

ASME 2023 OMAE

42nd International Conference on Ocean, Offshore and Arctic Engineering

June 11–16, 2023
Melbourne, Australia

ASME
SETTING THE STANDARD

THE UNIVERSITY OF MELBOURNE

EDITOR-IN-CHIEF: Lance Manuel, PhD
The University of Texas at Austin, USA

Journal of Offshore Mechanics and Arctic Engineering

OMAE 2023 Conference Attendees: Access and Download Articles of Interest FREE!

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OMAE 2023 Conference attendees will have **access to view and download articles FREE** from the *Journal of Offshore Mechanics and Arctic Engineering* from **June 1, 2023 - September 30, 2023.**

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For questions and assistance, contact **Sharon Giordano:**
GiordanoS@asme.org

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Program at a Glance

Saturday – June 10

Short Courses:

8:15 – 12:00 Room 207

Experimental Uncertainty Analysis for Hydrodynamic Tests

8:00 – 17:00 Room 209

WEC Design Practices and Tools

Sunday – June 11

Short Courses:

8:15 – 12:00 Room 207

Autonomous Maritime Systems

8:00 – 17:00 Room 208

High-Order Spectral Wave Models

8:00 – 17:00 Room 209

Outreach

17:00 – 19:00 Melbourne 1 + Foyer

Welcome Reception
OMAE is welcoming its attendees for the first time to Australia. Pick up your name badge from the registration desk and catch up with your colleagues, meet new connections and try some Aussie food and wine.

Monday – June 12

8:30 – 10:15 Plenary Room 1

Opening Ceremony, Keynote Presentation, Awards

10:15 – 10:45 Melbourne 1 + Foyer

Morning Coffee Break

10:45 – 12:00 Plenary Room 1

Keynote Presentations (Continued)

12:00 – 13:30 Melbourne 1 + Foyer

Lunch

13:30 – 15:00

Concurrent Sessions

OT	01-02-01	Station Keeping
SSR	02-01-01	Structural Analysis and Optimisation I
SSR	02-02-01	Ultimate Strength I
PRS	04-01-01	Flexible Pipes and Umbilicals I
OSU	05-01-01	New Concepts for Ocean Space Utilization
OE	06-03-01	Fluid-Structure, Multi-body and Wave-body Interaction I
OE	06-04-01	Marine Engineering and Technology I
OE	06-05-01	Marine Hydrodynamics I
PAT	07-01-01	Arctic Frontier Regions and Propulsion in Ice
CVF	08-01-01	Risers, Pipelines & VIV I
ORE	09-01-01	Offshore Wind Energy – Installation
ORE	09-02-01	Wave Energy – Environment
OG	10-01-01	Seabed Properties and Processes and Fluid-Soil-Structure Interaction
PT	11-03-01	Data Science Applications in Drilling Engineering I
BES	13-01-01	Blue Economy I

15:00 – 15:30 Melbourne 1 + Foyer

Afternoon Coffee Break

15:30 – 17:00

Concurrent Sessions

OT	01-01-01	Offshore Platforms
SSR	02-01-02	Structural Analysis and Optimisation II
SSR	02-02-02	Ultimate Strength II
PRS	04-01-02	Flexible Pipes and Umbilicals II
OSU	05-03-01	Deepsea Mining and Ocean Resources
PAT	07-02-01	Arctic Sea Transportation
CVF	08-01-02	Risers, Pipelines & VIV II
ORE	09-01-02	Offshore Wind Energy – Structural Dynamics
ORE	09-02-02	Wave Energy – Design and Performance Analysis I
OG	10-02-01	Fluid-Soil-Structure Interaction
PT	11-03-02	Data Science Applications in Drilling Engineering II
BES	13-01-02	Blue Economy II
SMN	14-01-01	Small Maritime Nations

17:15 – 18:15 Meeting Room 203 & 204

Afternoon Lecture: Preparing for climate change impacts at the Port interface: PNGPCL Experience

18:15 – 19:15 Melbourne 1 + Foyer

Afternoon Drinks

Tuesday – June 13

08:30 – 10:00

Concurrent Sessions

OT	01-04-01	Design & Analysis I
SSR	02-03-01	Collision and Crashworthiness
SSR	02-05-01	Extreme Loads and Responses I
PRS	04-02-01	Rigid Risers I
OSU	05-05-01	Floating Systems for Renewable Energy I
OE	06-03-02	Fluid-Structure, Multi-body and Wave-body Interaction II
OE	06-04-02	Marine Engineering and Technology II
PAT	07-02-02	Arctic Sea Transportation
CVF	08-02-01	Ship & Floating Systems
ORE	09-01-03	Offshore Wind Energy – Aerodynamics
ORE	09-02-03	Wave Energy – Design and Performance Analysis II
OG	10-03-01	Anchors
PT	11-04-01	Well Cementing Theory & Practice I
BES	13-02-01	Blue Economy III

10:00 – 10:30 Melbourne 1 + Foyer

Morning Coffee Break

10:30 – 12:00

Concurrent Sessions

OT	01-04-02	Design & Analysis II
SSR	02-05-02	Extreme Loads and Responses II
SSR	02-06-01	Probabilistic Models of Forces and Motions
PRS	04-02-02	Rigid Risers II
OSU	05-01-02	New Concepts for Ocean Space Utilization II
OE	06-03-03	Fluid-Structure, Multi-body and Wave-body Interaction III
OE	06-04-03	Marine Engineering and Technology III
OE	06-05-02	Marine Hydrodynamics II
PAT	07-03-01	Vessels in Ice
CVF	08-02-02	Ship & Floating Systems
ORE	09-01-04	Offshore Wind Energy – Aerodynamic Control
ORE	09-02-04	Wave Energy – Design and Performance Analysis III
OG	10-04-01	Pile Foundations
PT	11-04-02	Well Cementing Theory & Practice II
BES	13-04-01	Blue Economy IV

