
1. Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 2. TNO-COPPE - Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil

Prediction of Relative Vertical Motion Between Cargo and HTV During Offshore Loading and Discharge OMAE2017-61106
Rene Huijsmans1 Onno A. Peters2
1. Ship Hydromechanics & Structures, Delft, Netherlands; 2. Baggermaatschappij Boskalis B.V., Papendrecht, Netherlands

Theoretical Analysis of the Performance of a Self-righting Boat OMAE2017-62137
Fanchen Zhang1 Tiechao Bai2 Zhiguo Zhang1 Ziyu Ding1 Xianzhou Wang4
1. Huazhong University of Science and Technology, Wuhan, China; 2. National Institute of Technology Calicut, Calicut, KL, India; 3. School of Naval Architecture & Ocean Engineering, Wuhan, China; 4. Offshore Engineering Technology Center of China Classification Society, Tianjin, China

Estimating Hydrodynamic Sectional Loads for FPSOs using Artificial Neural Networks OMAE2017-61697
Espen Engebretsen, Zhi Shu, Jon Erik Borgen
Inocean Engineering AS, Oslo, Norway

Structures, Safety and Reliability

2-9-4  Extreme Loading and Responses IV
Wednesday June 28  Cosmos 3b, Clarion  |  13:15–14:45
Session Chair: Paulo Videiro, UFRJ, Brazil
Session Co-Chair: Oistein Hagen, DNV GL, Norway

Application of Frequency Domain Methods for Response Based Analysis of Flexible Risers OMAE2017-61741
Yury Drobysheskii1 Curtis Armstrong2 Christopher Chiu1
1. INTECSEA, West Perth, WA, Australia; 2. The Australian Maritime College, Peregian Beach, QLD, Australia; 3. The Australian Maritime College, Launceston, TAS, Australia

Variability of Extreme Riser Responses Due to Wave Frequency Motions of a Weather-vaning FPSO OMAE2017-61745
Yury Drobysheskii1 Curtis Armstrong2 Irene Penesis3 Christopher Chiu1
1. INTECSEA, West Perth, WA, Australia; 2. The Australian Maritime College, Peregian Beach, QLD, Australia; 3. The Australian Maritime College, University of Tasmania, Newnham, TAS, Australia; 4. The Australian Maritime College, Launceston, TAS, Australia

How to Account for Short-term and Long-term Variability in the Prediction of the 100 Years Response? OMAE2017-61701
Quentin Derbanne, Martin Dumont, Guillaume de Hauteclocque
Bureau Veritas, Neuilly sur Seine, France

Structures, Safety and Reliability

2-10-1  Collision and Crashworthiness I
Wednesday June 28  Cosmos 3b, Clarion  |  13:15–14:45
Session Chair: Zhiqiang Hu, Shanghai Jiao Tong University, China
Session Co-Chair: Sören Ehlers, Hamburg University of Technology, Germany

An Integrated Analytical Tool on Predicting Structural Responses of Ships Under Collision and Grounding Scenarios OMAE2017-61220
Zhiqiang Hu1 Zijie Song2
1. School of Marine Science & Technology, Newcastle University, Newcastle upon Tyne, United Kingdom; 2. State Key Laboratory of Ocean Engineering, shanghai Jiao Tong University, Shanghai, China

Numerical Modeling of Dynamic Response of Water Tank in Collision OMAE2017-61443
Ling Zhu1 Shengming Zhang1 Qiuju Liang1 Mingsheng Chen2
1. Wuhan University of Technology, Wuhan, China; 2. Lloyds Register, Southampton, United Kingdom

Grounding Damage Estimate through Acceleration Measurements OMAE2017-61732
Stan R. Haag1 Martijn G. Hoogeland2 Alex W. Vredeveldt3
1. INTECSEA, West Perth, WA, Australia; 2. The Australian Maritime College, Peregian Beach, QLD, Australia; 3. The Australian Maritime College, University of Tasmania, Newnham, TAS, Australia; 4. The Australian Maritime College, Launceston, TAS, Australia

Collision Study Between a Ship Section Moving Sideways and an Oil Platform OMAE2017-61799
Karl Henning Halse, Yael Pericard
Norwegian University of Science and Technology, Ålesund, Norway
Materials Technology

3-2-3 Fatigue Performance and Testing

Wednesday June 28

Session Chair: Yan-Hui Zhang, TWI Limited, United Kingdom
Session Co-Chair: Jens Tronskar, DNV GL, Singapore

Modelling the Fatigue Damage Evolution in Welded Joints
OMAE2017-61201

Tom Lassen¹ Zbigniew Mikulski² Vidar Hellem³
1. University of Agder, Grimstad, Norway; 2. As Nymo, Grimstad, Norway

Loading Sequence Effects on Fatigue Damage Accumulation of Offshore Structures: a Deterministic Approach
OMAE2017-61733

Dimitrios G. Pavlou
University of Stavanger, Stavanger, Norway

Fatigue Performance of Friction Welds Manufactured Both in Air and Underwater
OMAE2017-62405

Carol Johnston⁴ Siak Manteghi⁵ Dave Gibson¹
1. TWI Ltd, Cambridge, United Kingdom; 2. BP Exploration Operating Company Limited, Sunbury, United Kingdom; 3. Preserv, Aberdeen, United Kingdom

Fatigue Assessment of Welded Joints by SED Approach Accounting for Misalignments and Geometrical Imperfections
OMAE2017-61183

Cesare Mario Rizzo¹ Marco Gaiotti² Filippo Berto²
1. University of Genova, Genova, Italy; 2. Norwegian University of Science and Technology, Department of Engineering Design and Materials, Trondheim, Norway

Pipelines, Risers, and Subsea Systems

4-1-7 Flexible Pipes VII

Wednesday June 28

Session Chair: Lin Zhao, Ocean University of China, China
Session Co-Chair: Krassimir Daynov, Exxonmobil Production Company, USA

Finite Element Analysis of Flexible Pipe Anchoring Systems
OMAE2017-62128

Clovis de Arruda Martins¹ Rafael Morinie² Eduardo Ribeiro Malta³
Fernando G. Torni¹ Rafael Tanaka¹ Heloisa Guedes Mendonça³
1. University of São Paulo, São Paulo, SP, Brazil; 2. Prysmian Surflex, Cariacica, ES, Brazil; 3. Brazilian Navy, São Paulo, SP, Brazil

Time Dependent Carcass-Liner Interface Load Model
OMAE2017-62439

Nils Sedahl¹ Geir Skeie¹ Roger Wold¹
1. DNV GL, Havik, Norway; 2. Bane NOR, Oslo, Norway

An Experimental and Numerical Investigation of the Effect of Axial Thermal Gradients in Flexible Pipes
OMAE2017-61804

Bjørn Mevle¹ Jan Muren¹ Janne Gjøsteen¹ Dag Fergerstad¹ Pål Hylland³ Frank Khlaibo⁴
Claus Egebjerg Kristensen¹ Hans Lange³ Andreas Gjendal¹ Tom Are Grav³
1. Statoil, Trondheim, Norway; 2. Autonomous University of Barcelona, Barcelona, Spain; 3. SINTEF Materials and Chemistry, Trondheim, Norway; 4. Anadarko Petroleum, Houston, TX, USA

Parallelized Element-by-element Architecture for Structural Analysis of Flexible Pipes Using Macro Finite Elements
OMAE2017-61800

Fernando Geremias Toni¹ Clovis de Arruda Martins²
1. LMO - Laboratory of Offshore Mechanics - POLI USP, São Paulo, SP, Brazil; 2. University of São Paulo, São Paulo, SP, Brazil

Ocean Engineering

5-7-1 Environmental Assessment for Marine Renewable Energy

Wednesday June 28

Session Chair: DaiSuke Kitazawa, The University of Tokyo, Japan
Assessment of the Motion of Wave Power Generation by Water Tank Test
OMAE2017-61622

Daisuke Kitazawa, Takero Yoshida, Yoichi Mizukami
The University of Tokyo, Tokyo, Japan

Observing Fish Using Underwater Camera at the Test Site Before Installing Ocean Power Generation
OMAE2017-61627

Daisuke Kitazawa, Takero Yoshida, Yoichi Mizukami
The University of Tokyo, Tokyo, Japan

Development on Most Suitable Removal Method of Radioactive Cesium Adsorbed on Ocean Sludge by Using Fine Bubble and Activating Microorganisms
OMAE2017-62561

Ryoichi Okamoto¹ Takeshi Toyama¹ Tomoe Komoriya¹
1. Nihon University, Funabashi, Japan; 2. Nihon University, Chiyoda-ku, Japan; 3. Nihon University, Narashino, Japan

Ocean Space Utilization

6-3-4 Model Tests IV – Viscous Flow

Wednesday June 28

Session Chair: Arjen Koop, MARIN, Netherlands
Session Co-Chair: Joost Sterenborg, MARIN, Netherlands

Wind Loads Simulator for Free-running Model Ship Test
OMAE2017-61158

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

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Optimization of the Superstructure and Forecastle Fairing of a Container Ship  OMAE2017-61256
Xu Xiang1, Rui Deng2, Chao Li2, Guo-xiang Dong1, Wen-shan Cai1, Ze-hua Lu1
1. Norwegian Public Roads Administration, Stavanger, Norway; 2. Harbin Engineering University, Harbin, China;
3. Shanghai Ship and Shipping Research Institute, Shanghai, China

Experimental Study on the Vortex-Induced Motions (VIM) of a Semi-submersible Floating in Waves  OMAE2017-61543
Jaap de Wilde1, Antonio Maximiano1, Rodolfo T. Gonçalves2, Arjen Koop1
1. MARIN, Wageningen, Netherlands; 2. The University of Tokyo, Kashiwana-cho, Kashiwa-shi, Japan

Effect of Reefs Spacing on Flow Field Around Artificial Reef Based on the Hydrogen Bubble Experiment  OMAE2017-61623
Xinmin Wang, Xiangyu Long, Liuyi Huang, Yanli Tang, Fenfang Zhao
Ocean University of China, Qingdao, China

Ocean Engineering
6-8-3 Fluid-Structure, Multi-Body and Wave-Body Interaction III

Wednesday June 28  U5, BI | 13:15–14:45
Session Chair: Torgeri Kirkhorn Vada, DNV GL, Norway

A Scaling Model for Droplet Characteristics in a Spray Cloud Arising from Wave Interactions with Marine Objects  OMAE2017-61322
Yuri Muzychka, Armin Bodaghiakhi, Bruce Colbourne
Memorial University of Newfoundland, St. John's, NL, Canada

Spray Cloud Formation Over Marine Vessels by a Water Breakup Model  OMAE2017-62193
Greg Naterer, Yuri Muzychka, Saeed Reza Dehghani
Memorial University of Newfoundland, St. John's, NL, Canada

Impact Tests in an Air-water Mixture  OMAE2017-62391
Aboughith El Maliki Alouaa
Ensta Bretagne, Best, France

A CFD Investigation on the Effect of the Air Entrainment in Breaking Wave Impacts on a Mono-Pile  OMAE2017-62445
Pietro Danilo Tomaselli1, Erik Damgaard Christensen2
1. Danish Hydraulic Institute, Harocholn, Denmark; 2. Technical University of Denmark, Kgs. Lyngby, Denmark

Polar and Arctic Sciences and Technology
7-12-1 Numerical Ice Modeling

Wednesday June 28  A4, BI | 13:15–14:45
Session Chair: Rudiger U. Franz Von Bock Und Polach, Technical University of Hamburg, Germany
Session Co-Chair: Walter Kuehnlein, Sea2ice Ltd. & Co. KG, Germany

Ice Load Calculation on Semi-submersible Platform  OMAE2017-61903
Marc Cahay2, Brian Roberts2, Zoran Mravak2,Claudie Benoit2
Cyril Septeaulet3, Pierre-Antoine Béla3, Sami Sadouni1

Iceberg Impact Simulation on Offshore Structures  OMAE2017-61939
Marc Cahay2, Brian Roberts2, Zoran Mravak2, Claudie Benoit2
Cyril Septeaulet3, Pierre-Antoine Béla3, Sami Sadouni1

Using Discrete Element Model to Simulate Keel-gouging: a Sensitivity Analysis  OMAE2017-62479
Rocky Taylor1, Eleanor Bailey Dudley2, Lei Liu1, Robert Sarracino1
1. Memorial University of Newfoundland, St. John's, NL, Canada; 2. C-CORE, St. John's, NL, Canada

Assessment to Iceberg Impact Loads to Fixed Structures in Multi-Planar Space  OMAE2017-61012
Jørgen Amdahl1, Zhenhui Liu2, Ming Song3
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Reinertsen AS, Trondheim, Norway; 3. Dalian University of Technology, Dalian, China

Prof. Carl Martin Larsen and Dr. Owen Oakley Honoring Symposium on CFD & VIV
8-3-1 Vortex-Induced Vibrations

Wednesday June 28  A3, BI | 13:15–14:45
Session Chair: Michael Tognarelli, BP American Production Co., USA
Session Co-Chair: Yiannis Constantindes, Chevron, USA

Vortex-induced Vibration of Two Side-by-Side Cylinders with a Small Gap Between Them in Uniform Flow  OMAE2017-61178
Ming Zhao, Adnan Munir, Helen Wu
School of Computing, Engineering and Mathematics, Western Sydney University, Penrith, NSW, Australia

Kill Line Model Cross Flow – Inline Coupled Vortex-Induced Vibration  OMAE2017-61191
Baiheng Wu, Jorlyn Le Garrec, Dixia Fan, Michael Triantafyllou
Massachusetts Institute of Technology, Cambridge, MA, USA

VIV Responses of Riser with Buoyancy Elements: Forced Motion Test and Numerical Prediction  OMAE2017-61768
Yiannis Constantindes1, Jie Wu2, Halvor Lie1, Rolf Baarholm2, Shilao Fu3
1. Chevron, Houston, TX, USA; 2. SINTEF Ocean, Trondheim, Norway; 3. Statoil/ Norwegian Deepwater Programme, Stjørdal, Norway; 4. MARINTEK, Trondheim, Norway

Ocean Renewable Energy
9-1-4 Mooring Systems

Wednesday June 28  U8, BI | 13:15–14:45
Session Chair: Marco Masciola, ABS, USA
Session Co-Chair: Senu Sirnivas, National Renewable Energy Laboratory, USA

The Effect of Turbulence Model on the Response of a Large Floating Wind Turbine  OMAE2017-61719
Erik E. Bachynski, Lene Eliassen
Norwegian University of Science and Technology, Trondheim, Norway
On the Comparison of the Dynamic Response of an Offshore Floating VAWT System when Adopting Two Different Mooring System Model of Dynamics: Quasi-Static vs Lump Mass Approach OMAE2017-61450
Matthew Hall1 Maurizio Collu1 Cesare Mario Rizzo2 Debora Cevaco2
1. University of Maine, Orono, ME, USA; 2. Cranfield University, Cranfield, United Kingdom; 3. University of Genova, Genova, Italy

Dynamic Response of Floating Wind Turbine Under Consideration of Dynamic Behaviour of Catenary Mooring-Lines OMAE2017-61689
Weimin Chen1 Shuangxi Guo2 Yilun Li3 Yiqin Fu4 Min Li5
1. Institute of Mechanics, Chinese Academy of Sciences, Beijing, China; 2. AVIC Composite Corporation Ltd., National Key Laboratory of Advanced Composites, Beijing, China; 3. Sino-French Engineering School, Beijing University of Aeronautics and Astronautics, Beijing, China; 4. Key Laboratory of Mechanics in Fluid Solid Coupling System, Institute of Mechanics, Chinese Academy, Beijing, China; 5. School of Aeronautics Sciences and Engineering, Beijing University of Aeronautics and Astronautics, Beijing, China

Demonstration Test for Using Suction Anchor and Polyester Rope in Floating Offshore Wind Turbine OMAE2017-62197
Tomoaki Utsumoniyama1 Kinji Sekita1 Katsutoshi Kitaz1 Koi Sato2
1. Kyushu University, Fukuoka, Japan; 2. Marine River Technology Engineering Inc., Tokyo, Japan; 3. Tokai University, Shizuoka, Japan; 4. Toda Corporation, Tokyo, Japan

Ocean Renewable Energy
9-3-3 Wave Farms and Optimization
Wednesday June 28 A1, BI | 13:15–14:45

Session Chair: Bryony DuPont, Oregon State University, USA
Session Co-Chair: Senu Simivias, National Renewable Energy Laboratory, USA

Wake Effect Assessment of a Flap Type Wave Energy Converter Farm Using a Coupling Methodology OMAE2017-63123
Aurélien Babarit1 Nicolas Tomey-Bozo2 Jimmy Murphy2
Peter Troch1 Tony Lewis2 Gareth Thomas4
1. Ecole Centrale de Nantes, Nantes, France; 2. MoRe Centre - University College Cork, Ringskiddy, Ireland; 3. Ghent University, Zwijnaarde, Belgium; 4. University College Cork, Cork, Ireland

Coupling Methodology for Modelling the Near-field and Far-field Effects of a Wave Energy Converter OMAE2017-61892
Gael Verao Fernandez1 Peter Troch1 Philip Balitsky1 Vasiliyi Stratigaki1
1. Ghent University, Ghent, Belgium; 2. Ghent University, Zwijnaarde, Belgium

WEC Geometry Optimization with Advanced Control OMAE2017-61917
Giorgio Bacelli1 Ryan Coe1 Osamuh Abdelkhaliq1 David Wilson1
1. Sandia National Laboratories, Albuquerque, NM, USA; 2. Michigan Technological University, Houghton, MI, USA

A Comparison of Biradial and Wells Air Turbines on the Mutriku Breakwater OWC Wave Power Plant OMAE2017-62651
Joao Henriques1 Wanan Shen2 Antonio Falcao3 Luis Gato3
1. Instituto Superior Tecnica, Lisbon, Portugal; 2. University College Cork, Cork, Ireland

Offshore Geotechnics
10-7-1 Seabed Processes
Wednesday June 28 U2, BI | 13:15–14:45

Session Chair: Shailiesh Singh, FMGI, USA

Analysis of Failure Mechanisms in Silica and Carbonate Sands Beneath a Strip Foundation Under Vertical Loading OMAE2017-61130
Yining Teng, Susan M. Gourvenec, Sam A. Stanier
University of Western Australia, Crawley, WA, Australia
Numerical Investigations of the Extraction of Submerged Foundations by Coupled CFD-DEM OMAE2017-61299
Jurgen Grabe1 Manuela Kanitz2 Alice Hager3 Christoph Goniva3 Christoph Kloss3
1. Technische Universität Hamburg Harburg TUHH, Hamburg, Germany; 2. Hamburg University of Technology, Hamburg, Germany; 3. DCS Computing GmbH, Linz, Austria
Finite Element Modeling of Buried Offshore Pipelines Overlying Active Reverse Faults OMAE2017-61496
Lama T. Thebian, Salah M. Sadek, Shadi S. Najjar, Mounir E. Mabsout
American University of Beirut, Beirut, Lebanon
Time Scale of Scour Below Submarine Pipeline Under Combined Waves and Currents with Oblique Incident Angle OMAE2017-62365
Liang Cheng1 Guoqiang Tang2 Zhipeng Zang1
1. University of Western Australia, Perth, WA, Australia; 2. Dalian University of Technology, Dalian, China; 3. School of Civil Engineering, Tianjin University, Tianjin, China
Assessment of Trafficability of Seafloor Track Systems on Clay Ground Using MPM (Material Point Method) OMAE2017-62809
Sung-Ha Baek, Sang Inn Woo, Choong-Ki Chung
Seoul National University, Seoul, Korea

Petroleum Technology
11-11-1 Innovations in Drilling and Production
Wednesday June 28 Cosmos 3c, Clarion | 13:15–14:45

Session Chair: Wenting Qin, Total, Chongqing University of Science and Technology, China

Franziska Lehmann1 Erik Anders2 Matthias Voigt1 Margarita Mezzetti3
1. TU Bergakademie Freiberg, Freiberg, Germany; 2. Hamburg University of Technology, Hamburg, Germany; 3. University of Oslo, Oslo, Norway
Estimation of Undisturbed Geothermal Gradient in Wells from Measured Drilling Data – a Numerical Approach OMAE2017-62205
Lucas Cantinelli Sevillano1 Jesus De Andrade1 Sigbjørn Sangesland2
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. University of Western Australia, Perth, WA, Australia
Abdulaziz Al-Qasim, Mohammed Alaker
Saudi Aramco, Dhahran, Saudi Arabia
A Novel Drillstring Dynamics Experimental Setup to be Integrated Into Hardware in the Loop Capable Drilling Simulators OMAE2017-62395
Catalin Teodoriu, Antonio Marquez
The University of Oklahoma, Norman, OK, USA
Torgeir Moan Honoring Symposium

12-14-1 Validation of Simulation Models

Wednesday June 28 | A2, BI | 13:15–14:45

Session Chair: Florian Sprenger, MARINTEK, Norway
Session Co-Chair: Andrew Ross, SINTEF Ocean, Norway

