OMAE 2017 Trondheim

36th International Conference on Ocean, Offshore and Arctic Engineering

Trondheim, Norway • June 25–30, 2017

Hosted by:

OOAE

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PROGRAM AT A GLANCE

Saturday, June 24 (pg 26)

Short Courses

- **The Application of CFD to Offshore Projects with Emphasis on Vortex Induced Motions (Day 1)**
  09:00 – 17:00
  Cosmos 3d, Clarion
- **Fixed and Floating Offshore Wind Turbines: Dynamic Analysis and Marine Operations**
  09:00 – 17:00
  Cosmos 3c, Clarion
- **Dynamics and Vibrations in Offshore Structures**
  09:30 – 17:30
  Living Room 4, Clarion

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

Outreach Welcome Dinner
19:00
Off-site

Sunday, June 25 (pg 29)

Outreach Welcome & Introductions Industry Presentations
08:00 – 17:00
Cosmos 3c, Clarion

Short Courses

- **The Application of CFD to Offshore Projects with Emphasis on Vortex Induced Motions (Day 2)**
  09:00 – 17:00
  Cosmos 3d, Clarion
- **Problems, Challenges and Remedies in the Estimation of Extreme Response Statistics for Offshore Structures**
  10:00 – 16:30
  Space 2, Clarion

Welcome Reception
18:30 – 20:30
Space Foyer, Clarion

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
OOAE Division Chair
County Mayor
NTNU Pro-Rector
CEO of SINTEF

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 — Cosmos 1 & 2, Clarion
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
Alf-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	2-1-1	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
CFD&VIV	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	2-1-2	Rogue Waves
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
CFD&VIV	8-4-1	VIV Physics – Experimental Studies
ORE	9-2-2	Structural Analysis Methods
ORE	9-5-10	Flow-induced 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
SSR&ORE	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
CFD&VIV	8-4-3	VIV Physics - Numerical Analysis II
ORE	9-1-3	Nonlinear Wave Loads I
OG	10-1-1	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	Moonpools and Fatigue
OT	1-6-2	Current- and Wind-Induced Loads and Vortex-Induced Motion (VIM)*
SSR	2-3-1	Probabilistic Response Models I
SSR&ORE	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
CFD&VIV	8-4-4	VIV Physics – CFD Simulations
ORE	9-2-5	Aerodynamics I
OG	10-2-1	Fluid-Soil-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/sloshing 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 Technology V – General Seakeeping
OE	6-13-1	Currents and Wind
PAS	7-4-1	Vessels in Ice
CFD&VIV	8-4-5	VIM and VIV Suppression
ORE	9-2-10	Aerodynamics II
OG	10-3-1	Pile Foundations I
PT	11-7-3	Well Drilling Fluids and Hydraulics-III
TM	12-13-1	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*
SSR	2-4-1	Fatigue Reliability I
SSR	2-9-1	Extreme Loading and Responses I
MAT	3-11-1	Special Fracture Control Session Honoring Profs. Per Haagensen and Stig Berge
PRS	4-1-11	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	6-12-1	Ocean Engineering Technology I
PAS	7-6-1	Full Scale Measurement and Operations in Ice
CFD&VIV	8-1-1	Floating Systems and Global Response
ORE	9-2-6	Fatigue
OG	10-4-1	Pile 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 Atmosphère Océan, Ecole Centrale de Marseille*

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

*Joint session with CFD&VIV

Wednesday, June 28 (pg 61)

Concurrent Sessions 08:15 – 09:45

OT	1-1-3	Offshore Platforms Loading, Fabrication and Maintenance
OT	1-3-1	Nonlinear Wave and Wave Effects
SSR	2-4-2	Fatigue Reliability II
SSR	2-9-2	Extreme Loading and Responses II
MAT	3-2-1	Fatigue Performance I
PRS	4-1-5	Flexible Pipes V
PRS	4-2-1	Analysis I
OSU&ORE	5-5-1	Floating System for Renewable Energy I
OE	6-3-1	Model Tests I – Wave Loads
OE	6-8-1	Fluid-Structure, Multi-Body and Wave-Body Interaction I
PAS	7-7-1	Ice Management
CFD&VIV	8-2-1	Free Surface Modeling
ORE	9-3-1	Innovative Concepts
OG	10-5-1	Buckets, Suction Caissons and Skirted Foundations
PT	11-2-1	Drilling Mechanics I
TM	12-2-1	Modelling and Analysis of Marine Operations I

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

Concurrent Sessions 10:15 – 11:45

OT	1-1-5	Spars, FPSOs and Multi Column Floaters
OT	1-3-2	Numerical Methods and Experiments – I
SSR	2-4-3	Fatigue Reliability III
SSR	2-9-3	Extreme Loading and Responses III
MAT	3-2-2	Fatigue Performance II
PRS	4-1-6	Flexible Pipes VI
PRS	4-2-2	Analysis II
OSU	5-5-2	Floating System for Renewable Energy II
OE	6-3-3	Model Tests III – Modelling Techniques
OE	6-8-2	Fluid-Structure, Multi-Body and Wave-Body Interaction II
PAS	7-11-1	Ice Model Tests
CFD&VIV	8-2-2	Free Surface Loading and Structure Interaction
ORE	9-1-9	Nonlinear Wave Loads II
ORE	9-3-2	Control Strategies
OG	10-6-1	Anchors and Pipelines
PT	11-2-2	Drilling Mechanics II
TM	12-2-2	Modelling and Analysis of Marine Operations II

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

Concurrent Sessions 13:15 – 14:45

OT	1-1-6	Fixed Structures and Jack-up Rigs
OT	1-3-3	Platform/Ship Motions
SSR	2-9-4	Extreme Loading and Responses IV
SSR	2-10-1	Collision and Crashworthines I
MAT	3-2-3	Fatigue Performance and Testing
PRS	4-1-7	Flexible Pipes VII
PRS	4-2-3	Design Aspects
OSU	5-7-1	Environmental Assessment for Marine Renewable Energy
OE	6-3-4	Model Tests IV – Viscous Flow
OE	6-8-3	Fluid-Structure, Multi-Body and Wave-Body Interaction III
PAS	7-12-1	Numerical Ice Modeling
CFD&VIV	8-3-1	Vortex-Induced Vibrations
ORE	9-1-4	Mooring Systems
ORE	9-3-3	Wave Farms and Optimization
OG	10-7-1	Seabed Processes
PT	11-11-1	Innovations in Drilling and Production
TM	12-14-1	Validation of Simulation Models

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

Concurrent Sessions 15:15 – 17:15

SSR	2-9-5	Extreme Loading and Responses V
MAT	3-14-1	Bolted Connections (Presentations Only)
PRS	4-1-12	Umbilicals and Cables III
PRS	4-3-5	Coatings and Decomissioning
PRS	4-6-1	Innovative Technologies for Deepwater Low-Cost Production
OE	6-3-2	Model Tests II – Motion Response
OE	6-9-1	Marine Environment and Very Large Structures
PAS	7-13-1	Structure-Ice-Interactions
CFD&VIV	8-1-2	Ship and Propulsion Modeling
ORE	9-1-7	Novel Concepts
ORE	9-8-1	Thermal and Hybrid
TM	12-12-1	Design Codes

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

Thursday, June 29 (pg 78)

Outreach Breakfast / Feedback Session 07:30 – 10:00
Skybar, 9th Floor, Clarion

Concurrent Sessions 08:30 – 10:00

OT	1-2-1	Mooring System Design and Analysis I
OT	1-3-4	Fluid-Structure Interaction – I
SSR	2-6-1	Well Integrity and Reliability Assessment I
SSR	2-10-2	Collision and Crashworthines II
SSR	2-12-1	Structural Analysis and Optimization I
MAT	3-3-1	Fracture Control and Fatigue Analysis
OE	6-1-1	Advanced Ship Hydromechanics and Marine Technology I – Added Resistance in Waves
OE	6-8-7	Fluid-Structure, Multi-Body and Wave-Body Interaction VII
OE	6-14-1	Coastal Engineering I
CFD&VIV	8-3-2	CFD and Fluid Structure Interaction Modeling
CFD&VIV	8-4-2	VIV Physics – Numerical Analysis I
ORE	9-7-1	Economic Considerations
PT	11-6-1	Well Plugging and Abandonment
PT	11-14-1	Multiphase Equilibria in Petroleum Engineering
TM	12-6-1	Fatigue and Ultimate Strength

Refreshment Break 10:00 – 10:30 Space Foyer, Clarion

Concurrent Sessions 10:30 – 12:00

OT	1-2-2	Dynamic Positioning I
OT	1-3-5	Numerical Methods and Experiments – II
SSR	2-6-2	Well Integrity and Reliability Assessment II
SSR	2-11-1	Ultimate Strength I
SSR	2-12-2	Structural Analysis and Optimization II
MAT	3-4-1	Fracture Control Assessment in Sour Service
PRS	4-1-8	Flexible Pipes VIII
PRS	4-3-7	Mechanics II
OE	6-1-4	Advanced Ship Hydromechanics and Marine Technology III – Propulsion efficiency and Parametric Rolling
OE	6-2-1	Wave Mechanics and Wave Effects I
OE	6-14-2	Coastal Engineering II
CFD&VIV	8-5-3	High Reynolds Number Workshop
ORE	9-2-9	Numerical Analysis Tools and Optimization
ORE	9-4-1	Numerical Simulations I
PT	11-3-1	Simulation of Petroleum Engineering Systems
PT	11-13-1	Oilwell Cement Technology
TM	12-10-1	Inspection, Monitoring, Maintenance and Repair

Technical Session Organizers' Lunch 12:00 – 13:30
Cosmos 1 & 2, Clarion

Concurrent Sessions 13:30 – 15:00

OT	1-2-3	Mooring System Design and Analysis II
OT	1-5-1	Side-by-side Offloading
SSR	2-11-2	Ultimate Strength II
SSR	2-12-3	Structural Analysis and Optimization III
MAT	3-4-2	Effect of Environment on Materials Performance
PRS	4-1-10	Umbilicals and Cables I
PRS	4-3-8	Mechanics III
OE	6-2-2	Wave Mechanics and Wave Effects II
OE	6-8-6	Fluid-Structure, Multi-Body and Wave-Body Interaction VI
OE	6-14-3	Coastal Engineering III
ORE	9-1-10	Experimental Studies II
ORE	9-4-5	Numerical Simulations II
PT	11-4-1	Artificial Lift and Gas Well Deliquification
PT	11-15-1	Well Barrier Technology
TM	12-11-2	Reliability Analysis of Marine Structures and Operations I
CFD&VIV	8-5-1	CFD and VIV Symposium Organization Meeting

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

Concurrent Sessions 15:30 – 17:30

OT	1-2-4	Dynamic Positioning II
OT	1-5-3	Sloshing
SSR	2-11-3	Ultimate Strength III
SSR	2-12-4	Structural Analysis and Optimization IV
MAT	3-7-1	Performance and Design of Composites and Elastomers
PRS	4-3-6	Mechanics I
PRS	4-5-1	Flow Assurance I
OE	6-2-3	Wave Mechanics and Wave Effects III
OE	6-11-1	Offshore Industry: Structures and Design
OE	6-14-4	Coastal Engineering IV
CFD&VIV	8-3-3	Risers and Pipelines I
ORE	9-1-8	Control
ORE	9-4-4	Wave Tank and Field Tests
PT	11-10-1	Wellbore Stability
PT	11-15-2	Advances through the Research Centre DrillWell
TM	12-11-1	Reliability Analysis of Marine Structures and Operations II

Farewell Reception 17:30 – 19:30 Cosmos 1, Clarion

Friday, June 30 (pg 95)

Technical Tour
Technical Tour to Statoil and the Marine Technology Centre (SINTEF Ocean and NTNU)
See page 95.

Wi Fi Networks

Clarion
Network: telenor
Password: See the conference registration desk for password

BI
Go to BI Guest Network and complete the 'Visitor Registration Form' for wifi access

Concurrent sessions take place at the Clarion Hotel & Congress Trondheim (Clarion) and the BI Norwegian Business School (BI). *See the technical program for individual session room assignments.*

Registration

	Space Foyer
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

Exhibition Hours

	Space Foyer
Sunday, June 25	18:30 – 20:30
(Welcome Reception amongst Exhibits)	
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

Daily Program Handout

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

KEY TO SYMPOSIUM ABBREVIATIONS

CFD&VIV	Prof. Carl Martin Larsen and Dr. Owen Oakley Honoring Symposia on CFD & VIV
MAT	Materials Technology
OE	Ocean Engineering
OG	Off shore Geotechnics
ORE	Ocean Renewable Energy
OFT	Offshore Technology
OSU	Ocean Space Utilization
PAS	Polar and Arctic Sciences and Technology
PRS	Pipelines, Risers, and Subsea Systems
PT	Petroleum Technology
SSR	Structures, Safety and Reliability
TM	Prof. Torgeir Moan Honoring Symposium

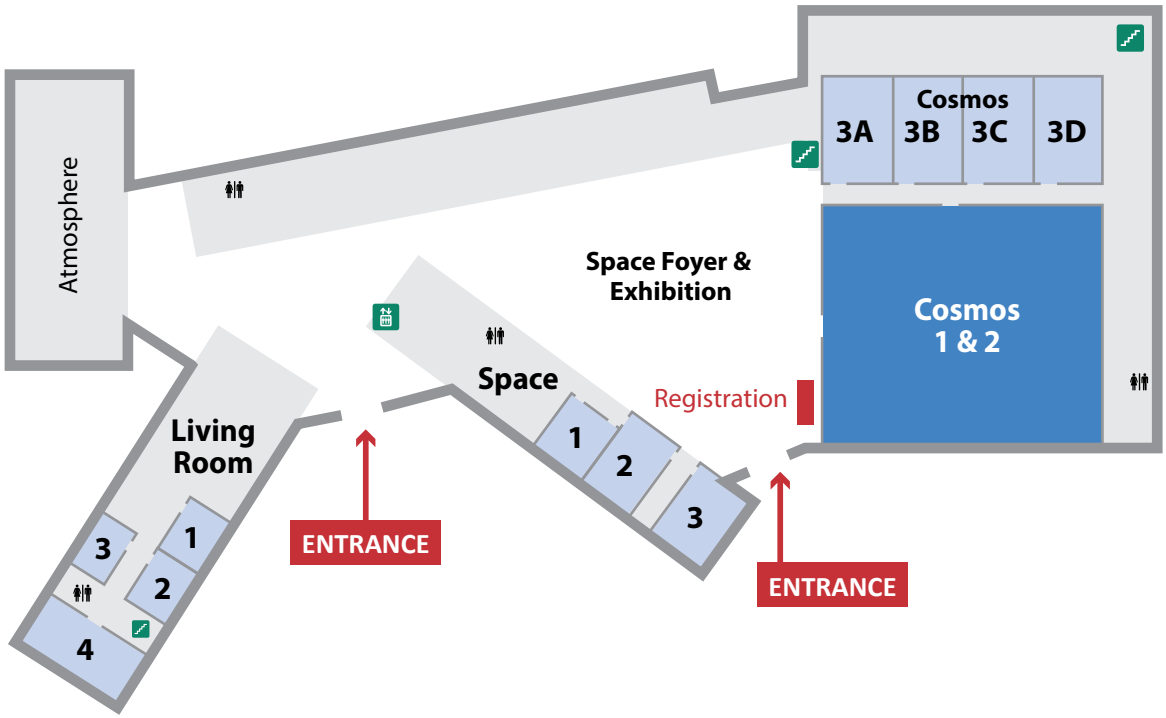
See Detailed Program starting on page 26 for concurrent session room locations.

Clarion Hotel & Congress Trondheim (Conference Venue)

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

First Floor

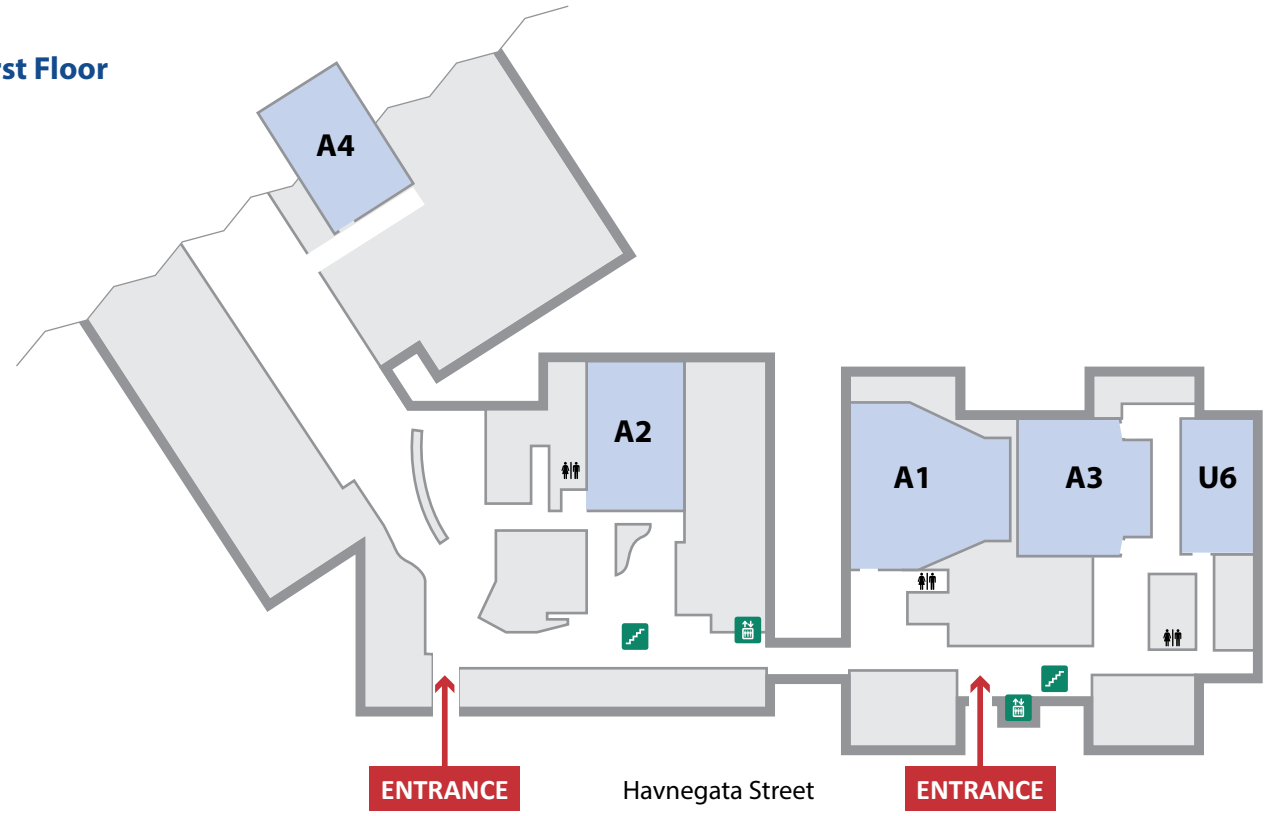
Cosmos 1 & 2: Plenary and Lunches



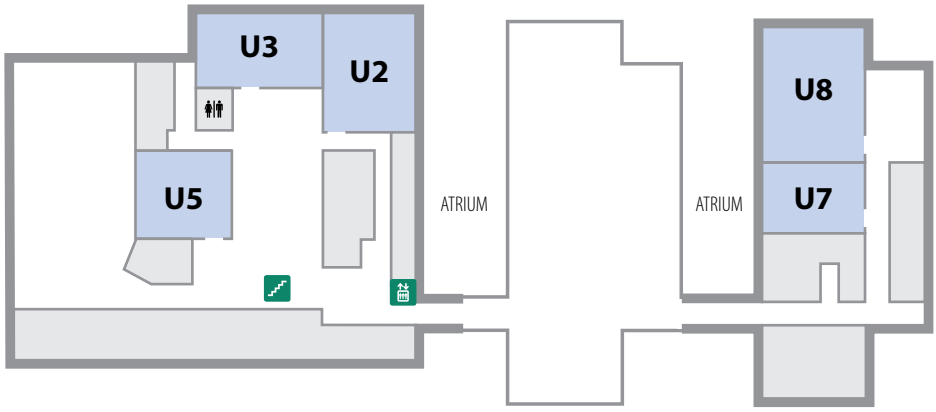
BI Norwegian Business School (Breakout Sessions)

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

First Floor



Second Floor

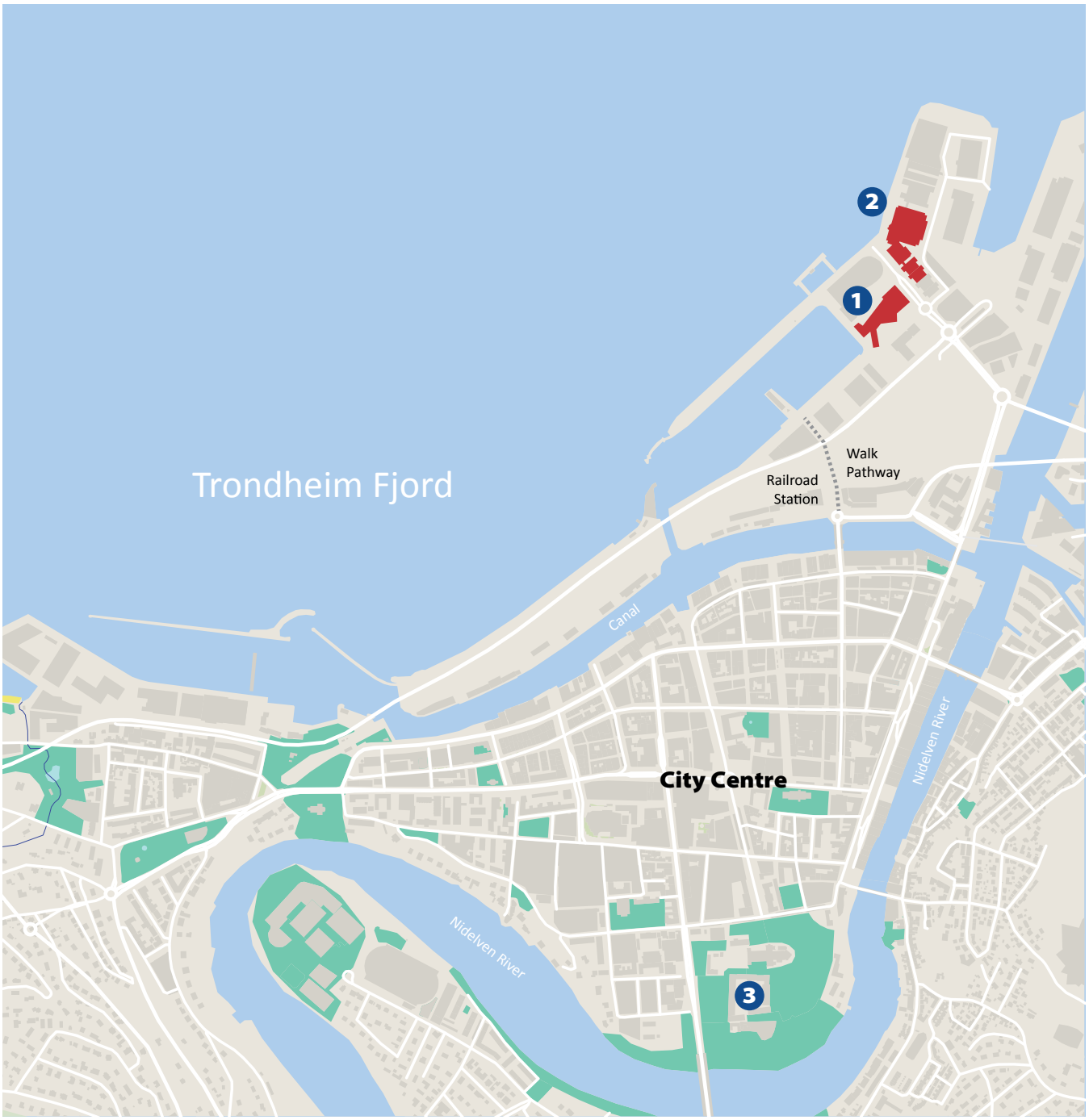


Downtown Trondheim

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

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

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



Dr. Bernt J. Leira

Dr. Atle Minsaas

Welcome from the Conference Co-Chairs

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 spectre 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, cafés, cosy streets with an intimate atmosphere, culture and sporting events.

With its wide range of local food producers, rich history, natural resources and high quality restaurants, the Trøndelag region is definitely a culinary region. The coast is famous for its sea fishing, and there are great sites the whole way up the coastline of Central Norway. This is the "birthplace" of the famous Norwegian Salmon, where the aquaculture industry was first established in the 1960`s.

A number of interesting outings will be arranged during OMAE 2017, among them a tour to the historical mining town of Røros (UNESCO World Heritage). You can also visit the coast and other places of interest, or go for a voyage with the famous coastal express.

We are really looking forward to seeing you all during OMAE 2017 in Trondheim – The Technology Capital of Norway!

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

Dr. Solomon Yim

Dr. Dominique Roddier

Welcome from the OOAE Division

On behalf of the Ocean, Offshore and Arctic Engineering (OOAE) Division of the American Society of Mechanical Engineers (ASME), 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 OOAE division) as well as the ongoing student outreach program. Initiatives such as these help support the OOAE Division's objectives of continuing education and the desire to attract students and young professionals to our community.

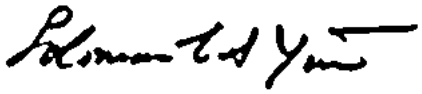
We also encourage you to attend the "plenary lecture series on Hydrodynamics", a new initiative we are introducing this year after the traditional sessions and before the social activities. Our renowned speakers will keep you entranced and mesmerized.

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.

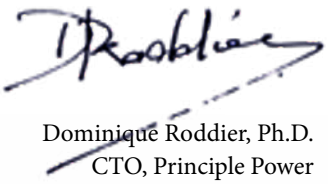
We particularly would like to acknowledge new and returning sponsors and exhibitors for their financial support. Without this support, the OMAE Conference would not be of the breadth and quality that it has grown to be. Thank you! It is also very important to acknowledge the contribution made by the 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 OOAE 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 OOAE Division chair



Dominique Roddier, Ph.D.
CTO, Principle Power
OMAE 2017 Technical Program Chair

Rita Ottervik, Mayor

Welcome from the Mayor of Trondheim

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

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: OMAE2016-54598 "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

Great innovations come from great challenges

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

Statoil

Statoil

TECHNOLOGY TO SHAPE

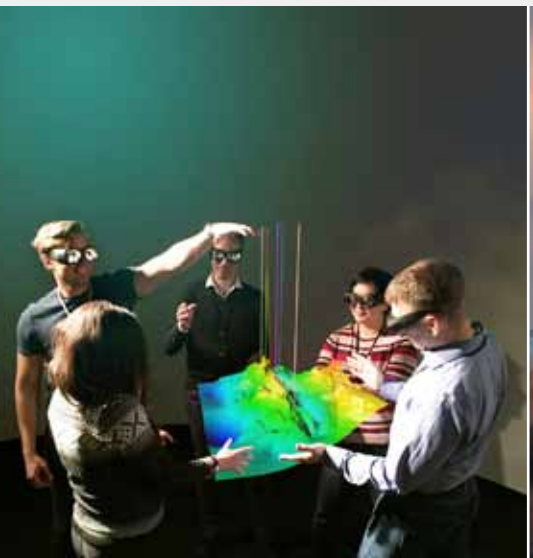
THE FUTURE OF ENERGY

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

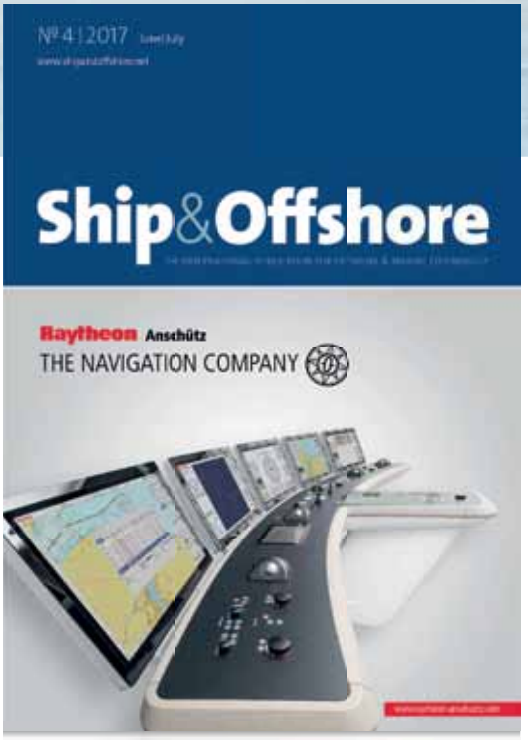
Tipping is not compulsory in Norway. Generally, tips are not given to taxi drivers or hotel cleaning staff. If you are very satisfied with a meal service at a restaurant a tip of 10-20% can be given but is not expected.

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.

To download this free app search 'Trondheim Guide' in your Itunes or Google Play Store.

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

Ship&Offshore

WWW.SHIPANDOFFSHORE.NET/OMAE

www.shipandoffshore.net

DVV Media Group

Social Events

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.

Lunches

Dates: Monday, June 26 to Thursday, June 29
Time: Various, see below
Location: Cosmos 1 & 2, Clarion
Lunch will be provided from Monday to Thursday and is open to all attendees where lunch is included in their fee.
Monday: Opening Lunch (11:30 – 13:00)
Monday lunch sponsored by DNV-GL
Tuesday: Awards Lunch (11:45 – 13:15)
Wednesday: Lunch (11:45 – 13:15)
Wednesday lunch sponsored by Statoil
Thursday: Technical Session Organizers Lunch (12:00 – 13:30)

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.


Nidaros Cathedral

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

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 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.

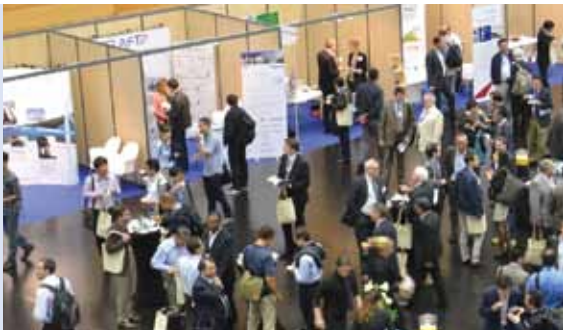
We are headquartered in Norway with approx. 22,000 employees worldwide, and are listed on the New York and Oslo stock exchanges.

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
www.dnvgl.com

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.