12:00 – 13:30 Melbourne 1 + Foyer

Lunch

13:30 – 15:00

Concurrent Sessions

OT	01-03-01	Computational Offshore Hydrodynamics
SSR	02-07-01	Data-driven Models for Marine Structures I
SSR	02-08-01	Risk and Reliability of Renewable Energy Devices
PRS	04-01-03	Flexible Pipes and Umbilicals III
OSU	05-06-01	High Tide and Tsunamis
OE	06-03-04	Fluid-Structure, Multi-body and Wave-body Interaction IV
OE	06-04-04	Marine Engineering and Technology IV
OE	06-05-03	Marine Hydrodynamics III
PAT	07-03-02	Vessels in Ice
CVF	08-03-01	Free Surface Flows I
ORE	09-01-05	Offshore Wind Energy – Moorings and Cables I
ORE	09-02-05	Wave Energy Control and Power Take Off
OG	10-05-01	Bucket Foundations, Suction Caissons and Spudcans
PT	11-02-01	Well Drilling Fluids and Hydraulics I
BES	13-05-01	Blue Economy V

15:00 – 15:30 Melbourne 1 + Foyer

Afternoon Coffee Break

15:30 – 17:00

Concurrent Sessions

OT	01-03-02	Hydrodynamic Industrial Applications
SSR	02-07-02	Data-driven Models for Marine Structures II
MT	03-01-01	Fracture Assessment and Control
PRS	04-01-04	Flexible Pipes and Umbilicals IV
PRS	04-02-03	Rigid Risers III
OSU	05-02-01	Aquaculture and Related Technology I
OE	06-05-04	Marine Hydrodynamics IV
PAT	07-03-03	Vessels in Ice
CVF	08-03-02	Free Surface Flows II
ORE	09-01-06	Offshore Wind Energy – Moorings and Cables II
ORE	09-05-01	Hydrogen and Energy Storage
PT	11-02-02	Well Drilling Fluids and Hydraulics II
BES	13-06-01	Blue Economy VI

17:15 – 18:45 Meeting Room 203 & 204

Afternoon Lecture: Engineering and Marine Life

Wednesday – June 14

08:30 – 10:00

Concurrent Sessions

OT	01-08-01	Digital Twin Applications to Offshore Systems
SSR	02-09-01	Reliability of Mooring and Riser Systems
MT	03-02-01	Fatigue Performance & Inspection Planning
PRS	04-03-01	Mechanics I
OSU	05-05-02	Aquaculture and Related Technology II
OE	06-01-01	Computational Mechanics and Design Applications I
OE	06-04-05	Marine Engineering and Technology V
OE	06-11-01	Ocean Engineering Technology I
OE	06-12-01	Ship Hydromechanics I
PAT	07-04-01	Vessels in Ice and Model Test
CVF	08-04-01	CFD Development I
ORE	09-01-07	Offshore Wind Energy – Hydrodynamics I
PT	11-05-01	Integrity of Well Barriers I
PT	11-08-01	Multiphase Flow & Flow Assurance
BES	13-06-02	Blue Economy VII

10:00 – 10:30 Melbourne 1 + Foyer

Morning Coffee Break

10:30 – 12:00

Concurrent Sessions

OT	01-08-02	AI/ML Applications to FPSO and Mooring Systems
SSR	02-10-01	Reliability of Marine Structures
MT	03-05-01	Modeling and Performance of Non-metallics
PRS	04-03-02	Mechanics II
OE	06-11-02	Ocean Engineering Technology II
OE	06-12-02	Ship Hydromechanics II
OE	06-16-01	Wave Mechanics, Modeling and Wave Effects I
PAT	07-05-01	Numerical Ice Modeling
CVF	08-04-02	CFD Development II
ORE	09-01-08	Offshore Wind Energy – Hydrodynamics II
ORE	09-04-01	Hybrid and Novel Renewable Energy Systems I
PT	11-05-02	Integrity of Well Barriers II
PT	11-10-01	Advances in Carbon Capture Utilization and Storage (CCUS) I
IYS	12-01-01	Wave/Ocean/Atmosphere Coupling and Climate Change Impacts on Ocean Waves
BES	13-06-03	Blue Economy VIII

12:00 – 13:30 Melbourne 1 + Foyer

Lunch

13:30 – 15:00

Concurrent Sessions

OT	01-08-03	AI/ML Applications to Offshore Systems and Subsurface
SSR	02-11-01	Fatigue and Fracture Reliability I
MT	03-06-01	Materials Selection
PRS	04-01-05	Flexible Pipes and Umbilicals V
OE	06-01-02	Computational Mechanics and Design Applications II
OE	06-11-03	Ocean Engineering Technology III
OE	06-12-03	Ship Hydromechanics III
OE	06-16-02	Wave Mechanics, Modeling and Wave Effects II
PAT	07-06-01	Structures in Ice I
CVF	08-05-01	Model Reduction and Machine Learning
CVF	08-06-01	Internal Flows & FIV
ORE	09-01-09	Offshore Wind Energy – Design Optimization
PT	11-02-03	Well Drilling Fluids and Hydraulics III
PT	11-10-02	Advances in Carbon Capture Utilization and Storage (CCUS) II
IYS	12-03-01	Global Ocean Wave Climate