Ship Handling Model Validation Using In-service Measurements OMAE2017-62598
Afshin Abbasi Hoseini1
Sverre Steen2
1. Dept. of Marine Technology, Norwegian University of Science and Technology, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway

Manoeuvring Validation Analysis of the M/F Landegode OMAE2017-62601
Andrew Ross, Dariusz Fathi
SINTEF Ocean, Trondheim, Norway

Full-scale Validation of a Vessel’s Station-keeping Capability with Dynacap OMAE2017-62666
Luca Pivano, Dong Nguyen, Øyvind Smøgeli
DNV GL, Trondheim, Norway

Real-time Hybrid Model Testing of Floating Wind Turbines Using Autonomous Actuation and Control OMAE2017-62175
Samuel Kanner1
Elena Koukina2
Ronald W. Yeung3
1. Principle Power Inc, Emeryville, CA, USA; 2. NK Labs, Cambridge, MA, USA; 3. University of California at Berkeley, Berkeley, CA, USA

REFRESHMENT BREAK

14:45 – 15:15
Space Foyer, Clarion

CONCURRENT SESSIONS

15:15 – 17:15

Structures, Safety and Reliability

2-9-5 Extreme Loading and Responses V

Wednesday June 28 | Space 2, Clarion | 15:15–17:15

Session Chair: Tetsuo Okada, Yokohama National University, Japan
Session Co-Chair: Curtis Armstrong, The Australian Maritime College, Australia

Evaluation of Conventional Methods of Establishing Extreme Mooring Design Loads OMAE2017-61243
Wenhua Zhao, Mike Efthymiou, Dunja Stanisic, Mehrdad Kimiaei
University of Western Australia, Perth, WA, Australia

Static Stability of Floating Units in Operational Conditions: a Physics-driven Approach OMAE2017-62489
Neil Luxey1 Sébastien Fouques1 Óystein Johannessen1
1. MARINTEK, Trondheim, Norway; 2. Statoil, Stjørdal, Norway

Development of a New Advanced Fender Design with High Shock-Absorbing and Damping Properties OMAE2017-61790
Dmitrii Lebedev, Gennadiy Kryzhievich
Krylov State Research Centre, St. Petersburg, Russia

Materials Technology

3-14-1 Bolted Connections

Wednesday June 28 | Living Room 4, Clarion | 15:15–17:15

Session Chair: Terje Andersen, Petroleum Safety Authority, Norway
Session Co-Chair: Gerhard Ersdal, Petroleum Safety Authority, Norway

PSA Experience with Bolts in Offshore Applications OMAE2017-62726
Terje Andersen
Petroleum Safety Authority, Stavanger, Norway

Beam-to-column Joints Subjected to Impact Loading OMAE2017-62727
Erik L. Grimsmo
Norwegian University of Science and Technology, Trondheim, Norway

Placement of Nut Determining Failure Mode of Bolt and Nut Assemblies OMAE2017-62728
Erik L. Grimsmo
Norwegian University of Science and Technology, Trondheim, Norway

Development of EN-Standards for Structural Bolting Assemblies with Regard to Offshore Structures OMAE2017-62729
Bjørn Aasen
Norconsult, Sandvika, Norway

Bolted Connection is it a Need for Improved Requirements OMAE2017-62730
Gustav Heiberg
DNV GL, Oslo, Norway

Pipelines, Risers, and Subsea Systems

4-1-12 Umbilicals and Cables III

Wednesday June 28 | Space 3, Clarion | 15:15–17:15

Session Chair: Krassimir Doynov, Exxonmobil Production Company, USA
Session Co-Chair: Lin Zhao, Ocean University of China, China

An Experimental Assessment of the Hysteresis Behavior of Umbilical Cables under Cyclic Traction OMAE2017-62081
Celso Pesce1 Rodolfo T. Gonçalves2 Guilherme Franzini2
1. University of São Paulo - Escola Politecnica, São Paulo, SP, Brazil; 2. The University of Tokyo, Kashiwanoha, Kashiwa-shi, Japan

Bending Mechanics of Cable Cores and Fillers in a Dynamic Submarine Cable OMAE2017-62553
Denny D. Tjahjanto1 Jonathan Mullins2 Andreas Tyrberg3
1. ABB AB Corporate Research, Västerås, Sweden; 2. ABB AB, Karlskrona, Sweden

Experimental Investigation of Power Umbilical Damping OMAE2017-62584
Torfinn Ottesen
MARINTEK, SINTEF, Orkanger, Norway

Motion Characteristic Analysis of Floating Structure in South China Sea Basis on Prototype Monitoring Information OMAE2017-61346
Wenhua Wu1 Xiaowei Cui1 Baicheng Lv1 Jiaguo Feng2 Shisheng Wang2 Qian-Jin Yue3
1. Dalian University of Technology, Dalian, China; 2. CNOC Ltd. Research Institute, Beijing, China
Effect of Weld Geometry on the Fatigue Behaviour of Small Bore Umbilical Super Duplex Steel Tubes
Hauwa Raji, Jamie Fletcher-Woods
Technip Umbilicals Ltd, Newcastle upon Tyne, United Kingdom
OMAE2017-61411

Deep Water XLPE Cable with Aluminum Conductor – Risk of Stress Induced Electrochemical Degradation (SIED)
Torunn Lund Claesen1 Magnus Bengtsson2 Randi Floden2
OMAE2017-61255

Pipelines, Risers, and Subsea Systems
4-3-5 Coatings and Decommissioning
Wednesday June 28 Space 1, Clarion 15:15–17:15

Session Chair: Duane DeGeer, INTECSEA, USA
Session Co-Chair: Ilson Pasqualino, COPPE - Universidade Federal do Rio de Janeiro, Brazil

Further Advances on Concrete Coating Impact on Pipeline Strength
LOM2017-61267
Lorenzo Marchioni1 Antonio Parrella1 Luigino Vitali1 Adelina Mancini1 Alberto Battistini1 Luca Catena2
1. Saipem, Fano, Italy; 2. Systems Projects Services, Fano, Italy

Decision Support Tools for Selection of External Protective Coating for Pipelines
OMAE2017-62610
Mohammad Rahmati, Sirous Yasseri, Hamid Bahai
Brunel University London, London, United Kingdom
OMAE2017-62440

Subsea Pipelines and Flowlines Decommissioning – What We Should Know for a Rational Approach
OMAE2017-61239
Sohel Manouchehr
CyrusOGR, London, United Kingdom

Pipelines, Risers, and Subsea Systems
4-6-1 Innovative Technologies for Deepwater Low-Cost Production
Wednesday June 28 U2, BI 15:15–17:15

Session Chair: TBD

Developments in the Testing and Manufacture of Thick-walled Pipe
OMAE2017-61983
Alastair Walker1 Jayden Chee2 Peter Roberts2
1. VerdErg Pipe Technology, Perth, WA, Australia; 2. University of Western Australia, Crawley, WA, Australia; 3. VerdErg Pipe Technology, Woking, United Kingdom

Design Challenges for Next Generation All Electric Umbilical Systems
OMAE2017-61879
Alan Dobson, Alan Deighton
Technip Umbilicals, Newcastle upon Tyne, United Kingdom
OMAE2017-61881

Development of the Next Generation Thermoplastic Hose Umbilical
Alan Dobson, Alan Rutherford
Technip Umbilicals, Newcastle upon Tyne, United Kingdom
OMAE2017-61411

On the Feasibility of Using Underwater Acoustic Data Transmission for Subsea Equipment Monitoring
OMAE2017-62103
Theodore Netto1 Bessie Ribeiro1 Viviane Ferreira1
1. COPPE - Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 2. LabSonar/ COPPE - Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 3. Institute of Sea Studies Admiral Paulo Moreira - IEAPM - Brazil Navy, Arraial do Cabo, RJ, Brazil

Subsea Production Layout: Design and Cost
OMAE2017-62488
Marcelo Igor Lourenço1 Segen Estefen1 Cheng Hong2 Yuxi Wang1 Juankun Yang1 Yuri M. Berbert2
1. COPPE - Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 2. Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil

Ocean Engineering
6-3-2 Model Tests II – Motion Response
Wednesday June 28 U3, BI 15:15–17:15

Session Chair: Hans Cozijn, MARIN, Netherlands
Session Co-Chair: Sascha koschleek, University of Auckland, New Zealand

Regular Wave Experiments for Twin Circular Submerged Floating Tunnel Tethered to Sea Bottom
OMAE2017-61514
Sang Ho Oh, Woo Sun Park
Korea Institute of Ocean Science and Technology, Ansan, Korea

Experimental Study of Viscous Cargo Behaviour and Investigation on Global Loads Exerted on Ship Tanks
OMAE2017-61542
Jean-Marc Rouset, Virginie Baudry
Ecole Centrale de Nantes, Nantes, France

Experimental Determination of the Motion of the Water Column Inside a Moonpool
OMAE2017-61629
Bastien Abell
MARIN, Wageningen, Netherlands

Evaluation of Response Amplitude Operator of Ship Roll Motions Based on the Experiments in White Noise Waves
OMAE2017-62555
Marek Kraskowski, Sebastian Bielicki, Antoni Bednarek
Ship Design and Research Centre S.A., Gdansk, Poland

Ocean Engineering
6-9-1 Marine Environment and Very Large Structures
Wednesday June 28 U5, BI 15:15–17:15

Session Chair: Ove Tobias Gudmestad, University of Stavanger, Norway
Session Co-Chair: Lin Li, University of Stavanger, Norway

A UAV SAR Prototype for Marine and Arctic Application
OMAE2017-61264
Houxiang Zhang, Wei Li, Ottar Osen
Norwegian University of Science and Technology, Ålesund, Norway
Ship Routing Based on the Kuroshio Current  OMAE2017-61606
Chen Chen, Masachi Kashiwagi
Osaka University, Osaka, Japan

Investigation of EGR with EGB (Exhaust Gas Bypass) on Low Speed Marine Diesel Engine Performance and Emission Characteristics  OMAE2017-62606
Zhuang Wang, Song Zhou, Yongming Feng, Yuqing Zhu
Harbin Engineering University, Harbin, China

Viscous Damping Modelling of Floating Bridge Pontoons with Heaving Skirt and its Impact on Predicting Girder Bending Moments  OMAE2017-61941
Xu Xiang1 Erik Swangstuv Byivnd Nedrebev Bernt Jakobsenv Bernt Serbyv Mathias Eidemv Per Norum Larseenv

Internal Fluid Effect Inside a Floating Structure: from Frequency Domain Solution to Time Domain Solution  OMAE2017-62228
Allan Ross Magee1 Mengmeng Hanga Binghe Jin1 Elin Marita Hermundstad1
Jan Roger Hoffv Byivnd Hellen1 Chien Ming Wangv
1. National University of Singapore, Singapore, Singapore; 2. NUS, Singapore; 3. MARINTEK, Trondheim, Norway; 4. SINTF Ocean, Trondheim, Norway; 5. The University of Queensland, Brisbane, QLD, Australia

Prof. Carl Martin Larsen and Dr. Owen Oakley Honoring Symposia on CFD & VIV

8-1-2 Ship and Propulsion Modeling  
Wednesday June 28  A3, B1  15:15–17:15
Session Chair: Samuel Holmes, Redwing Engineering, USA
Session Co-Chair: Stephen Cosgrove, Principle Power Inc., USA

Improved Sustainable Speed Due to Thrusters with Ducted Propellers  OMAE2017-61085
Norbert Bulten, Petra Stoltenkamp
Wartsila, Drunen, Netherlands

Evaluation of CFD Analysis to Gather the Open-water Characteristics of a Specific B-Series Propeller with Verification and Validation Assessments  OMAE2017-61113
Lucas do V. Machado1 Antonio Carlos Fernandes2
1. Keppel / COPPE - Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 2. Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil

Determining Thruster-Hull Interaction using CFD  OMAE2017-61485
Guilherme Vaz, Hans Cozijn, Patrick Schnijvers, Arjen Koop
MARIN, Wageningen, Netherlands

Numerical Simulation of Single Thruster in Open Water  OMAE2017-61635
Rajeev Kumar Jaiman1 Qin Zhang2 Pei Feng Ma2 Jing Liu2

URANS Prediction of Berthed Ship – Passing Ship Interactions  OMAE2017-61738
Shuhong Chai1 Jonathan T Duffy2 Yuting Jin1 Zhen Kok2 Shaun Denehy2
1. Australian Maritime College, University of Tasmania, Launceston, TAS, Australia; 2. Australian Maritime College, University of Tasmania, Newnham, TAS, Australia

Ocean Renewable Energy

9-1-7 Novel Concepts  
Wednesday June 28  U8, B1  15:15–17:15
Session Chair: Antoine Peiffer, Principle Power Inc., USA
Session Co-Chair: Hauke Hartmann, University of Rostock, Germany

Bottom Supported Tension Leg Tower for Offshore Wind Turbines  OMAE2017-61099
Ove Tobias Gudmestad1 Aruniyot Sarkar2
1. University of Stavanger, Stavanger, Norway; 2. Indian Institute of Technology, Kharagpur, Kharagpur, WB, India

A New Type of Collapsible Wing Sail and its Aerodynamic Performance  OMAE2017-61084
Dong Qin, Luohua Liu, Jingjing Dai, Peng Li
Jiangsu University of Science and Technology, Zhenjiang, China

Preliminary Design of a Wind Driven Vessel Dedicated to Hydrogen Production  OMAE2017-61408
Jean-Christophe Gilloteaux, Aurelien Babarit
Ecole Centrale de Nantes, Nantes, France
One Step Installation of a TLP Substructure – Requirements, Assumptions, Issues  
OMAE2017-61424  
Frank Adam1  Hauke Hartmann1  Daniel Walia1  Uwe Ritschel1  Jochen Großmann1  
1. University of Rostock, Rostock, Germany; 2. GICON Holding GmbH, Dresden, Germany

Motion Performances of a 5 MW VAWT Supported by Spar Floating Foundation with Heave Plates  
OMAE2017-62623  
Liqin Liu1  Weichen Jin1  Ying Guo1  Rui Yuan2  
1. Tianjin University, Tianjin, China; 2. State Key Laboratory of Hydraulic Engineering Simulation and Safety Tianjin University, Tianjin, China

Ocean Renewable Energy

9-8-1  Thermal and Hybrid

Wednesday June 28  A1, BI  |  15:15–17:15

Session Chair: Madjid Karimirad, Queen's University Belfast, Northern Ireland
Session Co-Chair: Ying Tu, Norwegian University of Science and Technology, Norway

Real-Time Hybrid Testing of the Hybrid Power Plant: Concept and Feasibility Test  
OMAE2017-61042  
Kevin Koosup Yun  
MARINTEK, Trondheim, Norway

Emission Reduction in Shipping Using Hydrogen and Fuel Cells  
OMAE2017-61401  
Ingrid Schijlberg1  Sepideh Jafarzadeh2  
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. SINTEF Fisheries and Aquaculture, Tromsø, Norway

Nonlinear Droop Load Sharing to Minimize Gas Emissions and Fuel Consumption  
OMAE2017-61752  
Asgeir Johan Sørensen1  Michel Rejani Miyazaki2  
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Advanced Structures and Composites Center/University of Maine, Orono, ME, USA

The Principle of an Integrated Generation Unit for Offshore Wind and Ocean Wave Energy  
OMAE2017-62223  
Weixing Chen1  Feng Gao2  
1. Shanghai Jiao Tong University, Shanghai, China; 2. SINTEF Fisheries and Aquaculture, Tromsø, Norway

Feasibility Study of Co-located Offshore Wind Turbine with Floating Solar Platform in Persian Gulf  
OMAE2017-62682  
Morteza Bahadori1  Hassan Ghassemi2  
1. Amirkabir University of Technology, Tehran, Iran; 2. DNV GL, Høvik, Norway

Feasibility Study of Floating Solar Power Platform in Persian Gulf  
OMAE2017-62684  
Morteza Bahadori1  Hassan Ghassemi2  Melika Mousavi3  
1. Amirkabir University of Technology, Tehran, Iran; 2. DNV GL, Høvik, Norway; 3. SINTEF Fisheries and Aquaculture, Tromsø, Norway

Torgeir Moan Honoring Symposium

12-12-1  Design Codes

Wednesday June 28  A2, BI  |  15:15–17:15

Session Chair: Jørgen Amdahl, Norwegian University of Science and Technology, Norway
Session Co-Chair: Arne Fredheim, SINTEF Ocean, Norway

Real-Time Hybrid Testing of the Hybrid Power Plant: Concept and Feasibility Test  
OMAE2017-61042  
Kevin Koosup Yun  
MARINTEK, Trondheim, Norway

Emission Reduction in Shipping Using Hydrogen and Fuel Cells  
OMAE2017-61401  
Ingrid Schijlberg1  Sepideh Jafarzadeh2  
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. SINTEF Fisheries and Aquaculture, Tromsø, Norway

Nonlinear Droop Load Sharing to Minimize Gas Emissions and Fuel Consumption  
OMAE2017-61752  
Asgeir Johan Sørensen1  Michel Rejani Miyazaki2  
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Advanced Structures and Composites Center/University of Maine, Orono, ME, USA

Development of Fatigue Design Standards for Marine Structures  
OMAE2017-62516  
Inge Lotsberg  
DNV GL, Høvik, Norway

Experience from Introduction of the Design Code NS 9415 to the Aquaculture Industry in Norway and Expanding the Scope to Cover Also Operations  
OMAE2017-62426  
Are Johan Berstad1  Line Fludal Heimstad2  
1. Aquastructures, Oslo, Norway; 2. Aquastructures, Trondheim, Norway

Numerical Study of a Moored Structure in Moving Broken Ice Driven by Current and Wave  
OMAE2017-61522  
David Kristiansen1  Biao Su1  Karl Gunnar Aarsaether2  
1. SINTEF Ocean, Trondheim, Norway; 2. SINTEF Fisheries and Aquaculture, Tromsø, Norway

Lecture Series on Hydrodynamics

17:30 – 18:00  A1, BI

An “Elegant” Model for Wave-energy Devices Coupled with PTO Control

Professor Ronald W. Yeung, American Bureau of Shipping Endowed Chair in Ocean Engineering, Department of Mechanical Engineering, University of California at Berkeley

Conference Banquet

18:30 – 22:00  Cosmos 1 & 2, Clarion

See Social Events, page 18 for more details.
Thursday, June 29

**Offshore Technology**

**1-3-4 Fluid-Structure Interaction – I**

**Thursday June 29**

**Cosmos 3a, Clarion | 08:30–10:00**

**Session Chair:** Florian Sprenger, MARINTEK, Norway  
**Session Co-Chair:** Sascha Kosleck, Auckland University of Technology, New Zealand

**Effect of Porous Baffle on Liquid Sloshing Dynamics in a Barge**  
*Nasar Thuwanismani*, Akshay Shah, Deepak J S, Sannasiraj Sannasi A  
1. National Institute of Technology Karnataka,  
   Mangalore, KA, India; 2. National Institute of Technology  
   Karnataka, Surathkal, Mangalore, Khopoli, MH, India; 3.  
   National Institute of Technology Karnataka, Surathkal,  
   Mangalore, Shikaripura, KA, India; 4. Indian Institute of  
   Technology, Madras, Chennai, TN, India

**Numerical Study on the Characteristics of Vortex-induced Motions of a Multi-column Deep-draft Platform**  
*Xinshu Zhang, Xiaofeng Hu, Yumiang You*  
Shanghai Jiao Tong University, Shanghai, China

**Lateral Resistance of Pipes on Rocky Seabeds – Comparison of Measured Values with Predictions from High-resolution Seabed Scans and Synthetic Models**  
*Terry Griffiths, David J. White, Scott Draper, Antonino Fogliani, Adam Leighton*  
1. University of Western Australia, Perth, WA, Australia; 2. Woodside Energy Ltd, Crawley, WA, Australia; 3. University of Western Australia, Crawley, WA, Australia; 4. Dalian University of Technology, Dalian, China

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**2-6-1 Well Integrity and Reliability Assessment I**

**Thursday June 29**

**A1, B1 | 08:30–10:00**

**Session Chair:** Torfinn Harte, DNV GL, Norway  
**Session Co-Chair:** Sergey Kuzmichev, Statoil ASA, Norway

**Comprehensive and Permanent Instrumentation of Two Offshore Drilling Rigs for Wellhead Fatigue Monitoring and R&D**  
*Guttorm Grytøy, Max Russo, Svein Herman Nilsen*  
1. Statoil, Fornebu, Norway; 2. Kongsberg Maritime Inc.,  
   Houston, TX, USA; 3. Statoil ASA, Stjordal, Norway
Comparison of Riser and Well System Response Predictions to Full-scale Measurements in a Shallow Water Harsh Environment
OMAE2017-61300
Haining Zheng1, Karen Walker1, Punitet Agarwal1, Scot McNeill1
Kenneth Bhalla2, David Baker1
1. ExxonMobil Upstream Research Company, Spring, TX, USA;
2. Stress Engineering Services Inc, Houston, TX, USA