NAME BADGE SPONSOR

4 subsea
www.4subsea.com

CONFERENCE SUPPORTER

Sør-Trøndelag County Authority
https://www.stfk.no

SØR- 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

Springer

Ship & Offshore

Exhibitors

Altair
www.altair.com

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.

Dynamic Systems Analysis
www.dsa-ltd.ca

DSA serves a wide range of clients across aquaculture & commercial fisheries, naval architecture, ocean technology, renewable energy, offshore & subsea as well as customers in academic & government research. By providing progressive and accessible dynamic analysis software, ProteusDS, and expertise, DSA enables those working in harsh marine environments to reduce risk. ProteusDS is a full featured dynamic analysis software capable of simulating vessels, flexible structures, lines & technologies - it is modern, customizable & validated. Designing for the ocean environment is a constant challenge. Dynamic analysis with ProteusDS allows for rapid innovation & optimization while reducing failure risk in the ocean environment.

Orcina Limited
www.orcina.com

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/

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.

Exhibitors (Continued)

SINTEF
www.sintef.no

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 (Open University)
www.stressmap.open.ac.uk

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
www.vivsolutions.com

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

Prof. Carl Martin Larsen

Dr. Owen Oakley

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

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 JIP, 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.

Professor Torgeir Moan

Professor Torgeir Moan Honoring Symposium

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 convertors.

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 convertors. 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

Dr. Sam Holmes

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.*

Dr. Erin Bachynski

Dr. Zhen Gao

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.

Dr. Junbo Jia

Prof. Bernt Leira

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.

Sunday, June 25

Time	Title	Location
08:00 – 17:00	Outreach Welcome & Introductions Industry Presentations	Cosmos 3c, Clarion
Short Course 09:00 – 17:00	The Application of CFD to Offshore Projects with Emphasis on Vortex Induced Motions – Day 2	Cosmos 3d, Clarion
Short Course 10:00 – 16:30	Problems, Challenges and Remedies in the Estimation of Extreme Response Statistics for Offshore Structures	Space 2, Clarion
18:30 – 20:30	Welcome Reception	Space Foyer, Clarion

Short Course: 2 Day Course – Day 2

Dr. Sam Holmes

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

Prof. Arvid Naess

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 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

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Journal of Offshore Mechanics and Arctic Engineering

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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*

Monday, June 26

Time	Title	Location
08:30 – 09:55	Opening Ceremony and Keynote Plenaries	Cosmos 1 & 2, Clarion
09:55 – 10:25	Refreshment Break	Space Foyer, Clarion
10:25 – 11:30	Cultural Performance and Keynote Plenaries	Cosmos 1 & 2, Clarion
11:30 – 13:00	Opening Lunch	Cosmos 1 & 2, Clarion
13:00 – 14:30	Concurrent Sessions	See pages 34 to 37 for session titles, authors and locations.
14:30 – 15:00	Refreshment Break	Space Foyer, Clarion
15:00 – 17:00	Concurrent Sessions	See pages 37 to 42 for session titles, authors and locations.
17:15 – 17:45	Lecture Series on Hydrodynamics	A1, BI

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, OOAE Division Chair
Tore O. Sandvik, County Mayor
Helge Klungland, NTNU Pro-Rector
Alexandra Bech Gjørv, CEO of SINTEF


Dr. Bernt J. Leira


Dr. Atle Minsaas


Dr. Dominique Roddier


Dr. Solomon Yim


Tore O. Sandvik


Helge Klungland


Alexandra Bech Gjørv

Keynote Plenary One


Kjetil Skaugset

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.

REFRESHMENT 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

Pierre C. Sames

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

Alf-Helge Aarskog

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

CONCURRENT SESSIONS

13:00 – 14:30

Offshore Technology

1-1-1 Metocean and Environmental Loading

Monday June 26 | **Space 3, Clarion** | 13:00–14:30

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

Numerical Modeling Using CFD and Potential Wave Theory for Three-hour Nonlinear Irregular Wave Simulations OMAE2017-62740
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 Löhrmann
Technische Universität Berlin, Berlin, Germany

Offshore Technology

1-7-1 Wave Loading and Motions in Extreme Seas I

Monday June 26 | **Cosmos 3a, Clarion** | 13:00–14:30

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 Nam[1] Hyun Joe Kim[2] Sa Young Hong[1]
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 OMAE2017-62464
Wenyang Duan[1] Shan Ma[1] **Kangping Liao**[1] Qingwei Ma[1] Changhong Hu[2] Binbin Zhao[1]
1. Harbin Engineering University, Harbin, China; 2. Kyushu University, Fukuoka, Japan

New Combined CFD and Model Testing Technique for Identification of Wave Impact Loads on a Semi-submersible OMAE2017-62643
Csaba Pakozdi[1] Gunnar Lian[2] Tone M. Vestbøstad[2] Ole David Økland[1]
Anders Östman[1] Bjørn Christian Abrahamsen[1] Carl Trygve Stansberg[3]
1. MARINTEK, Trondheim, Norway; 2. Statoil, Stavanger, Norway; 3. CTSTANSBERG MARINTEKNIKK, Trondheim, Norway

Wave-Current Interaction Effects on Airgap Calculation OMAE2017-62548
Nuno Fonseca[1] Rune Bjørkli[2] **Elin Marita Hermundstad**[1] Jan Roger Hoff[1]
1. MARINTEK, Trondheim, Norway; 2. Statoil, Stavanger, Norway

Structures, Safety and Reliability

2-1-1 Wave Forecast and Climate

Monday June 26 | **Cosmos 3b, Clarion** | 13:00–14:30

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 Babanin[1] Haoyu Jiang[2]
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 Arena[1] **Valentina Laface**[1] Christophe Maisondieu[2] Alessandra Romolo[1]
1. Mediterranea 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 Vanem, Odin Gramstad
DNV GL AS, Høvik, Norway

Structures, Safety and Reliability

2-7-1 Reliability of Mooring and Riser Systems I

Monday June 26 | **Space 2, Clarion** | 13:00–14:30

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 Low[1] **Luis Sagrilo**[2] Fernando Sousa[2] Miguel A. Calderon Ibarra[2]
1. National University of Singapore, 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 Hørte, Siril Okkenhaug, Øivind Paulshus
DNV GL, Høvik, Norway

Mooring System Calibration of the Damaged Condition, ALS OMAE2017-61533
Torfinn Hørte, Siril Okkenhaug, Øivind Paulshus
DNV GL, Høvik, Norway

Summary and Recommendations for Safe Mooring System Design in ULS and ALS OMAE2017-61534
Torfinn Hørte, **Siril Okkenhaug**, Øivind Paulshus
DNV GL, Høvik, Norway

Materials Technology

3-1-1 Fracture Control- Analytical Approach I

Monday June 26 | **Living Room 4, Clarion** | 13:00–14:30

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

Ductile Damage Study of Defective Girth Welds for Oil & Gas Pipeline – a Tailored Numerical and Finite Element Method OMAE2017-61166
Enrico Torselletti[1] Marco Rossi[2] Roberto Bruschi[1] Daniele Scarsciafratte[1] Alex Dimichele[2]
1. Saipem, Fano, Italy; 2. Politechnic University of Marche, Ancona, Italy

Determination of Parameters for the Damage Mechanics Approach to Ductile Fracture Based on a Single Fracture Mechanics Test OMAE2017-61425
Carey L. Walters[1] Okko Coppejans[2]
1. TNO, Delft, Netherlands; 2. TNO, TU Delft, Delft, Netherlands

Ductile Tearing of Welds in Pipe Submitted to Cyclic Loading OMAE2017-62162
Philippe Thibaux[1] Koen Van Minnebruggen[2] Wim De Waele[2]
Steven Cooreman[1] Antonio Carlucci[3] Johan Vekeman[4]
1. OCAS NV, Zwijnaarde, Belgium; 2. Ghent University, Zwijnaarde, Belgium; 3. Saipem, San Donato Milanese, Italy; 4. Belgian Welding Institute, Ghent, Belgium

Analysis of Interacting Between Semi-elliptical Surface Crack and Pitting Corrosion in Finite Thickness Plates Under Remote Tension Load OMAE2017-62647
Amirhossein Kaviani, Alireza Dolatabadi
Amirkabir University, Tehran, Iran

Pipelines, Risers, and Subsea Systems

4-4-2 Design

Monday June 26 **Cosmos 3d, Clarion** | 13:00–14:30

Best Practice Guidance for Establishing the Design Fatigue Capacity of Subsea Well Intervention System Connectors OMAE2017-61364
Anders Wormsen[1] Finn Kirkemo[2] Anthony David Muff[1]
1. FMC Technologies, Kongsberg, Norway; 2. Statoil, Tranby, Norway

Optimising Foundation Skirt Geometries for Reliable Foundation Capacity and Installation OMAE2017-61407
Mark F Bransby[1] Donal O'Driscoll[2] **Tim Drummen**[3] Mark Randolph[4] HongXia Zhu[2]
1. Fugro AG, Nedlands, WA, Australia; 2. Fugro AG, Perth, WA, Australia; 3. Fugro, Oslo, Norway; 4. University of Western Australia, Perth, WA, Australia

Design of Conventional and Assembled Bulkhead for a Flowline Bundle OMAE2017-61448
Dasharatha Achani
MECHOCEAN Engineering Solutions, Tananger, Norway

Seismic Design of Jumpers – the Coupling Conundrum OMAE2017-61832
Omar Zanoli[1] Marcello Cademartori[2] Eric J. Parker[2]
1. D'Appolonia S.p.A, San Donato Milanese, Italy; 2. D'Appolonia S.p.A., Genoa, Italy

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[1] Ling Wan[2] Mengmeng Han[1] Jingzhe Jin[3] Chien Ming Wang[1]
1. National University of Singapore, Singapore, Singapore; 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. MARINTEK, Trondheim, Norway

Marine Autonomous Exploration using a LiDAR and SLAM OMAE2017-61880
Roger Skjetne, **Einar Ueland**, Andreas Reason Dahl
Norwegian University of Science and Technology, Trondheim, Norway

Effect of Coal Loading Conditions on Elastic Behavior of LFTS OMAE2017-61897
Tomoki Ikoma[1] Koichi Masuda[1] Hiroaki Eto[1] **Mitsuru Kubota**[2] Chiaki Sato[3] Tomoyuki Kishida[4]
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

Ocean Engineering

6-5-1 Advanced Underwater Vehicles and Design Technology I

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[1] Qing Xiao[1] Hao Liu[2] Lijun Li[3]
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**, Anastasios M. Lekkas
Norwegian University of Science and Technology, Trondheim, Norway

State Estimation of Deep-Water Tether Management System OMAE2017-61461
Ingrid Schjølberg, **Ole Eidsvik**
Norwegian University of Science and Technology, Trondheim, Norway

Ocean Engineering

6-7-1 Computational Mechanics I

Monday June 26 **U5, BI** | 13:00–14:30

Session Chair: Mohammad Mehdi Armandei, COPPE - Universidade Federal do Rio de Janeiro, Brazil
Session Co-Chair: Wei Qui, Memorial University of Newfoundland, Canada

Models and Methods for Efficiency Estimation of a Marine Electric Power Grid OMAE2017-61625
Torstein I. Bø, Eilif Pedersen
Norwegian University of Science and Technology, Trondheim, Norway

Numerical Simulation of Turbulent Wake Flow Over a Surface-mounted Square Cylinder OMAE2017-61641
Hong Wang[1] Yukun Dai[2] **Cai Tian**[2]
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, Shivdayal Patel, B. P. Patel
Indian Institute of Technology, New Delhi, Delhi, India

Support Optimization for Piping System with Machine Learning OMAE2017-62356
Jongho Ham[1] Booki Kim[2] Jungeun An[1] Bongjae Kim[1] Jaewoong Choi[1]
1. Samsung Heavy Industries, Seongnam-si, Korea;
2. Samsung Heavy Industries, Daejeon, Korea

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 Kuehnlein, Sea2ice Ltd. & Co. KG, Germany

Introduction to Polar and Arctic Sciences and Technology Symposium OMAE2017-62736
Walter Kuehnlein
sea2ice Ltd. & Co. KG, Hamburg, Germany

Thermal Analysis of Saline Droplet Motion with Freezing in Cold Regions OMAE2017-61097
Alireza Dehghanisanij, 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 Gudmestad[1] **Bjarte Kvamme**[2] Jino Peechanatt[1] Yaaseen A. Amith[1]
1. University of Stavanger, Stavanger, Norway;
2. University of Stavanger, Rogaland, Norway

Winterization Issues and Measures Related to Low Temperatures, Snow and Icing for Installations Operating in the Barents Sea OMAE2017-62403
Solveig Guttormsen[1] Sigurd Robert Jacobsen[2] Lars Bodsberg[3]
Per Kristian Bruun[4] Kjell-Gunnar Dørum[2]
1. Aker Solutions AS, Tromsø, Norway; 2. Petroleum Safety Authority Norway, Stavanger, Norway; 3. SINTEF, Trondheim, Norway; 4. Aker Solutions AS, Oslo, Norway

Prof. Carl Martin Larsen and Dr. Owen Oakley Honoring Symposia 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 Skaugset, Statoil, Norway

Keynote by Prof. Carl Martin Larsen OMAE2017-62743
Carl M Larsen
Norwegian University of Science and Technology, Trondheim, Norway

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 OMAE2017-61121
Madjid Karimirad[1] Erin E. Bachynski[2] Petter A. Berthelsen[3] Harald Ormberg[3]
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 Caillé[1] Pauline Bozonnet[2] Timothée Perdrizet[2] Yann Poirette[2] Cécile Melis[1]
1. Sbm Offshore, Monaco, Monaco; 2. IFP Energies nouvelles, Solaize, France

Wind Tunnel 2-DoF Hybrid/HIL Tests on the OC5 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 Riefolo[1] Giuseppe R. Tomasicchio[2] Francesco Ricciardelli[3] Alberto M. Avossa[4]
Elena Musci[5] Felice D'Alessandro[2] Diego Vicinanza[4]
1. Politecnico 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, Pavel Babuska, Michael Motley, 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 Samad[1] **Karthikeyan Thandayutham**[1] Nithya Venkatesan[2] Eldad Avital[3]
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

Maximum Wave Load Cycles on Submerged Totating Tidal Energy Turbines – Identification of Worst Case Scenarios OMAE2017-61569
Florian Sprenger[1] **Sascha Kosleck**[2]
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 Rinde[1] **Vegar Gruner**[1] Thorleif Lager[2] Rune Killie[3] Tron Solberg[1] Mikkel Bakli[1]
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
Bernt Aadnoy[1] Benn Voll[2]
1. University of Stavanger, Stavanger, Norway; 2. B&T Well Design WLL, Manama, Bahrain

ICD/AICD Technology versus Reservoir Properties OMAE2017-62533
Terje Moen, *Ridge AS, Stavanger, Norway*

Autonomous Flow Control Device Modelling and Completion Optimisation OMAE2017-62587
David Davies[1] Khafiz Muradov[1] Eltazy Eltaher[1] Peter J Grassick[2]
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, António F. C. Silva
Federal University of Santa Catarina, , SC, Brazil

Effects in Free Water Knockout Separator Caused by FPSO Motions in Ocean Waves OMAE2017-62118
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, BI | 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
Statoil ASA, Trondheim, Norway

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

Numerical Modelling and Analysis of a Hybrid-Spar Floating Wind Turbine OMAE2017-62578
Tomoaki Utsunomiya[1] Iku Sato[2] Osamu Kobayashi[2] Takashi Shiraishi[3] Takashi Harada[4]
1. Kyushu 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 Sclavounos, 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 Pakozdi, 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, Høvik, Norway

Wave Drift Forces and Low Frequency Damping on the Exwave Semisubmersible OMAE2017-62539
Nuno Fonseca[1] Carl Trygve Stansberg[2]
1. MARINTEK, Trondheim, Norway; 2. CTSTANSBERG MARINTEKNIKK, Trondheim, Norway

Wave Drift Forces and Low Frequency Damping on the Exwave FPSO
OMAE2017-62540
Nuno Fonseca[1] Carl Trygve Stansberg[2]
1. MARINTEK, Trondheim, Norway; 2. CTSTANSBERG MARINTEKNIKK, Trondheim, Norway

Simulation of Low Frequency Motions in Severe Sea States Accounting for Wave-Current Interaction Effects OMAE2017-62550
Babak Ommani[1] Nuno Fonseca[1] Carl Trygve Stansberg[2]
1. MARINTEK, Trondheim, Norway; 2. CTSTANSBERG MARINTEKNIKK, 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 Toffoli[1] Davide Proment[2] Hayder Salman[2] Jaak Monbaliu[3] Ettore Stramignoni[4] Renato Forza[4] Massimiliano Manfrin[4] Miguel Onorato[4]
1. The University of Melbourne, Parkville, VIC, Australia; 2. University of East Anglia, Norwich, United Kingdom; 3. K.U. Leuven, Heverlee, Belgium; 4. Universita degli Studi di Torino, Turin, Italy

Three Dimensional Velocity Field Underneath a Breaking Rogue Wave OMAE2017-61237
Elzbieta M. Bitner-Gregersen[1] Alberto Alberello[2] **Filippo Nelli**[2] Alessandro Toffoli[3] Csaba Pakodzi[4]
1. DNV GL AS, Høvik, Norway; 2. Swinburne University of Technology, Hawthorn, VIC, Australia; 3. The University of Melbourne, Parkville, VIC, Australia; 4. MARINTEK, Trondheim, Norway

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

Prediction of Oceanic Rogue Waves Through Tracking Energy Fluxes OMAE2017-62261
Mohammad-Reza Alam, **Qiuchen Guo**
University of California at Berkeley, Berkeley, CA, USA

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 Sagrilo, 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 Low, **Xiaodong Zhang**, Chan Ghee Koh
National University of Singapore, Singapore, Singapore

Structural Reliability Analysis for Offshore Drilling Riser System Operability OMAE2017-61575
Ying Min Low[1] Xiaodong Zhang[1] Chan Ghee Koh[1] Peter Francis Bernad Adaikalaraj[2] Hezhen Yang[1]
1. National University of Singapore, Singapore, Singapore;
2. Keppel and Offshore Marine Technology, Singapore, Singapore

Uncertainty Quantification of Riser Fatigue Damage due to VIV using a Distributed Wake Oscillator Model OMAE2017-62143
Ying Min Low[1] Narakorn Srinil[2] **Lance Manuel**[3] HyeongUk Lim[3]
1. National University of Singapore, Singapore, Singapore; 2. Newcastle University, Newcastle upon Tyne, United Kingdom; 3. University of Texas at Austin, Austin, TX, USA

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

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 Dodge[1] Lars M. Haldorsen[2] **Gisle Rorvik**[3] Kasra Sotoudeh[1]
1. TWI Ltd., Cambridge, United Kingdom; 2. Statoil ANS, Stavanger, Norway; 3. Statoil, Trondheim, Norway

Performance Evaluation of Air-backed Metallic Circular Plates Subjected to Close-in Underwater Explosion OMAE2017-62179
Ganchao Chen, Yuansheng Cheng, Pan Zhang, Jun Liu, Changzai Zhang, Tianyu Zhou
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 Horn[1] Erling Østby[2] Odd Magne Akselsen[3] Mons Hauge[4]
1. DNV GL, Oslo, Norway; 2. DNV GL, Høvik, Norway; 3. SINTEF Materials and Chemistry, Tronheim, Norway; 4. Statoil, Ranheim, Norway

A Study on the Wear Performance of the Mooring Chain for Floating Wind Turbine OMAE2017-62195
Koji Gotoh, Koji Murakami, Masataka Nakagawa, Tomoaki Utsunomiya
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 OMAE2017-62646
Hamed Tasalloti Kashani, Mohammad Dabiri, Paul Kah, Jukka Martikainen
Lappeenranta University of Technology, Lapppeenranta, Finland

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 Campello[1] Fernando Sousa[2] **Jose Renato M de Sousa**[3] Alyson Vaillant[1] Gilberto Ellwanger[2]
1. Petrobras, Rio de Janeiro, RJ, Brazil; 2. COPPE - Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 3. Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil

Radial Instability of Flexible Pipes with Defects in the High Resistance Bandage and External Sheath OMAE2017-61850
Marcelo Favaro Borges[1] Amauri Mosquen[2] Otaviano Talgatti[2]
1. STRESSTEC - LAMEF, Porto Alegre, RS, Brazil; 2. LAMEF - UFRGS, Porto Alegre, RS, Brazil

Effect of CO_2 Gas Flow Rate on Corrosion of High Strength Steels for Flexible Pipes OMAE2017-61970
Ricardo Ribeiro[1] John Rothwell[1] Shiladitya Paul[1] Carlos E. F. Kwietniewski[2]
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 Tan[1] Yucheng Hou[2] **Joel Witz**[3]
1. GE Oil & Gas, Wellstream, Houston, TX, USA; 2. GE Oil & Gas, Houston, TX, USA; 3. Witz 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 Joshua, Fuat Kara
Cranfield University, Bedford, United Kingdom

Poro-elastoplastic Modelling of Uplift Resistance of Shallowly-buried Pipelines OMAE2017-61128
Fu-Ping Gao[1] **Qi Wengang**[2] Shi Yumin[2]
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 Reed[1] Hermann Moshagen[2]
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 Ong[1] **Guomin Ji**[2] Lanjing Li[1]
1. University of Stavanger, Stavanger, Norway; 2. SINTEF Ocean, Trondheim, Norway

Soil-pipe Interaction Models for the Simulation of Buried Steel Pipeline Behaviour Against Geohazards OMAE2017-61539
Spyros A. Karamanos[1] **Gregory C. Sarvanis**[1] Elisabetta Mecozzi[2]
Antonio Lucci[2] Polynikis Vazouras[1] Panos Dakoulas[1]
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 Oscillated Pipe for Subsea Mining OMAE2017-61238
Motoki Araki[1] **Satoru Takano**[2] Sotaro Masanobu[2] Shigeo Kanada[2] Masao Ono[2] Hiroki Sasagawa[2]
1. National Maritime Research Institute, Tokyo, Japan; 2. National Maritime Research Institute, Mitaka, Japan

CFD Analysis of Performance of Hydrocyclone for SMS Ore Separation on Seafloor OMAE2017-61383
Tetsuo Yamazaki, Yosuke Takeda, Naoki Nakatani, Rei Arai
Osaka Prefecture University, Sakai, Japan

Full Cycle Resource Evaluation of SMS Deposits Along the Arctic Mid Ocean Ridge OMAE2017-62525
Steinar Ellefmo, Martin Ludvigsen, Erik Kristian Thon Frimanslund
Norwegian University of Science and Technology, Trondheim, Norway

A Numerical Study of the Descent and Ascent Resistance Performance of a Full Ocean Depth Human Occupied Vehicle OMAE2017-61151
Zhe Jiang[1] Yong Hu[1] Weicheng Cui[1] Xiaochan Shen[2]
1. Shanghai Ocean University, Shanghai, China; 2. CNOOC Shanghai Limited, Shanghai, China

Operation of the Under Water TV on Chikyu OMAE2017-62272
Yasuhiro Namba, Junya Ishiwata
JAMSTEC, Yokohama, 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 Chen[1] Shuangxi Guo[2] Yilun Li[3] Yiqin Fu[4]
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 Schjølberg, **Stian Skaalvik Sandøy**
Norwegian University of Science and Technology, Trondheim, Norway

Vision Localization for Subsea Intervention OMAE2017-61773
Ingrid Schjølberg, **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 Daum[1] Martin Greve[1] Renato Skejic[2]
1. Thyssenkrupp Marine Systems, Kiel, Germany; 2. MARINTEK, Trondheim, Norway

Ocean Engineering

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

Monday June 26 | U5, BI | 15:00–17:00

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-Macías[1] Persijn Brongers[2] Rafael E. Vásquez[1]
1. Universidad Pontificia Bolivariana, Medellin, Colombia;
2. MARIN, Wageningen, Netherlands

A Methodology for DP Capability Studies on Remotely Operated Vehicles OMAE2017-61918
Asgeir Johan Sørensen[1] Svein Sævik[1] **Juan A. Ramírez-Macías**[2] Rafael E. Vásquez[2]
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 | A1, BI | 15:00–17:00

Session Chair: Knut Beck Engebretsen, Aker Solutions, Norway

Calculation of the Hydrostatic and Structural Integrity of Docking Sequences OMAE2017-61368
Hendrik Dankowski[1] **Charlott Weltzien**[2]
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 Hassani[1] Naveena Crasta[2] Antonio M. Pascoal[2]
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, Kayvan 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 Skjong[1] **Anna Swider**[2] Eilif Pedersen[1]
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 Johansen[1] Espen Skjong[2] Vegard Henriksen[1] Audun Røine[1]
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 | A4, BI | 15:00–17:00

Session Chair: Daniela Myland, The Hamburg Ship Model Basin (HSVA), Germany
Session Co-Chair: Walter Kuehnlein, Sea2ice Ltd. & Co. KG, Germany

Review of Ice Load Standards and Comparison with Measurements OMAE2017-61735
Leon Kellner, Hauke Herrnring, Michael Ring
Hamburg University of Technology, Hamburg, Germany

Study of Local Ice Loads Measured at Norströmsgrund Lighthouse OMAE2017-62416
Petr Zvyagin[1] Gesa Ziemer[2]
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 Scibilia[1] **Leif Erik Andersson**[2] Lars Imsland[2]
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 | A3, BI | 15:00–17:00

Session Chair: Rolf Baarholm, Statoil / Nowegian Deepwater Programme, Norway
Session Co-Chair: Francisco Huera-Huarte, Universitat Rovira i Virgili, Spain

Vortex-induced Motion of a Free Standing Riser below the Critical Mass Ratio OMAE2017-61399
Cheslav Balash[1] Curtis Florager[2]
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 Yin[1] Halvor Lie[1] Rolf Baarholm[2]
1. SINTEF Ocean, Trondheim, Norway; 2. Statoil / Nowegian 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 Fu[1] **Mengmeng Zhang**[1] Haojie Ren[1] Leijian Song[1] Jie Wu[2] Halvor Lie[2]
1. Shanghai Jiao Tong University, Shanghai, China; 2. SINTEF Ocean AS, Trondheim, Norway

Hydrodynamic Coefficients of a Flexible Pipe with Staggered Buoyancy Modules under VIV Conditions by Inverse Analysis OMAE2017-62535
Jie Wu[1] Halvor Lie[1] Rolf Baarholm[2] **Shixiao Fu**[3]
1. SINTEF Ocean, Trondheim, Norway; 2. Statoil / Nowegian Deepwater Programme, Stjørdal, Norway; 3. MARINTEK, 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
Zhiqiang Hu[1] Geliang Liu[2] Jiahao Chen[2]
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 OMAE2017-61446
Henrik Bredmose[1] **Michael Borg**[1] Anders M Hansen[2]
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 Leroy, Fabien Caleyron, **Yann Poirette**, Nadege Brusselle Dupend
IFP Energies Nouvelles, Solaize, France

Effect of the Beam Element Geometric Formulation on the Wind Turbine Performance and Structural Dynamics OMAE2017-61779
Madjid Karimirad[1] Petter A. Berthelsen[2] **Virgile Delhaye**[2]
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. Nielsen[1] Ronnie Refstrup Pedersen[2] Dawid Augustyn[2]
1. Ramboll Offshore Wind, Copenhagen, Denmark;
2. Ramboll Offshore Wind, Esbjerg, Denmark

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 Sun[1] Chunhui Ma[2] Marinos Bernitsas[3]
1. Harbin Engineering University, Harbin, China; 2. Jiangsu Maritime Institute, Ann Arbor, MI, USA; 3. Northville 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 Sun[1] Michael Bernitsas[2] **Kai Lan**[2]
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 ($2.5x10^4<RE<1.2x10^5$): Smooth Cylinders OMAE2017-62166
Hai Sun[1] Michael Bernitsas[2] **Chunning Ji**[3] Wanhai Xu[3]
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 OMAE2017-62171
Hai Sun[1] Michael Bernitsas[2] **Eun Soo Kim**[2] Hongrae Park[3]
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 Sun[1] **Michael Bernitsas**[2] Wenjun Ding[2] Wanhai Xu[3]
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 ($2.5X10^4<RE<1.2X10^5$) OMAE2017-62693
Hai Sun[1] Michael Bernitsas[2] Wenjun Ding[2] Chunning Ji[3] **Wanhai Xu**[3]
1. Harbin Engineering University, Harbin, China; 2. University of Michigan, Ann Arbor, MI, USA; 3. Tianjin University, Tianjin, China

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 Ytrehus[1] Bjørnar Lund[2] **Arild Saasen**[3]
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 May[1] Yaroslav Ignatenko[2] Oleg Bocharov[2]
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 Ytrehus[1] Bjørnar Lund[2] **Ali Taghipour**[2]
1. SINTEF Petroleum, Trondheim, Norway;
2. SINTEF Petroleum Research, Trondheim, Norway

Lightweight Hollow Glass Microspheres Drilling Fluid Flow through Nozzles OMAE2017-62132
Stefan Miska[1] Evren Ozbayoglu[2] Mengjiao Yu[2] Nicholas Takach[3] Okan Kirgil[4] Clara Mata[5]
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 Khatibi[1] Rune Time[1] Alexander Busch[2] Stein Tore Johansen[3] Fionn Iversen[4] Dwayne Werner Martins[5] Md Aminul Islam[6]
1. University of Stavanger, Stavanger, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. SINTEF AS/NTNU, Trondheim, Norway; 4. International Research Institute of Stavanger, Bergen, Norway; 5. ENGIE E&P Norge AS, Stavanger, Norway; 6. Statoil ASA, Trondheim, Norway

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 Suguimoto
UNICAMP, Campinas, SP, Brazil

On the Numerical Modeling of Slug and Intermittent Flows in Oil and Gas Production OMAE2017-62407
Angela O Nieckele[1] Joao N.E. Carneiro[2]
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 (FPI) OMAE2017-62176
Sergio N. Bordalo[1] Jose Ricardo P. Mendes[1] Kazuo Miura[1] Sergio Fernando Celis Ariza[2]
1. University of Campinas, Campinas, SP, Brazil; 2. Consorcio Microacueductos Ambientales, Huila, Colombia