15:00 – 15:30 Melbourne 1 + Foyer

Afternoon Coffee Break

15:30 – 17:00

Concurrent Sessions

OT	01-06-01	CFD Modeling Practice & Verification
SSR	02-11-02	Fatigue and Fracture Reliability II
SSR	02-12-01	Reliability Based Maintenance and Inspection Planning; Life Cycle Cost Optimization
PRS	04-01-06	Flexible Pipes and Umbilicals VI
PRS	04-03-03	Hydrodynamics
OE	06-14-01	Underwater Vehicles and Design Technology I
PAT	07-06-02	Structures in Ice II
CVF	08-07-01	Data-Driven Models and Digital Twins
ORE	09-01-10	Offshore Wind Energy – Data science and Digital Twins
ORE	09-04-02	Hybrid and Novel Renewable Energy Systems II
PT	11-02-04	Well Drilling Hydraulics and Cementing

17:15 – 18:45 Meeting Room 203 & 204

Afternoon Lecture: Digitalised and Intelligent Ocean Engineering

19:30 – 23:00 Crown Palladium

Conference Banquet

Thursday – June 15

10:00 – 10:30 Melbourne 1 + Foyer

Morning Coffee Break

10:30 – 12:00

Concurrent Sessions

SSR	02-04-01	Extreme and Freak Waves
SSR	02-13-01	Risk Analysis and Safety Management I
PRS	04-01-07	Flexible Pipes and Umbilicals VII
PRS	04-03-04	Thermo-Mechanical
OE	06-02-01	Coastal Engineering I
OE	06-07-01	Metocean, Measurement and Data Interpretation I
OE	06-08-01	Model Tests I
OE	06-14-02	Underwater Vehicles and Design Technology II
CVF	08-08-01	VIV & Offshore Wind Turbines
ORE	09-03-01	Current and Tidal Energy – Design Considerations
ORE	09-04-03	Hybrid and Novel Renewable Energy Systems III
PT	11-01-01	Well Drilling Technology – I
PT	11-07-01	Production Systems and Subsea Operations

12:00 – 13:30 Melbourne 1 + Foyer

Lunch

13:30 – 15:00

Concurrent Sessions

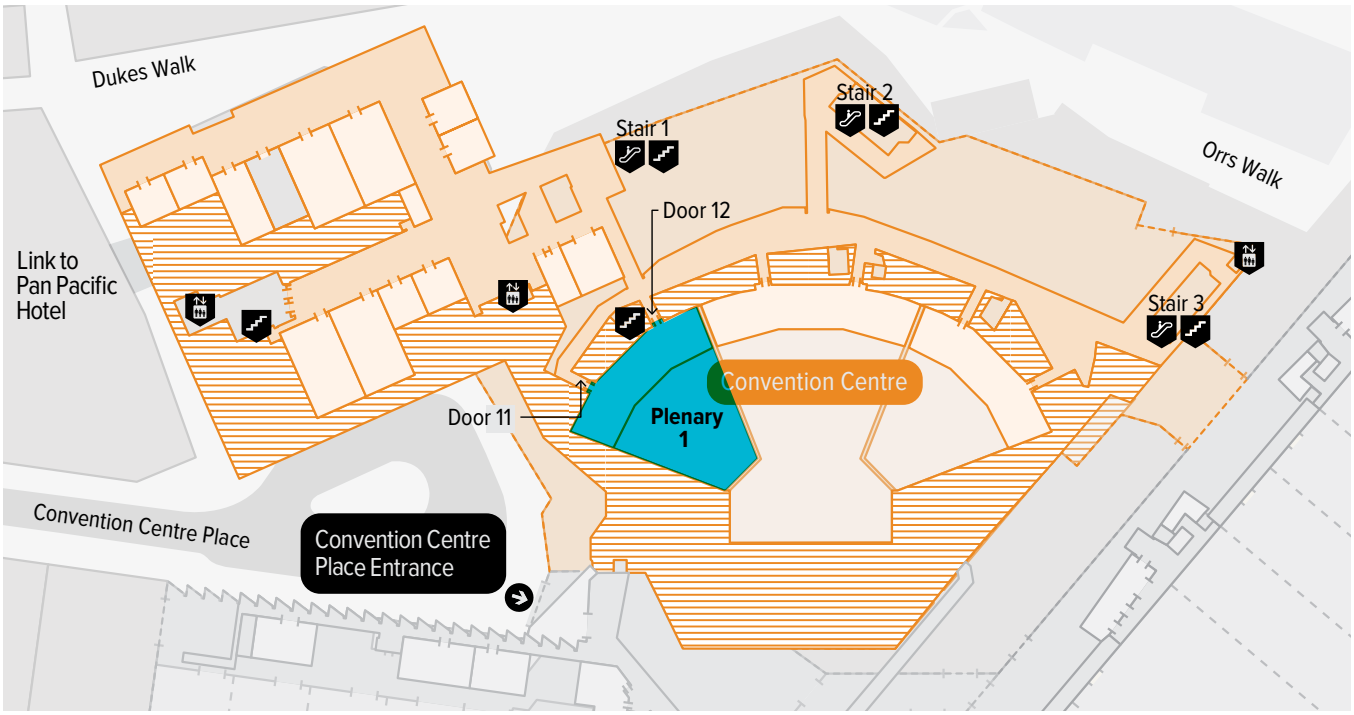
SSR	02-04-02	Probabilistic and Spectral Wave Modelling
SSR	02-13-02	Risk Analysis and Safety Management II
PRS	04-03-05	Pipe-Soil Interaction
PRS	04-04-01	Subsea Systems and Flow Assurance
OE	06-07-02	Metocean, Measurement and Data Interpretation II
OE	06-14-03	Underwater Vehicles and Design Technology III
CVF	08-09-01	Neural Network for Waves & Cylinders, Symposium Summary
ORE	09-03-02	Current and Tidal Energy: Hydrodynamic Analysis
ORE	09-04-04	Floating Solar Energy
PT	11-01-02	Well Drilling Technology I
PT	11-09-01	Development of Unconventional Reservoirs