Comparison of Global Riser Analysis to Full Scale Measurements on the NCS
OMAE2017-62066
Guttorm Grytta1, Max Russo2, Torfinn Hørte3, Kristoffer H. Aronsen4, Kathrine Gregersen5
1. Statoil, Fornebu, Norway; 2. Kongsberg Maritime Inc., Houston, TX, USA;
3. DNV GL, Haivik, Norway; 4. Statoil ASA, Stavanger, Norway; 5. Statoil ASA, Fornebu, Norway

Observation of Subsea BOP Response from Field Measurements and Reflections on Conductor Design Challenges
OMAE2017-62497
Harald Holden1, Heidi Gryteland Holm1, Victor Smith2, Youhu Zhang3, Randi Kass4
1. Akselvik, Nesbu, Norway; 2. Norwegian Geotechnical Institute, Oslo, Norway; 3. Lundin Norway, Lysaker, Norway

Structures, Safety and Reliability

2-10-2 Collision and Crashworthiness II
Thursday June 29
Cosmos 3b, Clarion | 08:30–10:00
Session Chair: Martin Storheim, Mass Maritime AS, Norway
Session Co-Chair: Sören Ehlers, Hamburg University of Technology, Germany

Assessment of Impact Damage Caused by Dropped Objects on Glass Reinforced Plastic (GRP) Covers
OMAE2017-61736
Muk Chen Ong, Muhammad Ahmad Tauqeer
University of Stavanger, Stavanger, Norway

Evaluation of Nonlinear Material Behavior for Offshore Structures Subjected to Accidental Actions
OMAE2017-61861
Jørgen Amdahl1, Martin Storheim1, Hårbart S. Alstrøm4
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Mass Maritime AS, Lysaker, Norway; 3. MARINTEK, Trondheim, Norway

Quasi-Static and Dynamic Deformation of Polymer Coated Pipes
OMAE2017-62565
Magnus Langseth1, Mario A. Polanco-Loria1, Håvar Ilstad2
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Stress Engineering Services Inc, Houston, TX, USA

Stochastic Dynamic Analysis of Composite Plates for Damage Initiation Due to Low Velocity Impact
OMAE2017-62565
Suhaib Ahmad, Shidhulay Patel
Indian Institute of Technology, Delhi, New Delhi, Delhi, India

Structures, Safety and Reliability

2-12-1 Structural Analysis and Optimization I
Thursday June 29
Space 2, Clarion | 08:30–10:00
Session Chair: Meng Zhang, Chalmers University of Technology, Sweden
Session Co-Chair: Nabananita Datta, Indian Institute of Technology, Kharagpur, India

Shock Analysis of a Stern Ramp Using Dynamic Design Analysis Method
OMAE2017-61043
Jonas Ringberg1, Erlang Johnson1, Meng Zhang2, Yunbo Yu3
1. Chalmers University of Technology, Gothenburg, Sweden; 2. SP Technical Research Institute of Sweden, Boras, Sweden

Strength Assessment on Support System of LNG Independent Type B Tank under Sloshing Loads
OMAE2017-61861
Wen Dong, Zhengyi Zhang, Xie De, Jingxi Liu
Huazhong University of Science and Technology, Wuhan, China

Time-Domain Analysis of Wind-induced Response of a Suspension Bridge in Comparison with the Full-scale Measurements
OMAE2017-61725
Jungao Wang1, Jia B. Jakobsen1, Etienne Cheynet2, Jonas T. Snebjoernsson2
1. University of Stavanger, Stavanger, Norway; 2. Reykjavik University, Reykjavik, Iceland

Free Dry and Wet Vibration of Low-Aspect-Ratio Aerofoil Wing: Semi-analytical and Numerical Approach with Experimental Investigation
OMAE2017-62497
Nabanita Datta1, Ameya Kannamwar2, Yogesh Verma3
1. Indian Institute of Technology, Kharagpur, India; 2. Oceanergy, Mumbai, MH, India

Materials Technology

3-3-1 Fracture Control and Fatigue Analysis
Thursday June 29
Living Room 4, Clarion | 08:30–10:00
Session Chair: Yan-Hui Zhang, TWI Limited, United Kingdom
Session Co-Chair: Sheng Bao, Zhejiang University, China

Fatigue Design Recommendations for Conical Connections in Tubular Structures
OMAE2017-61144
Inge Lotsberg
DNV GL, Haivik, Norway

Fracture Testing of Existing Structures Without the Need for Repairs
OMAE2017-61420
Carey L. Walters1, Matthias Bruchhausen2, Jean-Marc LaPetite2, Willem Duvalois3
1. THO, Dell, Netherlands; 2. European commission Joint Research Centre, Petten, Netherlands; 3. THO, Rijswijk, Netherlands

Improvement on Mechanical Properties of Cu-Containing Low Alloy Steel of Long Part Forging for Offshore Applications by Manufacturing Process
OMAE2017-61728
Yuta Honma, Kunihiko Hashi, Gen Sasaki
The Japan Steel Works Ltd., Muroran, Japan

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Ocean Engineering

6-1-1 Advanced Ship Hydromechanics and Marine Technology I – Added Resistance in Waves

Thursday June 29 A4, BI | 08:30–10:00

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

Numerical Study of Forward-speed Ship Motion and Added Resistance Using Free-surface Green Function OMAE2017-61051

Do-chun Hong, Tae-bum Ha, Kang-Hyun Song

Korean Register, Busan, Korea

Near Field Expression of Ship Wave Resistance by Yeung's Method OMAE2017-61199

Takashi Tsunogu

Osaka Prefecture University, Osaka, Japan

A Novel Measure to Reduce Ship Resistance in Waves OMAE2017-61949

Svenne Steen1 Bingjie Guo2 Bjørn-Johan Vartdal1

1. Norwegian University of Science and Technology, Trondheim, Norway; 2. DNV GL, Høvik, Norway

Hybridization of Theory and Experiment in Optimizing Di-Hull Configuration with Respect to Wave Resistance OMAE2017-62151

Ronald W. Yeung, Dongchi Yu

University of California at Berkeley, Berkeley, CA, USA

Session Chair:

Thursday June 29

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

Owen Oakley Honoring Symposia on CFD & VIV

8-3-2 CFD and Fluid Structure Interaction Modeling

Thursday June 29 US, BI | 08:30–10:00

Session Chair: Owen Oakley, Chevron retired, USA

Session Co-Chair: Michael Tognarelli, BP American Production Co., USA

Large Eddy Simulations of Flow Past Two Pipelines in Tandem in Close Proximity to the Seabed OMAE2017-61769

Muk Chen Ong1 Mia Abrahamsen-Prsic2 Zhong Li1 Boo Cheong Khoo2

1. National Institute of Technology Delhi, Delhi, Delhi, India; 2. Pohang University of Science and Technology, Pohang, Korea

Validation Exercises for the Calculation of the Flow Around a Squared Column with Rounded Corners at High Reynolds Numbers with the RANS Equations OMAE2017-61937

Luis Eca1 Guilherme Vaz2 Filipe Pereira3 Arjen Koop2 Hugo Abreu3

1. Instituto Superior Tecnico, Lisbon, Portugal; 2. MARIN, Wageningen, Netherlands; 3. MARIN Academy/Instituto Superior Tecnica, Wageningen, Netherland

Simulating Riser VIV in Current and Waves Using an Empirical Time Domain Model OMAE2017-61217

Svein Sævik, Mats Jørgen Thorsen

Norwegian University of Science and Technology, Trondheim, Norway
Prof. Carl Martin Larsen and Dr. Owen Oakley Honoring Symposia on CFD & VIV

8-4-2  VIV Physics – Numerical Analysis I

Thursday June 29  Space 1, Clarion  |  08:30–10:00
Session Chair: Halvor Lie, SINTEF Ocean, Norway
Session Co-Chair: Jungao Wang, University of Stavanger, Norway
Time Varying Hydrodynamics Identification of a Flexible Riser Under Multi-frequency Vortex-induced Vibrations OMAE2017-61261
Shixiao Fu, Chang Liu, Mengmeng Zhang, Haojie Ren
Shanghai Jiao Tong University, Shanghai, China

Improved In-line VIV Prediction for Combined In-line and Cross-flow VIV Responses OMAE2017-61715
Decao Yin¹ Carl M Larsen² Elizabeth Passano³
1. SINTEF Ocean, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. MARINTEK, Trondheim, Norway

Prediction of Combined IL and CF Response of Deepwater Risers OMAE2017-61766
Muk Chen Ong¹ Per Voie² Jie Wu³ Malakonda Lekkala¹ Elizabeth Passano³
1. University of Stavanger, Stavanger, Norway; 2. DNV GL, Trondheim, Norway; 3. SINTEF Ocean, Trondheim, Norway; 3. MARINTEK, Trondheim, Norway

Consolidation of Empirics for Calculation of VIV Response OMAE2017-61362
Themistocles L. Resvanis¹ Per Voie² J. Kim Vandiver³ Michael Triantafyllou¹
1. Massachusetts Institute of Technology, Cambridge, MA, USA; 2. DNV GL, Trondheim, Norway; 3. SINTEF Ocean, Trondheim, Norway; 3. MARINTEK, Trondheim, Norway

Ocean Renewable Energy

9-7-1  Economic Considerations

Thursday June 29  U6, BI  |  08:30–10:00
De-risking Marine Energy Project Development through Improved Financial Uncertainty Analysis OMAE2017-61667
Sunny Shah¹ Hannah Buckland² Philipp P. Thies³ Tom Bruce⁴ Claire Cohen³
1. I.DCORE, Edinburgh, United Kingdom; 2. Black & Veatch Ltd., Glasgow, United Kingdom; 3. University of Exeter, Exeter, United Kingdom; 4. University of Edinburgh, Edinburgh, United Kingdom; 5. Black & Veatch Ltd., Redhill, United Kingdom

Evaluation of an Offshore Floating Wind Power Project on the Galician Coast OMAE2017-62612
Carlos Guedes Soares, José Miguel Rodrigues, Hugo Díaz
Centre for Marine Technology and Ocean Engineering, Lisboa, Portugal

Petroleum Technology

11-6-1  Well Plugging and Abandonment

Thursday June 29  Cosmos 3c, Clarion  |  08:30–10:00
Session Chair: Babak Akbari, LSU Petroleum Engineering, USA
Session Co-Chair: Mahmoud Khalifeh, University of Stavanger, Norway
Planning of a P&A Campaign; an Optimisation Approach OMAE2017-62566
Steffen Bakker¹ Mats Aarlott²
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. SINTEF, Trondheim, Norway

Formation Bond Well Barriers on the Ekofisk Field OMAE2017-62640
Lars Hovda
Conocophillips Norge, Tananger, Norway

Use of P/W/C (Perforations/Wash/Cement) Technique on the Ekofisk Field OMAE2017-62641
Lars Hovda
Conocophillips Norge, Tananger, Norway

Petroleum Technology

11-14-1  Multiphase Equilibria in Petroleum Engineering

Thursday June 29  U2, BI  |  08:30–10:00
Session Chair: Huazhou Li, University of Alberta, Canada

A Robust Three-phase Isenthalpic Flash Algorithm Based on Free-Water Assumption OMAE2017-61193
Huazhou Li, Ruixue Li
University of Alberta, Edmonton, AB, Canada

A Probability Analysis of Atomization Rate for Fully Developed Annular Flow in Vertical Pipes OMAE2017-61581
Ri Zhang, Sheng Dong
Ocean University of China, Qingdao, China

Experimental and Theoretical Quantification of Non-equilibrium Phase Behaviour and Physical Properties of Foamy Oil Under Reservoir Conditions OMAE2017-62194
Daoyong Tony Yang, Yu Shi
University of Regina, Regina, SK, Canada

Bubble/Dew Point and Hysteresis of Hydrocarbons in Nanopores from Molecular Perspective OMAE2017-62266
Zhehui Jin
University of Alberta, Edmonton, AB, Canada

Torgeir Moan Honoring Symposium

12-6-1  Fatigue and Ultimate Strength

Thursday June 29  A2, BI  |  08:30–10:00
Session Chair: Inge Lotsberg, DNV GL, Norway
Session Co-Chair: Yordan Garbatov, Universidade de Lisboa, Portugal

Time Domain Fatigue Analysis of the Pin for Offshore Bridges Considering the Nonlinear Effect of Sliding Connections OMAE2017-61811
Wenbin Dong, Ingar Scherf, Gudfinnur Sigurdsson
DNV GL, Oslo, Norway

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Fatigue Analysis of Oil Offloading Line in Offloading System
OMAE2017-62466
Youwei Kang1 Lei Li2 Bing Wang2 Peng Li3 Yunze Zhai3
1. CIMC Offshore (Group) Co.Ltd, Shenzhen, China; 2. Yantai CIMC Raffles Offshore Ltd, Yantai, China; 3. Harbin Engineering University, Harbin, China

Practical Fatigue Strength Analysis OMAE2017-62340
Yulin Wu
Aker Solutions ASA, Lysaker, Norway

Ultimate Compressive Strength Assessment of Damaged Plates OMAE2017-62215
Hison Pasqualino1 Segen Estefeni1 Diogo Do Amaral M. Amante2
1. COPPE - Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 2. Petrobras, Rio de Janeiro, RJ, Brazil

1. Ship Hydromechanics & Structures, Delft, Netherlands; 2. Baggermaatschappij Boskalis B.V., Papendrecht, Netherlands

Rig – Control System and Stability Analysis
OMAE2017-61390
Guttorm Grytoyr1 Kristian Authen1

Wellhead Fatigue Analysis, How Conservative is Conservative Enough? OMAE2017-61644
Guttorm Grytoyr1 Kristoffer H. Aronsen2 Kathrine Gregersen1
1. Statoil, Fornebu, Norway; 2. StatOil ASA, Oslo, Norway; 3. Statoil ASA, Stavanger, Norway

Inertial Sensors for Risk-Based Redundancy in Dynamic Positioning OMAE2017-61290
Torleiv H. Bryne1 Robert H. Rogne, Thor I. Fossen, Tor Arne Johansen2
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Technical University of Denmark, Kgs. Lyngby, Denmark

Reducing Relative Horizontal Motion Between Cargo and HTV During Offshore Loading and Discharge OMAE2017-61311
Rene Huismans1 Onno A.J. Peters2
1. Ship Hydromechanics & Structures, Delft, Netherlands; 2. Baggermaatschappij Boskalis B.V., Papendrecht, Netherlands

Theoretical and Empirical Study of Heading Stability and Head ing Control of a Turret-Moored FPSO OMAE2017-61390
Karl E. Kaasen1 Halgeir Ludvigsen1 Ivar Nyagaard1 Kristian Kaa1
1. MARINEK, Trondheim, Norway; 2. StatOil, Fornebu, Norway

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**Offshore Technology**

**1-3-5 Numerical Methods and Experiments – II**

**Thursday June 29**

**Session Chair:** Xinliang Tian, Shanghai Jiao Tong University, China

**Session Co-Chair:** Max Russo, Kongsberg Maritime Inc., USA

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**Structures, Safety and Reliability**

**2-6-2 Well Integrity and Reliability Assessment II**

**Thursday June 29**

**Session Chair:** Max Russo, Kongsberg Maritime Inc., USA

**Session Co-Chair:** Guttorm Grytoyr, StatOil, Norway

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**Fatigue Capacity of Wellhead Housings**

**OMAE2017-61421**

Guttorm Grytoyr1 Finn Kirkemo2 Sergey Kuzmichev2 Kristoffer H. Aronsen2

**Validation of Soil Models for Wellhead Fatigue Analysis**

**OMAE2017-61644**

Guttorm Grytoyr1 Kristoffer H. Aronsen2 Kathrine Gregersen1 Jerome De Sordi1

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**Wellhead Fatigue Analysis, How Conservative is Conservative Enough?**

**OMAE2017-61838**

Guttorm Grytoyr1 Torfinn Horte2 Kristoffer H. Aronsen2 Michael Macke3
1. StatOil, Fornebu, Norway; 2. DNV GL, Høvik, Norway; 3. StatOil ASA, Oslo, Norway
Structures, Safety and Reliability

2-11-1 Ultimate Strength I

Thursday June 29

Session Chair: Jung Kwan Seo, Pusan National University, Korea (Republic)
Session Co-Chair: Paulo Videiro, Universidade Federal do Rio de Janeiro, Brazil

A Fundamental Study on the Dynamic Response of Hull Girder of Container Ships Due to Slamming Load OMAE2017-61068
Yasuhira Yamada, Kyoko Kameya
National Institute of Maritime, Port and Aviation Technology, Tokyo, Japan

A Study on the Method to Estimate Ship Hull Girder Ultimate Strength Considering Biaxial Compression in Bottom Stiffened Plates
OMAE2017-61430
Tetsuo Okada, Yasumi Kawamura, Yoshiaki Naruse
Yokohama National University, Yokohama, Japan

Ultimate Bearing Capacity Assessment of Hull Girder with Asymmetric Cross-section OMAE2017-62172
Carlos Guedes Soares1, Huilong Ren1, Chenfeng Li1, Weijuan Xu1, Peng Fu2
1. Centre for Marine Technology and Ocean Engineering, Lisbon, Portugal; 2. Harbin Engineering University, Harbin, China

Investigation of Ultimate Limit State Safety Margins in Design Rules OMAE2017-62309
Lars Brubak, Kristoffer Lofthaug, Eivind Steen, Åge Bøe
DNV GL, Høvik, Norway

Materials Technology

3-4-1 Fracture Control Assessment in Sour Service

Thursday June 29

Session Chair: Jens Tronskar, DNV GL, Singapore
Session Co-Chair: Carol Johnston, TWI Ltd, United Kingdom

Jens Tronskar, Da Qin Xu, You You Wu, Tse Ven Chong
DNV GL, Singapore, Singapore

An Engineering Tool for Predicting Corrosion-fatigue Crack Growth Rates for Structural Steels in Sour Environments OMAE2017-62022
Brian P. Somerday, Baotong Lu, Stephen J. Hudak
Southwest Research Institute, San Antonio, TX, USA

Pipeline Girth Weld Inspection and Flaw Acceptance Criteria for Sour Service OMAE2017-62187
Jens Tronskar, Shashi Kumar, Kapil Mohan, Shaadong Zhang
DNV GL, Singapore, Singapore

Testing Techniques for Establishing Fracture Resistance of Steel in a Sour Environment OMAE2017-62695
Muhammad Ali
TWI Ltd, Cambridge, United Kingdom

Structures, Safety and Reliability

2-12-2 Structural Analysis and Optimization II

Thursday June 29

Session Chair: Arifian Agusta, Technical University of Denmark, Denmark

Study of Structural Characteristics of Ring-stiffened Cylindrical Shell Using Multivariate Approaches OMAE2017-61160
Zhiqiang Wang, Laiyu Liang, Cheng Zhou
Huahang 2nd Ship Design & Research Institute, Wuhan, China

Shape Optimization Design of Brackets Connecting Girders of an Internal Bulkhead and Pressure Hull Under External Pressure OMAE2017-61617
Yuansheng Cheng1, Chengtao Jiang1, Wei Xiao2, Qijian He2, Shangdi Gao1
1. Huazhong University of Science and Technology, Wuhan, China; 2. China Ship Development and Design Center, Wuhan, China

Investigation on the Structure Strength and Stability of Ring Stiffened Cylindrical Shell with Long Compartment and Large Stiffener OMAE2017-62153
Hui Li1, Chenfeng Li1, Weijuan Xu1, Yan Feng1, Junjie Ruan1, Qiyu Zhang2
1. Harbin Engineering University, Harbin, China; 2. Department of Ship Engineering, Shandong, China

Value of Information-based Inspection Planning for Offshore Structure OMAE2017-62493
Bernt Leira1, Arifian Agusta2, Sebastian Thins1
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Technical University of Denmark, Kongens Lyngby, Denmark

Materials Technology

4-1-8 Flexible Pipes VIII

Thursday June 29

Session Chair: Kieran Kavanagh, Wood Group, Ireland
Session Co-Chair: Naiquan Ye, SINTEF Ocean, Norway

The Study of a New Concept of Flexible Pipe with Carbon Fiber/Epoxy Reinforced Inner Sheath OMAE2017-61069
Naiquan Ye1, Svein Savvik2, Chongyao Zhou3, Zhiming Huang4, Dagang Zhang1, Yongqian Kang4
1. SINTEF Ocean, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. DMAR Offshore Engineering Consulting, Qingdao, China; 4. National Engineering Laboratory for Subsea Equipment Testing and Detection Technology, Qingdao, China

The Effect of Friction Stiffness on the Bending Behavior of Flexible Risers OMAE2017-62644
Naiquan Ye1, Svein Savvik2, Tianjiao Dai2
1. SINTEF Ocean, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway

End Fitting Effect on Stress Evaluation of Tensile Armors in Unbonded Flexible Pipes under Axial Tension OMAE2017-62378
Gang Liu, Yi Huang, Leilei Dong, Zhiyuan Ye, Qijian He, Wei Xiao
Dalian University of Technology, Dalian, China