Experimental Study of the Minimum Pressure Necessary to Start-up the Flow of a Gelled Waxy Crude Oil OMAE2017-62438
Charlie Van Der Geest[1] Vanessa C. Bizotto Guersoni[2] Luiz Antônio Simões Salomão Junior[3] Antonio Bannwart[4]
1. University of Campinas - School Mechanical Engineering, Campinas, SP, Brazil; 2. Center for Petroleum Studies, Campinas, SP, Brazil; 3. Repsol - Sinopec, 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 OMAE2017-62617
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 OMAE2017-62292
Wei Li[1] **Nianxin Ren**[2] Ying Zhu[2] Zhe Ma[2]
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 OMAE2017-62718
Zhicheng Cai[1] **Xiangyuan Zheng**[2]
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. Bachynski[1] **Amir Rasekhi Nejad**[1] Torgeir Moan[2]
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 OMAE2017-62711
Athanasios Kolios[1] **Feargal Brennan**[2] Isaac Tavares[3]
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, BI

Odd Magnus Faltinsen

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

Time	Title	Location
08:15 – 09:45	Concurrent Sessions	See pages 43 to 47 for session titles, authors and locations.
09:45 – 10:15	Refreshment Break	Space Foyer, Clarion
10:15 – 11:45	Concurrent Sessions	See pages 47 to 51 for session titles, authors and locations.
11:45 – 13:15	Awards Lunch	Cosmos 1 & 2, Clarion
13:15 – 14:45	Concurrent Sessions	See pages 52 to 56 for session titles, authors and locations.
14:45 – 15:15	Refreshment Break	Space Foyer, Clarion
15:15 – 17:15	Concurrent Sessions	See pages 56 to 60 for session titles, authors and locations.
17:30 – 18:00	Lecture Series on Hydrodynamics	A1, BI

CONCURRENT SESSIONS

08:15 – 09:45

Offshore Technology

1-4-1 Simulation of Floaters and Moorings

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

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 Xu[1] Zhengru Ren[2] Yue Li[1] Karl Henning Halse[1] Roger Skjetne[2]

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 Li[1] Houxiang Zhang[1] Xu Cheng[2] Chen Diao[2] Shengyong Chen[2] Mengna Liu[2]

1. Norwegian University of Science and Technology, Ålesund, Norway; 2. Tianjin University of Technology, Tianjin, China

Floating Stability During Installation of Gravity Base Structures

OMAE2017-62287

Minuk Jung, Keum-Seok Kang

KEPRI, 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

Offshore Technology

1-4-6 Process and Flow Assurance

Tuesday June 27 **Space 1, Clarion | 08:15–09:45**

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

Ahmin Park[1] Youngsub Lim[2] Yoonae Ko[2]

1. Seoul National University, Goyang-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 **Space 2, Clarion | 08:15–09:45**

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

Kjersti Bruserud[1] Jørn Birknes-Berg[2] Gunnar Lian[1] **Oistein Hagen**[2] Ida Haoy Grue[3]

1. Statoil, Stavanger, Norway; 2. DNV GL, Høvik, Norway; 3. DNV GL AS, Høvik, Norway

Joint Time-frequency Analysis of Small Scale Ocean Storms by an Application of Harmonic Wavelet Tranforms OMAE2017-61761

Felice Arena[1] **Valentina Laface**[1] Ioannis A. Kougioumtzoglou[2]
Ketson Roberto Maximiano dos Santos[2]

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, Høvik, Norway

Climatic Forecasting of Wind and Waves Using Fuzzy Inference Systems

OMAE2017-61968

Erik Vanem[1] **Christos Stefanakos**[2]

1. DNV GL, Høvik, 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: Zhen Gao, Norwegian University of Science and Technology, Norway

Risk-Based Multi-objective Optimisation of a Monopile Offshore Wind Turbine Support Structure OMAE2017-61756
Carlos Guedes Soares[1] **Yordan Garbatov**[2] Baran Yeter[2]
1. Centre for Marine Technology and Ocean Engineering, Lisboa, Portugal; 2. Universidade de Lisboa, Lisbon, Portugal

An Integrated Data Management Approach for Offshore Wind Turbine Failure Root Cause Analysis OMAE2017-62279
Philipp R. Thies[1] **Alexios Koltsidopoulos Papatzimos**[2] Tariq Dawood[2]
1. University of Exeter, Exeter, United Kingdom; 2. EDF Energy R&D UK Centre, London, United Kingdom

Reliability Prediction for Offshore Renewable Energy: Data Driven Insights OMAE2017-62281
Philipp R. Thies[1] Jonathan Shek[2] **Fraser J. Ewing**[3] Michael Wilkinson[4] Benson Waldron[5]
1. University of Exeter, Exeter, United Kingdom; 2. University of Edinburgh, Edinburgh, United Kingdom; 3. Industrial Doctoral Centre for Offshore Renewable Energy, Edinburgh, United Kingdom; 4. DNV GL, Bristol, United Kingdom; 5. DNV GL, London, United Kingdom

Physics-based Gearbox Failure Model for Multi-MW Offshore Wind Turbines OMAE2017-62257
Philipp R. Thies[1] Erkan Oterkus[2] **Marco A. Sepulveda**[3]
Jonathan Shek[4] Mark Spring[5] Peter Davies[6]
1. University of Exeter, Exeter, United Kingdom; 2. University of Strathclyde, Glasgow, United Kingdom; 3. Lloyd's Register /Industrial Doctorate Centre Offshore Renewable Energy, Aberdeen, United Kingdom; 4. University of Edinburgh, Edinburgh, United Kingdom; 5. Lloyd's Register, Bath, United Kingdom; 6. Lloyd's Register, Aberdeen, United Kingdom

Structures, Safety and Reliability

2-13-1 Risk Analysis and Management I

Tuesday June 27 | A1, BI | 08:15–09:45

Session Chair: Marcelo Martins, University of São Paulo, Brazil

Session Co-Chair: Karina Forte, Bureau Veritas, France

Safety Challenges of LNG Offshore Industry and Introduction to Risk Management OMAE2017-61027
Karina Forte, Diane Ruf
Bureau Veritas, Neuilly sur Seine, France

Design Load Measures for Vapor Cloud Explosion on Complex Systems: Review and Recommendations OMAE2017-61862
YeongAe Heo, Yue Li, Maryam Mortazavi
Case Western Reserve University, Cleveland, OH, USA

Explosion Risk Analysis on the Liquefaction Process of LNG-FPSO at the PFD Level OMAE2017-62163
Wonwo You[1] Youngsub Lim[1] Jaeuk Park[2]
1. Seoul National University, Seoul, Korea; 2. Samsung Heavy Industries, Seongnam, Korea

Integrity Management of Flexible Riser: Tailormade Strategies to Address Operational Challenges OMAE2017-62702
Olivier Delcroix, Hany Elosta
TechnipFMC, Lysaker, 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

Dynamic Collapse of Double Hull Composite Cylinders: Hydrostatic and Shock-initiated Implosion OMAE2017-62678
Arun Shukla
The University of Rhode Island, Kingston, RI, 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: Zhimin 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_2S Content in the Annulus OMAE2017-61129
Li Ke[1] Carol Taravel-Condat[1] Jean Kittel[2] Rémy Mingant[2]
Virginie Querez[3] Claude Duret-Thual[3]
1. Technip, Le Trait, France; 2. IFP Energies Nouvelles, Solaize, France; 3. Institut de la Corrosion, Fraisses, France

Stresses in Tensile Armour Layers of Unbounded Flexible Risers Loaded with External Pressure: Application to Lateral Buckling Mode
OMAE2017-61133
Pascal Estrier[1] Jean Marc Leroy[2] Kristof Vraniskoski[1] **Fabien Caleyron**[2]
Alexandre Damiens[1] Martin Guiton[2] Pascal Duchêne[3]
1. Technip, Le Trait, France; 2. IFP Energies Nouvelles, Solaize, France

Pipelines, Risers, and Subsea Systems

4-3-3 Thermo-Mechanical I

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

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

Solving Downslope Pipeline Walking on Non-linear Soil Models for Brittle Peak Strength with Strain Softening OMAE2017-61168
Adriano Castelo, David J. White, Yinghui Tian
University of Western Australia, Perth, WA, Australia

Subsea Pipeline UHB OOS Design: Structural Reliability Analysis
OMAE2017-61186
Matt Liu, **Colin Cross**
Aker Solutions, London, United Kingdom

Acceptable Probability of Failure for Subsea OMAE2017-61187
Matt Liu, Colin Cross
Aker Solutions, London, United Kingdom

Strain Concentration and Strain Reduction Factors for Subsea Pipeline Lateral Buckling Design OMAE2017-61200
Matt Liu
Aker Solutions, London, United Kingdom

Ocean Space Utilization

5-9-1 Coastal Zone Management and Utilization

Tuesday June 27 | U6, BI | 08:15–09:45

Session Chair: Shigeru Tabeta, University of Tokyo, Japan

A Review of Offshore Decommissioning Regulations in Three Countries – Strengths and Weaknesses OMAE2017-62596
Mei Ling Fam[1] Dimitrios Konovessis[2] Lin Seng Ong[1] Hoon Kiang Tan[3]
1. Nanyang Technological University, Singapore, Singapore; 2. Singapore Institute of Technology, Singapore, Singapore; 3. Lloyd's Register, Singapore, Singapore

Research on Optimum Function and Utilization of Oceanic Architectures for Marine Space Use – Case Study on Kyushu Region, Japan OMAE2017-61618
Ryo Sugahara[1] Kuroyanagi Akio[2]
1. Nihon University, Funabashi, Japan; 2. Nihon University, Chiba, Japan

A Study on the Operation Strategies for Bottom Otter Trawling in Ise Bay OMAE2017-61142
Shigeru Tabeta, Kenta Nakamura, Shota Suzuki
The University of Tokyo, Kashiwa, Japan

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 Pillai[1] Robert Seah[2] Arjan Voogt[3]
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 Abels
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 Tripepi[1] Francesco Aristodemo[1] Paolo Veltri[1]
Calogero Pace[1] Andrea Solano[1] Carlo Giordano[2]
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 Kasvaei[1] Mohammad Hossein Kazeminezhad[1]
Abbas Yeganeh-Bakhtiary[2]
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 | A4, BI | 08:15–09:45

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. Krestyantsev
Krylov State Research Centre, St. Petersburg, Russia

Simulation-based Evaluation of Upstream Logistics System Concepts for Offshore Operations in Remote Areas OMAE2017-61816
H. Elizabeth Lindstad[1] Victoria Gribkovskaia[2] Trond Johnsen[1]
Inge Norstad[1] Eirik S., Uthaug[3]
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 Polach[1] **Li Zhou**[2] Xu Bai[2]
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 Dac Ho[1] Kay Endre Fjørtoft[2]
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 | A3, BI | 08:15–09:45

Session Chair: Jie Wu, SINTEF Ocean, Norway

Session Co-Chair: Themistocles L. Resvanis, 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, **Jungao 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 | U8, BI | 08:15–09:45

Session Chair: Signe Schløer, 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 Ridder[1] Simon Burmester[1] Christof Wehmeyer[2] Erik Asp[3] Philipp Gujer[4]
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 Bunnik[1] Wout Weijtjens[2] Christof Devriendt[2]
1. MARIN, Wageningen, Netherlands; 2. OWI-lab, 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 Ridder[1] Tim Bunnik[1] Bo Terp Paulsen[2] Christof Wehmeyer[3] Erik Asp[4] Philipp Gujer[5] Johan Peeringa[6]
1. MARIN, Wageningen, Netherlands; 2. Deltares, 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 | U2, BI | 08:15–09:45

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 Sousa[1] Gilberto Ellwanger[2] Rachel G B C Genzani[3] Elisabeth C Porto[3] Alexandre T Borges[3] Emanuel F Nogueira[3]
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. Petrobras, Rio de Janeiro, RJ, Brazil

Experimental Study of Push Coring Forces During Sediment Extraction Using a Robot Manipulator OMAE2017-61933
Juan A. Ramírez-Macías, José A. Escudero, David Rozo, Julio C. Correa
Universidad Pontificia Bolivariana, Medellin, Colombia

Petroleum Technology

11-1-1 Offshore Drilling and Production

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

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
Vassilios C. Kelessidis[1] Sayeed Rushd[2] **Aziz Rahman**[2] Rasel Sultan[3]
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 Alasker**
Saudi Aramco, Dhahran, Saudi Arabia

Robust Control for Heave Compensator with the use of Kalman Filter-based Disturbances Estimator OMAE2017-61573
Tássio M. Linhares, William H Cuellar, José O. A. Limaverde Filho, **Eugênio L. F. Fortaleza**, José A. R. Vargas
Brasilia University, Brasília, DF, Brazil

An Investigation of Pressure and Production Data Using Decline and Type Curve Analysis OMAE2017-62472
M. Enamul Hossain[1] **Arifur Rahman**[1] Fatema Akter Happy[1] Mahbub Alam Hira[2]
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 | A2, BI | 08:15–09:45

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 Sagrilo[1] **Paulo M. Videiro**[2]
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 Fujikubo[1] **Kazuhiro Iijima**[2] Rika Ueda[1]
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 Kang[1] Lei Li[1] Bing Wang[2] Yanfei Deng[1] Yunhe Zhai[3]
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 | Space 1, Clarion | 10:15–11:45

Session Chair: Bastien Abeil, MARIN, Netherlands
Session Co-Chair: Joost Sterenborg, MARIN, Netherlands

Moonpool Behavior of a Stationary Vessel in Waves and a Method to Increase Operability OMAE2017-61289
Jan-Willem Krijger, **Dimitris Chalkias**
Gustomsc, Schiedam, Netherlands

Experimental and Numerical Study on the Flow Reduction in the Moonpool of Floating Offshore Structure OMAE2017-62451
Seung-Ho Yang[1] Seon-Oh Yoo[2] Hyun Joe Kim[2] Dong-Yeon Lee[2] Booki Kim[2]
1. Ulsan College, Ulsan, Korea; 2. Samsung Heavy Industries, Daejeon, Korea

Sensitivity Study of Calculated Jacket Fatigue Life due to Long Term Distribution of Wave Heights OMAE2017-61783
Oistein Hagen[1] **Hege Halseth Bang**[1] Terje Nybø[2] Siri Hoel Smedsrud[3]
1. DNV GL, Høvik, 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 | Cosmos 3a, Clarion | 10:15–11:45

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 Fernandes[1] Miguel Ramirez[2] **Francisco Lamas**[3]
1. Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil;
2. BRASFELS, 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 Barcarolo[1] David Chilloux[2] Mathieu Duchesne[1] Christian Barre[3] Graham Knapp[3] Benjamin Rousse[4] François Petrie[4] Alain Ledoux[5] Olivier Langeard[2]
1. Hydrocean, Nantes, France; 2. DORIS Engineering, Paris, France; 3. CSTB, Nantes, France; 4. Oceanide, La Seyne sur Mer, France; 5. Total, Courbevoie, France

A Step Towards a Reduced Order Modelling of Flow Characterized by Wakes Using Proper Orthogonal Decomposition OMAE2017-62435
Mandar Tabib[1] **Eivind Fonn**[1] Adil Rasheed[1] Trond Kvamsdal[2]
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 Wu[1] Hyunchul Jang[2] Johyun Kyoung[2] Jang Kim[3] Hongmei Yan[1]
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 Squall Conditions OMAE2017-61005
Philip Jonathan[1] **Alison Brown**[2] Ward Gorter[3] Peter Tromans[4] Luc Vanderschuren[4] Paul Verlaan[3]
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 OMAE2017-61462
Sverre Haver[1] **Sindre Schafroth Sandbakken**[2] Kjell Larsen[3]
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 Taylor[1] **Ian Turnbull**[2] Pascale Bourbonnais[3] Marie-Andree Giguere[3]
1. Memorial University of Newfoundland, St. John's, NL, Canada; 2. C-CORE, St. John's, NL, Canada; 3. Fednav, Ltd., Montreal, QC, Canada

Modified Probability Density Evolution Method for the Solution of Multi-Degree-of-Freedom Nonlinear Stochastic Dynamical Systems OMAE2017-62382
Hongxia Li, Yi Huang, **Xiaoyu Zhou**
Dalian University of Technology, Dalian, China

Joint: Structures, Safety and Reliability and Ocean Renewable Energy

2-8-2 Reliability of Renewable Energy Systems II

Tuesday June 27 **Cosmos 3b, Clarion** | 10:15–11:45

Session Chair: Zhen Gao, Norwegian University of Science and Technology, Norway
Session Co-Chair: Yordan Garbatov, Universidade de Lisboa, Portugal

Parametric Sensitivity Study of Submarine Power Cable Design for Offshore Renewable Energy Applications OMAE2017-62208
Philipp R. Thies[1] Lars Johanning[2] Corentin Dobral[3]
1. University of Exeter, Exeter, United Kingdom; 2. University of Exeter, Penryn, United Kingdom; 3. École Centrale de Nantes, Nantes, France

An Engineering-model for Extreme Wave-induced Loads on Monopile Foundations OMAE2017-62317
Hans Fabricius Hansen, Henrik Kofoed-Hansen
Danish Hydraulic Institute, Hørsholm, Denmark

Key Design Parameters Identification of Natural Frequency of Tripod Substructure for Offshore Wind Turbine OMAE2017-62511
Jianhua Zhang, Jiayue Lin, Ke Sun, Chengyu Guan
Harbin Engineering University, Harbin, China

Structures, Safety and Reliability

2-13-2 Risk Analysis and Management II

Tuesday June 27 **A1, BI** | 10:15–11:45

Session Chair: Haibo Chen, Lloyd's Register Consulting - Energy Inc., China
Session Co-Chair: Adriana M. Schleder, University of São Paulo, Brazil

Real-Time Data for Risk Assessment in the Offshore Oil&Gas Industry OMAE2017-61486
Nicola Paltrinieri[1] Gabriele Landucci[2] Pierluigi Salvo Rossi[1]
1. Norwegian University of Science and Technology, 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. Samarakoon**
University of Stavanger, Stavanger, Norway

On Maintainability of Winterised Plants Operating in the Arctic Regions OMAE2017-61526
Masoud 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 Martins[1] Ana Beatriz Zanforlin[2] **Adriana M. Schleder**[1]
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 Lopresto
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 Gagani**, Andrejs 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 Russo[1] Valentina Lopresto[2] Ilaria Papa[2] Antonio Langella[2] Fabrizio Sarasini[3] Jacopo Tirillò[3]
1. Institute for Polymers, Composites and Biomaterials - National Research Council, Pozzuoli, 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

4-1-3 Flexible Pipes III

Tuesday June 27 **Space 3, Clarion | 10:15–11:45**

Session Chair: Celso Pesce, University of São Paulo - Escola Politecnica, Brazil
Session Co-Chair: Anh Tuan Do, TECHNIP, France

Evolution of Residual Stress in Tensile Armour Wires of Flexible Pipes during Pipe Manufacture OMAE2017-61490
Upul Fernando[1] Michelle Davidson[1] Kun Yan[2] Matthew Roy[3] Thilo Pirling[4] John Francis[3] Philip Withers[3]
1. GE Oil & Gas, Newcastle upon Tyne, United Kingdom; 2. Materials Science Centre, Manchester, United Kingdom; 3. The University of Manchester, Manchester, United Kingdom; 4. Institute Laue-Langevin, Grenoble, France

Theoretical Framework for Axial Thermal Gradients and Interface Slip in Pressure Sheath Layers of Flexible Pipes OMAE2017-61923
Rasmus Hansen
Rasmus Hansen AB, Applied Mechanics Research Company, Falsterbo, Sweden

Full Scale Validation of Axial Carcass Loads in Flexible Pipe Structure from Cyclic Pressure and Temperature OMAE2017-62042
Bjorn Melve[1] **Jan Muren**[2] Nils Sødahl[3] Claus Egebjerg Kristensen[4] Andreas Gjendal[5] Mario Sofferud[3] Bjørn Engh[3] Erik B Hanssen[5]
1. Statoil, Trondheim, Norway; 2. 4subsea, Nesbru, Norway; 3. DNV GL, Høvik, Norway; 4. Statoil ASA, Oslo, Norway; 5. 4subsea, Hvalstad, Norway

Study on the Mechanism of Birdcaging of Armor Wires Based on Experiment OMAE2017-61669
Qingzhen Lu, Zhixun Yang, Qian-Jin Yue, Jun Yan, Yucheng Yang
Dalian University of Technology, Dalian, China

Pipelines, Risers, and Subsea Systems

4-3-4 Thermo-Mechanical II

Tuesday June 27 **Cosmos 3d, 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 Haghighi[1] Jitender Rai[1] Yann Le Maoût[2] John Oliphant[1]
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 Smienk[1] **Erwan Karjadi**[1] Phil Cooper[3] Ferry Kortekaas[1]
1. Heerema Marine Contractors, Leiden, Netherlands; 2. Heerema Marine Contractors London, London, United Kingdom

Validation of Residual Curvature Installation for Lateral Buckling Management Using Structural Reliability Analysis (SRA) OMAE2017-61541
Martin Teigen[1] Malik Ibrahim[2]
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, BI | 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 Turner[1] Dean Steinke[1] Ryan Nicoll[2]
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 Føre[1] Stine Wiborg Dahle[1] Rune H. Gaarder[2]
1. SINTEF Fisheries and Auaculture, Trondheim, Norway;
2. SINTEF Materials and Chemistry, Oslo, Norway

Water Tank and Field Tests on the Performance of a Submergible Fish Cage for Farming Silver Salmon OMAE2017-61631
Daisuke Kitazawa[1] Yoichi Mizukami[1] Makoto Kanehira[1] Youto Takeuchi[2] Sho Ito[3]
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. Gansel[1] Stine Wiborg Dahle[2] Kristine Braaten Steinhovden[2] Per C. Endresen[3] Eirik Svendsen[2] Silje Forbord[2] Østen Jensen[4]
1. Norwegian University of Science and Technology, Aalesund, Norway;
2. SINTEF Fisheries and Auaculture, 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 | U3, BI | 10:15–11:45

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 OMAE2017-61678
Fanchen Zhang[1] Zongxin Yu[1] Zhiguo Zhang[1] Xianzhou Wang[2] **Hao Liu**[1]
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 | U5, BI | 10:15–11:45

Session Chair: Pierre Ferrant, Ecole Centrale De Nantes/CNRS, 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 Zhu[1] Qing Xiao[2] **Guangyu Shi**[2]
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 Huijsmans[1] Arthur E.P. Veldman[2] **Seyed Matin Hosseini Zahraei**[3] Ido Akkerman[3] Peter Wellens[3]
1. Ship Hydromechanics & Structures, Delft, Netherlands; 2. University of Groningen, Groningen, Netherlands; 3. TU Delft, Delft, Netherlands

Study on Application of CFD and FEM coupling method to Evaluate Dynamic Response of Ship under Severe Wave Condition OMAE2017-61553
Kazuhiro Iijima[1] **Tomoki Takami**[2] Masayoshi Oka[2]
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 | A4, BI | 10:15–11:45

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 Zvyagin
Peter the Great S. Petersburg Polytechnic University, St. Petersburg, Russia

Numerical Prediction of Ship-Ice Interaction OMAE2017-61814
Sören Ehlers[1] Bernt Leira[2] **Malte Hahn**[3] Hendrik Dankowski[3] Sandro Erceg[1] Thomas Rung[1] Michael Huisman[1] Henrik Sjoblom[4] Wei Chai[2]
1. Hamburg University of Technology, Hamburg, Germany; 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. Pella Sietas GmbH, Hamburg, Germany; 4. Rolls-Royce Marine AS, Ålesund, Norway

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 | A3, BI | 10:15–11:45

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**, Qunfeng 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 Jaiman[1] Anurag Yenduri[1] Vaibhav Joshi[1] Pardha Saradhi Gurugubelli[1] Peter Francis Bernad Adaikalaraj[2]
1. National University of Singapore, Singapore, Singapore;
2. Keppel and Offshore Marine Technology, Singapore, Singapore

Interaction Between IL and CF VIV – on the Importance of Orbital Direction OMAE2017-62404
Kjetil Skaugset[1] Carl M Larsen[2] Kristoffer H. Aronsen[3] **Zhiyong Huang**[4]
1. Statoil, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. Statoil ASA, Oslo, Norway; 4. Petrell AS, Trondheim, Norway

Analysis of Unsteady Hydrodynamics Related to Vortex Induced Vibrations on Bluff-Bodied Offshore Structure OMAE2017-61207
Mandar Tabib[1] Adil Rasheed[2] Franz Georg Fuchs[3]
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 | U8, BI | 10:15–11:45

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
Nilanjan 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 Parra[1] David Pastor[1] Armando Gallegos[2] Cristobal Uzarraga[3] Alvaro Alonso[1] Miguel P. Santos[4]
1. University of Valladolid, Valladolid, Spain; 2. University of Guanajuato, Salamanca, Mexico; 3. Tecnologico de Durango, Durango, Mexico; 4. Universidad Católica San Antonio de Murcia, Murcia, Spain

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

Offshore Geotechnics

10-2-1 Fluid-Soil-Structure Interaction

Tuesday June 27 | U2, BI | 10:15–11:45

Session Chair: Zefeng Zhou, University of Western Australia, Australia

Effects of the Initial Consolidation on the 3D Wave-induced Unsaturated Seabed Response Around Pile Foundation OMAE2017-61263
Titi Sui, Jian Ding, Chi Zhang, Yuan Li
Hohai University, Nanjing, China

Wave-induced Oscillatory Soil Response Around Circular Rubble Mound Breakwater Head OMAE2017-61416
D-S Jeng[1] **Chencong Liao**[2] Dagui Tong[2] Jianhua Wang[2]
1. Griffith University, Southport, QLD, Australia; 2. Shanghai Jiao Tong University, Shanghai, China

A 3D Wave-Structure-Seabed Interaction Analysis of a Gravity Based Wind Turbine Foundation OMAE2017-61640
Muk Chen Ong[1] **Yuzhu Li**[1] Tian Tang[2]
1. University of Stavanger, Stavanger, Norway; 2. Bekaert Technology Center, Deerlijk, Belgium

Soil Structure Interaction Analysis of a Berthing Structure Under Lateral Loading – By Numerical Approach OMAE2017-62484
Kavitha P, Ranganathan Sundaravadivelu
Indian Institute of Technology, Madras, Chennai, TN, India

Petroleum Technology

11-7-1 Well Drilling Fluids and Hydraulics I

Tuesday June 27 | Cosmos 3c, Clarion | 10:15–11:45

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 Gokdemir[1] Selcuk Erkekol[1] Huseyin Ali Dogan[2]
1. Turkish Petroleum, Ankara, Turkey; 2. Geos Energy Inc, Ankara, Turkey

Impact of Viscoelastic Characteristics of Oil Based Muds and Synthetic Based Muds on Cuttings Settling and Slip Velocities OMAE2017-62129
Roland May[1] **Stefan Miska**[2] Evren Ozbayoglu[3] Mehmet Cagri Altindal[4] Mengjiao Yu[3] Nicholas Takach[5]
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 | A2, BI | 10:15–11:45

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 Suzuki[1] Kazuhiro Iijima[2] Hidetoshi Harada[3] Takumi Natsume[4] Katsuya Maeda[5] Tatsuya Hayashi[6]
1. The University of Tokyo, Kashiwa, Japan; 2. Dept of NAOE, Osaka University, Osaka, Japan; 3. Research Association J-DeEP, 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 Chen[1] **Yuji Miao**[2] Xuefeng Tang[1]
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 Scharnke, Netherlands and Alessio Mariani, Woodside Energy Ltd

Metocean Design Criteria Considerations in South China Sea by Adopting Multivariate Extreme Value Theory OMAE2017-62541
Linbin Li[1] Hongtao Li[2] **Ping Li**[1] Qi Zhu[1] Chunqi Zhou[1]
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 Jeans[1] Wenting Xiao[2] Al Osborne[3] Chris Jackson[4] Doug Mitchell[5]
1. Oceanalysis Ltd, Wallingford, United Kingdom; 2. Exxonmobil Upstream Research Company, Spring, TX, USA; 3. Nonlinear Waves Inc., Arlington, VA, USA; 4. Global Ocean Associates LLC, Alexandria, VA, USA; 5. ExxonMobil Upstream Research Company, Houston, TX, USA

A Novel Approach to the Development of Squall Database for Mooring Response Based Analysis OMAE2017-61674
Gus Jeans[1] **Alessio Mariani**[2] Grant Elliott[2] Geoff Wake[2] James Whelan[2]
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**, Wenxu 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 Scharnke
MARIN, Wageningen, Netherlands

Sloshing and Swirling in Partially Filled Prismatic Tanks OMAE2017-61562
Gustavo Karuka[1] Arai Makoto[1] Hideyuki Ando[2]
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 Faltinsen[1] **Reza Firoozkoohi**[2] Bjørn Christian Abrahamsen[2]
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

On the Influence of Environmental Contour Method in Estimating Extreme Structural Response OMAE2017-61047
Erik Vanem
DNV GL, Høvik, 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-Idar G. Giske**, Ole Øiseth
Norwegian University of Science and Technology, Trondheim, Norway

A Novel Approach of Acoustic Emission Localization in Offshore Structure OMAE2017-61886
Weilei Mu, Wensheng Qu, 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

Reliability Analysis of Corroded Pipelines Under External Pressure OMAE2017-61964
Carlos Guedes Soares, **Angelo Teixeira**, Oscar Palencia
Centre for Marine Technology and Ocean Engineering, Lisboa, Portugal

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 Ćorak[1] Joško Parunov[1] Carlos Guedes Soares[2]
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, BI | 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 Clarke[1] Gregor Macfarlane[2] Irene Penesis[2] Jonathan Duffy[2] Shinsuke Matsubara[2] Ross J Ballantyne[3]
1. Australian Maritime College, University of Tasmania, Launceston, TAS, Australia; 2. Australian Martime College, Newnham, TAS, Australia; 3. Sea Transport Corperation, Runaway Bay, TAS, Australia

Development of a Simulator Training Platform for Fish Farm Operations OMAE2017-62023
Karl Gunnar Aarsaether[1] **Ingunn Marie Holmen**[2] Trine Thorvaldsen[2]
1. SINTEF Fisheries and Aquaculture, Tromsoe, Norway; 2. SINTEF Fisheries and Aquaculture, Trondheim, Norway

Risk Management of Autonomous Marine Systems and Operations
OMAE2017-61645
Ingrid Schjølberg[1] Asgeir Johan Sørensen[1] **Ingrid B. Utne**[2]
1. Norwegian University of Science and Technology, Trondheim, 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, Guoqing 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: Xiaozhi 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 Preditcing Stress Intensity Factor: a Novel Application to Oil and Gas Industry OMAE2017-61091
Arvind Keprate[1] R.M. Chandima Ratnayake[1] Shankar Sankararaman[2]
1. University of Stavanger, Stavanger, Norway; 2. SGT Inc., NASA Ames Reserach Center, Moffett, CA, USA