15:00 – 16:30 Meeting Room 203 & 204

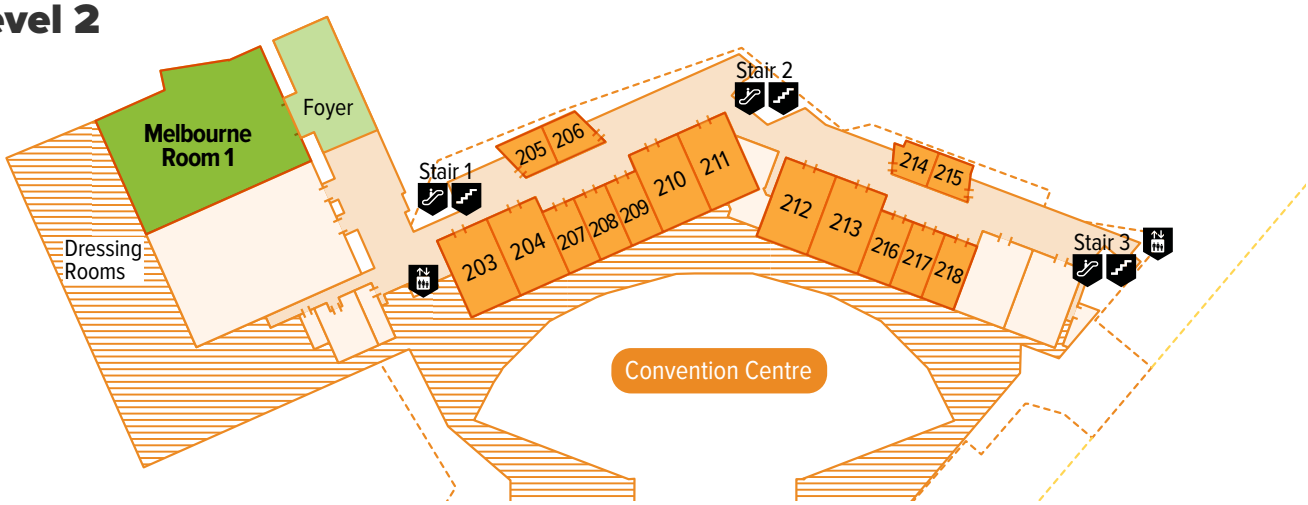
Farewell Drinks

Floor Plan

Level 1



Level 2



- **Registration:** Melbourne Room Foyer (Level 2)
- **Welcome Reception, Afternoon Drinks, Breaks, Lunches:** Melbourne Room 1 and Melbourne Room Foyer (Level 2)
- **Exhibition:** Melbourne Room 1 (Level 2)
- **Opening Ceremony and Keynotes:** Plenary 1 (Level 1)
- **Concurrent Sessions:** Rooms 203–218 (Level 2)
- **Farewell Drinks:** Meeting Room 203 & 204 (Level 2)

Alex Babanin
Conference Co-Chair

Hayden Marcollo
Conference Co-Chair

Sören Ehlers
Technical Program Chair

Welcome from the OMAE 2023 Conference Chairs

Welcome to the 42nd Ocean, Offshore and Arctic Engineering Conference (OMAE) in Melbourne, Australia, hosted by the OOAE Division of ASME. OMAE combines Academia with Industry to adapt scientific achievements into practical applications for a smart, sustainable, and safe use of our oceans.

We, the organizers, are very excited to greet you. This is the first time the OMAE conference will be held in both the Southern & Eastern Hemispheres simultaneously. OMAE 2023 will promote the relevant engineering research and applications in the vast region of Australian waters, and more generally in Oceania and South- Eastern Asia. In return, the visitors will have a chance to meet and learn from researchers and engineers working in unique marine environments whose diversity is unprecedented. We have three exciting special symposia lined up to celebrate Australia's contribution to research, to highlight the nations in the Pacific Ocean and to promote the Blue Economy research activities underway in the region.

Australia's zone of maritime responsibility is 14% of the world ocean. These encompass three oceans, Pacific, Indian and Southern Ocean, with metocean climate ranging from equatorial and tropical areas in the north through Antarctic waters in the south. Multiple tropical cyclones impact the world-heritage Great Barrier Reef on the east and oil and gas field developments on the west. To the south the Great Australian Bight is a frontier region opening up for oil and gas developments which provides immense engineering challenges as it's arguably home to the largest waves on the planet.