On the Design Considerations of New Offloading Hose Applied on a Turret Moored FPSO OMAE2017-61410
Decao Yin1, Halvor Lie2, Rolf Baarholm3, Ivar Fylling3, Timothy Kendall3
1. SINTEF Ocean, Trondheim, Norway; 2. StatOil / Norwegian Deepwater Programme, Stjørdal, Norway; 3. StatOil ASA, Trondheim, Norway
Ocean Engineering

6-2-1 Wave Mechanics and Wave Effects I

Thursday June 29

Session Chair: Sungho Lee, Glosten, USA

Modulational Instability in JONSWAP Sea States Using the Alber Equation OMAE2017-61671

Odin Gramstad
DNV GL, Høvik, Norway

Comparison of Breaking Wave Kinematics from Numerical Simulations with PIV Measurements OMAE2017-61698

Bulent Duz, Jule Schamke, Rene Lindeboom, Henry Bandringa, Joop Helder
MARIN, Wageningen, Netherlands

A Comparative Study of Wave Breaking Mechanisms in a High-Order Spectral Model OMAE2017-61664

Betsy Seiffert1 Guillaume Ducroz3
1. Florida Atlantic University, Boca Raton, FL, USA; 2. Ecole Centrale de Nantes, Nantes, France

Effect of Uni- and Bi-directional Coupling of Ocean-met Interaction on Significant Wave Height and Local Wind OMAE2017-61681

Mandar Tabib1 Jakob Suld2 Adil Rasheed1
1. SINTEF Digital, Trondheim, Norway; 2. Norwegian Meteorological Institute, Oslo, Norway

Ocean Engineering

6-14-2 Coastal Engineering II

Thursday June 29

Session Chair: Ove Gudmestad, University of Stavanger, Norway

Session Co-Chair: Hans Bihs, Norwegian University of Science and Technology, Norway

Design Aspects of Breakwaters for Cold Climate Oil and Gas Terminals OMAE2017-61381

Ove Tobias Gudmestad1 Isabel Jiménez Puente2
1. University of Stavanger, Stavanger, Norway; 2. Statoil, Stavanger, Norway

Influence of Offshore Reefs on Low-frequency Waves During Harbor Resonance OMAE2017-62363

Junliang Gao, Chunyan Ji, Xiaojian Ma
Jiangsu University of Science and Technology, Zhenjiang, China

Numerical Investigation of Wave Kinematics Inside Berm Breakwaters with Varying Berm Geometry Using REEF3D OMAE2017-62543

Arun Kamath1 Hans Bihs1 Omno Musch1 Øivind A. Arntsen2 Athul Sasikumar3
1. Norwegian University of Science and Technology, Sor Trondelag, Norway; 2. Norconsult, Trondheim, Norway; 3. Norwegian University of Science and Technology, Trondheim, Norway

Ocean Engineering

6-1-4 Advanced Ship Hydromechanics and Marine Technology III – Propulsion Efficiency and Parametric Rolling

Thursday June 29

Session Chair: Sanne Van Essen, MARIN, Netherlands

Trim Influence on Kriso Container Ship: an Experimental and Numerical Study OMAE2017-61860

Alexander H. Day, Mahdi Khorasanchi, Emil Shivachev
KOGAS, Research Institute, Ansan, Korea

Evaluation of Propulsive Characteristics of a Podded Drive System Using Coupled RANS/BEMT Method OMAE2017-62149

Reza Shamsi1 Hassan Ghassemi2 Fatemeh Bakouie2
1. Amirkabir University of Technology, Tehran, Iran; 2. Shahid Beheshti University, Tehran, Iran

Parametric Resonance of a Fishing Vessel with and Without Anti-Roll Tank: an Experimental and Numerical Study OMAE2017-62053

Marilena Greco1 Isar Ghamarr2 Odd Magnus Faltinsen3 Claudio Lugni3
1. CNR-INSEAN, Rome, Italy; 2. Norwegian University of Science and Technology, Trondheim, Norway

Ocean Engineering

4-3-7 Mechanics II

Thursday June 29

Session Chair: Ilson Pasqualino, COPPE - Universidade Federal do Rio de Janeiro, Brazil

Session Co-Chair: Yong Bai, Zhejiang University, China

Extending the Limits for Thick Walled Pipe (D/t<20) for External Pressure and Combined Loading OMAE2017-61055
Henk Smienk1 Steven Huiskes2 Erwan Karjadi3

Spyros A. Karamanos, Giannoula Chatzopoulou, Konstantinos Antoniou
University of Thessaly, Volos, Greece

Effect of Geometric Imperfection on Plastic Collapse of Pipeline with Local or Global Ovary OMAE2017-61675
Jong-hyun Baek, Young-Pyo Kim, Woo-sik Kim
KOGAS, Research Institute, Ansan, Korea

Collapse Propagation of Deep Water Pipelines OMAE2017-62107
Ana Paula F de Souza1 Rafael Solano2 Erwan Karjadi3
1. DNV GL, Rio de Janeiro, RJ, Brazil; 2. Petrobras, Rio de Janeiro, RJ, Brazil; 3. Heerema Marine Contractors SE, Leiden, Netherlands; 4. COPPE - Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil

Pipelines, Risers, and Subsea Systems

Thursday June 29

Session Chair: Ilson Pasqualino, COPPE - Universidade Federal do Rio de Janeiro, Brazil

Session Co-Chair: Yong Bai, Zhejiang University, China

Extending the Limits for Thick Walled Pipe (D/t<20) for External Pressure and Combined Loading OMAE2017-61055
Henk Smienk1 Steven Huiskes2 Erwan Karjadi3

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University of Thessaly, Volos, Greece

Effect of Geometric Imperfection on Plastic Collapse of Pipeline with Local or Global Ovary OMAE2017-61675
Jong-hyun Baek, Young-Pyo Kim, Woo-sik Kim
KOGAS, Research Institute, Ansan, Korea

Collapse Propagation of Deep Water Pipelines OMAE2017-62107
Ana Paula F de Souza1 Rafael Solano2 Erwan Karjadi3
1. DNV GL, Rio de Janeiro, RJ, Brazil; 2. Petrobras, Rio de Janeiro, RJ, Brazil; 3. Heerema Marine Contractors SE, Leiden, Netherlands; 4. COPPE - Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil
**Ocean Renewable Energy**

**9-4-1  Numerical Simulations I**

**Thursday June 29**

**Session Chair:** Yi-Hsiang Yu, National Renewable Energy Laboratory, USA

**Session Co-Chair:** Jennifer van Rij, National Renewable Energy Laboratory, USA

**Performance of OPT's Commercial PB3 PowerBuoy during 2016 Ocean Deployment and Comparison to Projected Model Results**

Kourosh Parsa, David Stewart, Mike Mekhiache, Joseph Sarokhan

Ocean Power Technologies, Pennington, NJ, USA

**An Efficient Approach for Dynamic Analysis of U-OWC Wave Energy Converters**

Felice Arena¹, Giovanni Malara¹, Pol D. Spanos², Federica Strati³

1. Mediterranean University, Reggio Calabria, Italy; 2. Rice University, Houston, TX, USA

**Validation of a Quasi-linear Numerical Model of a Pitching Wave Energy Converter in Close Proximity to a Fixed Structure**

Pilar Heras¹, Sarah Thomas², Morten Kramer³

1. Floating Power Plant / Aalborg University, Valleneshker, Denmark; 2. Floating Power Plant, Vollershkek, Denmark; 3. Aalborg University, Aalborg, Denmark

**Structural Loads Analysis for Wave Energy Converters**

Yi-Hsiang Yu, Jennifer van Rij, Yi Guo

National Renewable Energy Laboratory, Golden, CO, USA

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**Ocean Renewable Energy**

**9-2-9  Numerical Analysis Tools and Optimization**

**Thursday June 29**

**Session Chair:** Maurizio Colli, Cranfield University, United Kingdom

**Session Co-Chair:** Frank Lemmer, University of Stuttgart, Germany

**Development of a Simulation Tool Coupling Hydrodynamics and Unsteady Aerodynamics in Order to Study Floating Wind Turbines**

OMAE2017-61203

Jean-Christophe Gilloiteaux¹, Maxime Philippe², Aurélien Babarit³

1. Ecole Centrale de Nantes, Nantes, France; 2. INNOSEA, Nantes, France;

**A Numerical Method for Representing Retardation Functions with Complex Exponentials**

OMAE2017-61204

Fushun Liu¹, Jiefeng Chen², Lei Jin³, Wei Li³

1. Ocean University of China, Qingdao, China; 2. Powerchina Huadong Engineering Corporation Limited, Hangzhou, China

**Passive Control of a Pentapod Offshore Wind Turbine under Earthquakes by a Tuned Mass Damper**

OMAE2017-61668

Zhen Gao¹, Torgeri Moan², Wenhua Wang³, Xin Li³, Bin Wang⁴

1. Norwegian University of Science and Technology, Trondheim, Norway;

**On the Adequacy of Existing Foundation Schemes for Offshore Wind Turbines Subjected to Extreme Loading**

OMAE2017-61525

Irene Georgiou¹, Rallis Kourkoulis², Fani Gelagoti³, Spyros Karamanos³, George Gazetas³

1. National Technical University of Athens, Athens, Greece; 2. Grid Engineers, Athens, Greece; 3. University of Edinburgh, Edinburgh, United Kingdom

**Modelling the Dynamic Response and Loads of Floating Offshore Wind Turbine Structures with Integrated Compressed Air Energy Storage**

OMAE2017-61587

Tonio Sant, Daniel Buhagiar, Robert N. Farrugia

University of Malta, Maida, Malta

**Numerical Study of Ice Loads for Offshore Wind Turbine in Uniform and Randomly Varying Ice Conditions**

OMAE2017-61988

Zhen Gao¹, Madjid Karimirad², Torgeri Moan², Wei Shi³, Xiang Tan³, Bin Teng⁴

1. Norwegian University of Science and Technology, Trondheim, Norway;

**Optimizing Power Cable Routing in a Dynamic Seabed for Offshore Wind Farms**

OMAE2017-62477

Tom Roeters¹, Bas Borgsjø², Tim Raaijmakers³

1. Deltares, Delft, Netherlands; 2. University of Twente, Enschede, Netherlands

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**Ocean Renewable Energy**

**8-5-3  High Reynolds Number Workshop**

**Thursday June 29**

**Session Chair:** Jang Kim, TechnipFMC, USA

**Session Co-Chair:** Maurizio Collu, Cranfield University, United Kingdom

**A Unique Test Facility for the Experimental Investigation of the Unsteady Aerodynamics of Wind Tunnel Models Under Pitching Motion at Large Amplitudes and High Reynolds Numbers in the HP Wind Tunnel**

OMAE2017-62733

Nils Van Hinsberg

German Aerospace Center, Göttingen, Germany

**Non-linear Hybrid RANS-LES Models for Flow past Single and Tandem Columns**

OMAE2017-61882

Vinh-Tan Nguyen¹, Harish Gopalan², Dominic Chandar²

1. Institute of High Performance Computing, A*STAR, Singapore, Singapore;

**On the Numerical and Modelling Accuracy of RANS and SRS Models to Simulate the Flow Around a Rounded-Corner Square Prism**

OMAE2017-62087

Lucia Eca¹, Guilherme Vaz², Arjen Koop³, Filipe Pereira³, Sharath Girimaji³

1. Instituto Superior Técnico, Lisbon, Portugal; 2. MARIN, Wageningen, Netherlands; 3. Texas A&M University, College Station, TX, USA

**On the Adequacy of Existing Foundation Schemes for Offshore Wind Turbines Subjected to Extreme Loading**

OMAE2017-61525

Irene Georgiou¹, Rallis Kourkoulis², Fani Gelagoti³, Spyros Karamanos³, George Gazetas³

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**Ocean Renewable Energy**

**8-5-3  High Reynolds Number Workshop**

**Thursday June 29**

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OMAE2017-62733

Nils Van Hinsberg

German Aerospace Center, Göttingen, Germany

**Non-linear Hybrid RANS-LES Models for Flow past Single and Tandem Columns**

OMAE2017-61882

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**On the Numerical and Modelling Accuracy of RANS and SRS Models to Simulate the Flow Around a Rounded-Corner Square Prism**

OMAE2017-62087

Lucia Eca¹, Guilherme Vaz², Arjen Koop³, Filipe Pereira³, Sharath Girimaji³

1. Instituto Superior Técnico, Lisbon, Portugal; 2. MARIN, Wageningen, Netherlands; 3. Texas A&M University, College Station, TX, USA

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**Ocean Renewable Energy**

**9-2-9  Numerical Analysis Tools and Optimization**

**Thursday June 29**

**Session Chair:** Maurizio Colli, Cranfield University, United Kingdom

**Session Co-Chair:** Frank Lemmer, University of Stuttgart, Germany

**Development of a Simulation Tool Coupling Hydrodynamics and Unsteady Aerodynamics in Order to Study Floating Wind Turbines**

OMAE2017-61203

Jean-Christophe Gilloiteaux¹, Maxime Philippe², Aurélien Babarit³

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**A Numerical Method for Representing Retardation Functions with Complex Exponentials**

OMAE2017-61204

Fushun Liu¹, Jiefeng Chen², Lei Jin³, Wei Li³

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**Passive Control of a Pentapod Offshore Wind Turbine under Earthquakes by a Tuned Mass Damper**

OMAE2017-61668

Zhen Gao¹, Torgeri Moan², Wenhua Wang³, Xin Li³, Bin Wang⁴

1. Norwegian University of Science and Technology, Trondheim, Norway;

**On the Adequacy of Existing Foundation Schemes for Offshore Wind Turbines Subjected to Extreme Loading**

OMAE2017-61525

Irene Georgiou¹, Rallis Kourkoulis², Fani Gelagoti³, Spyros Karamanos³, George Gazetas³

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**Modelling the Dynamic Response and Loads of Floating Offshore Wind Turbine Structures with Integrated Compressed Air Energy Storage**

OMAE2017-61587

Tonio Sant, Daniel Buhagiar, Robert N. Farrugia

University of Malta, Maida, Malta

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OMAE2017-61988

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1. Norwegian University of Science and Technology, Trondheim, Norway;

**Optimizing Power Cable Routing in a Dynamic Seabed for Offshore Wind Farms**

OMAE2017-62477

Tom Roeters¹, Bas Borgsjø², Tim Raaijmakers³

1. Deltares, Delft, Netherlands; 2. University of Twente, Enschede, Netherlands

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**Ocean Renewable Energy**

**9-4-1  Numerical Simulations I**

**Thursday June 29**

**Session Chair:** Yi-Hsiang Yu, National Renewable Energy Laboratory, USA

**Session Co-Chair:** Jennifer van Rij, National Renewable Energy Laboratory, USA

**Performance of OPT’s Commercial PB3 PowerBuoy during 2016 Ocean Deployment and Comparison to Projected Model Results**

OMAE2017-62008

Kourosh Parsa, David Stewart, Mike Mekhiache, Joseph Sarokhan

Ocean Power Technologies, Pennington, NJ, USA

**An Efficient Approach for Dynamic Analysis of U-OWC Wave Energy Converters**

OMAE2017-61522

Felice Arena¹, Giovanni Malara¹, Pol D. Spanos², Federica Strati³

1. Mediterranean University, Reggio Calabria, Italy; 2. Rice University, Houston, TX, USA

**Validation of a Quasi-linear Numerical Model of a Pitching Wave Energy Converter in Close Proximity to a Fixed Structure**

OMAE2017-61930

Pilar Heras¹, Sarah Thomas², Morten Kramer³

1. Floating Power Plant / Aalborg University, Vollershaker, Denmark; 2. Floating Power Plant, Vollershkek, Denmark; 3. Aalborg University, Aalborg, Denmark

**Structural Loads Analysis for Wave Energy Converters**

OMAE2017-62139

Yi-Hsiang Yu, Jennifer van Rij, Yi Guo

National Renewable Energy Laboratory, Golden, CO, USA
**Petroleum Technology**

**11-3-1 Simulation of Petroleum Engineering Systems**

**Thursday June 29 U2, BI | 10:30–12:00**

*Session Chair: Mayank Tyagi, Louisiana State University, USA*

*Session Co-Chair: Rashid Hasan, Texas A&M University, USA*

**3D Simulation Model: A Study of a Saudi Oil Reservoir Performance in the Presence of Asphaltene**

Abdulaziz Al-Qasim, Mohammed Alaker

Saudi Aramco, Dhahran, Saudi Arabia

**A Simplified Temperature Prediction of Circulation and Simulator Development Under Steady-state**

Catalin Teodoriu, Ming Feng

1. The University of Oklahoma, Norman, OK, USA; 2. Chongqing University, Chongqing, China

**Heat Transfer in the Deepwater Wellbore**

OMAE2017-62536

Rashid Hasan, Rayhanea Sohei, Xiaowei Wang

1. Texas A&M University, College Station, TX, USA; 2. Baker Hughes Inc., Houston, TX, USA

**How Large Drawdowns in Oil Reservoirs Influence Fluid Properties During Transient Flow**

OMAE2017-62538

Rashid Hasan, Raka Islam

1. Texas A&M University, College Station, TX, USA; 2. Kabir Consultants, Sugar Land, TX, USA

**Corrosion and Performance of Oilfield Equipment**

OMAE2017-62539

Carlos Guedes Soares, Yordan Garbatov

1. Centre for Marine Technology and Ocean Engineering, Lisboa, Portugal; 2. Universidade de Lisboa, Lisbon, Portugal

**Prevention of Alkali-Silica Reaction (ASR) in Light Wellbore Cement Comprising Silicate-Based Microspheres**

OMAE2017-62015

Mileva Radonicj, Dylan Albers

Louisiana State University, Baton Rouge, LA, USA

**Torgeir Moan Honoring Symposium**

**12-10-1 Inspection, Monitoring, Maintenance and Repair**

**Thursday June 29 A2, BI | 10:30–12:00**

*Session Chair: John D. Sørensen, Aalborg University, Denmark*

*Session Co-Chair: Weicheng Cui, Shanghai Ocean University, China*

**Spatial Corrosion Wastage Modelling of Steel Plates Subjected to Marine Environments**

OMAE2017-61751

Carlos Guedes Soares, Yordan Garbatov

1. Centre for Marine Technology and Ocean Engineering, Lisboa, Portugal; 2. Universidade de Lisboa, Lisbon, Portugal

**Corrosion Prognosis: Maritime Structural Performances in Service Environments**

OMAE2017-62425

Yikun Wang, Jon Downes, Julian A. Wharton, R. Ajit Shenoi

University of Southampton, Southampton, United Kingdom

**The Potential for Non-conservative Results from the Probabilistic Fracture Mechanics Analyses is Assed Based on the Collected Observation of Fatigue Cracks in Offshore Steel Structures**

OMAE2017-62422

Ole Tom Vaardal

AHPA AS, Bratholmen, Norway

**Analytical Solutions of Bimodal Gaussian Processes’ Fatigue Damages**

OMAE2017-61467

Wenbo Huang

Harbin Engineering University, Harbin, China

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**Petroleum Technology**

**11-13-1 Oilwell Cement Technology**

**Thursday June 29 Cosmos 3c, Clarion | 10:30–12:00**

*Session Chair: Nediljka Gaurina-Medimurec, University of Zagreb, Croatia (Hrvatska)*

**Investigations on Oilwell Strength Response to Cement Ultrasonic Measurements in Presence of Additives**

OMAE2017-62393

Catalin Teodoriu, Adonis Ichim, Niklas Romanowski

1. The University of Oklahoma, Norman, OK, USA; 2. The University of Oklahoma/TU Clausthal, Norman, OK, USA

**Effect of Microblock on the Compressive Strength of Portland Cement at Elevated Temperatures**

OMAE2017-62455

Nediljka Gaurina Medimurec, Krunoslav Sedić, Anel Cajic, Ante Matijević

1. University of Zagreb, Zagreb, Croatia; 2. University of Liška, Lisbon, Portugal

**A Quantification of Mixing Energy During the Whole Cementing Cycle**

OMAE2017-62015

Catalin Teodoriu, Adonis Ichim, Fatemeh Saleh, Daniel Mbinayel

The University of Oklahoma, Norman, OK, USA

**Prevention of Alkali-Silica Reaction (ASR) in Light Wellbore Cement Comprising Silicate-Based Microspheres**

OMAE2017-62015

Mileva Radonicj, Dylan Albers

Louisiana State University, Baton Rouge, LA, USA

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**TECHNICAL SESSION ORGANIZERS’ LUNCH**

12:00 – 13:30

Cosmos 1 & 2, Clarion

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**CONCURRENT SESSIONS**

13:30 – 15:00

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**Offshore Technology**

**1-2-3 Mooring System Design and Analysis II**

**Thursday June 29 Cosmos 3d, Clarion | 13:30–15:00**

*Session Chair: Zhang Derrick, DMAR Engineering, Inc., USA*

*Session Co-Chair: Anil Sablok, TechnipFMC, USA*

**Fatigue Testing of Used Mooring Chain**

OMAE2017-61382

Kjell Larsen, Øystein Gabrielsen, Svein-Arne Reinholdtsen


**T-N Curves and Fracture Mechanics Based Mooring Fatigue Analysis for a Semi-submersible**

OMAE2017-61551

Nianzhong Chen, Xutian Xue

Newcastle University, Newcastle upon Tyne, United Kingdom
13:30 – 15:00
THURSDAY

**Offshore Technology**

1-5-1 Side-by-side Offloading

*Thursday June 29*  
**Cosmos 3a, Clarion | 13:30–15:00**

Session Chair: Wenhua Zhao, University of Western Australia, Australia  
Session Co-Chair: Zhengshun Cheng, Norwegian University of Science and Technology, Norway