Comparing Different Metamodelling Approaches to Predict Stress Intensity Factor of a Semi-Elliptic Crack OMAE2017-62333
Arvind Keprate[1] R.M. Chandima Ratnayake[1] Shankar Sankararaman[2]
1. University of Stavanger, Stavanger, Norway; 2. SGT Inc., NASA Ames Reserach Center, Moffett, CA, USA

Elastic-Plastic Interaction of a Griffith Crack with a Circular Inclusion and Nearby Edge Dislocation OMAE2017-62637
Mu Fan[1] Cun-Fa Gao[1] Zhongmin Xiao[2]
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 Tan[1] Yucheng Hou[2] Jiabei Yuan[2]
1. GE Oil & Gas, Wellstream, Houston, TX, USA; 2. GE Oil & Gas, Houston, TX, USA

Loading Combination Screening Using Probabilistic Determination of Load-case Matrices OMAE2017-61384
Paul Sicsic[1] Joao Falcao Alegrias[2] **Neill Renton**[3]
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 Damsleth[1] Christian Kaurin[2] Jacob Dybwad[2] Hans Panjaitan[2]
1. Wood Group Kenny Norge, Hoevik, Norway; 2. Wood Group Kenny Norge 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: Svein Sævik, 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 Balash[1] Guy MacLean[2] David MacLean[3]
1. Edith Cowan University, Perth, WA, Australia; 2. Australian Maritime College, University of Tasmania, Launceston, TAS, Australia; 3. FLXMAT, Singapore, Singapore

Development and Testing of a Friction-Based Post-Installable Fiber-Optic Monitoring System for Subsea Applications OMAE2017-61494
Nicole Bentley[1] Henry Tang[2] David Brower[3] Suy Q. Le[1] Calvin H. Seaman[3]
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 Kendon[1] **Håvar Ilstad**[1] Richard Verley[1] Arve Bjørset[1]
Ove Rørgård[2] Øystein Ellefsen[3]
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 Authen
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 Furset 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 Kristiansen[1] **Pål Furset Lader**[1] Hans Bjelland[1] Dag Myrhaug[2] Morten Alver[3]
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 Ong[1] **Lin Li**[1] Zhiyu Jiang[2]
1. University of Stavanger, Stavanger, Norway;
2. Norwegian University of Science and Technology, Trondheim, Norway

Numerical Simulation of Motion-controlled Fishery Boat with Harvesting Wave Energy OMAE2017-61824
Daisuke Kitazawa[1] Takero Yoshida[1] **Sota Kanno**[1] Jialin Han[1] Teruo Maeda[2]
1. The University of Tokyo, Tokyo, Japan;
2. Management Strategy Corporation, Kanagawa, Japan

Ocean Engineering

6-1-6 Advanced Ship Hydromechanics and Marine Technology V – General Seakeeping

Tuesday June 27 **U3, BI | 13:15–14:45**

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

Integrated System to Evaluate Moored Ships Behavior OMAE2017-61110
Enrique Peña[1] Andres Figuero[1] Jose Sande[1] Andres Guerra[2]
Juan Diego Perez[2] Enrique Maciñeira[2]
1. University of A Coruña, A Coruña, Spain; 2. Port Authority of A Coruña, A Coruña, Spain

Improving the Panel-Free Method for Motion and Wave Induced Load Predictions OMAE2017-61137
Wei Qiu, **Heather Peng**, Junshi Wang, Shahriar Nizam
Memorial University of Newfoundland, St. John's, NL, Canada

Comparative Study of Motions and Drift Forces of Ships in Waves and Current OMAE2017-61878
Florian Sprenger[1] Ørjan Selvik[1] Dariusz Fathi[2] Elin Marita Hermundstad[1] Jan Roger Hoff[1]
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, Lisboa, Portugal

Ocean Engineering

6-13-1 Currents and Wind

Tuesday June 27 **U5, BI | 13:15–14:45**

Session Chair: TBC

Session Co-Chair: Hans Cozijn, MARIN, Netherlands

Statistical Characteristics of Ocean Currents: Measurements from Fixed and Moving Platforms OMAE2017-62383
Mostafa Bakhoday Paskyabi
University of Bergen, Bergen, Norway

Visualization of Relative Wind Profiles in relation to Actual Weather Conditions of Ship Routes OMAE2017-61120
Lokukaluge P. Perera, Brage Mo, Matthias Peter Nowak
SINTEF Ocean, Trondheim, Norway

Dynamic Averaging Method to Detect Sea Surface Current from Radar Images OMAE2017-62396
Andreas P. Wijaya
Labmath-Indonesia & University of Twente, Bandung, Indonesia

Visual Analytics in Ship Performance and Navigation Information for Sensor Specific Fault Detection OMAE2017-61118
Lokukaluge P. Perera, Brage Mo
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

Simulation of Ice Force and Breaking Pattern for Icebreaking Ship in Level Ice OMAE2017-61583
Junji Sawamura[1] Yutaka Yamauchi[2] Keisuke Anzai[2]
1. Osaka University, Naval Architecture and Ocean Engineering, Suita, Japan;
2. Japan Marine United Corporation, Technical Research Center, Tsu, Japan

Impact of Sea Ice Compression on Navigation Performance OMAE2017-61717
Genki Sagawa
Weathernews Inc., Chiba, Japan

Local Design Pressures during Ship Ram Events Modeling the Occurrence and Intensity of High Pressure Zones in Time OMAE2017-62545
Freeman Ralph[1] Ian Jordaan[2]
1. C-CORE, St. John's, NL, Canada; 2. Ian Jordaan and Associates, St. John's, NL, Canada

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 Huera-Huarte[1] Jose I. Jiménez-González[2]

1. Universitat Rovira i Virgili, Tarragona, Spain; 2. Universidad de Jaén, Jaén, Spain

Control of Flow-Induced Motion in Multi-coulmn Platform by Near-Wake Jets OMAE2017-61605

Rajeev Kumar Jaiman[1] Pei Feng Ma[2] Narendran Kumar[1] **Mengzhao Guan**[1] Tharindu Pradeeptha Miyanawala[1]

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 Allen[1] Nicole Liu[2]

1. VIV Solutions LLC, Richmond, TX, USA; 2. Shell Oil Co., Houston, TX, USA

Prediction of Vortex Shedding Control by Means of Splitter Plates OMAE2017-62707

Bassam Younis[1] **Shaoshi Dai**[2] Hongyang Zhang[2] Rongyu Zhang[2]

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 Roy[1] Hubert Branger[1] Christopher Luneau[2] Denis Bourras[3] Benoit Paillard[4]

1. IRPHE, CNRS, Aix Marseille University, Marseille, France; 2. CNRS, Institut Pythéas: Observatoire des Sciences de l'Univers, Marseille, France; 3. Aix-Marseille University, CNRS/INSU, IRD, Mediterranean Institute of Oceanography, Marseille, France; 4. EOLFI, Paris, France

Wind Farm Modeling in a Realistic Environment Using a Multiscale Approach OMAE2017-61686

Mandar Tabib[1] **Adil Rasheed**[1] Jørn Kristiansen[2]

1. SINTEF Digital, Trondheim, Norway; 2. Norwegian Meteorological Institute, Oslo, Norway

On the Interactions Between Windfarms and Marine Boundary Layer OMAE2017-61688

Mandar Tabib[1] Eivind Fonn[1] **M.Salman Siddiqui**[2] Adil Rasheed[1] Trond Kvamsdal[2]

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, Xiaoqi 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 Bang[1] Moosung Ryu[2] Jun Shin Lee[2] Daejin Kwag[3]

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 OMAE2017-62280

John Oliphant, **Saeed Abyaneh**, Justin Kennedy, Alasdair Maconochie

Technip, Aberdeenshire, 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. Strømø[1] Jan Egil Pallin[2] Gudmund Aaker[3] Helge Hodne[1] **Arild Saasen**[1]

1. University of Stavanger, Stavanger, Norway; 2. Sapeg 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, Baojiang Sun, Zhiyuan Wang

China University of Petroleum, Qingdao, China

Probabilistic Flow Modelling Approach for Kick Tolerance Calculations OMAE2017-61391

Kjell Kåre Fjelde[1] John Emeka Udegbunam[1] Dan Sui[1] Fatemeh Moeinikia[1] **Dalila Gomes**[1] Knut Steinar Bjørkevoll[2] Johnny Frøyen[2]

1. University of Stavanger, Stavanger, Norway; 2. SINTEF Petroleum AS, Bergen, Norway

pH-Sensor under Consideration for Multi Sensor Chip for Downhole Drilling Fluid Monitoring OMAE2017-62544

Heike Strauss, **Jonathan Kühne**, Frederic Güth, Pál Árki, Yvonne Joseph

TU Bergakademie Freiberg, Freiberg, Germany

Torgeir Moan Honoring Symposium

12-13-1 Floating Bridges I

Tuesday June 27 | A2, BI | 13:15–14:45

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 Eidem
Norwegian Public Roads Administration, Stavanger, Norway

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

Simplified hydrodynamic calculation of a Submerged Floating Tube Bridge across the Digernessund of Norway OMAE2017-61189
Arianna Minoretti[1] **Xu Xiang**[2] Mathias Eidem[2] Mikhail Vodolazkin[2]
Tale Egeberg Aasland[3] Kjell Håvard Belsvik[2]
1. Nowvegian Public Road 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
Øyvind Nedrebø[1] Bernt Sørby[2] **Arnt G. Fredriksen**[3] Basile Bonnemaire[3]
Per Norum Larsen[4] Mads Fredrik Heiervang[2] Pål Grøthe Sandnes[2] Anders Nesteby[5]
1. Norwegian Public Roads Administration, Leikanger, Norway;
2. Entail AS, Oslo, Norway; 3. Multiconsult AS, Tromsø, Norway;
4. Johs Holt AS, Oslo, Norway; 5. Multiconsult, Oslo, Norway

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 | Space 1, Clarion | 15:15–17:15

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[1] Carl Horst Albrecht[2] Beatriz Souza L. Pires de Lima[2]
Breno Pinheiro Jacob[2] Djalene Rocha[3]
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 Cozijn[1] Jin Woo Choi[2] Young-Jun You[2]
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 | Cosmos 3a, Clarion | 15:15–17:15

Session Chair: Jang Kim, TechnipFMC, USA
Session Co-Chair: Guangyu Wu, Chevron, USA

Numerical Modeling Using CFD and Potential Wave Theory for Three-Hour Nonlinear Irregular Wave Simulations OMAE2017-61090
Zhenjia (Jerry) Huang[1] Jang Kim[2] Aldric Baquet[3]
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 Resonse Due to Environmental Loads OMAE2017-61593
S Nallayarasu, **Nandhini Vasudevan**
Indian Institute of Technology, Madras, Chennai, TN, India

Numerical and Experimental Damping of Piston and Sloshing Motions in Moonpools OMAE2017-61637
Andrés Cura-Hochbaum[1] Pablo Carrica[2] **Jan Löhrmann**[1]
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
Guoyu Wang[1] **Ya bin Li**[1] Ming He[2] Bing Ren[1]
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: Yordan Garbatov, Universidade de Lisboa, Portugal

Research on Ship Structural Fatigue Damage under Nonlinear Wave Bending Moment OMAE2017-62328
Jingxia Yue (Le)[1] Wengang Mao[2] Chi Zhang[3] **Lihua Peng**[1] Wei Dong[4] Zhentao Zhu[5]
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 Slamming 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 Yu**, Xudong Liu, Xiaoxiong Sun
Harbin Engineering University, Harbin, China

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

Structures, Safety and Reliability

2-9-1 Extreme Loading and Responses I

Tuesday June 27 | Space 2, Clarion | 15:15–17:15

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

Session Co-Chair: Vanessa Katsardi, University of Thessaly, Greece

Wave Force and Wave-Induced Overturning Moment to Sea Levels of Offshore Support Structures OMAE2017-61073
Youn-Ju Jeong, Min-Su Park, Jeongsoo Kim
Korea Institute of Civil Engineering and Building Technology, Goyang, Korea

Time Domain Simulation of Jack-up Platform in Second-Order Irregular Seas OMAE2017-61463
Jørgen Amdahl[1] Sverre Haver[2] **Michael Binsar Lubis**[3]
1. Norwegian University of Science and Technology, Trondheim, Norway;
2. Norwegian University of Science and Technology, Stavanger, Norway;
3. Norwegian University of Science and Technology, Medan, Indonesia

Wave Load Prediction on a Bergy Bit Near a Fixed Offshore Platform OMAE2017-62392
Ayhan Akinturk, **M Hasanat Zaman**, Dong Cheol Seo, Tanvir Sayeed
National Research Council of Canada, St. John's, NL, Canada

Nonlinear Dynamic Response of a Compliant Tower Under the Effect of Steady and Unsteady Sea States OMAE2017-62449
Vanessa Katsardi, Apostolos Koukouselis, Konstantinos Chatziioannou, Euripidis Mistakidis
University of Thessaly, Volos, Greece

Materials Technology

3-11-1 Special Fracture Control Session Honoring Profs. 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 Horn[1] Kenneth A Macdonald[2]
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 Romac, Ed Kingston, Karim Serasli
Veqter Limited, Bristol, United Kingdom

Property Evaluation of Q345 Welded Steel by Tangential Residual Magnetic Field OMAE2017-62169
Sheng Bao[1] **Ashri Mustapha**[2] Shuzhuang Bai[3] Huangjie Lou[4] Meili Fu[3]
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 Lotsberg[1] **Kashif Toor**[2]
1. DNV GL, Høvik, 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 Komperød
Nexans Norway AS, Halden, Norway

Torsion Instability of Offshore Cables During Installation OMAE2017-61135
Svein Sævik[1] Evgenii Koloshkin[2]
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 Sødahl, Xu Han
DNV GL, Høvik, Norway

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

Proposed Methodology for Fatigue Testing on Umbilical Round Armor Wires OMAE2017-62020
George Campello[1] **Mariana R. Tagliari**[2] Tiago B. Coser[3] João Carlos B. Bertoncello[3] Facundo Arguello[3] Gustavo Matoso[1] Afonso Reguly[3]
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

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[1] Angus McRae[2] Jitender Rai[2] Gareer Abdelmageed[3]
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[1] Vladimir Andreev[2]
1. MECHOCEAN 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[1] **Martin Gallegillo**[2] Nicolas Messias[3] Torgeir Helland[3] Godman Ofoha[4] Rohit Bhide[4]
1. Genesis/Technip Group, Houston, TX, USA; 2. Genesis, London, United Kingdom; 3. Technip, Oslo, Norway; 4. Technip, Aberdeen, United Kingdom

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 Nystrøm[1] Odd Martin Lyngsaunet[2] **Pål Foss**[2]
1. IKM Ocean Design AS, Sandnes, Norway; 2. IKM Ocean Design AS, Trondheim, Norway

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
Mitsuhiro Masuda[1] Koichi Masuda[2] Kiyokazu Minami[1]
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[1] Koichi Masuda[1] Hiroaki Eto[1] **Akihiro Matsuoka**[1] Yasuhiro Aida[2] Kazuki Murata[1]
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., Nasushiobara-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

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
Wei Qiu[1] Heather Peng[1] **Md Ashim Ali**[1] Rickard Bensow[2]
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
Lokukaluge P. Perera[1] **Brage Mo**[1] Christian Steinebach[1] Petter Dehli[2] Tow Foong Lim[3]
1. SINTEF Ocean, Trondheim, Norway; 2. Veritas Petroleum Services (V.P.S.), Oslo, Norway; 3. Veritas Petroleum Services (V.P.S.), Singapore, Singapore

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

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

Ocean Engineering

6-12-1 Ocean Engineering Technology I

Tuesday June 27 **U5, BI** | 15:15–17:15

Session Chair: Vahid Hassani, SINTEF, Norway

Session Co-Chair: Serena Lim, University of Newcastle, United Kingdom

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 OMAE2017-61167
Joakim Haugen, Eduardo Grimaldo, Svein H. Gjøsund
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 Minoretti[1] **Knut Beck Engebretsen**[2] Stein Atle Haugerud[3] Kristoffer Kjellsa Jakobsen[4]
1. Norwegian Public Road Administration, Vadsø, Norway; 2. Aker Solutions, Sandsli, Norway; 3. Dr. Techn Olav Olsen, Lysaker, Norway; 4. Aker Solutions AS, Lysaker, Norway

Polar and Arctic Sciences and Technology

7-6-1 Full Scale Measurement and Operations in Ice

Tuesday June 27 **A4, BI** | 15:15–17:15

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**, Zhifeng Wang, Ri Zhang
Ocean University of China, Qingdao, China

Application of Confidence Regions to Ice Ridge Keel Data Statistical Assessment OMAE2017-62253
Petr Zvyagin[1] Jaakko Heinonen[2]
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 Gudmestad[1] **Bjarte Kvamme**[2] Jino Peechanatt[1]
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 **A3, BI** | 15:15–17:15

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

A CFD-Based Fully-Coupled Floater-Mooring-Riser Analysis for Station Keeping OMAE2017-61634
Rajeev Kumar Jaiman[1] Anurag Yenduri[1] Pardha Gurugubelli[1] **Ritwik Ghoshal**[1] Yulong Li[1] Yun Zhi Law[1] Chen Zhuo[2]
1. National University of Singapore, Singapore, Singapore; 2. Keppel and Offshore Marine Technology, Singapore, Singapore

Hydrodynamics and Capture Efficiency of Floating Plastic Cleanup Booms: Part II, 2D Vertical Capture Efficiency and CFD Validation OMAE2017-62012
Bruno Sainte-Rose[1] Roberto Brambini[1] **Benedicte Dommergues**[1] Rene Mettler[1] Zaki Abiza[2]
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 Buruchenko[1] Ricardo Canelas[2]
1. South Ural State University, Snezhinsk, Russia; 2. Universidade de Lisboa, Lisboa, Portugal

Ocean Renewable Energy

9-2-6 Fatigue

Tuesday June 27 **U8, BI** | 15:15–17:15

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
Chaoshuai Han, **Yongliang Ma**, Xianqiang 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, **Junyi Wu**
Newcastle University, Newcastle upon Tyne, United Kingdom

Calibration of Long-term Time-domain Load Generation for Fatigue Life Assessment of Offshore Wind Turbine OMAE2017-61747
Bryan Nelson[1] Tsung-Yueh Lin[1] Yann Quemener[2] Chi-Yu Chien[3] Hsin-haou Huang[3]
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 Hurricane 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 Peiffer, **Samuel Kanner**, Alexia 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 Kerner[1] Jean-Claude Dupla[2] Gwendal Cumunel[2] Jean Canou[2] Jean-Michel Pereira[2] Pierre Argoul[3] Selim Benfeddoul[4]
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 OMAE2017-61603
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 Zanoli[1] **Federico Pisanò**[2] Simone Corciulo[1]
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: Nediljka Gaurina-Međimurec, 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 OMAE2017-61276
Nediljka Gaurina-Međimurec[1] Borivoje Pašić[2] **Petar Mijić**[2]
1. University of Zagreb, Zagreb, Croatia; 2. University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering, Zagreb, Croatia

New Drilling Muds for Drilling in Clay Rocks OMAE2017-61476
Sławomir Wysocki, Rafał Wiśniowski, Magdalena Gaczol
AGH University of Science and Technology, Krakow, Poland

Investigations on the Damage Potential of Drilling Fluids: HT/HP-Return-Permeability Tests under Dynamic Conditions OMAE2017-62329
Carsten Freese
TU Freiberg, Freiberg, Germany

Application of Outcrops Rock Samples in Laboratory Research of Shale Drilling Fluid Interaction OMAE2017-62669
Borivoje Pašić, Nediljka Gaurina-Međimurec, 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 Lehmann[1] Erik Anders[2] Anne Schulz[1] Katja Beier[1]
1. TU Bergakademie Freiberg, Freiberg, Germany;
2. Technical University of Dresden, Dresden, Germany

Torgeir Moan Honoring Symposium

12-13-2 Floating Bridges II

Tuesday June 27 | A2, BI | 15:15–17:15

Session Chair: Xu Xiang, Norwegian Public Roads Administration, Norway
Session Co-Chair: Arnt G. Fredriksen, Multiconsult AS, Norway

Ship Collision Analysis of a Floating Bridge in Ferry-Free E39 Project OMAE2017-62720
Jørgen Amdahl, **Yanyan Sha**
Norwegian University of Science and Technology, Trondheim, Norway

Time Domain Modelling of Frequency Dependent Wind and Wave Forces on a Three-span Suspension Bridge with Two Floating Pylons Using State Space Models OMAE2017-62721
Torgeir Moan[1] Ole Øiseth[2] **Yuwang Xu**[2]
1. Norwegian University of Science and Technology, Ctr For Ships & Ocn Structures, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway

A Time-domain Method for Hydroelastic Analysis of Floating Bridges in Inhomogeneous Waves OMAE2017-62534
Shixiao Fu[1] Torgeir Moan[2] Shi Deng[3] Wei Wei[1] Shaowu Ou[1] Halvor Lie[4]
1. Shanghai Jiao Tong University, Shanghai, China; 2. Norwegian University of Science and Technology, Ctr For Ships & Ocn Structures, Trondheim, Norway; 3. Norwegian University of Science and Technology, Trondheim, Norway; 4. SINTEF Ocean AS, Trondheim, Norway

Beam Element Formulations for Non-linear Dynamic Analysis: Euler Bernouli vs Timoshenko Beam OMAE2017-62738
Kjell Magne Mathisen
Norwegian University of Science and Technology, Trondheim, Norway

Accurate Finite Element Analysis for Structural Mechanics OMAE2017-62551
Trond Kvamsdal[1] Pål G. Bergan[1] Kjell Magne Mathisen[1] Knut M. Okstad[2]
1. Norwegian University of Science and Technology, Trondheim, Norway;
2. SINTEF ICT, Trondheim, Norway

Initial Design of a Double Curved Floating Bridge and Global Hydrodynamic Responses Under Environmental Conditions OMAE2017-61802
Allan Ross Magee[1] Øyvind Hellan[2] Watn Arnstein[2] Kok Keng Ang[1] Chien Ming Wang[1]
1. National University of Singapore, Singapore 2. MARINTEK, Trondheim, Norway

LECTURE SERIES ON HYDRODYNAMICS

17:30 – 18:00
A1, BI

Bernard Molin

Natural Modes in Moonpools and Gaps

Professor Bernard Molin, *Institut de Recherche sur les Phénomènes Hors Equilibre, Department Structures Atmosphère Océan, Ecole Centrale de Marseille*

Wednesday, June 28

Time	Title	Location
08:15 – 09:45	Concurrent Sessions	See pages 61 to 65 for session titles, authors and locations.
09:45 – 10:15	Refreshment Break	Space Foyer, Clarion
10:15 – 11:45	Concurrent Sessions	See pages 65 to 69 for session titles, authors and locations.
11:45 – 13:15	Lunch & Keynote Presentation	Cosmos 1 & 2, Clarion
13:15 – 14:45	Concurrent Sessions	See pages 70 to 74 for session titles, authors and locations.
14:45 – 15:15	Refreshment Break	Space Foyer, Clarion
15:15 – 17:15	Concurrent Sessions	See pages 74 to 77 for session titles, authors and locations.
17:30 – 18:00	Lecture Series on Hydrodynamics	A1, BI
18:30 – 22:00	Conference Banquet	Cosmos 1 & 2, Clarion

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 Zhu[1] **Hanbing Luo**[2] Wentai Yu[1] Peng Xie[2] Alan M. Wang[1] Huailiang Li[1]

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

Maintenance Regime Minimum (MRM): State of the Art – Maintaining Offshore Platforms Before Decommissioning OMAE2017-61271

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

Gunnar Lian[1] Terje Peder Stavang[2] **Tone M. Vestbøstad**[1] Ole David Økland[3]

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 Simos, 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

Session Co-Chair: Zhenhua Huang, University of Hawaii, USA

Steep Wave Effects on Wave Induced Vertical Bending Moment Using a 3D Numerical Wave Tank OMAE2017-61161

Shivaji Ganesan T[1] Debabrata Sen[2] Yogendra Singh Parihar[1]

1. Indian Register of Shipping, Mumbai, MH, India;
2. Indian Institute of Technology, Kharagpur, Kharagpur, WB, India

Semi-Empirical Crest Distributions of Long-Crested Nonlinear Waves of Three-Hour Duration OMAE2017-61226

Zhenjia (Jerry) Huang[1] Qiuchen Guo[2]

1. ExxonMobil Upstream Research Company, Spring, TX, USA;
2. University of California at Berkeley, Berkeley, CA, USA

Wave Impact Experiment of a GBS Model in Large Waves OMAE2017-61473

Zhenjia (Jerry) Huang[1] Robert Oberlies[1] Wenting Xiao[1] Don Spencer[2] Gracie Watts[2]

1. ExxonMobil Upstream Research Company, Spring, TX, USA;
2. Oceanic Consulting Corporation, St. John's, NL, Canada

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

Preliminary Evaluation of the Effectiveness of Using Artificial Reefs to Reduce Breaking Wave Impact on Offshore Structures OMAE2017-61975

Longbin Tao[1] **Julie Carøe Kristoffersen**[2] Charlotte Loedsen Andersen[2] Ida Skov Milthers[2] Christos Thomas Georgakis[3]

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

Automated Identification of Critical Tubular Joints of Offshore Jacket Structure by Deterministic Fatigue Analysis OMAE2017-61785

Shrikarpagam D

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

Reliability Analysis of Offshore Structures Using OMA Based Fatigue Stresses OMAE2017-61730
Amina Aïssani[1] Rune Brincker[2] **Bruna Nabuco**[1] Marius Tarpø[1]
1. DHRTC DTU, Kgs. Lyngby, Denmark; 2. Technical University of Denmark, Copenhagen, Denmark

Guidelines for Estimating Remaining Fatigue Life of Ageing Offshore Jacket Structures OMAE2017-62059
Ove Tobias Gudmestad, **Ashish Aeran**
University of Stavanger, Stavanger, Norway

Life Extension of Ageing Offshore Structures: a Framework for Remaining Life Estimation OMAE2017-62063
Ashish Aeran, Sudath C. Siriwardane, Ove Kjetil Mikkelsen, Ivar Langen
University of Stavanger, Stavanger, Norway

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

Wave-In-Deck Impact Loads in Relation with Wave Kinematics OMAE2017-61406
Bulent Duz, **Jule Scharnke**, Rene Lindeboom
MARIN, Wageningen, Netherlands

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

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

Transverse Deformation of Pressurised Pipes with Different Axial Loads OMAE2017-62507
Magnus Langseth[1] Håvar Ilstad[2] Erik Levold[2] **Martin Kristoffersen**[1] Tore Børvik[1]
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Statoil ASA, Trondheim, Norway

Materials Technology

3-2-1 Fatigue Performance I

Wednesday June 28 | **Living Room 4, Clarion** | **08:15–09:45**

Session Chair: Carol Johnston, TWI Ltd, United Kingdom

Session Co-Chair: Xiaozhi Wang, American Bureau of Shipping, USA

Experimental Analysis of Ratcheting Failure Based on the Peizomagentic Response of X80 Pipeline Steel OMAE2017-62170
Sheng Bao[1] Shengnan Hu[2] Yibin Gu[2]
1. Zhejiang University, Zhejiang, China; 2. Zhejiang University, Hangzhou, China

OCTG Fatigue Testing: Do We Test Them Enough? OMAE2017-62394
Catalin Teodoriu
The University of Oklahoma, Norman, OK, USA

High Cycle Fatigue Damage Evaluation of Steel Pipelines Based on Microhardness Changes During Cyclic Loads OMAE2017-62677
Ilson Pasqualino[1] Geovana Drumond[1] Bianca Pinheiro[1]
Francine Roudet[2] Didier Chicot[2] Xavier Decoopman[2]
1. COPPE - Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 2. University Lille 1, Villeneuve d'Ascq, France

Fatigue Assessment of Drill Pipes OMAE2017-62696
Per J. Haagensen[1] Terje Ivar Grøttum[2]
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: Jose Renato M de Sousa, Universidade Federal do Rio de Janeiro, Brazil

Sea Test and Numerical Simulation on the Vortex Induced Vibration of the Unbonded Composite Risers OMAE2017-62686
Lin Zhao[1] Qian Li[2] Xiangqian Xiong[1] Yanju Yin[1] Xiao Yin[1]
1. Ocean University of China, Qingdao, China; 2. CITY, University of London, London, United Kingdom

Effect of Installation on Collapse Performance of Flexible Pipes OMAE2017-61100
Laurent Paumier[1] Fabien Caleyron[2] Vincent Le Corre[2]
1. TechnipFMC, Le Trait, France; 2. IFP Energies Nouvelles, Solaize, France

The Installation of Flexible Risers and Flowlines Systems with PLET on the Subsea End OMAE2017-61279
Kee Chien Ting[1] Kishor Chavan[1] Samuel Balmford[2] Daniel Sullivan[3]
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 Martins[1] **Heloisa Guedes Mendonça**[2]
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 Chang[1] Yohann Miglis[2] Xinhai Qi[1]
1. Genesis/Technip Group, Houston, TX, USA; 2. Technip, Houston, TX, USA

Wellhead Monitoring – Measured Fatigue Damage Validation OMAE2017-61081
Stuart Killbourn[1] Elizbar B. Kebadze[2] John D. Henderson[2] Gavin Chomczuk[2] Andrew S. Mosley[3] David Bolger[3] James V. Maher[4]
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, Daejeon, 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 **U6, BI** | 08:15–09:45

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 **U3, BI** | 08:15–09:45

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

Green Water on a Fixed Model in a Large Wave Basin: Flow Velocity, Void Fraction, and Impact Pressure Distributions OMAE2017-61229
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**, Haodong 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 Kim[1] Jong-In Lee[2]
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 **U5, BI** | 08:15–09:45

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 Glomnes
Sevan Marine AS, Oslo, Norway

Second Order Wave Loads on TLP – Tad Multi – Body System OMAE2017-62002
Miguel A. M. Ramirez[1] **Antonio Carlos Fernandes**[2]
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 Bokhove[1] **Anna Kalogirou**[2] David Ham[3]
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 **A4, BI** | 08:15–09:45

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 Skjetne, **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 Heyn[1] Roger Skjetne[1] Martin Knoche[2] Qin Zhang[1]
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 Shafrova[1] Dmitri Matskevitch[2] **Curtis Holub**[1] Ted Kokkinis[1]
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: Guilherme Vaz, MARIN, Netherlands

Three Dimensional Numerical Study of Various Geometries of Breakwaters on Wave Energy Dissipation OMAE2017-61036
Sergei Buruchenko
South Ural State University, Snezhinsk, Russia