The massive offshore industry of Australia spread across variety hostile marine regions. Historically, it started in Bass Strait between the mainland and Tasmania. On the North-West shelf alone, this industry is currently constructing US$120b in projects. The oil and gas exploration and production sites have now ventured hundreds of kilometres offshore, posing exceptional challenges and opportunities to offer unique solutions.

OMAE-2023 is hosted by the University of Melbourne, in collaboration with AMC University of Tasmania, University of Western Australia, other Australian Universities and broad industry partnerships across Australia and New Zealand. Melbourne, the capital of Victoria, is a spectacular city at Port Phillip Bay, many times voted the most liveable city in the

world. It is also home to the most advanced maritime academic research, industry and consultancy. It is in Williamstown at the west side of Port Phillip where the first Australian tidal observations were started, and now almost in the centre of metropolitan Melbourne this site offers spectacular views of the Bay. The University of Melbourne hosts one of Australia's leading research groups in Maritime Engineering, with collaborative links across Oceania, Asia, North and South America, Europe and Africa. Their research and global applications span swells in Nigeria and sediment transport in Brazil, tropical cyclones in Australia, typhoons in Asia, hurricanes in the Gulf of Mexico, storms in the Southern Ocean and North Atlantic, wave-ice interactions in the Arctic and Antarctic, global satellite observations of wave climate and its trends. Together with co-organisers from the Australian Maritime College (Tasmania) and the University of Western Australia, they share state-of- the art facilities such as cavitation and directional-wave tanks, wave-ice and extreme wind-wave flumes, as well as the only full-cycle air-sea field observational site in the path of tropical cyclones at the North Rankin Platform of Woodside, Australia's main oil and gas producer.

Seven other Victorian Universities located in Melbourne offer research and courses across a broad range of marine engineering and science disciplines. Research headquarters of the Australian Bureau of Meteorology and of the Marine and Atmospheric Division of the Commonwealth Science and Industry Research Organisation – both responsible for the waters of the Otway and Gippsland basins. The offshore Gippsland Basin is one of Australia's most prolific systems, having historically generated approximately two thirds of Australia's cumulative oil production and one third of its gas. Port of Melbourne is the largest container port in Australia. Victoria's large consultancy industry, such as AMOG, OMC International, Offshore Weather Services, AECOM, Cardno, among others, provide maritime services at global scale.

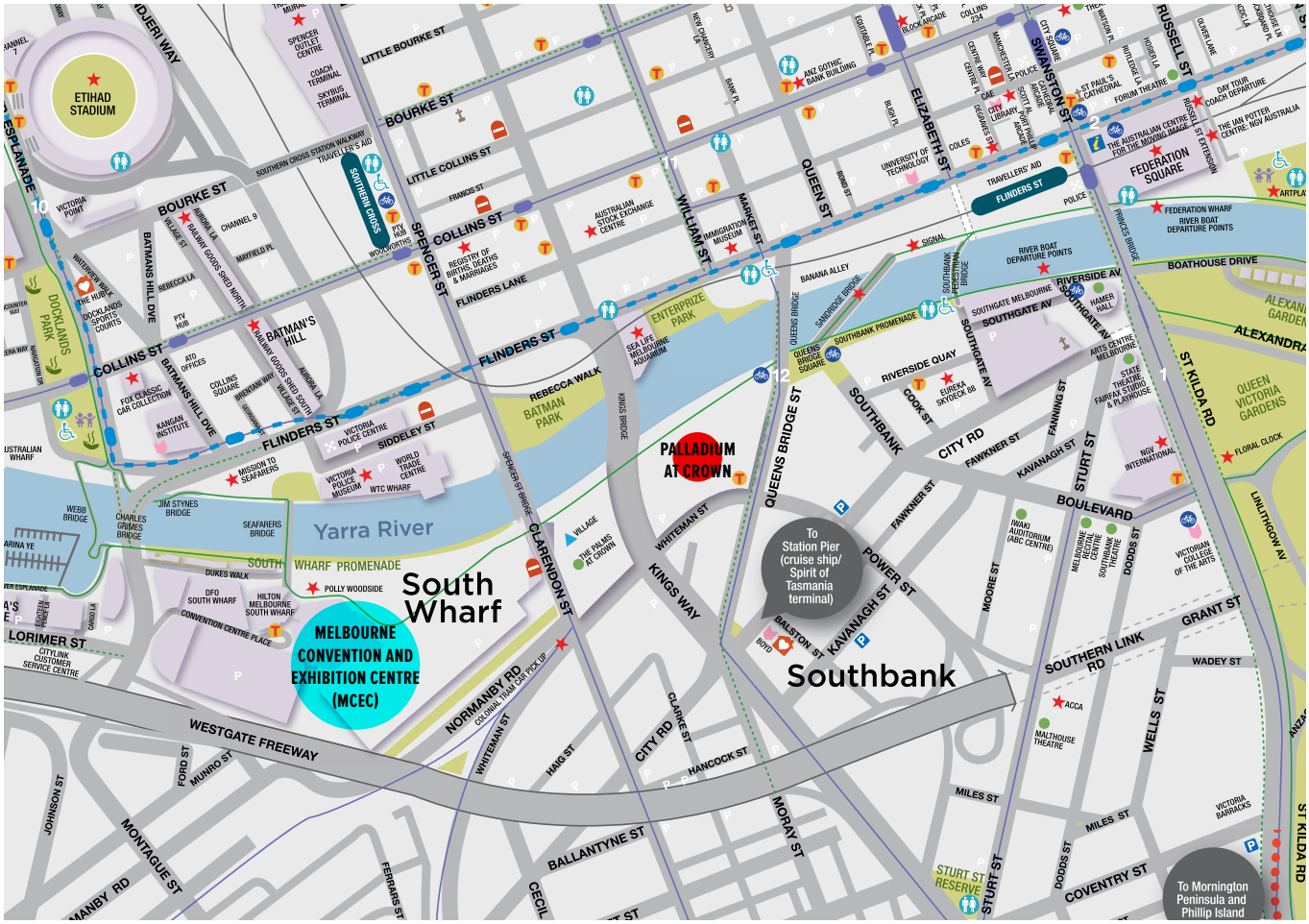
The location of the conference is on the Southern side of the Yarra river right across from the CBD (Central Business District). We warmly welcome you to Melbourne and encourage you to take time to wander through the city and experience all the other aspects of life in Melbourne whilst you're here for OMAE 2023.