**Improvement of Side-by-side LNG Offloading Operability Calculations Using Monte Carlo Simulations and Scattered Data Multidimensional Interpolation**  
OMAE2017-61025

Erwan Aubertin, Timothée Lefebvre, Stéphane Paquet  
TechnipFMC, Paris, France

**Estimation of Gap Resonance Relevant to Side-by-side Offloading**  
OMAE2017-61342

Zhiyun Pan1, Wenhua Zhao2, Mike Effthymiou3, Paul Taylor4  

**Development of a CFD Model to Simulate Three-dimensional Gap Resonance Applicable to FLNG Side-by-side Offloading**  
OMAE2017-61673

Hugh Wolgamot, Liang Cheng, Hongchao Wang, Wenhua Zhao, Scott Draper  
University of Western Australia, Perth, WA, Australia

**Off-loading Operability of Small Scale FLNG with Side-by-side Moored Small Scale LNG Carrier in Offshore West Africa**  
OMAE2017-62608

Munsung Kim1, Eric Morilhat2, Xuan Chi Nguyen3, Jong-moon Jang4  
1. Samsung Heavy Industries, Co. Ltd., Seongnam-si, Korea; 2. FMC Technologies, Sens Cedex, France

**Structures, Safety and Reliability**

2-11-2 Ultimate Strength II

*Thursday June 29*  
**Cosmos 3b, Clarion | 13:30–15:00**

Session Chair: Yasuhira Yamada, National Institute of Maritime, Port and Aviation Technology, Japan  
Session Co-Chair: Jerzy Czujko, NOWATEC, Norway

**Idealized Structural Unit Method for Dynamic Collapse Analysis of Plates**  
OMAE2017-61552

Patrick Kaeding, Anna Oksina, Thomas Lindemann  
University of Rostock, Rostock, Germany

**Influence of Local Dents on the Residual Ultimate Strength of Steel-Polyurethane-Steel Sandwich Plate Subjected to Uniaxial Compressive Loads**  
OMAE2017-61782

Carlos Guedes Soares1, Hui Long Ren2, Chenfeng Li3, Kaikai Ma4, Chao Gao5, Zhichao Zhang2  
1. Centre for Marine Technology and Ocean Engineering, Lisbon, Portugal; 2. Harbin Engineering University, Harbin, China

**Experimental Investigation of Residual Ultimate Strength of Damaged Metallic Pipelines**  
OMAE2017-62221

Zhuyong Pei1, Jie Cai2, Xiaoli Jiang2, Gabriel Lodewijks3, Ling Zhu2  
1. Wuhan University of Technology, Wuhan, China; 2. TU Delft, Delft, Netherlands

**Structures, Safety and Reliability II**

2-12-3 Structural Analysis and Optimization III

*Thursday June 29*  
**Space 2, Clarion | 13:30–15:00**

Session Chair: Nicolas Larrosa, University of Manchester, United Kingdom  
Session Co-Chair: Etienne Bonnaud, Inspecta Technology, Sweden

**Applications of the Static Condensation Technique to Nonlinear Structural Analysis of Floating Offshore Structures**  
OMAE2017-61646

Min-Han Oh1, Phili-seung Lee2, Seung-Iwan Boo3, Jong-min Kim3  
1. Hyundai Heavy Industries, Ulsan, Korea; 2. University of Science and Technology, Norway; 3. Korea Advanced Institute of Science and Technology, Daejeon, Korea

**Application of Direct Hydrodynamic Loads in Spectral Fatigue Analysis**  
OMAE2017-61907

Shivaji Ganesan1, Yogendra Singh Parihar2, Saikat Dan, Karan Doshi3  
1. Indian Register of Shipping, Mumbai, MH, India

**An Approach to Reduce the Amount of ILI Data in Fatigue Analysis of Pits in Pipelines**  
OMAE2017-62594

Nicolas Larrosa1, Pablo Lopez Crespo2, Robert A. Ainsworth3  
1. University of Manchester, Manchester, United Kingdom; 2. University of Malaga, Malaga, Spain

**Materials Technology**

3-4-2 Effect of Environment on Materials Performance

*Thursday June 29*  
**Living Room 4, Clarion | 13:30–15:00**

Session Chair: Jens Tronskar, DNV GL, Singapore  
Session Co-Chair: Sheng Bao, Zhejiang University, China

**Transportation of Hydrogen Gas from a Local Plant to Remote Markets via High Pressure Submarine Pipelines**  
OMAE2017-61555

Stig Graberg, Morten Hval  
Reinertsen AS, Trondheim, Norway

**Fracture Mechanics Based Corrosion Fatigue Modelling for Subsea Pipelines**  
OMAE2017-61555

Nianzhong Chen2, Zhiyong Pei2, Xuefeng T. Liu1, Kaikai Ma2  
1. Wuhan University of Technology, Wuhan, China; 2. Delft University of Technology, Delft, Netherlands
Experimental Study on the Interaction Effect of Sulfate Ions and Chloride Ions on Reinforcement Corrosion in Marine Environment
OMAE2017-62405
Yi Huang, Yanze Xu, Xiaona Wang, Shide Song, Lujia Yang
Dalian University of Technology, Dalian, China

Pipelines, Risers, and Subsea Systems
4-1-10 Umbilicals and Cables I
Thursday June 29
Space 3, Clarion | 13:30–15:00
Session Chair: Alan Dobson, Technip Umbilicals, United Kingdom
Session Co-Chair: Jun Yan, Dalian University of Technology, China
Reliability Optimization Design of the Steel Tube Umbilical Cable Cross Section based on Particle Swarm Algorithm
OMAE2017-61388
Zhixun Yang, Wenhua Wu, Qian-Jin Yue, Jun Yan, Panpan Zhao, Qionghen Lu
Dalian University of Technology, Dalian, China

Large-scale Tests for Identifying the Nonlinear, Temperature-Sensitive, and Frequency-Sensitive Bending Stiffness of the NordLink Cable
OMAE2017-61103
Magnus Komperud1 Jon Ivar Juvik1 Gunnar Evensen1 Roger Slora1 Lars Jordal1
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Statnett SF, Oslo, Norway

Improved Dynamic Structural Modelling for Subsea Power Cables with Bitumen Coated Armour Wires
OMAE2017-61848
Steven Rossiter1 Hugh Martindale1 Perry Shelldrake1 Richard Langdon1
1. Agilette Engineering Limited, London, United Kingdom; 2. Tekmar Energy Limited, Newton Aycliffe, United Kingdom

An Integrated Environment for Design and Analysis of Umbilical Cables
OMAE2017-61857
Clevis de Arruda Martins1 Rodrigo Provaz1 Christiano Odir Cardoso Meirelles1
Leonardo Garcez1 Andre Freitas Barbosa2 Olaf Oswaldo Otte Filho2
1. University of Sao Paulo, Sao Paulo, SP, Brazil; 2. Prysmian Group, Cariacica, ES, Brazil

Pipelines, Risers, and Subsea Systems
4-3-8 Mechanics III
Thursday June 29
Space 1, Clarion | 13:30–15:00
Session Chair: Yong Bai, Zhejiang University, China
Session Co-Chair: Olav Fyrileiv, DNV GL, Norway
Analytical Method of Buried Steel Pipelines Subjected to Strike-slip Faults
OMAE2017-61157
Ying Li1 Bin Wang1 Xin Li2
1. Zhejiang University of Science and Technology, Hangzhou, China; 2. Powderchina Huadong Engineering Corporation Limited, Hangzhou, China; 3. Dalian University of Technology, Dalian, China

Strain Capacity of Girth Welded Joints in HSAW Pipes
OMAE2017-61842
Koen Van Minnebruggen, Wim De Waele, Stijn Hertelé
Ghent University, Zwijnaarde, Belgium

Visual Image Correlation Compared to Discrete Instrumentation for Measurement of Compressive Strains for Strain Based Design
OMAE2017-62676
Jason Bergman1 Chris Timms1 Ming Liu2
1. C-FER Technologies, Edmonton, AB, Canada; 2. CRE, Dublin, OH, USA

ECAs: Lifting the Lid of the Black Box
OMAE2017-61889
Andrew Cosham1 Kenneth A Macdonald1 Isabel Hadley1 Philippa Moore2
1. Ninth Planet Engineering Limited, Newcastle upon Tyne, United Kingdom; 2. University of Stavanger, Stavanger, Norway; 3. TWI Ltd, Cambridge, United Kingdom

Fatigue Assessment of Damaged Pipelines After Glass Fiber and Epoxy Matrix Laminate Repairs
OMAE2017-62112
Ilison Pasqualino1 Bianca Pinheiro1 Sabrina Reggall1 Luiz Daniel Lana2 Valber Perrut2
1. COPPE - Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 2. Petrobras, Rio de Janeiro, RJ, Brazil

Ocean Engineering
6-2-2 Wave Mechanics and Wave Effects II
Thursday June 29
US, BI | 13:30–15:00
Session Chair: Sungho Lee, Glosten, USA

Effect on Doppler Resonance from a Near-Surface Floating Wind-wave Hybrid Platform
OMAE2017-62233
Zhen Gao1 Xiaoxian Guo1 Jorgeir Moan1 Xin Li2 Jianmin Yang1 Lu Haining1 Wenyue Lu2
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Shanghai Jiao Tong University, Shanghai, China; 3. Norwegian University of Science and Technology, Utr For Ships & Offshore Structures, Trondheim, Norway

Ocean Engineering
6-8-6 Fluid-Structure, Multi-Body and Wave-Body Interaction VI
Thursday June 29
A4, BI | 13:30–15:00
Session Chair: Nuno Fonseca, MARINTEK, Norway
Numerical Investigation of the Effect Due to Vessel Motion on Green Water Impact on Deck
OMAE2017-61054
Ravindra Babu Kudupudi1 Ranadev Datta2
1. Department of Ocean Engineering & Naval Architecture, Kharagpur, WB, India; 2. Indian Institute of Technology, Kharagpur, Kharagpur, WB, India

Use of Wet Dam-break to Study Green Water Problem
OMAE2017-62133
Sergio Hamilton Sphaier, Jassiel Vladimir Hernández-Fuentes, Marcelo de Araujo Vitola, Monica Campos Silva, Paulo de Tarso Themistocles Esperança
LabOceano/COPE - Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil
**Ocean Engineering**

**6-14-3 Coastal Engineering III**

**Thursday June 29**

**Session Chair:** Ian Robertson, University of Hawaii at Manoa, USA

**Session Co-Chair:** Divind Asgeri Amtlsen, Norwegian University of Science and Technology, Norway

**Impact of Climate Modes on Shoreline Evolution: Southwest Coast of India**  
OMAE2017-61354  
Piyali Chowdhury, Manasa Ranjan Behera  
Indian Institute of Technology Bombay, India, Mumbai, MH, India

**Return Volumes of Sudden Siltation Occurred in Outside Waterway of Huanghua Port**  
OMAE2017-61356  
Sheng Dong, Shanshan Tao, Chunnuo Jiao, Ri Zhang  
Ocean University of China, Qingdao, China

**Study on the Extreme High Water Levels and Wave Heights of Different Return Periods in Laizhou Bay, China**  
OMAE2017-62325  
Chunyan Zhou1, Jinhai Zheng1, Jicheng Zhang1, Xiaoying Fu2  
1. Hohai University, Nanjing, China; 2. Sichuan University, Chengdu, China

**Assessment on Morphological Changes Due to Coastal Exploitations and Remedies for Coastal Defense**  
OMAE2017-61206  
Wei Po Huang, Cheng-Yu Ku, Lien-Kwei Chien  
National Taiwan Ocean University, Keelung, Taiwan

**Ocean Renewable Energy**

**9-1-10 Experimental Studies II**

**Thursday June 29**

**Session Chair:** Petter A. Berthelsen, MARINTEK, Norway

**Session Co-Chair:** Michael Borg, DTU Wind Energy, Denmark

OMAE2017-61864  
Andrew J. Fowler1, Anthony M. Viselli1, Christopher Allen2  
1. University of Maine, Orono, ME, USA; 2. Advanced Structures and Composites Center, University of Maine, Orono, ME, USA

**Hydrodynamic Response of Three Column Semi-submersible Floater Supporting Vertical Axis Wind Turbine**  
OMAE2017-62452  
S Nallayarasu, Rajeswari Krishnan  
Indian Institute of Technology, Madras, Chennai, TN, India

**Petroleum Technology**

**11-4-1 Artificial Lift and Gas Well Deliquification**

**Thursday June 29**

**Session Chair:** Paulo Waltrich, Louisiana State University, USA

**A Transient Inflow Performance Relationship (IPR) for Gas Wells: The Dynamic Gas IPR**  
OMAE2017-62459  
Paulo Waltrich1, Pedro de Sousa2, Artur G. Posenato2  
1. Louisiana State University, Baton Rouge, LA, USA; 2. Texas A&M University, College Station, TX, USA; 3. The University of Texas at Austin, Austin, TX, USA

**Effect of Fluid Properties on the Performance of Gas-Lift Valves**  
OMAE2017-62460  
Paulo Waltrich1, Khadhr Altarabulsi2, Renato Coutinho2  
1. Louisiana State University, Baton Rouge, LA, USA; 2. Louisiana State University, Saint Gabriel, LA, USA

**Unstable Well Behaviour in Gas Well Liquid Loading**  
OMAE2017-62508  
Stefan Belfroid, Andries Van Wijhe  
TNO, Delft, Netherlands
Petroleum Technology

11-15-1 Well Barrier Technology

Thursday June 29  
Cosmos 3c, Clarion  |  13:30–15:00

Session Chair: Jan David Ytrehus, SINTEF Petroleum, Norway

Geopolymers as an Alternative for Oil Well Cementing Applications: A Review of Advantages and Concerns
OMAE2017-61227
Helge Hodne1 Mahmoud Khalifeh1 Torbjørn Vålstad2 Rune Godøy3 Arild Saasen3
1. University of Stavanger, Stavanger, Norway; 2. SINTEF Petroleum Research, Trondheim, Norway; 3. StatOil ASA, Stavanger, Norway

Applicability of Geopolymer Materials for Well P&A Applications
OMAE2017-62351
Saeed Salehi
University of Oklahoma, Norman, OK, USA

Development of Well Intervention Fluid for Removal of Sustained Casing Pressure
OMAE2017-62600
Andrew Wojtanowicz1 Efecan Demirk1 Kristina Butler1
1. Louisiana State University, Baton Rouge, LA, USA; 2. Turkish Petroleum Corporation, Luleburgaz, Turkey; 3. Albeamarle Corporation, Kings Mountain, NC, USA

Laboratory Experiments on Ultrasonic Logging Through Casing for Barrier Integrity Validation
OMAE2017-62645
Tonni Franke Johansen1 Idar Larsen2 Andreas Sorbroden Talberg3
1. SINTEF ICT, NTNU DMF, Trondheim, Norway; 2. SINTEF Petroleum Research, Trondheim, Norway; 3. Norwegian University of Science and Technology, Trondheim, Norway

Torgeir Moan Honoring Symposium

12-11-2 Reliability Analysis of Marine Structures and Operations I

Thursday June 29  
A2, BI  |  13:30–15:00

Session Chair: Torfinn Horte, DNV GL, Norway
Session Co-Chair: Ole Tom Vaardal, AHPA AS, Norway

Use of Safety Barriers in Structural and Marine Engineering
OMAE2017-62712
Gerhard Ersdal
Petroleum Safety Authority, Stavanger, Norway

Safety of Marine Operations Involving Dynamically Positioned Vessels
OMAE2017-62708
Halbo Chen
Lloyd’s Register Consulting - Energy Inc., Beijing, China

Risk Informed Structural Systems Integrity Management – a Decision Analytical Perspective
OMAE2017-62715
Michael Havbro Faber
Aalborg University, Aalborg, Denmark

Reliability Analysis and Risk-based Methods for Planning of Operation and Maintenance of Offshore Wind Turbines
OMAE2017-62713
John D. Sørensen
Aalborg University, Aalborg, Denmark

Prof. Carl Martin Larsen and Dr. Owen Oakley Honoring Symposia on CFD & VIV

8-5-1 CFD and VIV Symposium Organization Meeting

Thursday June 29  
A3, BI  |  13:30–15:00

REFRESHMENT BREAK
15:00 – 15:30
Space Foyer, Clarion

CONCURRENT SESSIONS
15:30 – 17:30

Offshore Technology

1-2-4 Dynamic Positioning II

Thursday June 29  
Cosmos 3d, Clarion  |  15:30–17:30

Session Chair: Masoud Hayatdavoodi, University of Dundee, United Kingdom

A Structure Preserving Power System Model for Dynamic Positioning Vessels
OMAE2017-61902
Roger Skjetne, Tor Arne Johansen, Andreas Reason Dahl
Norwegian University of Science and Technology, Trondheim, Norway

OMAE2017-62045
Asgeir Johan Sørensen1 Roger Skjetne1 Svenn A. T. Værnø2 Astrid Brodtkorb1 Mikkel E. N. Sørensen1 Divind K. Kjerstad2 Vincenzo Calabro3 Morten Breivik1 Bjørn O. Vinje1
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Norwegian University of Science and Technology, Longyearbyen, Norway; 3. Kongsberg Maritime, Kongsberg, Norway

Fuzzy Logic Controller for Dynamic Positioning of an Offshore Supply Vessel
OMAE2017-61394
Parameswaran Krishnankutty, Kunal Tiwari
Indian Institute of Technology, Madras, Chennai, TN, India

Static and Dynamic Analysis Methods of Position-keeping Capability for Offshore Supply Vessels with Voith-Schneider Propellers
OMAE2017-61891
Lasse Theilen, Ole Detlefsen, Moustafa Abdel-Maksoud
Hamburg University of Technology, Hamburg, Germany

Offshore Technology

1-5-3 Sloshing

Thursday June 29  
Cosmos 3a, Clarion  |  15:30–17:30

Session Chair: Fan Zhang, DNV GL - Software, China
Session Co-Chair: Lixin Xu, China Merchants Offshore Technology Research Center, China
Numerical Study of Bottom Shape Effect on Pressure Performance in a Sloshing FLNG Membrane Tank  OMAE2017-61008
Yan Yan\textsuperscript{1} Xiaojuan Liu\textsuperscript{1} Jiaojing Yin\textsuperscript{1} Zhonghua Ni\textsuperscript{1}
1. Southeast University, Nanjing, China; 2. Jiangxi Science and Technology University, Nanchang, China

Computational Modelling of Sloshing in Liquefied Natural Gas Tank  OMAE2017-61746
Shuhong Chai\textsuperscript{1} Hayden Marcello\textsuperscript{2} Shen Yang Foong\textsuperscript{3} Yuting Jin\textsuperscript{1} Christopher Chin\textsuperscript{1}
1. Australian Maritime College, University of Tasmania, Launceston, TAS; 2. AMOG Consulting, Notting Hill, VIC, Australia

Influence of a Seabed Trench on a Taut Mooring Line  OMAE2017-61472
Lingzhi Xiong, Xinhui Tian, Jianmin Yang
Shanghai Jiao Tong University, Shanghai, China

Structures, Safety and Reliability

2-11-3 Ultimate Strength III  Thursday June 29  Cosmos 3b, Clarion | 15:30–17:30
Session Chair: Jung Kwan Seo, Pusan National University, Korea (Republic)
Session Co-Chair: Yasuhira Yamada, National Institute of Maritime, Port and Aviation Technology, Japan

Estimation of Elastic Buckling Strength of a Non-spherical Tank in the Partially Filled Condition  OMAE2017-61397
Masahiko Fujikubo\textsuperscript{1} Atsushi Sano\textsuperscript{2} Naoya Matsubara\textsuperscript{2} Naruyoshi Izumi\textsuperscript{2}
1. Osaka University, Suita, Japan; 2. Kawasaki Heavy Industries, Ltd, Akashi, Japan; 3. Kawasaki Heavy Industries, Ltd., Kobe, Japan; 4. Kawasaki Heavy Industries, Ltd, Akashi, Japan

Determination of Environmental Conditions Relevant for the Ultimate Limit State at an Exposed Aquaculture Location  OMAE2017-61413
Jørgen Amdahl, Pål Takle Bore
Norwegian University of Science and Technology, Trondheim, Norway

Ultimate Strength Assessment of Semi-submersible Platform Under Different Load Conditions  OMAE2017-61696
HuiLong Ren, Yangzhe Yu, Guoqing Feng
Harbin Engineering University, Harbin, China