Free-Surface Flow Simulations with Interactively Moving Objects
OMAE2017-61175
Arthur E.P. Veldman[1] Henk Seubers[1] Peter Van der Plas[1] Joop Helder[2]
1. University of Groningen, Groningen, Netherlands; 2. MARIN, Wageningen, Netherlands

Possibilities of CFD Modelling of Deep Water Waves in Sulafjorden for the E39 Project OMAE2017-61442
Arun Kamath[1] Hans Bihs[1] **Weizhi Wang**[2] Øivind A. Arntsen[2]
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 Sharma[1] **Mustafa Kara**[1] Mazdak Parsi[2] Anchal Jatale[3]
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. Cengiz Ertekin[1] **Masoud Hayatdavoodi**[2] Jason T. Thies[3]
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 Marcollo, Andrew E Potts, Paul Sincock, Adrian Eassom, Jon Gumley, 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 Rahmati[1] Robin Kusch[2] Jan P. Peckolt[3] Jan Pütz[3] Julius Schay[3]
1. Brunel University London, Uxbridge, United Kingdom; 2. University of Northumbria, Newcastle 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
Jurgen Grabe[1] **Marc Stapelfeldt**[1] Britta Bienen[2]
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 OMAE2017-61503
Majid Hesar[1] Raquel Maciel[2]
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 Sturm[1] Alireza Mirdamadi[2]
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 Aadnoy, **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 Abugharara, John Molgaard, Charles Hurich
Memorial University of Newfoundland, St. John's, NL, Canada

Implementation of Circular Wave Measurements and Multiple Drilling Parameter Analysis in Rock Isotropy Evaluation OMAE2017-62088
Stephen Butt, Abdelsalam Abugharara, 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 Bøe, DNV GL, Norway

A Numerical Study on the Effect of a Flopper Stopper on the Motions of a Jack-Up Barge During Leg Lowering OMAE2017-62034
Zhen Gao[1] Lin Li[2] **Zhiyu Jiang**[1] Wilson Guachamin Acero[3]
1. Norwegian University of Science and Technology, Trondheim, Norway;
2. University of Stavanger, Stavanger, Norway;
3. Norwegian University of Science and Technology, Sor Tonderlag, Norway

Dynamic Forces and Limiting Sea States for Installation of GRP Protection Covers OMAE2017-62499
Csaba Pakozdi[1] Kjell Larsen[2] Timothy Kendon[2] Peter Christian Sandvik[3] **Frøydis Solaas**[4] Erling Myhre[5]
1. MARINTEK, Trondheim, Norway; 2. Statoil ASA, Trondheim, Norway; 3. P C Sandvik Marine, Trondheim, Norway; 4. SINTEF Ocean, Trondheim, Norway; 5. Statoil ASA, Bergen, Norway

Hydrodynamic Coefficients for Suction Anchors During Installation Operations OMAE2017-62447
Peter Christian Sandvik[1] **Frøydis Solaas**[2]
1. P C Sandvik Marine, Trondheim, Norway; 2. SINTEF Ocean, Trondheim, Norway

Design Parameters for Increased Operability of Offshore Crane Vessels OMAE2017-62307
Sverre Steen[1] Florian Sprenger[2] **Martin Gutsch**[1]
1. Norwegian University of Science and Technology, Trondheim, Norway;
2. MARINTEK, Trondheim, Norway

REFRESHMENT 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 3d, 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 Cardozo de Mello, Eduardo Tannuri, Alexandre Simos, Felipe Lopes de Souza, **Jordi Mas-Soler**
Universidade de São Paulo, São Paulo, SP, Brazil

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

Effect of Wind Loads and Damping on Heading Stability of FPSOs OMAE2017-62134
Krish Thiagarajan[1] **Razieh Zangeneh**[2] Matthew Cameron[1]
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 Sablok[1] Erik Bråtveit Holm[2]
1. TechnipFMC, Houston, TX, USA; 2. Dr. Techn Olav Olsen AS, Lysaker, 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 Univeristy, 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 Sen[1] Jairam Saripilli[2]
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 Veer[1] **Anne Boorsma**[2] Rene Huijsmans[3] Kees Aalbers[1]
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 Aesoy, **Erlend Liavåg Grotle**
Norwegian University of Science and Technology, Ålesund, Norway

Combined Experimental and Numerical Studies of Multi-channel Inlet Design for Ocean Basin OMAE2017-61672
Allan Ross Magee[1] My Ha Dao[2] **Yingying Zheng**[1] Tuyen Le Quang[2]
*1. National University of Singapore, Singapore, Singapore; 2. Institute of High Performance Computing, A*STAR, Singapore, Singapore*

Structures, Safety and Reliability

2-4-3 Fatigue Reliability III

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

Session Chair: Yordan 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 Venugopal[1] **Imanol Martinez Perez**[1] Philippe Bastid[2]
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 Arnal, **Charles Spraul**, Patrice Cartraud, 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 Zou[1] Kian Banisoleiman[1] Arturo González[2]
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 Katsardi, 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 Okada[1] Yohei Kawasaki[1] Hiroaki Kobayakawa[2] Ichiro Amaya[3]
Tetsuji Miyashita[3] Tomoki Nagashima[2] Isao Neki[4]
1. Yokohama National University, Yokohama, Japan; 2. Japan Marine United Corporation, Tokyo, Japan; 3. Japan Marine United Corportaion, 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, Xuemin Song, Songbo Wang
Wuhan University of Technology, Wuhan, China

Study on Ship Manoeuvring in Adverse Sea State OMAE2017-61935
Elzbieta M. Bitner-Gregersen, **Bingjie Guo**, Odin Gramstad,
Eivind Ruth, Håvard Austefjord
DNV GL AS, Høvik, Norway

Concrete Modeling for Extreme Wave Slam Events OMAE2017-61331
Kasper Wåsjø[1] Terje Peder Stavang[2] Tore Helge Søreide[3]
1. Aqualine, Trondheim, Norway; 2. Statoil ASA, Stjørdal, Norway;
3. Dr. Techn. Olav Olsen AS, Trondheim, Norway

Materials Technology

3-2-2 Fatigue Performance II

Wednesday June 28 | **Living Room 4, Clarion** | 10:15–11:45

Session Chair: Xiaozhi 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 Micone[1] Wim De Waele[2]
1. Ugent - 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 Vargas[1] Steven Altstadt[2] Max Lewis[3]
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 Johnston[1] **Yoshinori Ando**[2] Yosuke Oku[3] Masaaki Sugino[3]
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 Pepin[1] Tomasz Tkaczyk[2] Noel O'Dowd[3] Kamran Nikbin[4]
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

Flow Induced Pulsations (FLIP) in Rough Bore Gas Flexible Pipes Test and Model OMAE2017-61324
Sebastien Legeay, **Matthieu Decuupere**, David Charliac
Technip, Le Trait, France

Consistent VIV Assessment Methodology for Unbonded Flexible Risers OMAE2017-62554
Faycal Ferdi[1] Neil Willis[2] Marco Puliafito[2]
1. Intecsea, Knaphill, United Kingdom; 2. Intecsea, Woking, United Kingdom

Lazy-Wave Buoyancy Length Reduction Based on Fatigue Reliability Analysis OMAE2017-62316
Vinícius Ribeiro Machado da Silva, Luis V.S. Sagrilo, 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 Elosta[1] Thierry Gavouyere[2] Pierrick Garnier[3]
1. TechnipFMC, Lysaker, Norway; 2. TechnipFMC, 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

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 Ma[1] **J. Kim Vandiver**[2]
1. Massachusetts Institute of Technology, Boston, MA, USA;
2. Massachusetts Institute of Technology, Cambridge, MA, USA

Case Study of Reduction of Drag and VIV on Full Scale Drilling Risers with LGS Profiles OMAE2017-62219
Daniel Johnstone, **Hayden Marcollo**, Andrew E Potts, Phillip Kurts
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. Morooka, **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 Yamanaka[1] Yasunori Nihei[2] Takayuki Hirai[1] Akira Sou[1]
1. Kobe University, Kobe, Japan; 2. Osaka Prefecture University / The University of Tokyo, Sakai, Japan

Dynamic Modeling and Characterictics of Energy Extraction from Multiple Buoys Supporting a Flexible Runway OMAE2017-61549
Haicheng Zhang[1] Daolin Xu[1] Qiuhua Li[2]
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 Murai[1] Kensaku Takahashi[2]
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: Jule Scharnke, MARIN, Netherlands

Wave and Current Generation in Wave Tanks with Axial-flow Pumps OMAE2017-61404
Aurélien Babarit, 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 I Drillship OMAE2017-61896
Hans-Martin Heyn, Roger Skjetne, **Jon Bjørnø**, 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 Noble[1] Tom Bruce[2] Thomas Davey[3] Samuel Draycott[3]
1. FloWave/The University of Edinburgh, Edinburgh, Scotland; 2. University of Edinburgh, Edinburgh, United Kingdom; 3. FloWave Ocean Energy Research Facility, Edinburgh, Scotland

Wave-induced Current in a Seakeeping Basin OMAE2017-62203
Sanne Van Essen[1] Wim Lafeber[2]
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 Pan[1] **Torgeir Kirkhorn Vada**[2] Kevin Markeng[3]
1. DNV GL - Software, Høvik, Norway; 2. DNV GL, Høvik, 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 González[1] Moustafa Abdel-Maksoud[2] Jonas Bechthold[1]
1. Hamburg University of Technology, Hamburg, Germany; 2. Institute For Fluid Dynamics and Ship Theory, University of Technology Hamburg, 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 Nelli[1] Alessandro Toffoli[2] David M. Skene[3] Luke G. Bennetts[3] Mike H. Meylan[4] Jason P. Monty[2]
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 Alberello[1] Filippo Nelli[1] Alessandro Toffoli[2] Luke G. Bennetts[3] Mike H. Meylan[4] Jason P. Monty[2] **Azam Dolatshah**[1] Laura Bruneau[5]
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 Myland[1] Constantin Bach[2]
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 Molyneux[1] **Rudiger U. Franz Von Bock Und Polach**[2]
1. Memorial University of Newfoundland, St. John's, NL, Canada; 2. Hamburg University of Technology, Hamburg, Germany

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 Ong[1] **Shengnan Liu**[1] Charlotte Obhrai[1] Sopheak Seng[2]
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 Kamath[1] **Hans Bihs**[1] Mayilvahanan Alagan Chella[2] Øivind A. Arntsen[2]
1. Norwegian University of Science and Technology, Sor Trondelag, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway

Computation of Wave Impact Pressures and Kinematics During Plunging Breaking Wave Interaction with a Vertical Cylinder Using CFD Modelling OMAE2017-61657
Hans Bihs[1] **Mayilvahanan Alagan Chella**[2] Øivind A. Arntsen[2] Dag Myrhaug[2]
1. Norwegian University of Science and Technology, Sør-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 Thiagarajan, Matthew Cameron, **Nhu Nguyen**
University of Maine, Orono, ME, USA

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 Sagrilo[1] **Leonardo Nascimento**[2] Gilberto Ellwanger[1]
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 Bredmose[1] **Signe Schløer**[2] Amin Ghadirian[1]
1. DTU Wind Energy, Kgs. Lyngby, Denmark; 2. Technical University of Denmark, Kgs. Lyngby, Denmark

Effect of Second-order and Fully Nonlinear Wave Kinematics on a Tension-Leg-Platform Wind Turbine in Extreme Wave Conditions OMAE2017-61798
Amy Robertson[1] Jason Jonkman[1] Henrik Bredmose[2] Michael Borg[2] **Antonio Pegalajar-Jurado**[2]
1. National Renewable Energy Laboratory, Golden, CO, USA; 2. DTU Wind Energy, Kgs. Lyngby, Denmark

Pore Pressure Under a Gravity Based Structure Under the Influence of Waves OMAE2017-62585
Erik Damgaard Christensen[1] Stefan Carstensen[1] Mikael T. Madsen[2] Peter Hesselbjerg[2] Christel J. Nielsen[3]
1. Technical University of Denmark, Kgs. Lyngby, Denmark; 2. NIRAS Allerød, Allerød, Denmark; 3. Ramboll, Copenhagen, Denmark

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 Anderlini[1] Mohammad Abusara[2] David I. M. Forehand[3] Elva Bannon[4]
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 Bacelli[1] **Ryan Coe**[1] Ossama Abdelkhalik[2] David Wilson[1]
1. Sandia National Laboratories, Albuquerque, NM, USA; 2. Michigan Technological University, Houghton, MI, USA

Experimental Study on Dynamic Control of Oscillation Characteristics of a Spar-buoy OMAE2017-61612
Toshio Iseki
Tokyo University of Marine Science and Technology, Tokyo, Japan

An Efficient Convex Formulation for Model Predictive Control on Wave-energy Converters OMAE2017-62575
Qian Zhong, Ronald W. Yeung
University of California at Berkeley, Berkeley, CA, USA

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

Key Techniques in Simulating Comprehensive Anchor Behaviors by Large Deformation Finite Element Analysis OMAE2017-61348
Yanbing Zhao, Haixiao Liu
Tianjin University, Tianjin, China

Numerical Simulation on the Dynamic Installation of the Omni-max Anchors in Clay Using a Fluid Dynamic Approach OMAE2017-61570
Jun Liu, Yuqin Zhang
Dalian University of Technology, Dalian, 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 Langford[1] Vishal Dantal[2] Noel Boylan[3] **Victor Smith**[1]
1. NGI, Oslo, Norway; 2. NGI, Houston, TX, USA; 3. NGI, Perth, WA, Australia

Petroleum Technology

11-2-2 Drilling Mechanics II

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

Session Chair: Jorge Sampiao, Colorado School of Mines, USA

Considerations on Numerical Procedure for Stick-slip Analysis of Drill String OMAE2017-62158
Tomoya Inoue[1] **Tokihiro Katsui**[2] Miki Y. Matsuo[1] Kenta Izutani[2]
Yuhi Nagaishi[2] Chang-Kyu Rheem[3]
1. JAMSTEC, Yokohama, Japan; 2. Kobe University, Kobe, Japan; 3. The University of Tokyo, Tokyo, Japan

Numerical Simulation of Motion of Rotating Drill Pipe due to Magnus Effect in Riserless Drilling OMAE2017-62327
Tomoya Inoue[1] Hiroyoshi Suzuki[2] Miki Y. Matsuo[1] Thaw
Tar[2] Hidetaka Senga[2] Kazuyasu Wada[1]
1. JAMSTEC, Yokohama, Japan; 2. Osaka University, Suita, Japan

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

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

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

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 Hatledal**
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

Torsion in Flexible Pipes, Umbilicals and Cables Under Loadout to Installation Vessels OMAE2017-62716
Philippe Maincon
SINTEF Materials and Chemistry, 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, Høvik, Norway

WEDNESDAY LUNCH

11:45 – 13:15
Cosmos 1 & 2, Clarion
Sponsored by Statoil

Keynote Plenary

Technology and Competence Enabling Field Developments

Stein Olav Drange, *Vice President Facilities Technology, Statoil Research and Technology*


Stein Olav Drange

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.

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 OMAE2017-61906
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 Sathish[1] A S Sajith[2]
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
OMAE2017-61001
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 Fernandes[1] **Peyman Asgari**[2]
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

Prediction of Relative Vertical Motion Between Cargo and HTV During Offshore Loading and Discharge OMAE2017-61306
Rene Huijsmans[1] **Onno A.J. Peters**[2]
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 Zhang[1] Tiechao Bai[2] Zhiguo Zhang[1] **Ziyou Ding**[1] Xianzhou Wang[3]
1. Huazhong University of Science and Technology, Wuhan, China;
2. China Ship Development and Design Center, Wuhan, China;
3. School of Naval Architecture & Ocean Engineering, Wuhan, 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 **Space 2, 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
Yuriy Drobyshevski[1] **Curtis Armstrong**[2] Christopher Chin[3]
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
Yuriy Drobyshevski[1] **Curtis Armstrong**[2] Irene Penesis[3] Christopher Chin[4]
1. INTECSEA, West Perth, WA, Australia; 2. The Australian Maritime College, Peregian Beach, QLD, Australia; 3. 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 Crashworthines 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 Hu[1] Zijie Song[2]
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 Zhu[1] Shengming Zhang[2] **Qiyu Liang**[1] Mingsheng Chen[1]
1. Wuhan University of Technology, Wuhan, China;
2. Lloyds Register, Southampton, United Kingdom

Grounding Damage Estimate through Acceleration Measurements
OMAE2017-61732
Stan R. Haag[1] **Martijn G. Hoogeland**[2] Alex W. Vredeveldt[2]
1. TNO / Delft University of Technology, Delft, Netherlands; 2. TNO, Delft, Netherlands

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 | Living Room 4, Clarion | 13:15–14:45

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 Lassen[1] **Zbigniew Mikulski**[1] Vidar Hellum[2]
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 OMAE2017-62495
Carol Johnston[1] Siak Manteghi[2] **Dave Gibson**[3]
1. TWI Ltd, Cambridge, United Kingdom; 2. BP Exploration Operating Company Limited, Sunbury, United Kingdom; 3. Proserv, Aberdeenshire, United Kingdom

Fatigue Assessment of Welded Joints by SED Approach Accounting for Misalignments and Geometrical Imperfections OMAE2017-61183
Cesare Mario Rizzo[1] Marco Gaiotti[1] Filippo Berto[2]
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 | Space 3, Clarion | 13:15–14:45

Session Chair: Lin Zhao, Ocean University of China, China
Session Co-Chair: Krassimir Doynov, Exxonmobil Production Company, USA

Finite Element Analysis of Flexible Pipe Anchoring Systems
OMAE2017-62128
Clovis de Arruda Martins[1] Rafael Morini[2] Eduardo Ribeiro Malta[3]
Fernando G. Toni[1] Rafael Tanaka[4] Heloisa Guedes Mendonça[5]
1. University of São Paulo, São Paulo, SP, Brazil; 2. Prysmian Surflex, Cariacica, ES, Brazil; 3. Brazilian Navy, São Paulo, SP, Brazil; 4. Prysmian Group, Vila Velha, ES, Brazil; 5. Leibniz Universität Hannover, Hannover, Germany

Time Dependent Carcass-Liner Interface Load Model OMAE2017-62439
Nils Sødahl[1] **Geir Skeie**[1] Roger Wold[2]
1. DNV GL, Høvik, Norway; 2. Bane NOR, Oslo, Norway

An Experimental and Numerical Investigation of the Effect of Axial Thermal Gradients in Flexible Pipes OMAE2017-61804
Bjorn Melve[1] Jan Muren[2] Janne Gjøsteen[3] Dag Fergestad[3] Pål Hylland[4] **Frank Klæbo**[3]
Claus Egebjerg Kristensen[5] Hans Lange[6] Andreas Gjendal[7] Tom Are Grøv[7]
1. Statoil, Trondheim, Norway; 2. 4subsea, Nesbru, Norway; 3. MARINTEK, Trondheim, Norway; 4. Statoil ASA, Sandnes, Norway; 5. Statoil ASA, Oslo, Norway; 6. SINTEF Materials and Chemistry, Trondheim, Norway; 7. 4subsea, Hvalstad, Norway

Parallelized Element-by-element Architecture for Structural Analysis of Flexible Pipes Using Macro Finite Elements OMAE2017-61800
Fernando Geremias Toni[1] **Clovis de Arruda Martins**[2]
1. LMO - Laboratory of Offshore Mechanics - POLI USP, São Paulo, SP, Brazil; 2. University of São Paulo, São Paulo, SP, Brazil

Pipelines, Risers, and Subsea Systems

4-2-3 Design Aspects

Wednesday June 28 | Space 1, Clarion | 13:15–14:45

Session Chair: Basim Mekha, Cuneiform Offshore Consulting, LLC, USA

Interference of Top Tensioned Risers for Tension Leg Platforms
OMAE2017-61334
Hanqing Zhang, Derek Smith
Genesis, Houston, TX, USA

Effects of Nonlinear Riser-Soil Interaction Model on Fatigue Design of Steel Catenary Riser Under Random Waves OMAE2017-62295
Mehrdad Kimiaei
The University of Western Australia, Perth, WA, Australia

Feasibility Study of Selected Riser Concepts in Deep Water and Harsh Environment OMAE2017-62453
Gilang Gemilang[1] Daniel Karunakaran[2]
1. University of Pertamina, Jakarta, Indonesia; 2. Subsea7, Stavanger, Norway

Ocean Space Utilization

5-7-1 Environmental Assessment for Marine Renewable Energy

Wednesday June 28 | U6, BI | 13:15–14:45

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 OMAE2017-62581
Kyoichi Okamoto[1] Takeshi Toyama[2] Tomoe Komoriya[3]
1. Nihon University, Funabashi, Japan; 2. Nihon University, Chiyoda-ku, Japan; 3. Nihon University, Narashino, Japan

Ocean Engineering

6-3-4 Model Tests IV – Viscous Flow

Wednesday June 28 | U3, BI | 13:15–14:45

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

Optimization of the Superstructure and Forecastle Fairing of a Container Ship OMAE2017-61256
Xu Xiang[1] **Rui Deng**[2] Chao Li[2] Guo-xiang Dong[3] Wen-shan Cai[3] Ze-hua Lu[3]
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 Floater in Waves OMAE2017-61543
Jaap de Wilde[1] **Antonio Maximiano**[1] Rodolfo T. Gonçalves[2] Arjen Koop[1]
1. MARIN, Wageningen, Netherlands; 2. The University of Tokyo, Kashiwanoha, Kashiwa-shi, Japan

Effect of Reefs Spacing on Flow Field Around Artificial Reef Based on the Hydrogen Bubble Experiment OMAE2017-61623
Xinxin Wang, Xiang yu Long, Liuyi Huang, **Yan li 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: Torgeir 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 Bodaghkhani**, 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
Aboulghit El Malki Alaoui
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 Tomaselli[1] Erik Damgaard Christensen[2]
1. Danish Hydraulic Institute, Hørsholm, 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 Cahay[1] Brian Roberts[2] Zoran Mravak[3] Claudie Benoit[3]
Cyril Septseault[4] Pierre-Antoine Béal[4] Sami Sadouni[5]
1. TechnipFMC, Paris La Defense, France; 2. Technip, Paris, France;
3. Bureau Veritas, Neuilly sur Seine, France; 4. Cervval, Plouzane, France; 5. Ecole Speciale des Travaux Publics, Cachan, France

Iceberg Impact Simulation on Offshore Structures OMAE2017-61939
Marc Cahay[1] Brian Roberts[2] Zoran Mravak[3] Claudie Benoit[3]
Cyril Septseault[4] Pierre-Antoine Béal[4] Kenton Pike[5]
1. TechnipFMC, Paris La Defense, France; 2. Technip, Paris, France; 3. Bureau Veritas, Neuilly sur Seine, France; 4. Cervval, Plouzane, France; 5. Technip, St. John's, NL, Canada

Using Discrete Element Model to Simulate Keel-gouging: a Sensitivity Analysis OMAE2017-62479
Rocky Taylor[1] **Eleanor Bailey Dudley**[2] Lei Liu[2] Robert Sarracino[2]
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 Amdahl[1] **Zhenhui Liu**[2] Ming Song[3]
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 Symposia 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 Constantinides, 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 Mathermatics, 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 Constantinides[1] **Jie Wu**[2] Halvor Lie[2] Rolf Baarholm[3] Shixiao Fu[4]
1. Chevron, Houston, TX, USA; 2. SINTEF Ocean, Trondheim, Norway; 3. Statoil / Nowegian 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 OMAE2017-61179
Erin 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 Lumped Mass Approach OMAE2017-61450
Matthew Hall[1] Maurizio Collu[2] Cesare Mario Rizzo[3] **Debora Cevasco[2]**
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 Behavior of Catenary Mooring-Lines OMAE2017-61689
Weimin Chen[1] Shuangxi Guo[2] **Yilun Li[3]** Yiqin Fu[4] Min Li[5]
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 Utsunomiya[1] Kinji Sekita[2] Katsutoshi Kita[3] Iku Sato[4]
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 Sirnivas, National Renewable Energy Laboratory, USA

Wake Effect Assessment of a Flap Type Wave Energy Converter Farm Using a Coupling Methodology OMAE2017-61323
Aurélien Babarit[1] **Nicolas Tomey-Bozo[2]** Jimmy Murphy[2]
Peter Troch[3] Tony Lewis[2] Gareth Thomas[4]
1. Ecole Centrale de Nantes, Nantes, France; 2. MaREI Centre - University College Cork, Ringaskiddy, 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 Fernandez[1] Peter Troch[2] **Philip Balitsky[1]** Vasiliki Stratigaki[1]
1. Ghent University, Ghent, Belgium; 2. Ghent University, Zwijnaarde, Belgium

WEC Geometry Optimization with Advanced Control OMAE2017-61917
Giorgio Bacelli[1] Ryan Coe[1] Ossama Abdelkhalik[2] David Wilson[1]
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 Henriques[1] Wanan Sheng[2] Antonio Falcao[1] Luis Gato[1]
1. Instituto Superior Tecnico, 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: Shailesh 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 Grabe[1] **Manuela Kanitz[2]** Alice Hager[3] Christoph Goniva[3] Christoph Kloss[3]
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 Cheng[1] Guoqiang Tang[2] **Zhipeng Zang[3]**
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) OMAE2017-62609
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

Electric Impulse Drilling – The Future of Drilling Technology Begins Now OMAE2017-61105
Franziska Lehmann[1] **Erik Anders[2]** Matthias Voigt[2] Margarita Mezzetti[1]
1. TU Bergakademie Freiberg, Freiberg, Germany; 2. Technical University of Dresden, Dresden, Germany

Estimation of Undisturbed Geothermal Gradient in Wells from Measured Drilling Data – a Numerical Approach OMAE2017-62205
Lucas Cantinelli Sevillano, Jesus De Andrade, Sigbjørn Sangesland
Norwegian University of Science and Technology, Trondheim, Norway

Optimizing Well Locations in Green Fields Using Fast Marching Method: Optimize Well Locations for Millions of Cells Using Hundreds of Scenarios and Realizations with High Accuracy in Seconds OMAE2017-62372
Abdulaziz Al-Qasim, **Mohammed Alasker**
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 Hoseini[1] Sverre Steen[2]
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 Dyncap 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 Kanner[1] Elena Koukina[2] Ronald W. Yeung[3]
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 Luxcey[1] Sébastien Fouques[1] Øystein Johannessen[2]
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 Kryzhevich
Krylov State Research Centre, St. Petersburg, Russia

Motion Characteristic Analysis of Floating Structure in South China Sea Basis on Prototype Monitoring Information OMAE2017-61346
Wenhua Wu[1] Xiaowei Cui[1] Baicheng Lv[1] Jiaguo Feng[2] Shisheng Wang[2] Qian-Jin Yue[1]
1. Dalian University of Technology, Dalian, China;
2. CNOOC Ltd. Research Institute, Beijing, China

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 Pesce[1] Rodolfo T. Gonçalves[2] Guilherme Franzini[3]
Caio C. P. Santos[3] Rafael Salles[1] Rafael Morini[4]
1. University of São Paulo - Escola Politecnica, São Paulo, SP, Brazil;
2. The University of Tokyo, Kashiwanoha, Kashiwa-shi, Japan; 3. University of São Paulo, São Paulo, SP, Brazil; 4. Prysmian Surflex, Cariacica, ES, Brazil

Bending Mechanics of Cable Cores and Fillers in a Dynamic Submarine Cable OMAE2017-62553
Denny D. Tjahjanto[1] Jonathan Mullins[1] Andreas Tyrberg[2]
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

Effect of Weld Geometry on the Fatigue Behaviour of Small Bore Umbilical Super Duplex Steel Tubes OMAE2017-61411
Hauwa Raji, Jamie Fletcher-Woods
Technip Umbilicals Ltd, Newcastle upon Tyne, United Kingdom

Deep Water XLPE Cable with Aluminum Conductor – Risk of Stress Induced Electrochemical Degradation (SIED) OMAE2017-61255
Torunn Lund Clasen[1] **Magnus Bengtsson**[2] Randi Floden[2]
1. Nexans Norway AS, Halden, Norway; 2. Nexans Norway AS, Oslo, Norway

Pipelines, Risers, and Subsea Systems

4-3-5 Coatings and Decomissioning

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 OMAE2017-61267
Lorenzo Marchionni[1] **Antonio Parrella**[1] Luigino Vitali[1]
Adelina Mancini[1] Alberto Battistini[1] Luca Catena[2]
1. Saipem, Fano, Italy; 2. Systems Projects Services, Fano, Italy

CP Analysis of Spools with GRP Cover OMAE2017-61277
Randi Kongstein, Rannveig Kvande
Reinertsen AS, Trondheim, Norway

A Numerical Model for Submarine Pipelines with Concrete Coating Subject to Loadings in > the Installation and Operation Phases OMAE2017-62440
Olav Fyrileiv[1] Ngoc Nguyen[2] Chor Yew Chia[2]
1. DNV GL, Høvik, Norway; 2. DNV GL, Singapore, Singapore

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

Subsea Pipelines and Flowlines Decommissioning – What We Should Know for a Rational Approach OMAE2017-61239
Soheil Manouchehri
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 OMAE2017-61083
Alastair Walker[1] Jayden Chee[2] Peter Roberts[3]
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

Development of the Next Generation Thermoplastic Hose Umbilical OMAE2017-61881
Alan Dobson, **Alan Rutherford**
Technip Umbilicals, Newcastle upon Tyne, United Kingdom

On the Feasibility of Using Underwater Acoustic Data Transmission for Subsea Equipment Monitoring OMAE2017-62103
Theodoro Netto[1] **Bessie Ribeiro**[1] Viviane Ferreira[1]
Viviane Rodrigues[2] Fabio Contrera Xavier[3]
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 Lourenço[1] **Segen Estefen**[1] Cheng Hong[2]
Yuxi Wang[2] Jiankun Yang[2] Yuri M. Berbert[2]
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 koshleck, University of Auckland, New Zealand

Regular Wave Experiments for Twin Circular Submerged Floating Tunnel Tethered to Sea Bottom OMAE2017-61154
Sang-Ho Oh, Woo Sun Park
Korea Institute of Ocean Science and Technology, Ansan, Korea

Benchmark Tests of Two Body Interaction in Waves OMAE2017-61514
Wei Qiu[1] Heather Peng[1] Jean-Marc Rousset[2] Wei Meng[1] Boris Horel[2]
1. Memorial University of Newfoundland, St. John's, NL, Canada; 2. Ecole Centrale de Nantes, Nantes, France

Experimental Study of Viscous Cargo Behaviour and Investigation on Global Loads Exerted on Ship Tanks OMAE2017-61542
Jean-Marc Rousset, **Virginie Baudry**
Ecole Centrale de Nantes, Nantes, France