—Alex Babanin
OMAE 2023 Conference Co-Chair
Professor, Ocean Engineering, University of Melbourne

—Hayden Marcollo
OMAE 2023 Conference Co-Chair
Director, AMOG Consulting Ltd.

—Sören Ehlers
OMAE 2023 Technical Program Chair
German Space Centre (DLR)
Institute for Maritime Energy Systems
Full Professor for Ship Structural Design and Analysis,
Hamburg University of Technology (TUHH)

Melbourne City Map



MELBOURNE CONVENTION AND EXHIBITION CENTRE (MCEC)

1 Convention Centre Pl, South Wharf VIC 3006, Australia

PALLADIUM AT CROWN

Level 1 Crown Towers, Crown Melbourne,
8 Whiteman St, Southbank VIC 3006, Australia

Award Winners

THE SUBRATA CHAKRABARTI YOUNG PROFESSIONAL AWARD

Jonas Behnen, for his outstanding presentation and paper OMAE2022-78878 **Hydrodynamic and Mechanic Response of a Floating Flexible Ice Floe in Regular Waves with the ICFD Method** during OMAE2022.

OMAE 2022 BEST PAPER AWARDS

Offshore Technology Symposium, OMAE2022-79479
Finding Dangerous Waves – Towards an Efficient Method to Obtain Wave Impact Design Loads for Marine Structures by Sanne van Essen and Harleigh Seyffert

Structures, Safety and Reliability Symposium, OMAE2022-81305
Blast Loading Profile of Gaseous Hydrogen in Confined Space Under Various Leak Conditions by Seon Jin Kim, Hyun Ho Lee, Soung Woo Park, Dae Yu Baeg, Jeong Hwan Kim, and Jung Kwan Seo

Materials Technology Symposium, OMAE2022-78556
Effect of Low Pretension on the Fatigue Performance of Large Bolts by Carol Johnston

Pipelines, Risers, and Subsea Systems Symposium, OMAE2022-7991
FPSO Second-order Roll Motions and the Impacts on SLWR Riser Design by Stael Ferreira Senra, Marcos Donato Auler Da Silva Ferreira, Allan Carre De Oliveira, Bernardo Donni De Sena and Vinicius Garcia Prado

Ocean Engineering Symposium, OMAE2022-80594
The Impact of the Spectral Tail on the Kurtosis of Random Seas by Dylan Barratt, Ton Van Den Bremer and Thomas Adcock

Polar and Arctic Sciences and Technology, OMAE2022-80767
Scenario-Based Risk Management for Arctic Waters by Martin Bergström, Thomas Browne, Sören Ehlers, Inari Helle, Hauke Herrnring, Faisal Khan, Jan Kubiczek, Pentti Kujala, Mihkel Kõrgesaar, Bernt Johan Leira, Tuuli Parviainen, Arttu Polojärvi, Mikko Suominen, Rocky Taylor, Jukka Tuhkuri, Jarno Vanhatalo, and Brian Veitch

CFD, VIV & FSI Symposium, OMAE2022-78758
Two-Phase Flow Induced Vibrations: Methodology Validation – Part 2 by Olivier Macchion, Paul Emmerson, Mike Lewis, Leszek Stachyra and Steinar Orre

Ocean Renewable Energy Symposium, OMAE2022-78666
Analysis of a Hybrid Mooring System Concept for a Semi-submersible Wind Turbine in Intermediate Water Depth under Operational, Extreme, and Yaw Error Conditions by Qun Cao, Erin Bachynski-Polić, Zhen Gao, Longfei Xiao, Zhengshun Cheng and Mingyue Liu

Petroleum Technology Symposium, OMAE2022-78394
Transient Cuttings Transport for Real-Time Systems by Roger Aragall, Alexander Starostin, Roland May, and Thomas Dahl

Honoring Symposium for Professor Günther F. Clauss on Hydrodynamics and Ocean Engineering, OMAE2022-80042
Real-time Ship Motion Prediction Using Artificial Neural Network by Bhushan Taskar, Kie Hian Chua, Tatsuya Akamatsu, Ryo Kakuta, Song Wen Yeow, Ryosuke Niki, Keita Nishizawa and Allan Magee

Attendee Information

CONFERENCE VENUE

OMAE 2023 will be held at the Melbourne Convention and Exhibition Center (MCEC)

Melbourne Convention and Exhibition Center (MCEC)
1 Convention Centre Pl, South Wharf VIC 3006, Melbourne VIC, Australia

ONSITE REGISTRATION

Pick up your name badge at the Registration Desk located in Melbourne 1 Foyer. The Registration Desk will be open during the following times:

Sunday, June 11th	12:00 – 17:00
Monday, June 12th	07:30 – 17:30
Tuesday, June 13th	08:00 – 17:30
Wednesday, June 14th	08:00 – 17:30
Thursday, June 15th	08:00 – 15:30

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 AUD20 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 gift.