Structures, Safety and Reliability

2-12-4 Structural Analysis and Optimization IV  Thursday June 29  Space 2, Clarion | 15:30–17:30
Session Chair: Markus Starr, DNV GL, Germany
Session Co-Chair: Jeongsoo Kim, Korea Institute of Civil Engineering and Building Technology, Korea (Republic)

Experimental and Numerical Analysis of Hybrid 3KW Ocean Wave Power Generation System Subjected to Regular and Irregular Wave Forces  OMAE2017-61245
Youn-Ju Jeong, Min-Su Park, Yoon-Koog Hwang, Jeongsoo Kim
Korea Institute of Civil Engineering and Building Technology, Goyang, Korea

Simplified Design Procedure of Monopile Foundation for Offshore Wind Turbine in Gujarat, India  OMAE2017-61433
Madasamy Arorikasamy\textsuperscript{1} Ishwarya Srikantih\textsuperscript{1} Satya Kiran Raju Alluri\textsuperscript{2} Krishna Venu B.\textsuperscript{2} Ramana Murthy M.V.\textsuperscript{2}
1. Florida Atlantic University, Boca Raton, FL, USA; 2. National Institute of Ocean Technology, Chennai, TN, India

Critical Factors Affecting the Capacity of Cylindrical Grouted Connections in Offshore Energy Structures  OMAE2017-62510
Md Shamsuddoha, Matthias Baedeker, Hans-Carsten Kühne, Götze Hüsken, Marc Thiele
Federal Institute for Materials Research and Testing, Berlin, Germany

Finite Element Methods for the Structural Analysis of Tension Leg Platforms for Floating Wind Turbines  OMAE2017-62513
Markus Starr\textsuperscript{1} Andreas Manjock\textsuperscript{1} Christian Arjes\textsuperscript{1} Nopco-Do Nguyen\textsuperscript{2} Torsten Faber\textsuperscript{2}
1. DNV GL, Hamburg, Germany; 2. Wind Energy Technology Institute, Flensburg, Germany

Materials Technology

3-7-1 Performance and Design of Composites and Elastomers  Thursday June 29  Living Room 4, Clarion | 15:30–17:30
Session Chair: Bjorn Melve, Statoil, Norway
Session Co-Chair: Sheng Bao, Zhejiang University, China

Elastomers Behaviour in Supercritical CO2 Environment  OMAE2017-62080
Bjorn Melve, Statoil, Trondheim, Norway

Wear of Outer Sheath Materials in Flexible Pipes – Testing Methodology  OMAE2017-62091
Bjorn Melve\textsuperscript{1} Einar Øren\textsuperscript{1} Frode Andres Kvilhaug\textsuperscript{1} Marit Larsen\textsuperscript{1}
1. Statoil ASA, Trondheim, Norway; 2. Statoil ASA, Stavanger, Norway

Composite Coiled Tubing for Extended Reach in Horizontal Oil Wells  OMAE2017-62579
Christian Berggreen\textsuperscript{1} Andrei Costache\textsuperscript{1}
1. Technical University of Denmark, Kongens Lyngby, Denmark; 2. Technical University of Denmark, Coma, WA, Australia

Modelling Cold Compression Set in Rubber  OMAE2017-62724
Anton Akulichev, The Norwegian University of Science and Technology, Trondheim, Norway

Pipelines, Risers, and Subsea Systems

4-3-6 Mechanics I  Thursday June 29  Space 1, Clarion | 15:30–17:30
Session Chair: Duane DeGeer, INTECEA, USA
Session Co-Chair: Olav Fyrileiv, DNV GL, Norway

Advanced 3-D FEA Modelling for a Modern and Multidisciplinary Pipeline Design Approach  OMAE2017-62182
Lorenzo Marchionni, Luigino Vitali, Lorenzo Maria Bartolini, Giulio Claudio Vignati, Maurizio Spinazzé
Saipem, Fano, Italy

Indentation Problem on Steel Pipes Part I: Force-dent Response of Steel Pipes  OMAE2017-61890
Mario A. Polanco-Loria, Håvar Ilstad, Erik Levdal
Statoil ASA, Trondheim, Norway

Indentation Problem on Steel Pipes Part II: Force-dent Response of Polymeric Coated Steel Pipes  OMAE2017-61902
Mario A. Polanco-Loria, Håvar Ilstad, Erik Levdal
Statoil ASA, Trondheim, Norway

Residual Stresses in Strength Mismatched Welded Pipes  OMAE2017-62549
Ali Mirzaee Sisan, Junkan Wang
DNV GL, London, United Kingdom

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Pipelines, Risers, and Subsea Systems

4-5-1 Flow Assurance I
Thursday June 29  Space 3, Clarion  |  15:30–17:30

Prediction of Calcium Carbonate Scaling in Pipes Using Artificial Neural Networks  OMAE2017-61233
Theodore Netto1, Jean-David Capracci2, Paulo Paz2, Joao Cajaiba2
1. COPPE - Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 2. Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil

The Feasibility of OpenFOAM-based One-dimensional Prediction of Slugging Induced Pressure Fluctuations in Pipeline-riser Systems  OMAE2017-61126
Longbin Tao, Xiangyin Meng
Newcastle University, Newcastle, United Kingdom

A Two-dimensional Model of Predicting Sand Erosion in Elbows for Liquid Flow  OMAE2017-61150
Haixiao Liu, Rong Kang, Liu Mingyang
Tianjin University, Tianjin, China

Modelling of Complex DEH Systems  OMAE2017-61426
Byvind Hanisch
Nexans Norway, Oslo, Norway

Two Phase Annular Flow Approximation Using 1-D Flow Equations Coupled with a Drift Flux Model for Concurrent Flow in Vertical or Near Vertical Channels  OMAE2017-61480
Ashwin Gadgil, Robert E. Randall
Texas A&M University, College Station, TX, USA

Ocean Engineering

6-11-1 Offshore Industry: Structures and Design
Thursday June 29  A4, BI  |  15:30–17:30

Session Chair: Solomon Yim, Oregon State University, USA

Dynamic Interaction Between Flexible Bodies of Large Wind Turbine and its Response Analysis Under Random Wind Loads  OMAE2017-61700
Weimin Chen1, Shuangxi Guo2, Yilun Li1, Yi Yin3, Min Li3
1. Institute of Mechanics, Chinese Academy of Sciences, Beijing, China; 2. AVIC Composite Corporation LTD, National Key Laboratory of Advanced Composites, Beijing, China; 3. Sino-French Engineering School, Beijing University of Aeronautics and Astronautics, Beijing, China; 4. Key Laboratory of Mechanics in Fluid Solid Coupling System, Institute of Mechanics, Chinese Academy, Beijing, China; 5. School of Aeronautics Sciences and Engineering, Beijing University of Aeronautics and Astronautics, Beijing, China

Analysis of Offshore Wind Turbine Foundations with Soil Damping Models  OMAE2017-62277
Mahdi Khorasanchi, Arash Hemmati, Nigel Bartrop
University of Strathclyde, Glasgow, United Kingdom

A Novel Approach for Selecting Main Dimensions of New Sandglass-type FPSO  OMAE2017-62377
Yi Huang, Yazhen Du, Linlin Wang, Wenhua Wang
Dalian University of Technology, Dalian, China

Second-order Slowly Varying and Mean Value of Pitch Motion of the Sandglass-type Floating Body with Dynamic Positioning System  OMAE2017-62381
Yi Huang, Yuzhen Du, Linlin Wang, Wenhua Wang
Dalian University of Technology, Dalian, China

Ocean Engineering

6-14-4 Coastal Engineering IV
Thursday June 29  U3, BI  |  15:30–17:30

Session Chair: Muk Ong, University of Stavanger, Norway

Analysis of Offshore Wind Turbine Foundations with Soil Damping Models  OMAE2017-62277
Mahdi Khorasanchi, Arash Hemmati, Nigel Bartrop
University of Strathclyde, Glasgow, United Kingdom

A Constitutive Model for Soft Mud Considering the Initial Effective Stress State  OMAE2017-62341
Chunyang Xu, Yongping Chen, Wenhua Wang
Dalian University of Technology, Dalian, China

Random Wave-Induced Burial and Scour of Short Cylinders and Truncated Cones on Mild Slopes  OMAE2017-62476
Muk Chen Ong1, Dag Myrhaug2
1. University of Stavanger, Stavanger, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway

Numerical Simulation of Structure-Induced Dynamic Shoreline Changes by Using an Empirical Equilibrium Formula  OMAE2017-62622
Jung Lyul Lee1, John Rong-Chung Hsu1
1. Sungkyunkwan University, Suwon, Korea; 2. University of Western Australia, Perth, WA, Australia
Development of Tsunami Design Provisions for the ASCE 7-16 Standard
OMAE2017-61010
Ian Robertson
University of Hawaii, Honolulu, HI, USA

Prof. Carl Martin Larsen and Dr. Owen Oakley Honoring Symposia on CFD & VIV

8-3-3 Risers and Pipelines I

Thursday June 29

- A3, BI | 15:30–17:30

Session Chair: Flännis Constantinides, Chevron, USA
Session Co-Chair: Owen Oakley, Chevron retired, USA

Induced Vibrations of Marine Riser/Pipe/Cable
OMAE2017-61064
Robert Zueck
US Navy - Naval Facilities EXW, Port Hueneme, CA, USA

The Study on the Influence of Pipe-soil Interaction on VIV for Different Free Span Types
OMAE2017-61117
Naiguan Ye¹ Svein Sævik² Chongyao Zhou³ Zhiming Huang⁴ Dagang Zhang⁵ Gang Xu⁶
1. SINTEF Ocean, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. DMR Offshore Engineering Consulting, Qingdao, China

In-line Vibrations of Flexible Pipes
OMAE2017-61325
Svein Sævik, Jan Vidar Ulveseter
Norwegian University of Science and Technology, Trondheim, Norway

Further Experimental Investigations on Vortex Self-induced Vibrations (VSIV) with a Small-scale Catenary Riser Model
OMAE2017-62100
Rodolfo Tretinnont Gonzalves¹ Celso Pescovº Guilherme Franzini³
1. The University of Tokyo, Kashiwa, Japan; 2. University of Sao Paulo - Escola Politecnica, Sao Paulo, SP, Brazil; 3. University of Sao Paulo, Sao Paulo, SP, Brazil; 4. Federal University of Santa Catarina, Joinville, SC, Brazil; 5. Petrobras, Rio de Janeiro, RJ, Brazil

Real-time Hybrid Model Testing of a Top Tensioned Riser: a Numerical Case Study on Interface Time-delays and Truncation Ratio
OMAE2017-62498
Thomas Sauer¹ Asgeir Johan Sørensen² Kjell Larsen³
1. SINTEF Ocean, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. Statfjord, Trondheim, Norway

Ocean Renewable Energy

9-4-4 Wave Tank and Field Tests

Thursday June 29

- U6, BI | 15:30–17:30

Session Chair: Kelley Ruehl, Sandia National Laboratories, USA
Session Co-Chair: Alessandra Romolo, Mediterranean University of Reggio Calabria, Italy

Wave Energy Conversion Efficiency of the Dual Cylindrical Caisson Breakwaters Embodying an OWC with a Semi-arc Opening on Outer Wall
OMAE2017-61029
Jing Chen, Yongxue Wang, Guoyu Wang, Li Cai
Dalian University of Technology, Dalian, China

Performance Assessment of the Anaconda WEC in Regular Waves at 1:50 Model Scale
OMAE2017-61478
Antonio Mendes¹ John Chaplin² Francisco P. Braga³ Luis M. A. Paredes³
1. Universidade do Beira Interior, Covilha, Portugal; 2. Southampton University, Highfield, United Kingdom

Wave Energy Prize Experimental Sea State Selection
OMAE2017-62675
Diana Bull, Ann Dallman
Sandia National Laboratories, Albuquerque, NM, USA

The First Full Operative U-OWC Plants in the Port of Civitavecchia
OMAE2017-62035
Felice Arena, Giovanni Malara, Vincenzo Fiamma, Valentina Laface, Alessandra Romolo
Mediterranea University, Reggio Calabria, Italy

Experimental and Numerical Study on Point Absorber Type Wave Energy Converter with Linear Generator
OMAE2017-61849
Tomoki Taniguchi¹ Toshifumi Fujiwara¹ Hiroki Goto² Shunji Inoue³
1. National Maritime Research Institute, Mitaka, Japan; 2. Tohoku University, Sendai, Japan
Petroleum Technology

11-10-1 Wellbore Stability
Thursday June 29 | U2, BI | 15:30–17:30

Session Chair: Arash Dahi, Louisiana State University, USA
Session Co-Chair: Saed Salehi, University of Oklahoma, USA

Spatio-temporal Stress Path Prediction under Different Deformational Conditions OMAE2017-61597
Saeed Rafieepour, Stefan Miska
University of Tulsa Drilling Research Projects, Tulsa, OK, USA

The Impact of Diagenesis and Compaction on Drilling Failure Detection OMAE2017-61858
Nur Mamat
Universiti Teknologi Malaysia, Johor Bahru, Malaysia

Analysis on Wellhead Stability During Drilling Operation in Permafrost Region OMAE2017-61868
Zhiyuan Wang, Xuemai Wang, Baogang Sun, Xuejing Deng, Yang Zhao, Yonghai Gao, Hao Li
China University of Petroleum, Qingdao, China

Analysis of Thermally Induced Stresses for Effective Prevention and Remediation of Lost Circulation in Fractured Formations OMAE2017-62519
Yuanhang Chen, Ze Wang, James Nielsen
Louisiana State University, Baton Rouge, LA, USA

Accessible Pore Distribution and Connectivity for Barnett and Haynesville Shale Plays OMAE2017-62270
Davud Davudov, Rouzbeh Ghanbarnezhad Moghanloo
University of Oklahoma, Norman, OK, USA

Petroleum Technology

11-15-2 Advances through the Research Centre DrillWell
Thursday June 29 | Cosmos 3c, Clarion | 15:30–17:30

Session Chair: Jan David Ytrehus, SINTEF Petroleum, Norway

Casing Centralization in Irregular Wellbores OMAE2017-61106
Hans Joakim Skadsem1 Arild Saasen2 Stein Håvardstein2
1. International Research Institute of Stavanger, Stavanger, Norway; 2. University of Stavanger, Stavanger, Norway

A Transient Flow Model for Predicting Pressure Buildup in Closed Annuli OMAE2017-61209
Kjell Kåre Fjelde1 John Emeka Udgbunam1 Dan Sai1 Fatemeh Moeinikia1 Antonio C.V.M. Lage2 Øystein Arild3 Herimona A. Rabenjafamarantsoa4 Gerhard Nygaard4
1. University of Stavanger, Stavanger, Norway; 2. SINTEF Petroleum Research, Trondheim, Norway; 3. University of Stavanger, Stavanger, Norway; 4. University of Stavanger, Stavanger, Norway

Experimental Investigation of Wellbore Fluid Displacement in Concentric and Eccentric Annulus OMAE2017-62028
Jan David Ytrehus1 Bjørnar Lund1 Arild Saasen2 Ali Taghipour2 Shreyansh Divyankar3
1. SINTEF Petroleum, Trondheim, Norway; 2. SINTEF Petroleum Research, Trondheim, Norway; 3. University of Stavanger, Stavanger, Norway

Improved Laboratory Set-up for Pressurized and Confined Cement Sheath Integrity Tests OMAE2017-62444
Torbjorn Valstad, Ali Taghipour, Nils Opdal, Ragnhild Skorpa
SINTEF Petroleum Research, Trondheim, Norway

Modelling of the Dynamic Behavior of the Power Transmission of an Automatic Small Scale Drilling Rig OMAE2017-62523
Hans Joakim Skadsem, Eric Cayeux
International Research Institute of Stavanger, Stavanger, Norway

Torger Moan Honoring Symposium

12-11-1 Reliability Analysis of Marine Structures and Operations II
Thursday June 29 | A2, BI | 15:30–17:30

Session Chair: Carlos Guedes Soares, Centre for Marine Technology and Ocean Engineering (CENTEC), Portugal
Session Co-Chair: Zhen Gao, Norwegian University of Science and Technology, Norway

On a Systematic Identification of Key Factors on Safety of Marine Structures and Their Potential Treatment Methods OMAE2017-62294
Weicheng Cui
Shanghai Ocean University, Shanghai, China

On-bottom Stability Design of Submarine Pipelines – a Probabilistic Approach OMAE2017-62300
Hadi Amlashi
Xodus Group AS, Lysaker, Norway

Reliability Study of a North-Sea Jack-up Under Ship Impact OMAE2017-62501
M.Reza Emami Azadi
Azerbaijan T.M. University, Tabriz, Iran

On the Application of Structural Reliability Analysis OMAE2017-62717
Torfinn Horte1 Gudmundur Sigurdsson1
1. DNV GL, Høvik, Norway; 2. DNV GL, Oslo, Norway

Influence on Structural Reliability of Uncertain Extreme Value Estimates OMAE2017-62709
Arvid Naess1 Stuart Reid2
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. University of Sydney, Sydney, NSW, Australia

Farewell Reception
17:30 – 19:30
Cosmos 1, Clarion
See Social Events, page 18 for more details.
Technical Tour: Friday, June 30

Technical Tour to Statoil and the Marine Technology Centre (SINTEF Ocean and NTNU)

**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:** Lobby of Clarion

**Departure:** 09:00

**Approximate Return Time:** 18:00

**Fee:** NOK 550 (includes lunch)

Statoil is an international energy company with operations in 36 countries. Building on more than 40 years of experience from oil and gas production on the Norwegian continental shelf, we are committed to accommodating the world’s energy needs in a responsible manner, applying technology and creating innovative business solutions.

Statoil Research Centre is located in Trondheim. Research performed here involves all disciplines covering the complete value chain of oil and gas business and renewable energy. In addition, laboratories support Statoil’s operations on investigations of components and equipment. The laboratory with a vital mission of bringing new technology and knowledge forward, from small to full scale experiments, includes:

- Increased Oil Recovery (IOR) laboratory
- Deep-water laboratory
- Materials laboratory
- Process laboratory

The former Norwegian Marine Technology Research Institute (MARINTEK) has merged with SINTEF Fisheries and Aquaculture and SINTEF Environmental technology into SINTEF Ocean. SINTEF is the largest independent research organization in Scandinavia, and is the fourth largest in Europe. Among the fields of SINTEF Ocean, the institute performs R & D in ocean technology for a global market, primarily in maritime, offshore oil and gas, renewable ocean energy, fisheries and aquaculture and ocean farming.

The Norwegian University of Science and Technology (NTNU) is Norway’s premier institution for the education of engineers. The Department of Marine Technology (IMT) at NTNU educates about and conducts research on methods and techniques which lead to technical and operational solutions within ocean technology, with emphasis on environmentally friendly and energy-efficient solutions.

The marine technology part of SINTEF Ocean and the Department of Marine Technology at NTNU are co-located in the Marine Technology Centre in Trondheim. Together, we are among the largest independent higher education and research centres in marine technology in the western world. Among what is unique in the Marine Technology Centre are our laboratories:

- The Ocean Basin
- The Towing Tank
- The Structural laboratory
- The Energy and Machinery laboratory
We cordially invite you to participate in the 37th International Conference on Ocean, Offshore and Arctic Engineering (OMAE) in Madrid, Spain, June 17 – 22, 2018.

In recent years a substantial increase of the presence of Spanish companies in the offshore sector, both oil and gas and renewables, has taken place. As a reflection of this impulse, 2018 will be the first time OMAE visits Spain.

Madrid, Spain's capital and largest metropolis, is a city where you will find everything: cutting-edge facilities, devoted professionals and a modern infrastructure. Furthermore, you will find a booming culture, a thriving lifestyle, warm people and blue skies.

Madrid offers a number of attractive features to make OMAE 2018 a successful conference: there are 200 destinations with direct flights, 75,000 hotel beds, 135 museums (among them Prado and Thissen-Bornemisza), global football teams like Real Madrid and Atlético de Madrid and 6 World Heritage sites in the region (within 1 hour drive).

As the country’s capital, Madrid’s 15,000 bars and restaurants offer all kinds of affordable national and international dishes, as well as the appealing “tapas”, that are offered as side-dish for a cold beer or a glass of a Spanish wine.

As your hosts, Universidad Politécnica de Madrid (UPM), Environmental Hydraulics Institute of Cantabria - Universidad de Cantabria (IHCantabria) and Universitat Rovira i Virgili (URV) look forward to this great event. We will do our best to organize a conference that allows you to enjoy both its technical and social aspects.

UPM is the oldest and largest Spanish technical university, with 3,000 faculty members and 35,000 students. Its marine engineering faculty (ETSIN), with over 500 students, is amongst the largest in Europe. The University of Cantabria, located in Santander in the north coast of Spain, is one of the three universities that has been in the Top 10 list of the main Spanish rankings both in education and research quality. IHCantabria, one of its centres, is the leading research centre in coastal and ocean engineering in the country, with more than 140 researchers and scientists focused on a wide range engineering challenges. It also manages a unique set of experimental facilities specialized on ocean engineering issues.