Experimental Determination of the Motion of the Water Column Inside a Moonpool OMAE2017-61629
Bastien Abeil
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, Masashi 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
Zhanguang Wang, Song Zhou, Yongming Feng, Yuanqing Zhu
Harbin Engineering University, Harbin, China

Viscous Damping Modelling of Floating Bridge Pontoons with Heaving Skirt and its Impact on Predicting Girder Bending Moments
OMAE2017-61041
Xu Xiang[1] Erik Svangstu[2] Øyvind Nedrebø[2] Bernt Jakobsen[2]
Bernt Sørby[3] Mathias Eidem[1] Per Norum Larsen[4]
1. Norwegian Public Roads Administration, Stavanger, Norway; 2. Norwegian Public Roads Administration, Leikanger, Norway; 3. Entail AS, Oslo, Norway; 4. Johs Holt AS, Oslo, Norway

Internal Fluid Effect Inside a Floating Structure: from Frequency Domain Solution to Time Domain Solution OMAE2017-62228
Allan Ross Magee[1] Mengmeng Han[2] **Jingzhe Jin**[3] Elin Marita Hermundstad[3]
Jan Roger Hoff[3] Øyvind Hellan[4] Chien Ming Wang[5]
1. National University of Singapore, Singapore, Singapore; 2. NUS, Singapore, Singapore; 3. MARINTEK, Trondheim, Norway; 4. SINTEF Ocean, Trondheim, Norway; 5. The University of Queensland, Brisbane, QLD, Australia

Polar and Arctic Sciences and Technology

7-13-1 Structure-Ice-Interactions

Wednesday June 28 **A4, BI | 15:15–17:15**

Session Chair: Sören Ehlers, Hamburg University of Technology, Germany
Session Co-Chair: Walter Kuehnlein, Sea2ice Ltd. & Co. KG, Germany

Simulating Ice-Structure Interaction with the Material Point Method
OMAE2017-61392
Yaomei Wang, Guiyong Zhang, Biye Yang, Zhi Zong, Yichen Jiang
Dalian University of Technology, Dalian, China

Iceberg Detection in Low Visibility Conditions using Infra-red Sensors, Processing and Modelling of Field Data OMAE2017-61018
Grégory Bouquet[1] Helene Schulerud[1] Francesco Scibilia[2]
1. SINTEF Digital, Oslo, Norway; 2. Statoil ASA, Trondheim, Norway

Identification of Key Elements for Compliance of the IMO Polar Code Requirement of Minimum 5 Days Survival Time OMAE2017-61491
Ove Tobias Gudmestad[1] **Knut Espen Solberg**[2] Endre Barane[3]
1. University of Stavanger, Stavanger, Norway; 2. GMC/University of Stavanger, Stavanger, Norway; 3. Kystvakten, Sortland, Norway

Closing Remarks OMAE2017-62737
Walter Kuehnlein
sea2ice Ltd. & Co. KG, Hamburg, Germany

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

8-1-2 Ship and Propulsion Modeling

Wednesday June 28 **A3, BI | 15:15–17:15**

Session Chair: Samuel Holmes, Redwing Engineering, USA
Session Co-Chair: Stephen Cosgrove, Altair Engineering, 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. Machado[1] **Antonio Carlos Fernandes**[2]
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 Schrijvers, **Arjen Koop**
MARIN, Wageningen, Netherlands

Numerical Simulation of Single Thruster in Open Water OMAE2017-61635
Rajeev Kumar Jaiman[1] **Qin Zhang**[1] Pei Feng Ma[2] Jing Liu[3]
1. National University of Singapore, Singapore, Singapore;
2. Keppel Offshore and Marine, Singapore, Singapore;
3. Keppel Offshore & Marine Technology Centre Pte Ltd, Singapore, Singapore

URANS Prediction of Berthed Ship – Passing Ship Interactions
OMAE2017-61738
Shuhong Chai[1] Jonathan T Duffy[2] Yuting Jin[1] Zhen Kok[2] Shaun Denehy[2]
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, BI | 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
OMAE2017-61009
Ove Tobias Gudmestad[1] Arunjyoti Sarkar[2]
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
Dongqin Li, Guohuan Li, 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, Aurélien Babarit
Ecole Centrale de Nantes, Nantes, France

One Step Installation of a TLP Substructure – Requirements, Assumptions, Issues OMAE2017-61424
Frank Adam[1] **Hauke Hartmann**[1] Daniel Walia[1] Uwe Ritschel[1] Jochen Großmann[2]
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 OMAE2017-62625
Liqin Liu[1] Weichen Jin[2] Ying Guo[2] Rui Yuan[2]
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 Yum
MARINTEK, Trondheim, Norway

Emission Reduction in Shipping Using Hydrogen and Fuel Cells
OMAE2017-61401
Ingrid Schjølberg, **Sepideh Jafarzadeh**
Norwegian University of Science and Technology, Trondheim, Norway

Nonlinear Droop Load Sharing to Minimize Gas Emissions and Fuel Consumption OMAE2017-61752
Asgeir Johan Sørensen, **Michel Rejani Miyazaki**
Norwegian University of Science and Technology, Trondheim, Norway

The Principle of an Integrated Generation Unit for Offshore Wind and Ocean Wave Energy OMAE2017-62223
Weixing Chen, Feng Gao
Shanghai Jiao Tong University, Shanghai, China

Feasibility Study of Co-located Offshore Wind Turbine with Floating Solar Platform in Persian Gulf OMAE2017-62682
Morteza Bahadori, Hassan Ghassemi
Amirkabir University of Technology, Tehran, Iran

Feasibility Study of Floating Solar Power Platform in Persian Gulf
OMAE2017-62684
Morteza Bahadori, Hassan Ghassemi, Melika Mousavi
Amirkabir University of Technology, Tehran, Iran

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

Experimental Verification of ABS Concrete Design Methodology Applied to the Design of the First Commercial Scale Floating Offshore Wind Turbine in the United States OMAE2017-62461
Andrew J. Goupee[1] Anthony M. Viselli[2] Habib Dagher[2] **Mark G. Dwyer**[2]
1. University of Maine, Orono, ME, USA; 2. Advanced Structures and Composites Center/University of Maine, Orono, ME, USA

Revision of DNV GL Design Standard for Floating Wind Turbine Structures OMAE2017-62313
Anne Lene Hopstad[1] Knut Ronold[1] Kimon Argyriadis[2]
1. DNV GL, Høvik, Norway; 2. DNV GL, Hamburg, Germany

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 Berstad[1] Line Fludal Heimstad[2]
1. Aquastructures, Oslo, Norway; 2. Aquastructures, Trondheim, Norway

Numerical Study of a Moored Structure in Moving Broken Ice Driven by Current and Wave OMAE2017-61252
David Kristiansen[1] **Biao Su**[1] Karl Gunnar Aarsaether[2]
1. SINTEF Ocean, Trondheim, Norway; 2. SINTEF Fisheries and Aquaculture, Tromsoe, Norway

LECTURE SERIES ON HYDRODYNAMICS

17:30 – 18:00
A1, BI

Ronald W. Yeung

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

Time	Title	Location
07:30 – 09:00	Outreach Breakfast / Feedback Session	Skybar, 9th Floor, Clarion
08:30 – 10:00	Concurrent Sessions	See pages 78 to 82 for session titles, authors and locations.
10:00 – 10:30	Refreshment Break	Space Foyer, Clarion
10:30 – 12:00	Concurrent Sessions	See pages 82 to 86 for session titles, authors and locations.
12:00 – 13:30	Technical Session Organizers' Lunch	Cosmos 1 & 2, Clarion
13:30 – 15:00	Concurrent Sessions	See pages 86 to 90 for session titles, authors and locations.
15:00 – 15:30	Refreshment Break	Space Foyer, Clarion
15:30 – 17:30	Concurrent Sessions	See pages 90 to 94 for session titles, authors and locations.
17:30 – 19:30	Farewell Reception	Cosmos 1, Clarion

CONCURRENT SESSIONS

08:30 – 10:00

Offshore Technology

1-2-1 Mooring System Design and Analysis I

Thursday June 29 | **Cosmos 3d, Clarion** | 08:30–10:00

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

Session Co-Chair: Ling Wan, National University of Singapore, Singapore

Qualification and Certification of Polyester Rope for Seabed Contact OMAE2017-61379

Kjell Larsen[1] **Øystein Gabrielsen**[2]

1. Statoil, Trondheim, Norway; 2. Statoil, Ranheim, Norway

Nonlinear Dynamics of Multi-segment Mooring Systems OMAE2017-62532

Allan Ross Magee[1] **Sandeep B Reddy**[1] Wei Bai[2]

1. National University of Singapore, Singapore, Singapore;
2. Manchester Metropolitan University, Manchester, United Kingdom

Prediction of Offshore Platform Mooring Line Tensions Using Artificial Neural Network OMAE2017-61942

Johyun Kyoung[1] **Djoni Sidarta**[2] Jim O'Sullivan[2] Kostas Lambrakos[1]

1. Technip, Houston, TX, USA; 2. Technip USA, Inc., Houston, TX, USA

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 Mounted Container Subjected to Wave Excitation OMAE2017-61318

Nasar Thuvanismail[1] Akshay Shah[2] Deepak J S[3] Sannasiraj Sannasi A[4]

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 OMAE2017-62164

Xinshu Zhang, **Xiaofeng Hu**, Yunxiang You

Shanghai Jiao Tong University, Shanghai, China

Numerical Investigation of Hydrodynamic Forces on a Subsea Pipeline in Oscillatory Flow on a Rough Seabed OMAE2017-62290

Ming Zhao[1] Liang Cheng[2] Hongwei An[3] **Guoqiang Tang**[4]

1. School of Computing,Engineering and Mathermatics, Western Sydney University, Penrith, NSW, Australia; 2. University of Western Australia, Perth, WA, Australia; 3. University of Western Australia, Crawley, WA, Australia; 4. Dalian University of Technology, Dalian, China

Lateral Resistance of Pipes on Rocky Seabeds – Comparison of Measured Values with Predictions from High-resolution Seabed Scans and Synthetic Models OMAE2017-61418

Terry Griffiths[1] David J. White[1] Scott Draper[1] Antonino Fogliani[2] Adam Leighton[1]

1. University of Western Australia, Perth, WA, Australia;
2. Woodside Energy Ltd, Perth, WA, Australia

Effect of Porous Baffle on Sloshing Pressure Distribution in a Barge Mounted Container Subjected to Wave Excitation OMAE2017-61499

Nasar Thuvanismail[1] Akshay Shah[2] Deepak J S[3] Sannasiraj Sannasi A[4]

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

Structures, Safety and Reliability

2-6-1 Well Integrity and Reliability Assessment I

Thursday June 29 | **A1, B1** | 08:30–10:00

Session Chair: Torfinn Hørte, 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 OMAE2017-61291

Guttorm Grytoyr[1] **Max Russo**[2] Svein Herman Nilsen[3]

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 Zheng[1] **Karen Walker**[1] Puneet Agarwal[2] Scot McNeill[2]
Kenneth Bhalla[2] David Baker[1]
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 OMAE2017-61638
Guttorm Grytoyr[1] Max Russo[2] Torfinn Hørte[3] Kristoffer H. Aronsen[4] Kathrine Gregersen[5]
1. Statoil, Fornebu, Norway; 2. Kongsberg Maritime Inc., Houston, TX, USA;
3. DNV GL, Høvik, Norway; 4. Statoil ASA, Oslo, Norway; 5. Statoil ASA, Fornebu, Norway

Observation of Subsea BOP Response from Field Measurements and Reflections on Conductor Design Challenges OMAE2017-62066
Harald Holden[1] Heidi Gryteland Holm[1] Victor Smith[2] Youhu Zhang[2] Randi Næss[3]
1. 4subsea, Nesbru, Norway; 2. Norwegian Geotechnical Institute, Oslo, Norway; 3. Lundin Norway, Lysaker, Norway

Structures, Safety and Reliability

2-10-2 Collision and Crashworthines II

Thursday June 29 **Cosmos 3b, Clarion | 08:30–10:00**

Session Chair: Martin Storheim, Moss 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 Amdahl[1] **Martin Storheim**[2] Hagbart S. Alsos[3]
1. Norwegian University of Science and Technology, Trondheim, Norway;
2. Moss Maritime AS, Lysaker, Norway; 3. MARINTEK, Trondheim, Norway

Quasi-Static and Dynamic Deformation of Polymer Coated Pipes OMAE2017-62506
Magnus Langseth[1] Mario A. Polanco-Loria[2] Håvar Ilstad[2]
Ole Vestrum[1] Martin Kristoffersen[1] Tore Børvik[1]
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Statoil ASA, Trondheim, Norway

Stochastic Dynamic Analysis of Composite Plates for Damage Initiation Due to Low Velocity Impact OMAE2017-62565
Suhail Ahmad, Shivdayal 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: Nabanita Datta, Indian Institute of Technology, Kharagpur, India

Shock Analysis of a Stern Ramp Using Dynamic Design Analysis Method OMAE2017-61043
Jonas Ringsberg[1] Erland Johnson[2] **Meng Zhang**[1] Yunbo Yu[1]
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 OMAE2017-61643
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 Wang[1] Jasna B. Jakobsen[1] Etienne Cheynet[1] Jonas. T Snæbjörnsson[2]
1. University of Stavanger, Stavanger, Norway; 2. Reykjavík University, Reykjavík, Iceland

Free Dry and Wet Vibration of Low-Aspect-Ratio Aerofoil Wing: Semi-analytical and Numerical Approach with Experimental Investigation OMAE2017-62497
Nabanita Datta[1] Ameya Kannamwar[2] Yogesh Verma[1]
1. Indian Institute of Technology, Kharagpur, Kharagpur, WB, 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, Høvik, Norway

Fracture Testing of Existing Structures Without the Need for Repairs OMAE2017-61420
Carey L. Walters[1] Matthias Bruchhausen[2] Jean-Marc LaPetite[2] Willem Duvalois[3]
1. TNO, Delft, Netherlands; 2. European Commission Joint Research Centre, Petten, Netherlands; 3. TNO, 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

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 Tsubogo
Osaka Prefecture University, Osaka, Japan

A Novel Measure to Reduce Ship Resistance in Waves OMAE2017-61949
Sverre Steen[1] **Bingjie Guo**[2] Bjørn-Johan Vartdal[2]
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 Repect to Wave Resistance OMAE2017-62151
Ronald W. Yeung, **Dongchi Yu**
University of California at Berkeley, Berkeley, CA, USA

Ocean Engineering

6-8-7 Fluid-Structure, Multi-Body and Wave-Body Interaction VII

Thursday June 29 **U5, BI | 08:30–10:00**

Session Chair: Torgeir Kirkhorn Vada, DNV GL, Norway

Simulations of Dynamic Interaction Between a Bluff Body and Installation Vessel During Launch and Recovery in Rough Seas OMAE2017-61319
Musa Bashir[1] Simon Benson[2] Alan J. Murphy[2] Mathew Evans[2]
1. Liverpool John Moores University, Liverpool, United Kingdom; 2. Newcastle University, Newcastle upon Tyne, United Kingdom

Experimental Study of Hydrodynamic Responses of a Single Floating Storage Tank with Internal Fluid OMAE2017-61867
Allan Ross Magee[1] **Chi Zhang**[1] Chien Ming Wang[1] Ling Wan[1] Øyvind Hellan[2]
1. National University of Singapore, Singapore, Singapore; 2. MARINTEK, Trondheim, Norway

Wave Flume Tests to Check a Semi-analytical Method for Calculating Solitary Wave Loads on Horizontal Cylinders OMAE2017-62070
Giuseppe Tripepi[1] Luana Gurnari[2] Francesco Aristodemo[1] **Pasquale Filianoti**[2]
1. Università della Calabria, Arcavacata di Rende, Italy; 2. Università Mediterranea di Reggio Calabria, Reggio Calabria, Italy

A Semi-analytical Model to Calculate Forces Exerted on Horizontal Cylinder by a Solitary Wave OMAE2017-62083
Luana Gurnari, Pasquale Filianoti
Università Mediterranea di Reggio Calabria, Reggio Calabria, Italy

Ocean Engineering

6-14-1 Coastal Engineering I

Thursday June 29 **U3, BI | 08:30–10:00**

Session Chair: Betsy Seiffert, Florida Atlantic University, USA
Session Co-Chair: James Kaihatu, Texas A&M University, USA

Prediction of Characteristics of Wave Breaking in Shallow Water Using Neural Network Techniques OMAE2017-62283
Manhar Dhanak[1] Nicholas Kouvaras[2]
1. Florida Atlantic University, Dania Beach, FL, USA; 2. Bernhard Schulte Shipmanagement, Athens, Greece

Wave Induced Oscillation in an Irregular Domain by using Hybrid Finite Element Model OMAE2017-62343
Prashant Kumar[1] Kwang Ik Kim[2]
1. National Institute of Technology Delhi, Delhi, Delhi, India; 2. Pohang University of Science and Technology, Pohang, Korea

Nonlinear and Dissipative Characteristics of a Combined Random – Cnoidal Wave Field OMAE2017-62634
James Kaihatu[1] John Goertz[1] Samira Ardani[1] Alex Sheremet[2]
1. Texas A&M University, College Station, TX, USA; 2. University of Florida, Gainesville, FL, USA

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

8-3-2 CFD and Fluid Structure Interaction Modeling

Thursday June 29 **A3, 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 Ong[1] Mia Abrahamsen-Prsic[2] Zhong Li[3] Boo Cheong Khoo[3]
1. University of Stavanger, Stavanger, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. National University of Singapore, Singapore, Singapore

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 Eca[1] Guilherme Vaz[2] Filipe Pereira[3] Arjen Koop[2] Hugo Abreu[1]
1. Instituto Superior Técnico, Lisbon, Portugal; 2. MARIN, Wageningen, Netherlands; 3. MARIN Academy/Instituto Superior Tecnico, Wageningen, Netherlands

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 Yin[1] Carl M Larsen[2] Elizabeth Passano[3]
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 Ong[1] Per Voie[2] **Jie Wu**[3] Malakonda Lekkala[1] Elizabeth Passano[4]
1. University of Stavanger, Stavanger, Norway; 2. DNV GL, Trondheim, Norway; 3. SINTEF Ocean, Trondheim, Norway; 4. MARINTEK, Trondheim, Norway

Consolidation of Empirics for Calculation of VIV Response OMAE2017-61362
Themistocles L. Resvanis[1] **Per Voie**[2] J. Kim Vandiver[1] Michael Triantafyllou[1]
Jie Wu[3] Carl Larsen[4] Rolf Baarholm[5]
1. Massachusetts Institute of Technology, Cambridge, MA, USA;
2. DNV GL, Trondheim, Norway; 3. SINTEF Ocean, Trondheim, Norway;
4. Norwegian University of Science and Technology, Trondheim, Norway;
5. Statoil / Nowegian Deepwater Programme, Stjørdal, 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 Shah[1] Hannah Buckland[2] Philipp R. Thies[3] Tom Bruce[4] Claire Cohen[5]
1. IDCORE, 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: Mahomoud Khalifeh, University of Stavanger, Norway

Planning of a P&A Campaign; an Optimisation Approach OMAE2017-62566
Steffen Bakker[1] Mats Aarlott[2]
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

Fatigue Analysis of Oil Offloading Line in Offloading System
OMAE2017-62466
Youwei Kang[1] Lei Li[1] Bing Wang[2] Peng Li[1] Yunhe Zhai[3]
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
Ilson Pasqualino[1] Segen Estefen[1] **Diogo Do Amaral M. Amante**[2]
1. COPPE - Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 2. Petrobras, Rio de Janeiro, RJ, Brazil

REFRESHMENT BREAK
10:00 – 10:30
Space Foyer, Clarion

CONCURRENT SESSIONS
10:30 – 12:00

Offshore Technology

1-2-2 Dynamic Positioning I

Thursday June 29 | **Cosmos 3d, Clarion** | **10:30–12:00**

Session Chair: Xinshu Zhang, Shanghai Jiao Tong University, China
Session Co-Chair: Allan Ross Magee, National University of Singapore, Singapore

The Influence of Hold-back Vessels on the Operation of a DP Drilling Rig – Control System and Stability Analysis OMAE2017-61153
Eduardo Tannuri[1] Alex S. Huang[1] Asdrubal N. Queiroz Filho[1] André S. S. Ianagui[1] Douglas G. T. Yuba[2] Sérgio Nogueira[3] Thiago C. Abdalla[4]
1. Universidade de São Paulo, São Paulo, SP, Brazil;
2. Petrobras – Research Center, Rio de Janeiro, RJ, Brazil;
3. Petrobras – E&P, Rio de Janeiro, RJ, Brazil; 4. Petrobras, Macaé, RJ, Brazil

Inertial Sensors for Risk-Based Redundancy in Dynamic Positioning
OMAE2017-61290
Torleiv H. Bryne, Robert H. Rogne, Thor I. Fossen, Tor Arne Johansen
Norwegian University of Science and Technology, Trondheim, Norway

Reducing Relative Horizontal Motion Between Cargo and HTV During Offshore Loading and Discharge OMAE2017-61311
Rene Huijsmans[1] **Onno A.J. Peters**[2]
1. Ship Hydromechanics & Structures, Delft, Netherlands;
2. Baggermaatschappij Boskalis B.V., Papendrecht, Netherlands

Theoretical and Empirical Study of Heading Stability and Heading Control of a Turret-Moored FPSO OMAE2017-61390
Karl E. Kaasen[1] Halgeir Ludvigsen[1] Ivar Nygaard[1] Kristian Aas[2]
1. MARINTEK, Trondheim, Norway; 2. Statoil, Fornebu, Norway

Offshore Technology

1-3-5 Numerical Methods and Experiments – II

Thursday June 29 | **Cosmos 3a, Clarion** | **10:30–12:00**

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

Model Tests to Assess Wave and Current Loads on the Ocean Cleanup's Conceptual Plastic Capturing Barrier OMAE2017-61702
Joost Sterenborg[1] Mark Paalvast[2] Willem van Schoten[2] Lourens Boot[3] Arjen Tjallema[3]
1. MARIN, Wageningen, Netherlands; 2. MOCEAN Offshore BV, Amsterdam, Netherlands; 3. The Ocean Cleanup, Delft, Netherlands

Aspects in Model Testing of a Monopile in Waves OMAE2017-61765
Trygve Kristiansen[1] Erin E. Bachynski[1] Florent Bickert[2] Abdessamad Hniche[3] Antoine Liandrat[4] Vincent Kocher[2]
1. Norwegian University of Science and Technology, Trondheim, Norway;
2. Ensta Paris, Paris, France; 3. AREVA NP, Paris, France; 4. RTE EDF, Paris, France

Hydrodynamics and Capture Efficiency of Floating Plastic Cleanup Booms: Part I, Experiments and Dynamic Analysis OMAE2017-61950
Bruno Sainte-Rose, **Roberto Brambini**, Benedicte Dommergues, Hannah Maral
The Ocean Cleanup Foundation, Delft, Netherlands

Extreme Wave Impact on Monopiles: Re-analysis of Experimental Data by a Coupled CFD Solver OMAE2017-61727
Henrik Bredmose[1] Signe Schløer[2] Martin Dixen[3] **Amin Ghadirian**[4]
1. DTU Wind Energy, Kgs. Lyngby, Denmark; 2. Technical University of Denmark, Kgs. Lyngby, Denmark; 3. Danish Hydraulic Institute, Hørsholm, Denmark; 4. DTU, Lyngby, Denmark

Structures, Safety and Reliability

2-6-2 Well Integrity and Reliability Assessment II

Thursday June 29 | **A1, BI** | **10:30–12:00**

Session Chair: Max Russo, Kongsberg Maritime Inc., USA
Session Co-Chair: Guttorm Grytoyr, Statoil, Norway

Fatigue Capacity of Wellhead Housings OMAE2017-61421
Guttorm Grytoyr[1] Finn Kirkemo[2] **Sergey Kuzmichev**[3] Kristoffer H. Aronsen[3] Javier Rodriguez Garcia[4] Erik Simonsen[4]
1. Statoil, Fornebu, Norway; 2. Statoil, Tranby, Norway;
3. Statoil ASA, Oslo, Norway; 4. Aker Solutions AS, Fornebu, Norway

Validation of Soil Models for Wellhead Fatigue Analysis OMAE2017-61644
Guttorm Grytoyr[1] Kristoffer H. Aronsen[2] **Kathrine Gregersen**[1] Jerome De Sordi[3]
1. Statoil ASA, Fornebu, Norway; 2. Statoil ASA, Oslo, Norway;
3. Statoil ASA, Stavanger, Norway

Learning from Riser Analyses and Predicting Results with Artificial Neural Networks OMAE2017-61775
Kristian Authen
4subsea, Hvalstad, Norway

Wellhead Fatigue Analysis, How Conservative is Conservative Enough?
OMAE2017-61838
Guttorm Grytoyr[1] Torfinn Hørte[2] Kristoffer H. Aronsen[3] **Michael Macke**[2]
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 | Cosmos 3b, Clarion | 10:30–12:00

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 Soares[1] HuiLong Ren[2] Chenfeng Li[2] Weijun Xu[2] **Peng Fu**[2]
1. Centre for Marine Technology and Ocean Engineering, Lisboa, 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

Structures, Safety and Reliability

2-12-2 Structural Analysis and Optimization II

Thursday June 29 | Space 2, Clarion | 10:30–12:00

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
Wuhan 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 Cheng[1] Chengtao Jiang[1] Wei Xiao[2] Qijian He[2] Shangdi Gao[1]
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 Li[1] Chenfeng Li[1] Weijun Xu[1] **Yan Feng**[1] Junjie Ruan[1] Qiyou Zhang[2]
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 Leira[1] **Arifian Agusta**[2] Sebastian Thöns[2]
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Technical University of Denmark, Kongens Lyngby, Denmark

Materials Technology

3-4-1 Fracture Control Assessment in Sour Service

Thursday June 29 | Living Room 4, Clarion | 10:30–12:00

Session Chair: Jens Tronskar, DNV GL, Singapore
Session Co-Chair: Carol Johnston, TWI Ltd, United Kingdom

New Testing Techniques for Fracture Toughness/Resistance Evaluation in Sour Environments OMAE2017-61556
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 OMAE2017-62181
Jens Tronskar, Shashi Kumar, Kapil Mohan, Shaodong 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

Pipelines, Risers, and Subsea Systems

4-1-8 Flexible Pipes VIII

Thursday June 29 | Space 3, Clarion | 10:30–12:00

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 Ye[1] Svein Sævik[2] **Chongyao Zhou**[3] Zhiming Huang[3]
Dagang Zhang[3] Yongtian Kang[4]
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 Ye[1] Svein Sævik[2] **Tianjiao Dai**[2]
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 Li, Qi Zhang
Dalian University of Technology, Dalian, China

On the Design Considerations of New Offloading Hose Applied on a Turret Moored FPSO OMAE2017-61410
Decao Yin[1] Halvor Lie[1] Rolf Baarholm[2] Ivar Fylling[1] Timothy Kendon[3]
1. SINTEF Ocean, Trondheim, Norway; 2. Statoil / Nowegian Deepwater Programme, Stjørdal, Norway; 3. Statoil ASA, Trondheim, Norway

Pipelines, Risers, and Subsea Systems

4-3-7 Mechanics II

Thursday June 29 | Space 1, Clarion | 10:30–12:00

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 Smienk[1] Steven Huiskes[2] Erwan Karjadi[3]
1. Heerema Marine Contractors, Leiden, Netherlands; 2. TU Delft, Delft, Netherlands; 3. Heerema Marine Contractors SE, Leiden, Netherlands

Numerical Simulation of JCO Pipe Forming Process and its Effect on Pipe Mechanical Behavior in Deep-Water Applications OMAE2017-61540
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 Ovality 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 Souza[1] Rafael Solano[2] Erwan Karjadi[3]
Fabio B. de Azevedo[2] Caroline Ferraz[4]
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 Engineering

6-1-4 Advanced Ship Hydromechanics and Marine Technology III – Propulsion Efficiency and Parametric Rolling

Thursday June 29 | A4, BI | 10:30–12:00

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**
University of Strathclyde, Glasgow, United Kingdom

Evaluation of Propulsive Characteristics of a Podded Drive System Using Coupled RANS/BEMT Method OMAE2017-62149
Reza Shamsi[1] Hassan Ghassemi[1] Fatemeh Bakouie[2]
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 Greco[1] **Isar Ghamari**[2] Odd Magnus Faltinsen[2] Claudio Lugni[1]
1. CNR-INSEAN, Rome, Italy; 2. Norwegian University of Science and Technology, Trondheim, Norway

Ocean Engineering

6-2-1 Wave Mechanics and Wave Effects I

Thursday June 29 | U5, BI | 10:30–12:00

Session Chair: Sungho Lee, Glosten, USA

Modulational Instability in JONSWAP Sea States Using the Alber Equation OMAE2017-61671
Odin Gramstad
DNV GL, Hoevik, Norway

Comparison of Breaking Wave Kinematics from Numerical Simulations with PIV Measurements OMAE2017-61698
Bulent Duz, Jule Scharnke, 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 Seiffert[1] Guillaume Ducrozet[2]
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 Tabib[1] Jakob Süld[2] **Adil Rasheed**[1]
1. SINTEF Digital, Trondheim, Norway; 2. Norwegian Meteorological Institute, Oslo, Norway

Ocean Engineering

6-14-2 Coastal Engineering II

Thursday June 29 | U3, BI | 10:30–12:00

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 Gudmestad[1] **Isabel Jiménez Puente**[2]
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 Kamath[1] Hans Bihs[1] Onno Musch[2] Øivind A. Arntsen[3] **Athul Sasikumar**[2]
1. Norwegian University of Science and Technology, Sor Trondelag, Norway; 2. Norconsult, Trondheim, Norway; 3. Norwegian University of Science and Technology, Trondheim, Norway

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

8-5-3 High Reynolds Number Workshop

Thursday June 29 **A3, BI | 10:30–12:00**

Session Chair: Jang Kim, TechnipFMC, USA

Session Co-Chair: Guangyu Wu, Chevron, USA

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, Gottingen, Germany

Non-linear Hybrid RANS-LES Models for Flow past Single and Tandem Columns OMAE2017-61882
Vinh-Tan Nguyen[1] Harish Gopalan[2] Dominic Chandar[2]
*1. Institute of High Performance Computing, A*STAR, Singapore, Singapore;*
2. Institute of High Performance Computing, 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
Luis Eca[1] **Guilherme Vaz**[2] Arjen Koop[2] Filipe Pereira[3] Sharath Girimaji[3]
1. Instituto Superior Técnico, Lisbon, Portugal; 2. MARIN, Wageningen, Netherlands; 3. Texas A&M University, College Station, TX, USA