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 their specified day: admission to conference sessions, refreshment breaks, the Exhibition and food and beverage service. The Conference Banquet is excluded from the daily pass.

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.

Exhibitors: Exhibit staff have 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.

INTERNET

Free Wifi internet is provided by the Conference. Log-in details will be provided on-site.

Attendee Information continued…

Photo by Stewart Donn

CONFERENCE APP

OMAE 2023 will utilize a mobile event app in place of a printed program to enhance the conference experience for attendees, speakers, exhibitors, and sponsors. You will be able to:

- Connect with Other Attendees
- Access Session Information
- Download Final Papers
- And More!

Keep an eye your email for more information on how to access and navigate the app!

EXHIBITION HALL

The Exhibition hall will be located in Melbourne 1 and Foyer and will be open during the following hours:

Sunday, June 11th	17:00 – 19:00 (Welcome Reception)
Monday, June 12th	08:30 – 19:30
Tuesday, June 13th	08:30 – 17:30
Wednesday, June 14th	08:30 – 17:30
Thursday, June 15th	08:30 – 13:30

DIETARY REQUIREMENTS

If you advised of any special dietary requirements when registering for the conference, the caterer has been notified of your needs. MCEC food offerings accommodate vegetarian, vegan and gluten free restrictions and should be easy to identify. Should you have any questions, please see a catering staff member with any questions. If you did not include your special dietary needs during the registration process, advise the staff at the Registration Desk before 17:00 on Sunday, June 11.

COVID PROTOCOLS

At the time of writing, ASME in-person activities will follow the state and local laws, regulations and guidelines regarding COVID-19 applicable to the location of the event. These mandates are subject to change and should be continuously monitored.

At the time of writing, all meeting room and theatre spaces at MCEC operate at 100% seated capacity. All non-seated event spaces and styles operating at standard venue capacity of 1 person per 1.5sqm density. Floor plans density limits and capacities are subject to restrictions in line with the current Chief Health Officer directions.

Sanitisation stations

Visitors, customers, contractors and employees are encouraged to sanitise when hand washing facilities are not available. Sanitisation stations containing at least 60 per cent alcohol are located throughout the venue at entry points, customer service desks and other high traffic areas. Please also consider carrying pocket hand sanitiser to use when travelling to MCEC and within the venue.

HEALTH, SAFETY AND INSURANCE SAFETY

As in all major cities, people should be aware of safety risks. You are advised not to wear your conference name badge outside conference activities. ASME and Sea to Sky Meeting and Association Management Inc. cannot assume any responsibility and will not accept any liability.

Triple Zero (000) is Australia's main emergency service number. You should call 000 if you need urgent help from police, fire or ambulance services.

Australia is on the 10th place of the safest countries in the world, so tourists do not need to be afraid when coming to this country since Melbourne is safer than most big cities in the world. The overall rating is 80% which makes it a place where tourists can feel safe walking around. However, as with any big city, it is a good common sense to be careful. In crowded areas, remaine causios and keep your possessions in front of you. The Flinders Street station is considered to be the dangerous part of the city in terms of pickpockets. The part of the year when the pickpocketing is the most frequent is Christmas, the Melbourne Cup or the Footy Grand Finale.

AUTHOR PRESENTATIONS

ALLOCATED TIME FOR PRESENTATIONS

Each presenter has a total of 20 minutes (approximately 15 minutes for presentation and 5 minutes for questions/comments and presenter introduction) for their presentation. The length of presentations will be strictly monitored by the Session Chairs.

ORDER OF PRESENTATIONS

If an author is not available to present a paper the session chair will play their video. Authors are asked to be in the session room for the entire session, and to be ready to present at any time.

PRESENTATION FORMAT and AUDIO-VISUAL EQUIPMENT

OMAE will provide a data projector, screen and computer loaded with the English version of Microsoft PowerPoint, Adobe Reader, VLC media player, Windows Media Player (for playing movies) and Windows. Please note that screens in the MCEC session rooms have an aspect ratio of 16:9 so prepare your presentation accordingly.

If you are working with presentation software other than PowerPoint or pdf files, please save your presentation as a Microsoft Windows PowerPoint compatible file, or a pdf file. Computers in meeting rooms WILL NOT support Mac file formats or any presentation software other than Windows PowerPoint or pdf files. Presenters are not permitted to use their own computer for their presentations.

OMAE does not have a mandatory PowerPoint template that presenters must use. Presenters are free to choose their own template.

LOADING OF PRESENTATIONS

Presenters are asked to be in their session room 30 minutes prior to the start of the first presentation of their session to upload their presentation, and remain in the room to meet the Session Chairs, and stay for all presentations out of courtesy to the other presenters. Please bring your presentation on a USB stick. You may also upload your presentation on to the computer in your session room at any time prior to your talk on the day of your presentation. So that the session chair may easily locate your presentation, please label your presentation file with time, day, room and surname (ie. 0900 Tues Y12 Smith). Note that we cannot guarantee high speed internet access in session rooms and data is limited to 400MB per device per day and for this reason online presentations are not possible.