URV is based in the Mediterranean coast of Southern Catalonia and it is the center of a strategic union of different structures involved in teaching, research and knowledge transfer, around the Campus of International Excellence of Southern Catalonia (CEICS). URV has been consistently ranked in the world’s Young University Rankings (Times Higher Education under 50), in the Academic Ranking of World Universities (ARWU) and in the Times Higher Education World University Rankings.

A number of interesting outings will be arranged during OMAE 2018, among them a gala dinner in the gardens of a XVIII century palace, offering a wide range of Spanish dishes, followed by musical performances and a party. A technical visit to CEHIPAR ocean basin, one of the largest in the world, will be also organized. The social programme will consist of tours to the historical towns of Segovia, with the 2000 years old Roman aqueduct, one of the best conserved in the world, or Toledo, with an amazing multicultural Middle Ages old town district.

We are really looking forward to seeing you all during OMAE 2018 in Madrid, Spain, next year!

Read more about Madrid and the region here: https://www.esmadrid.com/en

Conference Chairs, OMAE 2018

Antonio Souto-Iglesias, Ph.D.
Associate Professor, CEHINAV, DMFPA, ETSIN, Universidad Politécnica de Madrid (UPM)

Raúl Guanche García, Ph.D.
Head of Offshore Engineering and Ocean Energy Group, Environmental Hydraulics Institute of Cantabria – IHCantabria, Universidad de Cantabria.

Francisco Huera-Huarte, DIC, Ph.D.
Associate Professor of Mechanical Engineering, Universitat Rovira i Virgili (URV)
Welcome to the 37th ASME International Conference on Ocean, Offshore and Arctic Engineering (OMAE 2018) to be held in Madrid, Spain from June 17 – 22, 2018.

Abstract Submission is now open!

Please visit the OMAE 2018 conference website (www.asme.org/events/omae) to view the conference details.

Following OMAE 2017, we anticipate another successful conference showcasing the excellent technical content that OMAE has become known for internationally.

Abstract/Paper Submission Guidelines:
Authors should submit a title/abstract to begin the paper submission process. Prior to the date noted below, authors should then submit full-length manuscripts for peer review. Draft manuscripts and final-paper submissions must conform to ASME publication guidelines.

Important Dates and Information:
- Monday, October 3, 2017 – Deadline for Abstract Submission
  NOTE: Abstracts submitted to individual topics will be automatically accepted by the system and assigned a paper number. Submission of the draft paper should begin immediately upon submission of your abstract.
- Thursday, January 12, 2018 – Full-Length Draft Paper Due
- Thursday, February 23, 2018 – Notification of Acceptance/Rejection
- Thursday, March 9, 2018 – Final Paper Due

For the full publications schedule and to submit your Abstract and Draft Paper, please visit www.asme.org/events/omae

PLEASE NOTE THAT THESE DEADLINES ARE FIRM AND WILL NOT BE EXTENDED. Due to the tremendous success of the OMAE conferences, the number of papers has increased steadily over the years hence we need to uphold firm deadlines to ensure proper management of the review and publication process. Your cooperation in adhering to the publication schedule and making OMAE2018 a success will be greatly appreciated.

We ask that you return home from OMAE 2017 and start working on your Abstract and Full-Length Draft Paper soon! We look forward to your contribution to a very successful OMAE 2018.

Sincerely,
OMAE 2018 Conference Chairs
Antonio Souto-Iglesias, Ph.D.
Associate Professor, CEHINAV, DMPPA, ETSIN, Universidad Politécnica de Madrid (UPM)

Raúl Guanche García, Ph.D.
Head of Offshore Engineering and Ocean Energy Group.
Environmental Hydraulics Institute of Cantabria – IHCantabria, Universidad de Cantabria.

Francisco Huera-Huarte, DIC, Ph.D.
Associate Professor of Mechanical Engineering
Universitat Rovira i Virgili (URV)

OMAE 2018 Conference Technical Program Chair
Solomon C. Yim, PhD, PE
Glenn Willis Holcomb Professor of Structural Engineering
School of Civil and Construction Engineering
Oregon State University
SAVE THE DATE!

International Offshore Wind Technology Conference (IOWTC 2018)

ASME presents a new 3-day conference, focusing on the technical aspects of Offshore Wind

Topics will include:
- Numerical Modeling and Coupling
- Installation & Commissioning
- Operation & O&M
- Numerical Modeling
- Model Testing
- Aero & Hydrodynamics
- Structure Response
- Turbine Control Systems
- and more

Watch your emails for a call for papers!

Location: Northern California
Dates: November 4–7, 2018

Conference Co-chairs:
Dominique Roddier, Ph.D., CTO, Principle Power
Krish Thiagarajan, Ph.D., University of Maine
Email: iowtc@seatoskymeetings.com
11th 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 2017 International Conference on Ocean, Offshore and Arctic Engineering (OMAE) in Trondheim, Norway. 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 eleventh 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. As each year is different a site tour or job fair may be included.

In addition, Outreach for Engineers Specialty Forum delegates will be provided with the opportunity to participate at the 36th International Conference on Ocean, Offshore and Arctic Engineering as full conference delegates. This conference will showcase over 850 technical papers from engineers and scientists from around the world, with 12 Symposia representing the range of technologies.

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 2018 on the conference website.

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.

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.
## Conference Schedule with Outreach Events

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Time</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>Saturday, June 24</td>
<td><strong>Outreach Team Building Exercise</strong></td>
<td>17:00 – 19:00</td>
<td>Cosmos 3c, Clarion</td>
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<tr>
<td>Saturday, June 24</td>
<td><strong>Outreach Welcome Dinner</strong></td>
<td>19:00</td>
<td>Off-site</td>
</tr>
<tr>
<td>Sunday, June 25</td>
<td><strong>Outreach Welcome &amp; Introductions</strong></td>
<td>08:00 – 17:00</td>
<td>Cosmos 3c, Clarion</td>
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<tr>
<td></td>
<td><strong>Industry Presentations</strong></td>
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<tr>
<td></td>
<td><strong>OMAE 2017 Conference Registration</strong></td>
<td>13:00 - 19:00</td>
<td>Space Foyer, Clarion</td>
</tr>
<tr>
<td></td>
<td><strong>OMAE 2017 Welcome Reception</strong></td>
<td>18:30 – 20:30</td>
<td>Space Foyer, Clarion</td>
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<tr>
<td>Monday, June 26</td>
<td>OMAE Conference</td>
<td></td>
<td>See detailed program for session locations and times.</td>
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<tr>
<td>Tuesday, June 27</td>
<td>OMAE Conference</td>
<td></td>
<td>See detailed program for session locations and times.</td>
</tr>
<tr>
<td>Wednesday, June 28</td>
<td>OMAE Conference</td>
<td></td>
<td>See detailed program for session locations and times.</td>
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<tr>
<td></td>
<td><strong>OMAE 2017 Conference Banquet</strong></td>
<td></td>
<td>See detailed program for session locations and times.</td>
</tr>
<tr>
<td>Thursday, June 29</td>
<td><strong>Outreach Breakfast / Feedback Session</strong></td>
<td>07:30 – 08:30</td>
<td>Skybar, 9th Floor, Clarion</td>
</tr>
<tr>
<td></td>
<td>OMAE Conference</td>
<td></td>
<td>See detailed program for session locations and times.</td>
</tr>
<tr>
<td>Friday, June 30</td>
<td>OMAE Technical Tour (Optional)</td>
<td></td>
<td>See Technical Tour on page 95 for locations and times.</td>
</tr>
</tbody>
</table>

Note: Outreach only events are bolded.
Conference Organizing Committee
Dr. Bernt J. Leira, Conference Chair
Dr. Atle Minsaas, Conference Co-Chair
Dr. Dominique Roddier, Technical Program Chair

Local Organizing Committee
Dr. Bernt J. Leira, NTNU
Annika Bremvåg, Higher Executive Officer, NTNU
Ingvill Snaefugl, Communication Adviser, SINTEF Ocean
Dr. Atle Minsaas, Special Adviser, SINTEF Ocean

Volunteers
The Conference Organizing Committee would like to express their gratitude to all the OMAE 2017 volunteers. We sincerely appreciate all the support they provide!

Technical Program Committee
SYMP 1: Offshore Technology
Symposium 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: Pipelines, Risers, and Subsea Systems
Symposium Coordinator: Carlos Guedes Soares, TechnipFMC
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 Kuehnein, sea2ice Ltd. & Co. KG
SYMP 8: Prof. Carl Martin Larsen and Dr. Owen Oakley Honoring Symposia on CFD & VIV
Symposium Coordinator: Yanni Constantinides, Chevron Energy Technology Company
Symposium Co-Coordinator: Kjetil Skaugset, Statoil ASA

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: Torgeir Moan Honoring Symposium
Symposium Coordinator: Carlos Guedes Soares, Instituto Superior Tecn-CENTEC

Topic Organizers
SYMP 1: Offshore Technology
Offshore Platforms: Anil Sablok, TechnipFMC
Station Keeping: Allan Ross Magee, National University of Singapore
Hydrodynamics: Longbin Tao, Newcastle University
Design and Analysis: Olaf Waals, MARIN
FLNG Hydrodynamics: Wenhua Zhao, University of Western Australia
CFD Modeling Practice & Verification: Zhenjia (Jerry) Huang, Exxonmobil
Upstream Research Company
CFD Modeling Practice & Verification: Jing Kim, TechnipFMC
CFD Modeling Practice & Verification: Guangyu Wu, Chevron
Wave Loading and Motions in Extreme Seas: Nuno Fonseca, MARINTEK

SYMP 2: Structures, Safety and Reliability
Extreme and Abnormal or Rogue Waves: Alexander V. Babarin, University of Melbourne
Probabilistic and Spectral Wave Models: Carlos Guedes Soares, CENTEC
Probabilistic Response Models: Lance Manuel, University of Texas at Austin
Fatigue Reliability: Yordan Garbator, Universidade de Lisboa
Reliability of Marine Structures: Carlos Guedes Soares, CENTEC
Reliability of Marine Structures: Nianzhong Chen, Newcastle University
Well Integrity and Reliability Assessment: Max Russo, Kongsberg Maritime Inc.
Reliability of Mooring and Riser Systems: Ying Min Low, National University of Singapore
Reliability of Mooring and Riser Systems: Luis Sagrilo, COPPE/UFPR
Reliability of Renewable Energy Systems: Zhen Gao, Norwegian University of Science and Technology
Extreme Loading and Responses: Carlos Guedes Soares, CENTEC

Collision and Crashworthiness: Sören Ehlers, Hamburg University of Technology
Ultimate Strength: Carlos Guedes Soares, CENTEC
Ultimate Strength: Shengming Zhang, Lloyds Register
Structural Analysis and Optimization: Jonas Ringsberg, Chalmers University of Technology
Risk Analysis and Management: Marcelo Martins, University of Sao Paulo
Risk Based Maintenance: Carlos Guedes Soares, CENTEC

SYMP 3: Materials Technology
Fatigue Performance and Control: Xin Wang, Carleton University
Fatigue Performance and Testing: Carol Johnston, TWI Ltd.
Fracture Assessment? Experimental: Yan-Hui Zhang, TWI Ltd.
Environmental Effect on Materials Performance: Jens Tronskar, DNV GL
Fatigue Performance and Life Extension: Agnes Marie Horn, DNV GL
Fatigue Performance and Life Extension: Xin Wang, Carleton University
Integrity of Mooring Systems: Koji Gotoh, Kyushu University
Performance and Application of Non-Metallics: Bjorn Melve, Statoil
In-situ Stress Measurement and Monitoring: Sheng Bao, Zhejiang University
Relationship between Local Stress Modeling and the Fatigue Curve: Jeong Hong, Battelle
Impact of Steel and Construction Technologies on Structural Integrity: Shuwen Wen, Tata Steel

Special Session honoring Profs. Stig Berge and Per Haggansen: Agnes Marie Horn, DNV GL
Special Session honoring Profs. Stig Berge and Per Haggansen: Koji Gotoh, Kyushu University

ONR Sessions on Composites for Marine Structures I: Yapa D Rajapakse, Office of Naval Research (ONR 332)
ONR Sessions on Composites for Marine Structures II: Christian Berggreen, Technical University of Denmark
ONR Sessions on Composites for Marine Structures III: Christian Berggreen, Technical University of Denmark

ONR Sessions on Composites for Marine Structures IV: Yapa D Rajapakse, Office of Naval Research (ONR 332)
ONR Sessions on Composites for Marine Structures V: Morte Langoy, Petroleum Safety Authority
ONR Sessions on Composites for Marine Structures VI: Terje Andersen, Petroleum Safety Authority
SYMP 4: Pipelines, Risers, and Subsea Systems
Flexible Pipes and Umbilicals: Zhimin Tan, GE oil & gas, Wellstream
Flexible Pipes and Umbilicals: Svein Savik, NTNU
Rigid Risers: Olav Fyrileiv, DNV GL
Rigid Risers: Basim Mekha, Cuneiform Offshore Consulting, LLC
Rigid Pipelines: Julian Hallai, Exconmobil Upstream Research Company
Rigid Pipelines: Theodoros Netto, COPPE/UFJF
Subsea Structures and Equipment: Duane DeGeer, INTECSA
Subsea Structures and Equipment: Yong Bai, Zhejiang University
Flow Assurance: Celso K. Morooka, UNICAMP - University of Campinas
Flow Assurance: Marcelo Igor Lourenço, COPPE - Federal University of Rio de Janeiro
Innovative Technologies for Deepwater Low-Cost Production: Segen Estefen, COPPE - Universidade Federal do Rio de Janeiro
Innovative Technologies for Deepwater Low-Cost Production: Denby Morrison, Shell
Innovative Technologies for Deepwater Low-Cost Production: Duane DeGeer, INTECSA
Innovative Technologies for Deepwater Low-Cost Production: Svein Savik, NTNU
Innovative Technologies for Deepwater Low-Cost Production: Menglan Duan, CUP

SYMP 5: Ocean Space Utilization
New Concepts for Ocean Space Utilization: Kazuhiro Lijima, Dept of NAOE, Osaka University
New Concepts for Ocean Space Utilization: Wei Bai, Manchester Metropolitan University
Aquaticulture and Related Technology: Pål Furseet Lader, SINTEF Ocean
Aquaticulture and Related Technology: Shixiao Fu, Shanghai Jiao Tong University
Deepsea Mining and Ocean Resources: Tetsue Yamazaki, Osaka Prefecture University
Underwater Development and Technology: Tomoya Inoue, JAMSTEC
Underwater Development and Technology: Yoshitaka Watanabe, JAMSTEC
Floating Systems for Renewable Energy: Motohiko Murai, Yokohama National University
Floating Systems for Renewable Energy: Alexander H. Day, University of Strathclyde
High Tide and Tsunamis: Koichi Masuda, Nihon University
High Tide and Tsunamis: Koji Takahashi, Port and Airport Research Institute
Environmental Assessment for Marine Renewable Energy: Daisuke Kitazawa, University of Tokyo
Utilization of Seawater: Yasuyuki Ikegami, Saga University
Utilization of Seawater: A. Bakar Jaafar, University of Technology Malaysia
Coastal Zone Management: Shigeru Tabeta, University of Tokyo
SYMP 6: Ocean Engineering
Advanced Ship Hydromechanics and Marine Technology: Jeffrey Falzarano, Texas A&M University
Advanced Ship Hydromechanics and Marine Technology: Ye Li, Shanghai Jiao Tong University
Advanced Ship Hydromechanics and Marine Technology: Sanne Van Essen, MARIN
Wave Mechanics and Wave Effects: Sungho Lee, Glauten
Wave Mechanics and Wave Effects: Simen Å. Ellingsen, Norwegian University of Science and Technology
Wave Mechanics and Wave Effects: Kostas Belibassakis, National Technical University of Athens
Model Tests: Parameswaran Krishnankutty, Indian Institute of Technology Madras
Model Tests: Hans Cozijn, MARIN
Model Tests: David Molyneux, Memorial University of Newfoundland
Towed and Undersea Cables and Pipes, Moorings, and Buoy Technology: Jon Mikkelsen, University of British Columbia
Advanced Underwater Vehicles and Design Technology: Jon Mikkelsen, University of British Columbia
Unsteady Hydrodynamics, Vibrations, Acoustics and Propulsion: Mohammad Rahmati, Brunel University London
Computational Mechanics and Design Applications: Wei Qiu, Memorial University of Newfoundland
Computational Mechanics and Design Applications: Antonio Carlos Fernandes, Federal University of Rio de Janeiro
Fluid-Structure, Multi-Body and Wave-Body Interaction: Nuno Fonseca, MARINTEK
Fluid-Structure, Multi-Body and Wave-Body Interaction: Spyros Hirdaris, Lloyd’s Register EMEA
Fluid-Structure, Multi-Body and Wave-Body Interaction: Torgerik Kirkhorn Vada, DNV GL
Fluid-Structure, Multi-Body and Wave-Body Interaction: Pierre Ferrant, Ecole Centrale De Nantes/CNRS
Marine Environment and Very Large Structures: Muk Chen Ong, University of Stavanger
Marine Environment and Very Large Structures: Ove Tobias Gudmedstad, University of Stavanger
Marine Environment and Very Large Structures: Lin Li, University of Stavanger

Offshore Industry: Aquaculture, Mining, etc.: Muk Chen Ong, University of Stavanger
Offshore Industry: Aquaculture, Mining, etc.: Lin Li, University of Stavanger
Offshore Industry: Structures and Design: Solomon Yim, Oregon State University
Ocean Engineering Technology: Jon Mikkelsen, University of British Columbia
Ocean Measurement and Data Interpretation: Gus Jeans, Oceanalysis Ltd
Coastal Engineering: Kuang-An Chang, Texas A&M University
Coastal Engineering: Mohammad-Reza Alam, University of California, Berkeley

SYMP 7: Polar and Arctic Sciences and Technology
Arctic Frontier Regions: Walter Kuehnlein, sea2ice Ltd. & Co. KG
Arctic Sea Transportation: Sören Ehlers, Hamburg University of Technology (TUHH-M10)
Structures in Ice: Walter Kuehnlein, sea2ice Ltd. & Co. KG
Vessels in Ice: Rocky Taylor, Memorial University of Newfoundland
Manoeuvering in Ice: Rocky Taylor, Memorial University of Newfoundland
Full Scale Measurements in Ice: Rudiger U. Franz Von Bock Und Polach, Technical University of Hamburg
Ice Management: Walter Kuehnlein, sea2ice Ltd. & Co. KG
Evacuation in Ice: Rocky Taylor, Memorial University of Newfoundland
Operations in Ice: Aditya R. Prabowo, Pukyong National University
Oil Spill Prevention/Recovery, Evacuation and Rescue in Ice: Walter Kuehnlein, sea2ice Ltd. & Co. KG
Ice Model Tests: Rudiger U. Franz Von Bock Und Polach, Technical University of Hamburg
Numerical Ice Modeling: Sören Ehlers, Hamburg University of Technology (TUHH-M10)
Structure-Ice Interactions: Rudiger U. Franz Von Bock Und Polach, Technical University of Hamburg

SYMP 8: Prof. Carl Martin Larsen and Dr. Owen Oakley Honoring Symposia on CFD & VIV
Ship & Floating Systems: Stephen Cosgrove, Altair Engineering
Ship & Floating Systems: Samuel Holmes, Relving Engineering
Free Surface Flows: Guilherme Vaz, MARIN
Risers & Pipelines: Michael Tognarelli, BP American Production Co.
Risers & Pipelines: Mike Campbell, 2H Offshore Inc.
Risers & Pipelines: Shan Huang, BP
Risers & Pipelines: Partha Sharma, DNV GL
COMMITTEES & ORGANIZERS

Fluid-Soil-Structure Interaction: Zefeng Zhou, University of Western Australia
Pile Foundations 1: Amin Barari, Virginia Tech
Pile Foundations 2: Sangchul Bang, South Dakota School of Mines & Technology

SYMP 9: Ocean Renewable Energy
Wind Energy - Design & Simulations: Erin E. Bachynski, NTNU
Wind Energy - Design & Simulations: Maurizio Collu, Cranfield Univ
Wind Energy - Analysis & Operation: Lisa Ziegler, Ramboll
Wind Energy - Analysis & Operation: Lance Manuel, University of Texas at Austin
Wave Energy - Design & Optimization: Kelley Ruehl, Sandia National Laboratories
Wave Energy - Design & Optimization: Aurélien Babarit, Ecole Centrale de Nantes
Wave Energy - Analysis & Experimentation: Yi-Hsiang Yu, National Renewable Energy Laboratory (NREL)
Wave Energy - Analysis & Experimentation: Ryan Coe, Sandia National Laboratories
Current Energy - Analysis, Design and Operation: Michael Berntssas, University of Michigan
Current Energy - Analysis, Design and Operation: Adrian de Andres, University of Edinburgh
Current Energy - Analysis, Design and Operation: Madasamy Arockiasamy, Florida Atlantic University
Ocean Renewable Energy - Regulatory & Environmental Considerations: Jinkyoo Park, KAIST
Ocean Renewable Energy - thermal, hybrid and other forms: Majdjd Karimirad, Queen's University Belfast
Ocean Renewable Energy - thermal, hybrid and other forms: Ying Tu, Norwegian University of Science and Technology
Joint Sessions: Dominique Roddier, Principle Power