Ocean Renewable Energy

9-2-9 Numerical Analysis Tools and Optimization

Thursday June 29 **U8, BI | 10:30–12:00**

Session Chair: Maurizio Collu, 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 Gilloteaux[1] Maxime Philippe[2] Aurélien Babarit[1]
Pierre Ferrant[3] **Vincent Leroy**[4]
1. Ecole Centrale de Nantes, Nantes, France; 2. INNOSEA, Nantes, France;
3. Ecole Centrale De Nantes/CNRS, Nantes, France;
4. LHEEA (Ecole Centrale de Nantes) and Innosea, Nantes, France

A Numerical Method for Representing Retardation Functions with Complex Exponentials OMAE2017-61204
Fushun Liu[1] Jiefeng Chen[1] Lei Jin[1] Wei Li[2]
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 OMAE2017-61468
Zhen Gao[1] Torgeir Moan[2] **Wenhua Wang**[3] Xin Li[3] Bin Wang[4]
1. Norwegian University of Science and Technology, Trondheim, Norway;
2. Norwegian University of Science and Technology, Ctr For Ships & Ocn Structures, Trondheim, Norway; 3. Dalian University of Technology, Dalian, China;
4. Powerchina Huadong Engineering Corporation Limited, Hangzhou, China

On the Adequacy of Existing Foundation Schemes for Offshore Wind Turbines Subjected to Extreme Loading OMAE2017-61525
Irene Georgiou[1] **Rallis Kourkoulis**[2] Fani Gelagoti[2] Spyros Karamanos[3] George Gazetas[1]
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, Msida, Malta

Numerical Study of Ice Loads for Offshore Wind Turbine in Uniform and Randomly Varying Ice Conditions OMAE2017-61988
Zhen Gao[1] Madjid Karimirad[2] Torgeir Moan[3] **Wei Shi**[4] Xiang Tan[5] Bin Teng[4]
1. Norwegian University of Science and Technology, Trondheim, Norway;
2. Queen's University Belfast, Belfast, Northern Ireland; 3. Norwegian University of Science and Technology, Ctr For Ships & Ocn Structures, Trondheim, Norway;
4. Dalian University of Technology, Dalian, China; 5. Multiconsult AS, Tromsø, Norway

Optimizing Power Cable Routing in a Dynamic Seabed for Offshore Wind Farms OMAE2017-62477
Tom Roetert[1] Bas Borsje[2] Tim Raaijmakers[1]
1. Deltares, Delft, Netherlands; 2. University of Twente, Enschede, Netherlands

Ocean Renewable Energy

9-4-1 Numerical Simulations I

Thursday June 29 **U6, BI | 10:30–12:00**

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 Mekhiche, Joseph Sarokhan
Ocean Power Technologies, Pennington, NJ, USA

An Efficient Approach for Dynamic Analysis of U-OWC Wave Energy Converters OMAE2017-61522
Felice Arena[1] Giovanni Malara[1] Pol D. Spanos[2] **Federica Strati**[1]
1. Mediterranea 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 Heras[1] Sarah Thomas[2] Morten Kramer[3]
1. Floating Power Plant / Aalborg University, Vallensbæk, Denmark; 2. Floating Power Plant, Vallensbæk, 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 Resevoir Perfomance in the Presence of Asphaltene OMAE2017-62371
Abdulaziz Al-Qasim, **Mohammed Alasker**
Saudi Aramco, Dhahran, Saudi Arabia

A Simplified Temperature Prediction of Circulation and Simulator Development Under Steady-state Heat Transfer in the Depwater Wellbore OMAE2017-62536
Catalin Teodoriu[1] **Ming Feng**[2]
1. The University of Oklahoma, Norman, OK, USA; 2. Chongqing University, Chongqing, China

Estimating Zonal Flow Contributions in Deep Water Assets from Pressure and Temperature Data OMAE2017-62537
Rashid Hasan[1] Rayhana Sohel[1] Xiaowei Wang[2]
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[1] Raka Islam[1] C. Shah Kabir[2]
1. Texas A&M University, College Station, TX, USA; 2. Kabir Consultants, Sugar Land, TX, USA

Petroleum Technology

11-13-1 Oilwell Cement Technology

Thursday June 29 | Cosmos 3c, Clarion | 10:30–12:00

Session Chair: Nediljka Gaurina-Međimurec, University of Zagreb, Croatia (Hrvatska)

Investigations on Oilwell Strength Response to Cement Ultrasonic Measurements in Presence of Additives OMAE2017-62393
Catalin Teodoriu[1] Adonis Ichim[1] Niklas Romanowski[2]
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-Međimurec[1] Krunoslav Sedić[2] Anel Cajic[3] Ante Matijevic[3]
1. University of Zagreb, Zagreb, Croatia; 2. Crosco, Integrated Drilling &well Services Co., Ltd., Graberje Ivani-ko, Croatia; 3. Crosco, Integrated Drilling & Well Services Co., Ltd., Ivanić-Grad, Croatia

A Quantification of Mixing Energy During the Whole Cementing Cycle OMAE2017-62456
Catalin Teodoriu, Adonis Ichim, **Fatemeh Saleh**, Daniel Mbainayel
The University of Oklahoma, Norman, OK, USA

Prevention of Alkali-Silica Reaction(ASR) in Light Wellbore Cement Comprising Silicate-Based Microspheres OMAE2017-62015
Mileva Radonjic, **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[1] **Yordan Garbatov**[2]
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, Brattholmen, Norway

Analytical Solutions of Bimodal Gaussian Processes' Fatigue Damages OMAE2017-61467
Wenbo Huang
Harbin Engineering University, Harbin, China

TECHNICAL SESSION ORGANIZERS' LUNCH

12:00 – 13:30
Cosmos 1 & 2, Clarion

CONCURRENT SESSIONS

13:30 – 15:00

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[1] **Øystein Gabrielsen**[2] Svein-Arne Reinholdtsen[3]
1. Statoil, Trondheim, Norway; 2. Statoil, Ranheim, Norway; 3. Statoil, Stjørdal, Norway

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

Tension-Tension Testing of a Novel Mooring Rope Construction
OMAE2017-61915
Sam Weller[1] Peter Halswell[1] Lars Johanning[1] Toshiyuki Kosaka[2]
Hirofumi Nakatsuka[2] Ikuo Yamamoto[3]
1. University of Exeter, Penryn, United Kingdom; 2. Ashimori Industry Co. Ltd, Osaka, Japan; 3. Nagasaki University, Nagasaki, Japan

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 Auburtin, Timothée Lefebvre, Stéphane Paquet
TechnipFMC, Paris, France

Estimation of Gap Resonance Relevant to Side-by-Side Offloading OMAE2017-61342
Zhiyuan Pan[1] **Wenhua Zhao**[2] Mike Efthymiou[2] Paul Taylor[3]
1. DNV GL - Software, Høvik, Norway; 2. University of Western Australia, Perth, WA, Australia; 3. University of Oxford, Oxford, United Kingdom

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 Kim[1] Eric Morilhat[2] Xuan Chi Nguyen[1] Jung-moon Jang[1]
Bohee Kim[1] Hyunsu Jeong[1]
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 OMAE2017-61152
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 Soares[1] HuiLong Ren[2] **Chenfeng Li**[2] Kaikai Ma[2] Chao Gao[2] Zhichao Zhang[2]
1. Centre for Marine Technology and Ocean Engineering, Lisboa, Portugal;
2. Harbin Engineering University, Harbin, China

Experimental Investigation of Residual Ultimate Strength of Damaged Metallic Pipelines OMAE2017-62221
Zhiyong Pei[1] **Jie Cai**[2] Xiaoli Jiang[2] Gabriel Lodewijks[2] Ling Zhu[1]
1. Wuhan University of Technology, Wuhan, China; 2. TU Delft, Delft, Netherlands

Structures, Safety and Reliability

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 Oh[1] Phill-seung Lee[2] Seung-hwan Boo[2] Jong-min Kim[1]
Joong-soo Moon[1] Woo-seung Sim[1]
1. Hyundai Heavy Industries, Ulsan, Korea;
2. Korea Advanced Institute of Science and Technology, Daejeon, Korea

Application of Direct Hydrodynamic Loads in Spectral Fatigue Analysis
OMAE2017-61907
Shivaji Ganesan T, **Yogendra Singh Parihar**, Saikat Dan, Karan Doshi
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 Larrosa[1] Pablo Lopez Crespo[2] Robert A. Ainsworth[1]
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 OMAE2017-61355
Stig Graberg, **Morten Hval**
Reinertsen AS, Trondheim, Norway

Fracture Mechanics Based Corrosion Fatigue Modelling for Subsea Pipelines OMAE2017-61555
Nianzhong Chen, **Ankang Cheng**
Newcastle University, Newcastle upon Tyne, United Kingdom

Experimental Study on the Interaction Effect of Sulfate Ions and Chloride Ions on Reinforcement Corrosion in Marine Environment OMAE2017-62405
Yi Huang, Yunze 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, Qingzhen 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 Komperød[1] Jon Ivar Juvik[2] Gunnar Evenset[2] Roger Slora[1] Lars Jordal[1]
1. Nexans Norway AS, Halden, Norway; 2. Statnett SF, Oslo, Norway

Improved Dynamic Structural Modelling for Subsea Power Cables with Bitumen Coated Armour Wires OMAE2017-61848
Steven Rossiter[1] **Hugh Martindale**[1] Terry Sheldrake[2] Richard Langdon[1]
1. Agiletek 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
Clovis de Arruda Martins[1] Rodrigo Provasi[1] Christiano Odir Cardoso Meirelles[1]
Leonardo Garcez[1] Andre Freitas Barbosa[2] Olaf Oswaldo Otte Filho[2]
1. University of São Paulo, São 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 Li[1] Bin Wang[2] **Xin Li**[3]
1. Zhejiang University of Science and Technology, Hangzhou, China;
2. Powerchina 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 Bergman[1] Chris Timms[1] Ming Liu[2]
1. C-FER Technologies, Edmonton, AB, Canada; 2. CRES, Dublin, OH, USA

ECAs: Lifting the Lid of the Black Box OMAE2017-61889
Andrew Cosham[1] Kenneth A Macdonald[2] Isabel Hadley[3] Philippa Moore[3]
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
Ilson Pasqualino[1] Bianca Pinheiro[1] Sabrina Regalla[1] Luiz Daniel Lana[2] Valber Perrut[2]
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 **U5, BI | 13:30–15:00**
Session Chair: Sungho Lee, Glosten, USA

Influence of Second-order Difference-frequency Wave Loads on the Floating Wind-wave Hybrid Platform OMAE2017-61273
Yoon Hyeok Bae[1] **Hyebin Lee**[1] Kyong-Hwan Kim[2] Sewan Park[2] Keyyong Hong[2]
1. Jeju National University, Jeju-si, Korea; 2. Korea Research Institute of Ships and Ocean Engineering, Daejeon, Korea

Comparison of a Simplified Vessel Response Estimation with a State of the Art Vessel Response Prediction Computer Tool OMAE2017-61530
Karl Henning Halse[1] Jens Berg Ildstad[2] **Thomas M. Kolstad**[3]
1. Norwegian University of Science and Technology, Ålesund, Norway;
2. Norwegian University of Science and Technology, Trondheim, Norway; 3. Rolls Royce Marine, Ålesund, Norway

The Effects of Surface Waves and Submergence on the Performance and loads of a Tidal Turbine OMAE2017-62233
Zhen Gao[1] **Xiaoxian Guo**[2] Torgeir Moan[3] Xin Li[2] Jianmin Yang[2] Lu Haining[2] Wenyue Lu[2]
1. Norwegian University of Science and Technology, Trondheim, Norway;
2. Shanghai Jiao Tong University, Shanghai, China; 3. Norwegian University of Science and Technology, Ctr For Ships & Ocn Structures , Trondheim, Norway

Effect on Doppler Resonance from a Near-Surface Shear Layer OMAE2017-61231
Yan Li, Simen Å. Ellingsen, **Benjamin Smeltzer**
Norwegian University of Science and Technology, 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 Kudupudi[1] Ranadev Datta[2]
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 OMAE2017-62113
Sergio Hamilton Sphaier, **Jassiel Vladimir Hernández-Fontes**, Marcelo de Araujo Vitola, Monica Campos Silva, Paulo de Tarso Themistocles Esperança
LabOceano/COPPE - Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil

Hydroelastic Analysis and Experimental Validation of a 350,000 DWT Very Large Crude Carrier OMAE2017-62227
Lin Yuan, Ning Ma, Deyu Wang, Xiechong Gu
Shanghai Jiao Tong University, Shanghai, China

Numerical Analysis of Submersible Mussel Raft for Exposed Marine Environment OMAE2017-61682
Hui Cheng, **Xinxin Wang**, Liuyi Huang, Yan li Tang, Fenfang Zhao, Rong Wan
Ocean University of China, Qingdao, China

Ocean Engineering

6-14-3 Coastal Engineering III

Thursday June 29 **U3, BI** | 13:30–15:00

Session Chair: Ian Robertson, University of Hawaii at Manoa, USA
Session Co-Chair: Øivind Asgeir Arntsen, 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**, Chunshuo 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 Zhou[1] Jinhai Zheng[1] Jisheng Zhang[1] Xiaoying Fu[2]
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 **U8, BI** | 13:30–15:00

Session Chair: Petter A. Berthelsen, MARINTEK, Norway
Session Co-Chair: Michael Borg, DTU Wind Energy, Denmark

1:52 Scale Testing of the First US Commercial Scale Floating Wind Turbine, VolturnUS: Testing Overview and the Evolution of Scale Model Testing Methods OMAE2017-61864
Andrew J. Goupee[1] Anthony M. Viselli[2] Christopher Allen[2]
Matthew Fowler[3] Habib Dagher[2]
1. University of Maine, Orono, ME, USA; 2. Advanced Structures and Composites Center, University of Maine, Orono, ME, USA; 3. University of Maine, Milford, 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

Joint Probability Distribution of Environmental Conditions for Design of Offshore Wind Turbines OMAE2017-61451
Jørgen Amdahl, **Jan-Tore H. Horn**, Jørgen R. Krokstad
Norwegian University of Science and Technology, Trondheim, Norway

Feasibility Study of the Floating Axis Wind Turbine – Preliminary Model Experiments OMAE2017-61944
Kazuhiro Iijima[1] **Hiromichi Akimoto**[2] Yasuhiro Takata[3]
1. Dept of NAOE, Osaka University, Osaka, Japan; 2. Graduate School of Engineering, Osaka University, Suita City, Japan; 3. Kanazawa Institute of Technology, Hakusan, Japan

Ocean Renewable Energy

9-4-5 Numerical Simulations II

Thursday June 29 **U6, BI** | 13:30–15:00

Session Chair: Lance Manuel, University of Texas at Austin, USA
Session Co-Chair: Enrico Anderlini, IDCORE / University of Edinburgh, United Kingdom

Numerical Modeling of the Hydrodynamic Performance of Hydrofoils for Auxiliary Propulsion of Ships in Regular Head-waves OMAE2017-61333
Tamer Ahmed, Yousri Welaya, Serag Abdulmotaleb
Alexandria University, Alexandria, Egypt

Development of Control Strategies for Interconnected Pneumatic Wave Energy Converters OMAE2017-61537
Bryson Robertson[1] **Eric Thacher**[1] Helen Bailey[1] Brad Buckham[1]
Scott Beatty[2] Jason Goldsworthy[3] Curran Crawford[1]
1. University of Victoria, Victoria, BC, Canada; 2. Cascadia Coast Research Ltd., Victoria, BC, Canada; 3. Accumulated Ocean Energy Inc., Sooke, BC, Canada

On the Long-term Reliability Analysis of a Point Absorber Wave Energy Converter OMAE2017-62141
Lance Manuel[1] **Ryan Coe**[2] Jarred Canning[1] Phong Nguyen[1]
1. University of Texas at Austin, Austin, TX, USA;
2. Sandia National Laboratories, Albuquerque, NM, USA

Petroleum Technology

11-4-1 Artificial Lift and Gas Well Deliquification

Thursday June 29 **U2, BI** | 13:30–15:00

Session Chair: Paulo Waltrich, Louisiana State University, USA

A Transient Inflow Performance Relationship (IPR) for Gas Wells: The Dynamic Gas IPR OMAE2017-62459
Paulo Waltrich[1] Pedro de Sousa[2] Artur G. Posenato[3]
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 Waltrich[1] Khadhr Altarabulsi[2] Renato Coutinho[1]
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 Hodne[1] Mahmoud Khalifeh[1] Torbjørn Vrålstad[2] Rune Godøy[3] Arild Saasen[1]
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 Wojtanowicz[1] **Efecan Demirci**[2] Kristina Butler[3]
1. Louisiana State University, Baton Rouge, LA, USA; 2. Turkish Petroleum Corporation, Luleburgaz, Turkey; 3. Albemarle Corporation, Kings Mountain, NC, USA

Laboratory Experiments on Ultrasonic Logging Through Casing for Barrier Integrity Validation OMAE2017-62645
Tonni Franke Johansen[1] Idar Larsen[2] **Andreas Sørbrøden Talberg**[3]
1. SINTEF IKT, 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 Hørte, 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
Haibo 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 Ø, 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 OMAE2017-61901
Roger Skjetne, Tor Arne Johansen, **Andreas Reason Dahl**
Norwegian University of Science and Technology, Trondheim, Norway

AMOS DP Research Cruise 2016: Academic Full-scale Testing of Experimental Dynamic Positioning Control Algorithms Onboard R/V Gunnerus OMAE2017-62045
Asgeir Johan Sørensen[1] **Roger Skjetne**[1] Svenn A. T. Værnø[1] Astrid H. Brodtkorb[1] Mikkel E. N. Sørensen[1] Øivind K. Kjerstad[2] Vincenzo Calabro[3] Morten Breivik[1] Bjørn O. Vinje[3]
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 OMAE2017-61893
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[1] Xiaojun Liu[1] Jinsong Yin[2] Zhonghua Ni[1]
1. Southeast University, Nanjing, China; 2. Zhangjiagang Furui Special Equipment Co., Ltd, Jiangsu, China

Computational Modelling of Sloshing in Liquefied Natural Gas Tank OMAE2017-61746
Shuhong Chai[1] Hayden Marcollo[2] Shen Yang Foong[1] Yuting Jin[1] Christopher Chin[1]
1. Australian Maritime College, University of Tasmania, Launceston, TAS, Australia; 2. AMOG Consulting, Notting Hill, VIC, Australia

Influence of a Seabed Trench on a Taut Mooring Line OMAE2017-61472
Lingzhi Xiong, Xinliang 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[1] **Atsushi Sano**[2] Naoya Matsubara[3] Naruyoshi Izumi[4]
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 Arockiasamy[1] Ishwarya Srikanth[2] Satya Kiran Raju Alluri[2] Krishnaveni B.[2] Ramana Murthy M.V.[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 Baeßler, Hans-Carsten Kühne, Götz 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[1] Andreas Manjock[1] Christian Arjes[1] Ngoc-Do Nguyen[1] Torsten Faber[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[1] **Einar Øren**[1] Frode Andres Kvilhaug[2] Marit Larsen[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[1] **Andrei Costache**[2]
1. Technical University of Denmark, Kongens Lyngby, Denmark; 2. Technical University of Denmark, Como, 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, INTECSEA, USA

Session Co-Chair: Olav Fyrileiv, DNV GL, Norway

Advanced 3-D FEA Modelling for a Modern and Multidisciplinary Pipeline Design Approach OMAE2017-61282
Lorenzo Marchionni, Luigino Vitali, Lorenzo Maria Bartolini, Giulio Claudio Vignati, Maurizio Spinazzè
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 Levold
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 Levold
Statoil ASA, Trondheim, Norway

Residual Stresses in Strength Mismatched Welded Pipes OMAE2017-62549
Ali Mirzaee Sisan, Junkan Wang
DNV GL, London, United Kingdom

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
Theodoro Netto[1] Jean-David Caprace[2] **Paulo Paz**[2] Joao Cajaiba[2]
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 OMAE2017-61316
Longbin Tao, **Xiangyin Meng**
Newcastle University, Newcastle, United Kingdom

A Two-dimensional Model of Predicting Sand Erosion in Elbows for Liquid Flow OMAE2017-61350
Haixiao Liu, **Rong Kang**, Liu Mingyang
Tianjin University, Tianjin, China

Modelling of Complex DEH Systems OMAE2017-61426
Øyvind 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

6-2-3 Wave Mechanics and Wave Effects III

Thursday June 29 | U5, BI | 15:30–17:30

Session Chair: Sungho Lee, Glosten, USA

Experimental Study on Crescent Waves Diffracted by a Circular Cylinder OMAE2017-62648
Zhili Zou[1] Liang Ma[2] Kai Yan[2] Yang Zhang[2] Yuyuan Hu[2]
1. Dalian University of Technology, Dalian, China; 2. State Key Laboratory of Coastal and Offshore Engineering, Dalian University of Technology, Dalian, China

Wave Hindcasting in Persian Gulf and Gulf of Oman Based on the Modified 32-Year ECMWF Data OMAE2017-62237
Said Mazaheri, Bahareh Kamranzad
Faculty of Ocean Engineering and Tech., Tehran, Iran

Nonlinear Ocean Wave Models and Laboratory Simulation of High Seatates and Rogue Waves OMAE2017-62706
Solomon Yim[1] Al Osborne[2] Ali Mohtat[1]
1. Oregon State University, Corvallis, OR, USA; 2. Nonlinear Waves Inc., Arlington, VA, USA

Risk Management in Aquaculture – Integrating Sustainability Perspectives OMAE2017-61845
Ingrid Schjølberg[1] **Ingrid B. Utne**[2] Eirin Marie Skjøndal Bar[2] Ingunn Marie Holmen[3]
1. Norwegian University of Science and Technology, Trondheim, Norway;
2. Department of Marine Technology, NTNU, Trondheim, Norway;
3. SINTEF Fisheries and Aquaculture, Trondheim, Norway

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 Chen[1] Shuangxi Guo[2] Yilun Li[3] Yiqin Fu[4] Min Li[5]
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

Characteristics of the Wave Slamming Forces on Jacket Structures Under Plunging Breaking Waves Based on Experimental Data OMAE2017-61789
Ove Tobias Gudmestad[1] Jithin Jose[1] **Olga Podrazka**[2] Witold Cieslikiewicz[2]
1. University of Stavanger, Stavanger, Norway; 2. University of Gdansk, Gdynia, Poland

Analysis of Offshore Wind Turbine Foundations with Soil Damping Models OMAE2017-62277
Mahdi Khorasanchi, **Arash Hemmati**, Nigel Barltrop
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, Yazhen 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
Session Co-Chair: Kuang-An Chang, Texas A&M University, USA

A Constitutive Model for Soft Mud Considering the Initial Effective Stress State OMAE2017-62341
Chunyang Xu, Yongping Chen, Lili Yu
Hohai University, Nanjing, China

Random Wave-Induced Burial and Scour of Short Cylinders and Truncated Cones on Mild Slopes OMAE2017-62476
Muk Chen Ong[1] **Dag Myrhaug**[2]
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 Lee[1] John Rong-Chung Hsu[2]
1. Sungkyunkwan Univerity, 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: Yiannis 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 EXWC, Port Hueneme, CA, USA

The Study on the Influence of Pipe-soil Interaction on VIV for Different Free Span Types OMAE2017-61117
Naiquan Ye[1] Svein Sævik[2] **Chongyao Zhou**[3] Zhiming Huang[3] Dagang Zhang[3] Gang Xu[3]
1. SINTEF Ocean, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. DMAR 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 Trentin Gonçalves[1] **Celso Pesce**[2] Guilherme Franzini[3]
André L. C. Fujarra[4] Rafael Salles[2] Pedro Mendes[5]
1. The University of Tokyo, Kashiwa, Japan; 2. University of São Paulo - Escola Politecnica, São Paulo, SP, Brazil; 3. University of São Paulo, São 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 Sauder[1] Asgeir Johan Sørensen[2] Kjell Larsen[3]
1. SINTEF Ocean, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. Statoil, Trondheim, Norway

Ocean Renewable Energy

9-1-8 Control

Thursday June 29 | U8, BI | 15:30–17:30

Session Chair: Frank Lemmer, University of Stuttgart, Germany
Session Co-Chair: Emil Smilden, Norwegian University of Science and Technology, Norway

Reduction of Tower Vibrations Due to Blade Passing Frequency on a Floating Wind Turbine OMAE2017-61139
Antoine Peiffer[1] Paul Fleming[2]
1. Principle Power Inc., Emeryville, CA, USA; 2. NREL National Wind Technology Center, Boulder, CO, USA

Key Contributors to Lifetime Accumulated Fatigue Damage in an Offshore Wind Turbine Support Structure OMAE2017-61708
Erin E. Bachynski, Asgeir Johan Sørensen, **Emil Smilden**
Norwegian University of Science and Technology, Trondheim, Norway

On the Way to Electro-mechanical Modelling of Voids Coalescence in XLPE Insulation of High Voltage Submarine Power Cables for Offshore Applications OMAE2017-61326
Monssef Drissi-Habti[1] **Raj-Jyoti Das**[1] Fouad Ech-Cheikh[2]
Soumianarayanan Vijayaraghavan[1]
1. IFSTTAR, Bouguenais, France; 2. CEA TECH, Bouguenais, France

An Optimization Method for the Configuration of Inter Array Cables for Floating Offshore Wind Farm OMAE2017-61655
Martin Guiton, Yann Poirette, Guillaume Huwart, Delphine Sinoquet, **Jean-Marc Leroy**
IFP Energies Nouvelles, Solaize, France

Optimization of Floating Offshore Wind Turbine Platforms with a Self-tuning Controller OMAE2017-62038
Frank Lemmer, David Schlipf, Kolja Mueller, Wei Yu, Po Wen Cheng
University of Stuttgart, Stuttgart, Germany

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, Mediterranea 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 Mendes[1] John Chaplin[2] Francisco P. Braga[1] Luis M. A. Paredes[1]
1. Universidade da 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
OMAE2017-62036
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 Taniguchi[1] Jun Umeda[1] Toshifumi Fujiwara[1] Hiroki Goto[2] Shunji Inoue[1]
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 Arctic Permafrost Region OMAE2017-61868
Zhiyuan Wang, Xuerui Wang, Baojiang 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 Skadsem[1] Arild Saasen[2] Stein Håvardstein[3]
1. International Research Institute of Stavanger, Stavanger, Norway; 2. University of Stavanger, Stavanger, Norway; 3. ConocoPhillips Norway, Tananger, Norway

A Transient Flow Model for Predicting Pressure Buildup in Closed Annuli OMAE2017-61209
Kjell Kåre Fjelde[1] **John Emeka Udegbunam**[1] Dan Sui[1] Fatemeh Moeinikia[1] Antonio C.V.M. Lage[2] Øystein Arild[3] Herimonja A. Rabenjafimanantsoa[4] Gerhard Nygaard[4]
1. University of Stavanger, Stavanger, Norway; 2. Petrobras, Rio de Janeiro, RJ, Brazil; 3. IRIS, Stavanger, Norway; 4. University of Stavanger, Stavanger, Norway

Experimental Investigation of Wellbore Fluid Displacement in Concentric and Eccentric Annulus OMAE2017-62028
Jan David Ytrehus[1] Bjørnar Lund[2] Arild Saasen[3] Ali Taghipour[2] Shreyansh Divyankar[3]
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
Torbjørn Vrålstad, Ali Taghipour, Nils Opedal, 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

Torgeir 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
Azarbaijan T.M. University, Tabriz, Iran

On the Application of Structural Reliability Analysis OMAE2017-62717
Torfinn Hørte[1] Gudfinnur Sigurdsson[2]
1. DNV GL, Høvik, Norway; 2. DNV GL, Oslo, Norway

Influence on Structural Reliability of Uncertain Extreme Value Estimates OMAE2017-62709
Arvid Naess[1] Stuart Reid[2]
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

Statoil – 500 bar pressure vessel

Ocean Laboratory at Marine Technology Centre

Towing Tank

Marine Technology Centre


Dr. Antonio Souto-Iglesias


Dr. Raúl Guanche García


Dr. Francisco Huera-Huarte

Invitation to OMAE 2018

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 Atletico 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)

OMAE 2018

Madrid

37th International Conference on Ocean, Offshore and Arctic Engineering

Madrid, Spain, June 17–22, 2018

www.omae2018.com

OOAE

ASME
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UNIVERSITAT ROVIRA i VIRGILI

IH cantabria
INSTITUTO DE HIDRÁULICA AMBIENTAL
UNIVERSIDAD DE CANTABRIA

POLITÉCNICA

OMAE 2018 Madrid
Call for Papers

We welcome you 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, 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)

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, focussing 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

ASME
SETTING THE STANDARD

OOAE

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.

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. If you qualify and have not been a recipient yet, please feel free to apply for OMAE 2018 on the conference website.

Statoil

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Conference Schedule with Outreach Events

Date	Event	Time	Location
Saturday, June 24	**Outreach Team Building Exercise**	17:00 – 19:00	Cosmos 3c, Clarion
Saturday, June 24	**Outreach Welcome Dinner**	19:00	Off-site
Sunday, June 25	**Outreach Welcome & Introductions Industry Presentations**	08:00 – 17:00	Cosmos 3c, Clarion
	OMAE 2017 Conference Registration	13:00 - 19:00	Space Foyer, Clarion
	OMAE 2017 Welcome Reception	18:30 – 20:30	Space Foyer, Clarion
Monday, June 26	OMAE Conference	See detailed program for session locations and times.	
Tuesday, June 27	OMAE Conference	See detailed program for session locations and times.	
Wednesday, June 28	OMAE Conference	See detailed program for session locations and times.	
	OMAE 2017 Conference Banquet	See detailed program for session locations and times.	
Thursday, June 29	**Outreach Breakfast / Feedback Session**	07:30 – 08:30	Skybar, 9th Floor, Clarion
	OMAE Conference	See detailed program for session locations and times.	
Friday, June 30	OMAE Technical Tour (Optional)	See Technical Tour on page 95 for locations and times.	

Note: Outreach only events are bolded.