SYMP 10: Offshore Geotechnics
Seabed Properties: Manuela Kanitz, Hamburg University of Technology
Oilwell Cement Technology: Nedijka Gaurina-Medimurec, University of Zagreb
Multiphase Equilibria in Petroleum Engineering: Huazhou Li, University of Alberta
Integrity of Well Cement Barriers: Jan David Ytrehus, SINTEF Petroleum

SYMP 12: Torgeir Moan Honoring Symposium
Stochastic Dynamic Response Analysis of Marine Structures: Carlos Guedes Soares, Centre for Marine Technology and Ocean Engineering (CENTEC)
Modelling and Analysis of Marine Operations: Zhen Gao, Norwegian University of Science and Technology
Uncertainty Assessment of Response Analysis Methods: Carlos Guedes Soares, Centre for Marine Technology and Ocean Engineering (CENTEC)
Prediction of Accidental Loads and Their Structural Effects: Carlos Guedes Soares, Centre for Marine Technology and Ocean Engineering (CENTEC)
Accuracy of Finite Element Structural Analysis: Zhen Gao, Norwegian University of Science and Technology
Fatigue Analysis: Carlos Guedes Soares, Centre for Marine Technology and Ocean Engineering (CENTEC)
Operational Experiences Relating to Fatigue Cracks and Corrosion: Zhen Gao, Norwegian University of Science and Technology
Accident Investigations: Carlos Guedes Soares, Centre for Marine Technology and Ocean Engineering (CENTEC)
Assessment of Structural Robustness or Damage Tolerance: Zhen Gao, Norwegian University of Science and Technology
Inspection, Monitoring, Maintenance and Repair: Carlos Guedes Soares, Centre for Marine Technology and Ocean Engineering (CENTEC)
Reliability Analysis of Marine Structures and Operations: Carlos Guedes Soares, Centre for Marine Technology and Ocean Engineering (CENTEC)
Design Codes for Planning of Marine Operations: Zhen Gao, Norwegian University of Science and Technology
Innovative Marine Structures or Installation Procedures: Zhen Gao, Norwegian University of Science and Technology
Validation of Simulation Models: Carlos Guedes Soares, Centre for Marine Technology and Ocean Engineering (CENTEC)

Session Organizers

SYMP 1: Offshore Technology
Offshore Platforms - Metocean and Environmental Loading: Jang Kim, TechnipFMC and Anil Sablok, TechnipFMC
Ultimate Strength - Ultimate Strength 3: Jung Kwan Seo, Pusan National University and Yasuhiro Yamada, National Institute of Maritime, Port and Aviation Technology
Structural Analysis and Optimization - Structural Analysis and Optimization 1: Meng Zhang, Chalmers University of Technology and Nabanita Datta, Indian Institute of Technology, Kharagpur
Structural Analysis and Optimization - Structural Analysis and Optimization 2: Arifian Agusta, Technical University of Denmark
Structural Analysis and Optimization - Structural Analysis and Optimization 3: Nicolas Larrosa, University of Manchester and Etienne Bonnaud, Inspecta Technology
Risk Analysis and Management - Risk Analysis and Management 1: Marcelo Martins, University of São Paulo and Karina Forte, Bureau Veritas
Risk Analysis and Management - Risk Analysis and Management 2: Haibo Chen, Lloyd’s Register Consulting - Energy Inc. and Adriana M. Schleder, University of São Paulo
Risk Analysis and Management - Risk Analysis and Management 3: Marcelo Martins, University of São Paulo and Ingrid B. Utne, Department of Marine Technology, NTNU

SYMP 3: Materials Technology
Fracture Assessment - Analytical Methods - Fracture Control - Analytical Approach I: Xin Wang, Carleton University and Jens Tronskar, DNV GL
Fracture Assessment - Analytical methods - Fracture Control - Analytical Approach II: Xin Wang, Carleton University and Xiao zhui Wang, American Bureau of Shipping
Fatigue Performance and Testing - Fatigue Performance I & II: Carol Johnston, TWI Ltd and Xiao zhi Wang, American Bureau of Shipping and Xiao zhi Wang, American Bureau of Shipping and Carol Johnston, TWI Ltd
Fracture Assessment - Experimental - Fracture Control and Fatigue Analysis: Yan-Hui Zhang, TWI Limited and Sheng Bao, Zhejiang University
Environmental Effect on Materials - Performance - Fracture Control Assessment in Sour Service: Jens Tronskar, DNV GL and Carol Johnston, TWI Ltd

Performance and Application of Non-Metallics - Performance and Design of Composites and Elastomers: Bjorn Melve, Statoil and Sheng Bao, Zhejiang University
Impact of Steel and Construction Technologies on Structural Integrity - Factors Affecting Structural Integrity: Koji Gotoh, Kyushu University and Yan-Hui Zhang, TWI Limited
Special Fracture Control Session Honoring Prof. Per Haagensen and Stig Berge: Agnes Marie Horn, DNV GL and Koji Gotoh, Kyushu University
ONR Sessions on Composites for Marine Structures I - Plenary & Blast Mitigation of Composite Structures: Christian Berggreen, Technical University of Denmark and Valentina Lopresto, University of Naples Federico II
ONR Sessions on Composites for Marine Structures II - Composites in Arctic Environment: Arun Shukla, University of Rhode Island and John P. Dear, Imperial College London
Threaded connections - Bolted Connections: Terje Andersen, Petroleum Safety Authority and Gerhard ErSDL, Petroleum Safety Authority

SYMP 4: Pipelines, Risers, and Subsea Systems
Flexible Pipes and Umbilicals - Flexible Pipes I & II: Svein Savik, NTNU and Zhimin Tan, GE oil & gas, Wellstream
Flexible Pipes and Umbilicals - Flexible Pipes III & IV: Celso Pesce, Univ.of S. Paulo - Escola Politecnica and Anh Tuan Do, TECHNIP
Flexible Pipes and Umbilicals - Flexible Pipes V & VI: Murilo Vaz, UFRJ and Jose Renato M de Sousa, Federal University of Rio de Janeiro
Flexible Pipes and Umbilicals - Flexible Pipes VII: Lin Zhao, Ocean University of China and Krassimir Doyonov, Exxonmobil Production Company
Flexible Pipes and Umbilicals - Flexible Pipes VIII: Kieran Kavanagh, Wood Group and Naqian Ye, SINTEF Ocean
Flexible Pipes and Umbilicals - Umbilicals and Cables I & II: Alan Dobson, Technip Umbilicals and Jun Yan, Dalian University of Technology
Flexible Pipes and Umbilicals - Umbilicals and Cables III: Krassimir Doyonov, Exxonmobil Production Company and Lin Zhao, Ocean University of China
Rigid Risers - Analysis I: Aravind Nair, DNV GL
Rigid Risers - Analysis II: Olav Fyriileiv, DNV GL
Rigid Risers - Design Aspects: Basim Mekha, Cuneiform Offshore Consulting, LLC
Rigid Pipelines - Pipe-Soil Interaction: Celso K. Morooka, UNICAMP - University of Campinas
Rigid Pipelines - Reeling: Julian Hallai, Exxonmobil Upstream Research Company
Rigid Pipelines - Thermo-Mechanical I & II: Segen Estefen, COPPE - Universidade Federal do Rio de Janeiro and Theodoro Netto, COPPE/UFJF
Rigid Pipelines - Coatings and Decommissioning: Duane DeGeer, INTECSIA and Ison Pasqualino, Coppe/ufj
Rigid Pipelines - Mechanics I: Duane DeGeer, INTECSIA and Olav Fyriileiv, DNV GL
Rigid Pipelines - Mechanics II: Ison Pasqualino, Coppe/ufj and Yong Bai, Zhejiang University
Rigid Pipelines - Mechanics III: Yong Bai, Zhejiang University and Olav Fyriileiv, DNV GL

SYMP 5: Ocean Space Utilization
Aquaculture and Related Technology - New Concepts for Ocean Space Utilization: Kazuhiro Lijima, Dept of NAOE, Osaka University
Aquaculture and Related Technology - Aquaculture and Related Technology I: Pål Furset Lader, SINTEF Ocean
Aquaculture and Related Technology - Aquaculture and Related Technology II: Shixiao Fu, Shanghai Jiao Tong University
High Tide and Tsunamis - Tsunami and High Tide: Koichi Masuda, Nihon University and Koji Takahashi, Port and Airport Research Institute
Environmental Assessment for Marine Renewable Energy: Daisuke Kitazawa, University of Tokyo
Coastal Zone Management - Coastal Zone Management and Utilization: Shigeru Tabeta, University of Tokyo

SYMP 6: Ocean Engineering
Wave Mechanics and Wave Effects - Wave Mechanics and Wave Effects I: Sungho Lee, Glosten
Model Tests - Model Tests I - Wave Loads: Joop Helder, MARIN and Parameswaran Krishnankutty, Indian Institute of Technology Madras
Model Tests - Model Tests II - Motion Response: Hans Cozijn, MARIN and Sascha koshleck, University of Auckland
Model Tests - Model Tests III - Modelling Techniques: David Molyneux, Memorial University of Newfoundland and Jale Scharnike, MARIN
COMMITTEES & ORGANIZERS

Model Tests - Model Tests IV - Viscous Flow: Arjen Koop, MARIN and Joost Sterenborg, MARIN
Computational Mechanics and Design Applications - Computational Mechanics I: Mohammad Mehdi Armandei, COPPE UFjf
Computational Mechanics and Design Applications - Computational Mechanics II (DP, ROV, CRANE): Joel Sena Sales Junior, Universidade Federal do Rio de Janeiro
Marine Environment and Very Large Structures - Marine Environment and Very Large Structures: Ove Tobias Gudmestad, University of Stavanger and Lin Li, University of Stavanger
Marine Environment and Very Large Structures - Very Large Floating Structures: Peter Christian Sandvik, P C Sandvik Marine and Lin Li, University of Stavanger
Offshore Industry: Aquaculture, Mining, etc. - Aquaculture Technology: Lin Li, Peter Christian Sandvik, University of Stavanger and Lin Li, University of Stavanger
Ocean Measurement and Data Interpretation - Currents and Wind: Gus Jeans, Oceananalysis Ltd and Hans Cozijn, MARIN
SYMP 7: Polar and Arctic Sciences and Technology
Arctic Sea Transportation - Arctic Transportation: Rudiger U. Franz Von Bock Und Polach, Technical University of Hamburg and Soren Ehlers, Hamburg University of Technology (TUHH-M10)
Arctic Sea Transportation - Arctic Frontier Regions and Structures in Ice: Inge Norstad, SINTEF Ocean and Soren Ehlers, Hamburg University of Technology (TUHH-M10)
Structures in Ice - Arctic Frontier Regions and Structures in Ice: Soren Ehlers, Hamburg University of Technology and Walter Kuehnein, sea2Ice Ltd & Co. KG
Vessels in Ice - Vessels in Ice: Rocky Taylor, Memorial University of Newfoundland and Walter Kuehnein, sea2Ice Ltd & Co. KG
Full Scale Measurements in Ice - Full Scale Measurement and Operations in Ice: Rocky Taylor, Memorial University of Newfoundland and Walter Kuehnein, sea2Ice Ltd & Co. KG
Ice Management - Ice Management: Petr Zvyagin, Peter the Great St. Petersburg Polytechnic University and Walter Kuehnein, sea2Ice Ltd & Co. KG
Ice Model Tests - Ice Model Tests: Rocky Taylor, Memorial University of Newfoundland and Walter Kuehnein, sea2Ice Ltd & Co. KG
Numerical Ice Modeling - Numerical Ice Modeling: Rudiger U. Franz Von Bock Und Polach, Technical University of Hamburg and Walter Kuehnein, sea2Ice Ltd & Co. KG
Structure-Ice-Interactions - Structure-Ice-Interactions: Soren Ehlers, Hamburg University of Technology and Walter Kuehnein, sea2Ice Ltd & Co. KG
SYMP 8: Prof. Carl Martin Larsen and Dr. Owen Oakley Honoring Symposia on CFD & VIV
Ship & Floating Systems - Floating Systems and Global Response: Stephen Cosgrove, Altair Engineering and Samuel Holmes, Redwing Engineering
Ship & Floating Systems - Ship Propulsion Modeling: Samuel Holmes, Redwing Engineering and Stephen Cosgrove, Altair Engineering
Free Surface Flows - Free Surface Modeling: Tim Bunnik, MARIN and Guillerme Vaz, MARIN
Free Surface Flows - Free Surface Loading and Structure Interaction: Guillerme Vaz, MARIN and Tim Bunnik, MARIN
Risers & Pipelines - Vortex-Induced Vibrations: Michael Tognarelli, BP American Production Co. and Yiannis Constantinides, Chevron
Risers & Pipelines - Shadowing Effects and Wake Impingement: Yiannis Constantinides, Chevron
VIV Physics & Suppression - VIV Physics Experimental Studies: Rolf Baarholm, Statkraft / Norwegian Deepwater Programme and Francisco Huera-Huarte, Van Wezel Rovins i Virgili
VIV Physics & Suppression - VIV Physics - Numerical Analysis I: Halvor Lie, SINTEF Ocean and Jungao Wang, University of Stavanger
VIV Physics & Suppression - VIV Physics - Numerical Analysis II: Jie Wu, SINTEF Ocean (former Marintek) and Themistocles L. Resvansis, MIT
VIV Physics & Suppression - VIV Physics CFD Simulations: Muk Chen Ong, University of Stavanger and Allan Ross Magee, National University of Singapore
VIV Physics & Suppression - VIM and VIV Suppression: Shixiao Fu, Marintek and Elizabeth Passano, Marintek
VIV Physics & Suppression - Honoring Symposium Opening Session: Yiannis Constantinides, Chevron and Kjetil Skaugset, Statoil
Advanced Computations, Verification and Validation - CFD and VIV symposium organization meeting: Luis Eca, IST and Yiannis Constantinides, Chevron
Advanced Computations, Verification and Validation - High Reynolds Number Workshop: Jang Kim, TechnipFMC and Guangyu Wu, Chevron
CFD Modeling Practices & Verification - Wave-Induced Global Load and Response: Jang Kim, TechnipFMC and Guangyu Wu, Chevron
CFD Modeling Practices & Verification - Current- and Wind-Induced Loads and Vortex-Induced Motion: Arjen Koop, MARIN and Daniel Barcarolo, Hydrocode
CFD Modeling Practices & Verification - Wave/current interaction with Green-Water Load and FEA Coupling: Nicolas Couty, Hydrocode and Joop Helder, MARIN
SYMP 9: Ocean Renewable Energy
Wind Energy - Design & Simulations - Floating Wind - Experimental Studies: Marco Belloli, Politecnico di Milano and Ilmas Bayati, Politecnico di Milano
Wind Energy - Design & Simulations - Control: Frank Lemmer, University of Stuttgart and Emil Smidlen, Norwegian University of Science and Technology
Wind Energy - Design & Simulations - Nonlinear Wave Loads II: Erin E. Bachynski, NTNU and Tim Bunnik, MARIN
Wind Energy - Design & Simulations - Experimental Studies II: Petter A. Berthelsen, MARINTEK and Michael Borg, DTU Wind Energy
Wind Energy - Analysis & Operation - Structural Analysis Methods: Michael Borg, DTU Wind Energy, Fergal Brennan, Cranfield University and Semi Srinivas, National Renewable Energy Laboratory (NREL)
Wind Energy - Analysis & Operation - Fatigue: Madjid Karimirad, Queen’s University Belfast and Sungmoon Jung, FAMU-FSU College of Engineering
Wind Energy - Analysis & Operation - Numerical Analysis Tools and Optimization: Maurizio Collu, Cranfield Univ and Frank Lemmer, University of Stuttgart
Wind Energy - Analysis & Operation - Aerodynamics I: Tonio Sant, University of Malta and Denis Matha, Ramboll
Wind Energy - Analysis & Operation - Fluid-Soil-Structure Interaction - Fluid-Soil-Structure Interaction: Zeleng Zhou, University of Western Australia
Pile Foundations 1 - Pile Foundations 1: Amin Barari, Virginia Tech
Pile Foundations 1 - Pile Foundations 2: Sangchul Bang, South Dakota School of Mines & Technology
Buckets, Suction Caissons and Skirted Foundations: Joe G. Tom, University of Western Australia
Anchors and Pipelines: Federico Pisanò, Delft University of Technology
Seabed Processes: Shailesh Singh, University of Texas at Austin and Jennifer van Rij, National Renewable Energy Laboratory (NREL)
Drilling Fluids and Fluids & Hydraulics I & II & III: Ergun Kuru, University of Alberta and Vasilios C. Kelessidis, Petroleum Institute
Drilling Fluids: Improving State of The Art: Heike Straus, TU Bergakademie Freiberg and Nedižka Gaurina-Medimumec, University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering
Petroleum Production Systems Design and Operation: Celso K. Morooka, UNICAMP - University of Campinas and Sergio N. Bordalo, University of Campinas – UNICAMP
Oilwell Cement Technology: Nedižka Gaurina-Medimumec, University of Zagreb
Integrity of Well Cement Barriers - Well Barrier Technology: Jan David Ytrehus, SINTEF Petroleum
Integrity of Well Cement Barriers - Advances through the Research Centre DrillWell: Jan David Ytrehus, SINTEF Petroleum
SYMP 10: Offshore Geotechnics
Seabed Properties - Seabed Properties: Manuela Kanitz, Hamburg University of Technology
SYMP 11: Petroleum Technology
Well Drilling Fluids and Hydraulics - Well Drilling Fluids and Hydraulics I & II & III: Ergun Kuru, University of Alberta and Vasilios C. Kelessidis, Petroleum Institute
Drilling Fluids: Improving State of The Art: Heike Straus, TU Bergakademie Freiberg and Nedižka Gaurina-Medimumec, University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering
Petroleum Production Systems Design and Operation: Celso K. Morooka, UNICAMP - University of Campinas and Sergio N. Bordalo, University of Campinas – UNICAMP
Oilwell Cement Technology: Nedižka Gaurina-Medimumec, University of Zagreb
Integrity of Well Cement Barriers - Well Barrier Technology: Jan David Ytrehus, SINTEF Petroleum
Integrity of Well Cement Barriers - Advances through the Research Centre DrillWell: Jan David Ytrehus, SINTEF Petroleum
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Stochastic Dynamic Response Analysis of Marine Structures - Offshore Renewable Energy 1: Carlos Guedes Soares, Centre for Marine Technology and Ocean Engineering (CENTEC) and Erni E. Bachynski, NTNU
Stochastic Dynamic Response Analysis of Marine Structures: Yousheng Wu, China Ship Scientific Research Center and Hideyuki Suzuki, University of Tokyo
Modelling and Analysis of Marine Operations - Modelling and Analysis of Marine Operations I: Karl Henning Halse, Norwegian University of Science and Technology (NTNU) and Tormod Boe, DNV GL
Modelling and Analysis of Marine Operations - Modelling and Analysis of Marine Operations II: Zhen Gao, Norwegian University of Science and Technology and Florian Sprenger, MARINTEK
Fatigue Analysis: Inge Lotsberg, DNV GL and Yordan Garbarov, Universidade de Lisboa
Inspection, Monitoring, Maintenance and Repair: John D. Sørensen, Aalborg University and Weicheng Cui, Shanghai Ocean University
Reliability Analysis of Marine Structures and Operations - Reliability Analysis of Marine Structures and Operations I: Torfinn Horte, DNV GL and Ole Tom Vaardal, AHPA AS
Reliability Analysis of Marine Structures and Operations - Reliability Analysis of Marine Structures and Operations 2: Carlos Guedes Soares, Centre for Marine Technology and Ocean Engineering (CENTEC) and Zhen Gao, Norwegian University of Science and Technology
Design Codes for Planning of Marine Operations - Design Codes: Jørgen Amdahl, Norwegian University of Science and Technology and Arne Fredheim, SINTEF Ocean
Innovative Marine Structures or Installation Procedures - Floating Bridges I: Bernt Leira, Norwegian University of Science and Technology and Halvor Lie, SINTEF Ocean AS
Innovative Marine Structures or Installation Procedures - Floating Bridges II: Xu Xiang, Norwegian Public Roads Administration and Arnt G. Fredriksen, Multiconsult AS
Innovative Marine Structures or Installation Procedures - VLFS: Kazuhiro Lijima, Dept of NAOE, Osaka University and Sverre Steen, NTNU
Innovative Marine Structures or Installation Procedures - Offshore Renewable Energy 2: Zhen Gao, Norwegian University of Science and Technology and Erni E. Bachynski, NTNU
Validation of Simulation Models: Florian Sprenger, MARINTEK and Andrew Ross, SINTEF Ocean

International Advisory Committee
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R. Basu, ABS Americas, USA
R. (Bob) F. Beck, University of Michigan, USA
Pierre Besse, Bureau Veritas, France
Co-sponsoring Organizations

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