Listing of Committees

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
Ingvil Snøfugl, 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: Theodoro A. Netto, *COPPE/ UFRJ*
Symposium Co-Coordinator: Duane DeGeer, *INTECSEA*

SYMP 5: Ocean Space Utilization
Symposium Coordinator: Hideyuki Suzuki, *University of Tokyo*

SYMP 6: Ocean Engineering
Symposium Coordinator: Jon Mikkelsen, *University of British Columbia*

SYMP 7: Polar and Arctic Sciences and Technology
Symposium Coordinator: Walter Kuehnlein, *sea2ice Ltd. & Co. KG*

SYMP 8: Prof. Carl Martin Larsen and Dr. Owen Oakley Honoring Symposia on CFD & VIV
Symposium Coordinator: Yiannis 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: Jang 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.Babanin, *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 Garbatov, *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/UFRJ*
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 São Paulo*
Risk Based Maintenance: Carlos Guedes Soares, *CENTEC*

SYMP 3: Materials Technology
Fracture Assessment and Control: Xin Wang, *Carleton Univeristy*
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 I: Christian Berggreen, *Technical University of Denmark*
ONR Sessions on Composites for Marine Structures II: Christian Berggreen, *Technical University of Denmark*
ONR Sessions on Composites for Marine Structures II: Yapa D Rajapakse, *Office of Naval Research (ONR 332)*
Threaded Connections: Morten Langoy, *Petroleum Safety Authority*
Threaded Connections: 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 Sævik, *NTNU*
Rigid Risers: Olav Fyrileiv, *DNV GL*
Rigid Risers: Basim Mekha, *Cuneiform Offshore Consulting, LLC*
Rigid Pipelines: Julian Hallai, *Exxonmobil Upstream Research Company*
Rigid Pipelines: Theodoro Netto, *COPPE/UFRJ*
Subsea Structures and Equipment: *Duane DeGeer, INTECSEA*
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, *INTECSEA*
Innovative Technologies for Deepwater Low-Cost Production: Svein Sævik, *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*
Aquaculture and Related Technology: Pål Furset Lader, *SINTEF Ocean*
Aquaculture and Related Technology: Shixiao Fu, *Shanghai Jiao Tong University*
Deepsea Mining and Ocean Resources: Tetsuo Yamazaki, *Osaka Prefecture University*
Underwater Development and Technology: Tomoya Inoue, *JAMSTEC*
Underwater Development and Technology: Yoshitaka Watanabe, *JAMSTEC*
Floating Systems for Renewable Energy: 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 Univeristy*
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, *Glosten*
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, Mooring, 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: Torgeir 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 Gudmestad, *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*
Maneuvering 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, *Redwing 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*

Risers & Pipelines: Madhusuden Agrawal, *BP America*
Risers & Pipelines: Rene Gabbai, *Pratt & Whitney*
Risers & Pipelines: Aravind Nair, *DNV GL*
VIV Physics & Suppression: Muk Chen Ong, *University of Stavanger*
VIV Physics & Suppression: Francisco Huera-Huarte, *Universitat Rovira i Virgili*
VIV Physics & Suppression: Jie Wu, *SINTEF Ocean (former Marintek)*
VIV Physics & Suppression: Jungao Wang, *University of Stavanger*
Advanced Computations, Verification and Validation: Guilherme Vaz, *MARIN*
CFD Modeling Practices & Verification (Joint with OFT): Zhenjia (jerry) Huang, *Exxonmobil Upstream Research Company*
CFD Modeling Practices & Verification (Joint with OFT): Jang Kim, *TechnipFMC*
CFD Modeling Practices & Verification (Joint with OFT): Guangyu Wu, *Chevron*

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 Bernitsas, *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: Madjid 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*
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*
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, *FMGI*

SYMP 11: Petroleum Technology
General Petroleum Engineering: Stephen Butt, *Memorial University of Newfoundland*
General Petroleum Engineering: Mohammad Rahman, *Memorial University of Newfoundland*
Drilling Mechanics: Robello Samuel, *Halliburton*
Simulation of Petroleum Engineering Systems: Mayank Tyagi, *Louisiana State University*
Simulation of Petroleum Engineering Systems: Rashid Hasan, *Texas A&M University*
Recent Developments in Artificial Lift and Gas Well Deliquification: Paulo Waltrich, *Louisiana State University*
Inflow control technology in reservoir management: Bernt Aadnoy, *University of Stavanger*
Well plugging and abandonment: Babak Akbari, *Louisiana State University*
Well plugging and abandonment: Mahmoud Khalifeh, *University of Stavanger*
Well Drilling Fluids and Hydraulics: Ergun Kuru, *University of Alberta*
Well Drilling Fluids and Hydraulics: Vassilios C. Kelessidis, *Petroleum Institute*
Drilling Fluids: Improving State of The Art: Heike Strauss, *TU Bergakademie Freiberg*
Drilling Fluids: Improving State of The Art: Nediljka Gaurina-Međimurec, *University of Zagreb*
Unconventional Hydrocarbon Reservoirs: Arash Dahi Taleghani, *Louisiana State University*
Unconventional Hydrocarbon Reservoirs: Yuanhang Chen, *Louisiana State University*
Drilling Geomechanics, Circulation loss and wellbore stability: Arash Dahi Taleghani, *Louisiana State University*
Drilling Geomechanics, Circulation loss and wellbore stability: Yuanhang Chen, *Louisiana State University*
Innovations in Drilling, Production and Transport: Wenting Qin, *Chongqing University of Science and Technology*
Petroleum Production Systems Design and Operation: Celso K. Morooka, *UNICAMP - University of Campinas*
Petroleum Production Systems Design and Operation: Sergio N. Bordalo, *University of Campinas - UNICAMP*
Oilwell Cement Technology: Nediljka Gaurina-Međimurec, *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*

Offshore Platforms - Installation & Commissioning: Bonjun Koo, *Technip*
Offshore Platforms - Offshore Platforms Loading, Fabrication and Maintenance: Allan Ross Magee, *National University of Singapore* and R.M. Chandima Ratnayake, *University of Stavanger*
Offshore Platforms - Spars, FPSOs and Multi Column Floaters: Anil Sablok, *TechnipFMC* and Jang Kim, *TechnipFMC*
Offshore Platforms - Fixed Structures and Jack-up Rigs: Partha Chakrabarti, *Zentech Inc* and Kjersti Bruserud, *Statoil*
Station Keeping - Mooring System Design and Analysis I: Allan Ross Magee, *National University of Singapore* and Ling Wan, *National University of Singapore*
Station Keeping - Dynamic Positioning I: Xinshu Zhang, *Shanghai Jiao Tong University* and Allan Ross Magee, *National University of Singapore*
Station Keeping - Mooring System Design and Analysis II: Anil Sablok, *TechnipFMC*
Station Keeping - Dynamic Positioning II: Masoud Hayatdavoodi, *University of Dundee*
Hydrodynamics - Nonlinear Wave and Wave Effects: Longfei Xiao, *Shanghai Jiao Tong University*, Zhenjia (jerry) Huang, *Exxonmobil Upstream Research Company* and Zhenhua Huang, *University of Hawaii*
Hydrodynamics - Numerical Methods and Experiments I: Jan-Willem Krijger, *Gustomsc*, Antonio Souto-Iglesias, *Technical University of Madrid (UPM)* and Xinliang Tian, *Shanghai Jiao Tong Univeristy*
Hydrodynamics - Platform/Ship Motions: Wenhua Zhao, *University of Western Australia* and Onno A.J. Peters, *Baggermaatschappij Boskalis B.V.*
Hydrodynamics - Fluid-Structure Interaction I: Florian Sprenger, *MARINTEK* and Sascha Kosleck, *Auckland University of Technology*
Hydrodynamics - Numerical Methods and Experiments II: Xinliang Tian, *Shanghai Jiao Tong Univeristy* , Antonio Souto-Iglesias, *Technical University of Madrid (UPM)* and Jan-Willem Krijger, *Gustomsc*
Design & Analysis - Simulation of Floaters and Moorings: Mamoun Naciri, *Single Buoy Moorings Inc*
Design & Analysis - Design Optimisation: Betsy Seiffert, *Florida Atlantic University*
Design & Analysis - Moonpools and Fatigue: Bastien Abeil, *MARIN*
Design & Analysis - Metocean: Gus Jeans, *Oceanalysis Ltd* and Alessio Mariani, *Woodside Energy Ltd*
Design & Analysis - Process and Flow Assurance: Simo Mäkiharju, *UC Berkeley*
FLNG Technology - Side-by-side Offloading: Wenhua Zhao, *University of Western Australia* and Zhengshun Cheng, *NTNU*
FLNG Technology - Sloshing: Fan Zhang, *DNV GL – Software* and Lixin Xu, *China Merchants Offshore Technology Research Center*
FLNG Technology – Marine Risers: Mike Efthymiou, *UWA*
CFD Modeling Practice & Verification - Wave-Induced Global Load and Response: Jang Kim, *TechnipFMC* and Guangyu Wu, *Chevron*
CFD Modeling Practice & Verification - Current and Wind Induced Loads and Vortex-Induced Motion (VIM): Arjen Koop, *MARIN* and Daniel Barcarolo, *Hydrocean*
CFD Modeling Practice & Verification - Wave/sloshing Impact and Green-Water Load and FEA Coupling: Nicolas Couty, *Hydrocean* and Joop Helder, *MARIN*
CFD Modeling Practice & Verification - Wave-Induced Global Load and Response II: Alexander Read, *Siemens PLM Software*
Wave Loading and Motions in Extreme Seas I: Arne Nestegård, *DNV GL* and Reza Firoozkoohi, *SINTEF Ocean*
Wave Loading and Motions in Extreme Seas II: Karl Erik Kaasen, *SINTEF Ocean* and Csaba Pakozdi, *MARINTEK*

SYMP 2: Structures, Safety and Reliability

Extreme and Abnormal or Rogue Waves - Wave Forecast and Climate: Elzbieta M. Bitner-Gregersen, *DNV GL AS* and Alexander Babanin, *University of Melbourne*
Extreme and Abnormal or Rogue Waves - Rogue Waves: Alexander Babanin, *University of Melbourne* and Elzbieta M. Bitner-Gregersen, *DNV GL AS*
Probabilistic and Spectral Wave Models - Probabilistic and Spectral Wave Models: Felice Arena, *Mediterranea University* and Alexander Babanin, *University of Melbourne*
Probabilistic Response Models - Probabilistic Response Models 1: Lance Manuel, *University of Texas at Austin* and Ahmad Suhail, *IIT*
Probabilistic Response Models - Probabilistic Response Models 2: Lance Manuel, *University of Texas at Austin* and Ahmad Suhail, *IIT*
Fatigue Reliability - Fatigue Reliability 1: Bruna Nabuco, *DHRTC DTU* and Yordan Garbatov, *Universidade de Lisboa*
Fatigue Reliability - Fatigue Reliability 2: Jingxia Yue (Le), *Wuhan University of Technology* and Guang Zou, *Lloyd's Register*
Fatigue Reliability - Fatigue Reliability 3: Yordan Garbatov, *Universidade de Lisboa* and Lei Yu, *Harbin Engineering University*
Reliability of Marine Structures - Reliability of Marine Structures: Nianzhong Chen, *Newcastle University* and Srinivas Sriramula, *University of Aberdeen*
Well Integrity and Reliability Assessment - Well Integrity and Reliability Assessment 1: Torfinn Hørte, *DNV GL* and Sergey Kuzmichev, *Statoil ASA*
Well Integrity and Reliability Assessment - Well Integrity and Reliability Assessment 2: Max Russo, *Kongsberg Maritime Inc.* and Guttorm Grytoyr, *Statoil*
Reliability of Mooring and Riser Systems - Reliability of Mooring and Riser Systems 1: Ying Min Low, *National University of Singapore* and Luis Sagrilo, *Coppe/Federal University of Rio De Janeiro*
Reliability of Mooring and Riser Systems - Reliability of Mooring and Riser Systems 2: Luis Sagrilo, *Coppe/Federal University of Rio De Janeiro* and Ying Min Low, *National University of Singapore*
Reliability of Renewable Energy Systems - Reliability of Renewable Energy Systems 1: Philipp R. Thies, *University of Exeter* and Zhen Gao, *Norwegian University of Science and Technology*
Reliability of Renewable Energy Systems - Reliability of Renewable Energy Systems 2: Zhen Gao, *Norwegian University of Science and Technology* and Yordan Garbatov, *Universidade de Lisboa*
Extreme Loading and Responses - Extreme Loading and Responses 1: Thomas B. Johannessen, *DNV GL* and Vanessa Katsardi, *University of Thessaly*
Extreme Loading and Responses - Extreme Loading and Responses 2: Sverre Haver, *NTNU* and Tetsuo Okada, *Yokohama National University*
Extreme Loading and Responses - Extreme Loading and Responses 3: Vanessa Katsardi, *University of Thessaly* and Thomas B. Johannessen, *DNV GL*
Extreme Loading and Responses - Extreme Loading and Responses 4: Paulo Videiro, *UFRJ* and Oistein Hagen, *DNV GL*
Extreme Loading and Responses - Extreme Loading and Responses 5: Tetsuo Okada, *Yokohama National University* and Curtis Armstrong, *The Australian Maritime College*
Collision and Crashworthiness - Collision and Crashworthines 1: Zhiqiang Hu, *Shanghai Jiao Tong University* and Sören Ehlers, *Hamburg University of Technology (TUHH-M10)*
Collision and Crashworthiness - Collision and Crashworthines 2: Martin Storheim, *Moss Maritime AS* and Sören Ehlers, *Hamburg University of Technology (TUHH-M10)*
Ultimate Strength - Ultimate Strength 1: Jung Kwan Seo, *Pusan National University and* Paulo Videiro, *UFRJ*
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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*
Structural Analysis and Optimization - Structural Analysis and Optimization 4: Markus Starr, *DNV GL* and Jeongsoo Kim, *Korea Institute of Civil Engineering and Building 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 Xiaozhi Wang, *American Bureau of Shipping*
Fatigue Performance and Testing - Fatigue Performance I & II: Carol Johnston, *TWI Ltd* and Xiaozhi Wang, *American Bureau of Shipping* and Xiaozhi Wang, *American Bureau of Shipping* and Carol Johnston, *TWI Ltd*
Fatigue Performance and Testing - Fatigue Performance and Testing: Yan-Hui Zhang, *TWI Limited* and Jens Tronskar, *DNV GL*
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*
Environmental Effect on Materials Performance - Effect of Environment on Materials Performance: Jens Tronskar, *DNV GL* and Sheng Bao, *Zhejiang University*
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 Profs. 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 Ersdal, *Petroleum Safety Authority*

SYMP 4: Pipelines, Risers, and Subsea Systems

Flexible Pipes and Umbilicals - Flexible Pipes I & II: Svein Sævik, *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 Doynov, *Exxonmobil Production Company*
Flexible Pipes and Umbilicals - Flexible Pipes VIII: Kieran Kavanagh, *Wood Group* and Naiquan 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 Doynov, *Exxonmobil Production Company* and Lin Zhao, *Ocean University of China*
Rigid Risers - Analysis I: Aravind Nair, *DNV GL*
Rigid Risers - Analysis II: Olav Fyrileiv, *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/UFRJ*
Rigid Pipelines - Coatings and Decomissioning: Duane DeGeer, *INTECSEA* and Ilson Pasqualino, *Coppe/ufrj*
Rigid Pipelines - Mechanics I: Duane DeGeer, *INTECSEA* and Olav Fyrileiv, *DNV GL*
Rigid Pipelines - Mechanics II: Ilson Pasqualino, Coppe/ufrj and Yong Bai, *Zhejiang University*
Rigid Pipelines - Mechanics III: Yong Bai, *Zhejiang University* and Olav Fyrileiv, *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*
Floating Systems for Renewable Energy - Floating System for Renewable Energy I: Motohiko Murai, *Yokohama National 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 Jule Scharnke, *MARIN*

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 UFRJ*
Computational Mechanics and Design Applications - Computational Mechanics II (DP, ROV, CRANE): Joel Sena Sales Junior, *Universidade Federal do Rio de Janeiro*
Computational Mechanics and Design Applications - Computational Mechanics III (Green Water, Water Impact,ESD, BL): Jian Gu, *COPPE/UFRJ*
Fluid-Structure, Multi-Body and Wave-Body Interaction - Fluid-Structure, Multi-Body and Wave-Body Interaction I & III & VII: Torgeir Kirkhorn Vada, *DNV GL*
Fluid-Structure, Multi-Body and Wave-Body Interaction - Fluid-Structure, Multi-Body and Wave-Body Interaction II & VI & VIII: Nuno Fonseca, *MARINTEK*
Fluid-Structure, Multi-Body and Wave-Body Interaction - Fluid-Structure, Multi-Body and Wave-Body Interaction IV & V & IX: Pierre Ferrant, *Ecole Centrale De Nantes/ CNRS*
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, *University of Stavanger* and Muk Chen Ong, *University of Stavanger*
Ocean Measurement and Data Interpretation - Currents and Wind: Gus Jeans, *Oceanalysis 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 Sören Ehlers, *Hamburg University of Technology (TUHH-M10)*
Arctic Sea Transportation - Arctic Frontier Regions and Structures in Ice: Inge Norstad, *SINTEF Ocean* and Sören Ehlers, *Hamburg University of Technology (TUHH-M10)*
Structures in Ice - Arctic Frontier Regions and Structures in Ice: Sören Ehlers, *Hamburg University of Technology* and Walter Kuehnlein, *sea2ice Ltd. & Co. KG*
Structures in Ice - Structures in Ice and Ice Bergs: Daniela Myland, *The Hamburg Ship Model Basin* and Walter Kuehnlein, *sea2ice Ltd. & Co. KG*
Vessels in Ice - Vessels in Ice: Rocky Taylor, *Memorial University of Newfoundland* and Walter Kuehnlein, *sea2ice Ltd. & Co. KG*
Full Scale Measurements in Ice - Full Scale Measurement and Operations in Ice: Rocky Taylor, *Memorial University of Newfoundland* and Walter Kuehnlein, *sea2ice Ltd. & Co. KG*
Ice Management - Ice Management: Petr Zvyagin, *Peter the Great St. Petersburg Polytechnic University* and Walter Kuehnlein, *sea2ice Ltd. & Co. KG*
Ice Model Tests - Ice Model Tests: Rocky Taylor, *Memorial University of Newfoundland* and Walter Kuehnlein, *sea2ice Ltd. & Co. KG*
Numerical Ice Modeling - Numerical Ice Modeling: Rudiger U. Franz Von Bock Und Polach, *Technical University of Hamburg* and Walter Kuehnlein, *sea2ice Ltd. & Co. KG*
Structure-Ice-Interactions - Structure-Ice-Interactions: Sören Ehlers, *Hamburg University of Technology* and Walter Kuehnlein, *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 and Propulsion Modeling: Samuel Holmes, *Redwing Engineering* and Stephen Cosgrove, *Altair Engineering*
Free Surface Flows - Free Surface Modeling: Tim Bunnik, *MARIN* and Guilherme Vaz, *MARIN*
Free Surface Flows - Free Surface Loading and Structure Interaction: Guilherme Vaz, *MARIN* and Tim Bunnik, *MARIN*
Risers & Pipelines - Vortex-Induced Vibrations: Michael Tognarelli, *BP American Production Co.* and Yiannis Constantinides, *Chevron*
Risers & Pipelines - CFD and Fluid Structure Interaction Modeling: Owen Oakley, *Chevron retired* and Michael Tognarelli, *BP American Production Co.*
Risers & Pipelines - Risers and Pipelines 1: Yiannis Constantinides, *Chevron* and Owen Oakley, *Chevron retired*
VIV Physics & Suppression - VIV Physics - Experimental Studies: Rolf Baarholm, *Statoil / Nowegian Deepwater Programme* and Francisco Huera-Huarte, *Universitat Rovira 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. Resvanis, *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, *Hydrocean*
CFD Modeling Practices & Verification - Wave/sloshing Impact and Green-Water Load and FEA Coupling: Nicolas Couty, *Hyrdocean* 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 - Nonlinear Wave Loads I: Signe Schløer, *Technical University of Denmark*, Erin E. Bachynski, *NTNU* and Henrik Bredmose, *DTU Wind Energy*
Wind Energy - Design & Simulations - Mooring Systems: Marco Masciola, *ABS* and Senu Sirnivas, *National Renewable Energy Laboratory (NREL)*
Wind Energy - Design & Simulations - Novel Concepts: Antoine Peiffer, *Principle Power Inc.*, Samuel Kanner, *Principle Power Inc* and Hauke Hartmann, *University of Rostock*
Wind Energy - Design & Simulations - Control: Frank Lemmer, *University of Stuttgart* and Emil Smilden, *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*, Feargal Brennan, *Cranfield University* and Senu Sirnivas, *National Renewable Energy Laboratory (NREL)*
Wind Energy - Analysis & Operation - Aerodynamics I: Tonio Sant, *University of Malta* and Denis Matha, *Ramboll*
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 II: Lance Manuel, *University of Texas at Austin* and Lene Eliassen, *NTNU*
Wave Energy - Design & Optimization - Innovative Concepts: Ann Dallman, *Sandia National Laboratories* and Nicolas Tomey-Bozo, *MaREI Centre - University College Cork*
Wave Energy - Design & Optimization - Control Strategies: Ryan Coe, *Sandia National Laboratories* and Yi-Hsiang Yu, *National Renewable Energy Laboratory (NREL)*
Wave Energy - Design & Optimization - Wave Farms and Optimization: Bryony DuPont, *Oregon State University* and Senu Sirnivas, *National Renewable Energy Laboratory (NREL)*
Wave Energy - Analysis & Experimentation - Wave Tank and Field Tests: Kelley Ruehl, *Sandia National Laboratories* and Alessandra Romolo, *Mediterranea University of Reggio Calabria*
Wave Energy - Analysis & Experimentation - Numerical Simulations I: Yi-Hsiang Yu, *National Renewable Energy Laboratory (NREL)* and Jennifer van Rij, *National Renewable Energy Laboratory (NREL)*
Wave Energy - Analysis & Experimentation - Numerical Simulations II: Lance Manuel, *University of Texas at Austin* and Enrico Anderlini, *IDCORE / University of Edinburgh*
Current Energy - Analysis, Design and Operation - Turbine Design and Analysis: Michael Bernitsas, *University Of Michigan* and Hai Sun, *Deepwater Engineering Research Center, Harbin*
Current Energy - Analysis, Design and Operation - Flow-induced vibration: Sascha Kosleck, *Auckland University of Technology* and Chunning Ji, *Tianjin University*
Ocean Renewable Energy - Thermal, Hybrid and other Forms - Thermal and Hybrid: Madjid Karimirad, *Queen's University Belfast* and Ying Tu, Norwegian University of Science and Technology

SYMP 10: Offshore Geotechnics

Seabed Properties - Seabed Properties: Manuela Kanitz, *Hamburg University of Technology*
Fluid-Soil-Structure Interaction - Fluid-Soil-Structure Interaction: Zefeng 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, *FMGI*

SYMP 11: Petroleum Technology

Well Drilling Fluids and Hydraulics - Well Drilling Fluids and Hydraulics I & II & III: Ergun Kuru, *University of Alberta* and Vassilios C. Kelessidis, *Petroleum Institute*
Drilling Fluids: Improving State of The Art: Heike Strauss, *TU Bergakademie Freiberg* and Nediljka Gaurina-Međimurec, *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: Nediljka Gaurina-Međimurec, *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 12: Torgeir Moan Honoring Symposium

Stochastic Dynamic Response Analysis of Marine Structures - Offshore Renewable Energy 1: Carlos Guedes Soares, *Centre for Marine Technology and Ocean Engineering (CENTEC)* and Erin 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 Bøe, *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 Garbatov, *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 1: Torfinn Hørte, *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, *SINETF 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 Erin E. Bachynski, *NTNU*
Validation of Simulation Models: Florian Sprenger, *MARINTEK* and Andrew Ross, *SINTEF Ocean*

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1984 New Orleans, USA
1985 Dallas, USA
1987 Houston, USA
1988 Houston, USA

1986 Tokyo, Japan

1989 The Hague, Netherlands

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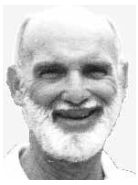

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R. Cengiz Ertekin
Co-Chair

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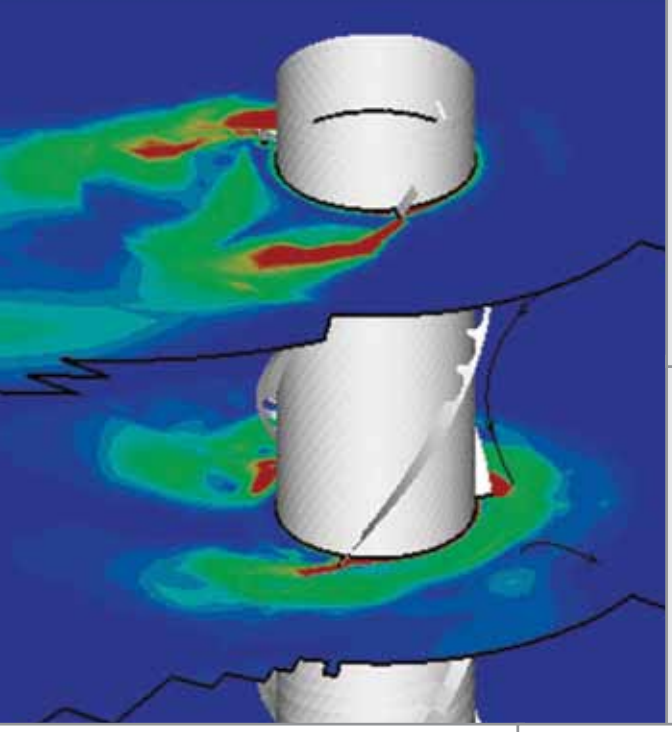
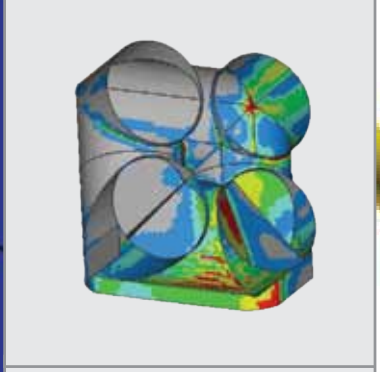
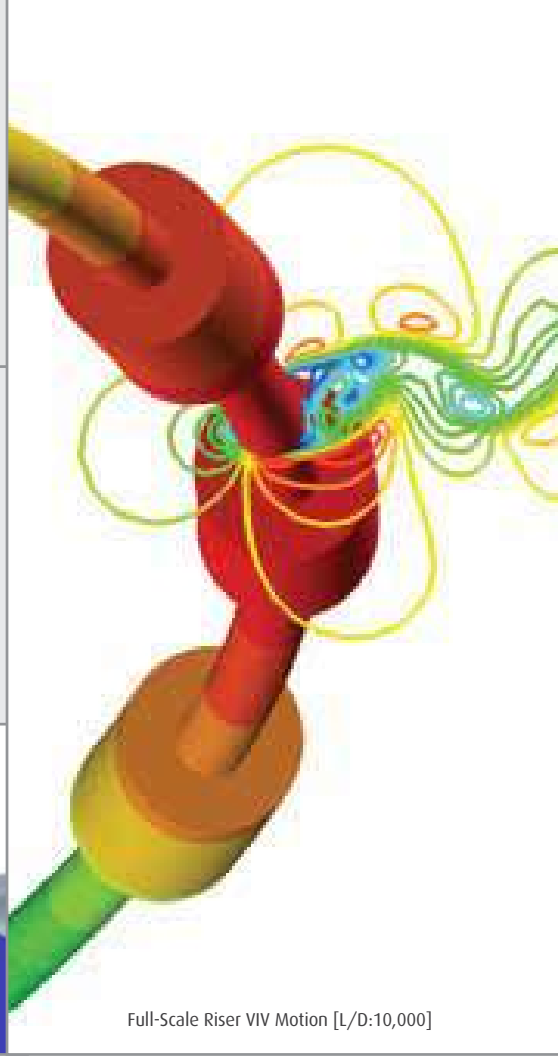
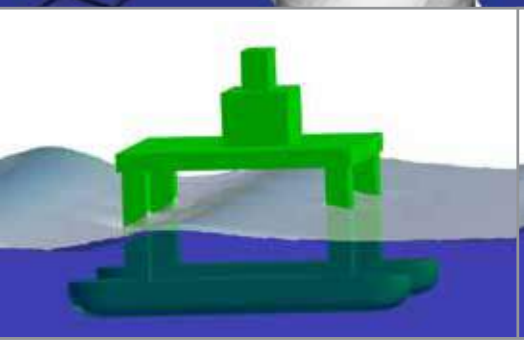
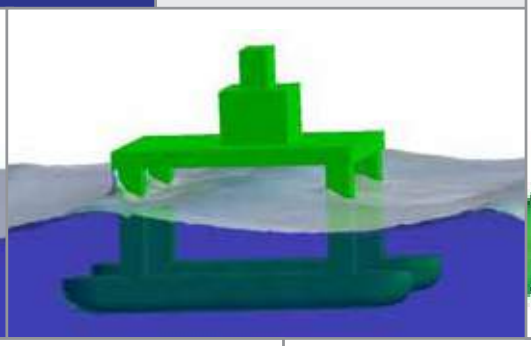


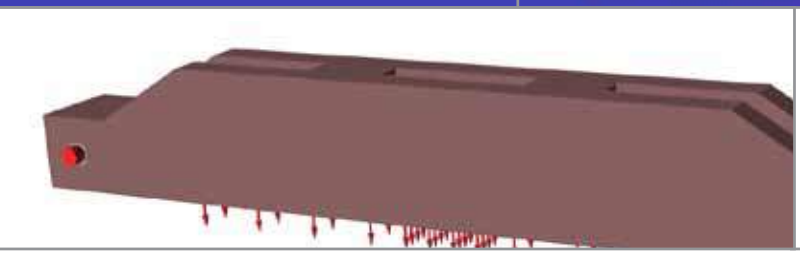


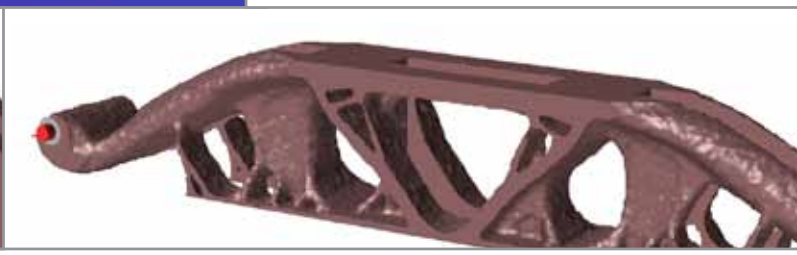


Full-Scale Riser VIV Motion [L/D:10,000]









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