Social Events

WELCOME RECEPTION

Sunday, June 11
17:00 – 19:00
Melbourne 1 + Foyer

OMAE is welcoming its attendees for the first time to Australia. Pick up your name badge from the registration desk and catch up with your colleagues, meet new connections and try some Aussie food and wine.

CONFERENCE BANQUET

Wednesday, June 14
19:30 – 23:00
Crown Palladium

The Palladium at Crown is the venue of choice for some of Australia's most prestigious events with a ballroom designed to impress. We hope you will be impressed as well, while enjoying good food and wine and company of your colleagues.

Only walking distance from the conference venue, join us from 7 pm for what we hope will be an evening to unwind and embrace some indigenous culture and entertainment.

CONFERENCE LUNCHES

Monday, June 11 to Thursday, June 15
12:00 – 13:30
Melbourne 1 + Foyer

Lunch will be provided from Monday to Thursday and is open to all attendees where lunch is included in their fee.

FAREWELL RECEPTION

Thursday, June 15
15:00 – 16:30
Meeting Room 203 & 204

Hosted by the OMAE 2024 committee, celebrate the end of another amazing conference and find out more about next year's conference in Singapore.

Sponsors

SILVER SPONSOR AND SPONSOR OF COFFEE BREAKS

Blue Economy CRC

The Blue Economy CRC brings together 44 industry, government and research partners from ten countries with expertise in aquaculture, marine renewable energy, maritime engineering, environmental assessments and policy and regulation. Through targeted industry-focussed research and training, the Blue Economy CRC paves the way for innovative, commercially viable and sustainable offshore developments and new capabilities. Our vision is that our blue economy industries in offshore aquaculture and renewable energy are globally competitive, at the forefront of innovation and are underpinned by a robust environmental planning and management framework which consumers trust and value.

SYMPOSIUM 9 SPONSOR

World Forum Offshore Wind e.V. (WFOW)

World Forum Offshore Wind (WFO) is the world's only organisation 100% dedicated to fostering the global growth of offshore wind energy. WFO's 100+ international members represent the complete offshore wind value chain including utilities, manufacturers, service firms and other organisations. WFO is registered as a non-profit association (e.V.) in Germany with offices in Hamburg, Toyko, Taipei, and New York. WFO's unique profile facilitates access to governmental and international forums in order to open new markets and to advocate for global offshore wind growth.

NAME BADGE SPONSOR

Marin

Maritime Research Institute Netherlands (MARIN) is a globally recognised top institute for maritime research. Our mission is 'Better Ships, Blue Oceans': we stand for clean, smart and safe shipping and sustainable use of the sea. We do this as an independent knowledge partner for the maritime sector, government and society. We offer integrated solutions, from concept development and design to operation, making optimal use of our test facilities, computer simulations, simulators and full-scale measurements. In developing, applying and sharing our knowledge, we stimulate innovation and global collaboration. The knowledge and involvement of our people are our strength.

Exhibitors

AMC Search

AMC Search has delivered services to the offshore sector for almost 40 years. We have expertise in mooring analysis, navigation assessments, field layout and design, logistics master planning and decommissioning. Our advanced Autonomous Maritime Systems (AMS) facility delivers training in the use and operation, and regulation of autonomous technologies in the maritime sector, and we have deep experience in using AMS technologies in polar and coastal environments. We also provide T&E services for the offshore industry including scale model testing and CFD. Visit our staff in the exhibition hall to find out more about our offshore and Arctic services.

Canadian Pond.ca Products Ltd

Canadian Pond.ca Products Ltd. specializes in water management for 20 years using our proprietary innovative technology Bubble Tubing®. Bubble Tubing® is used for a multitude of applications. Our air diffusers are used to create a bubble curtain that induces a water current to deflect jellyfishes, debris, plastics, sediment, algae, oil spills and more. It is also used for aeration with one of the highest oxygen transfer rate of the industry and in deicing in winter to protect marine infrastructure ISO 9001:2015 certified since 2019, the Bubble tubing® team of professionals strives to find solutions to optimize good practices in water management.

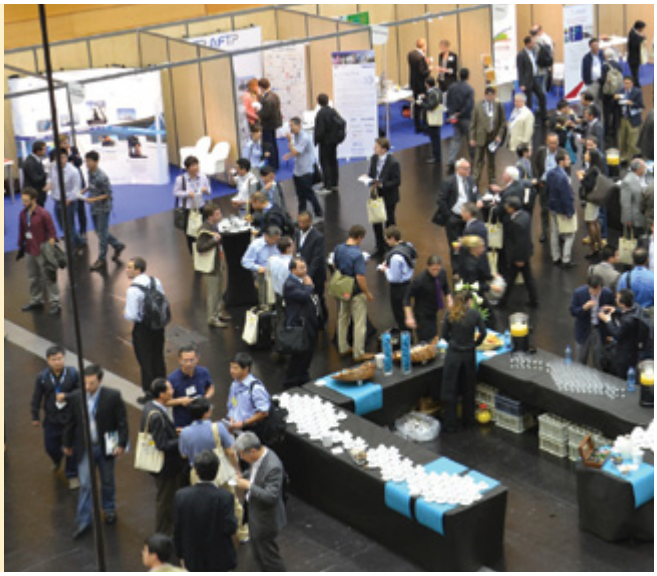
Exhibition Hours

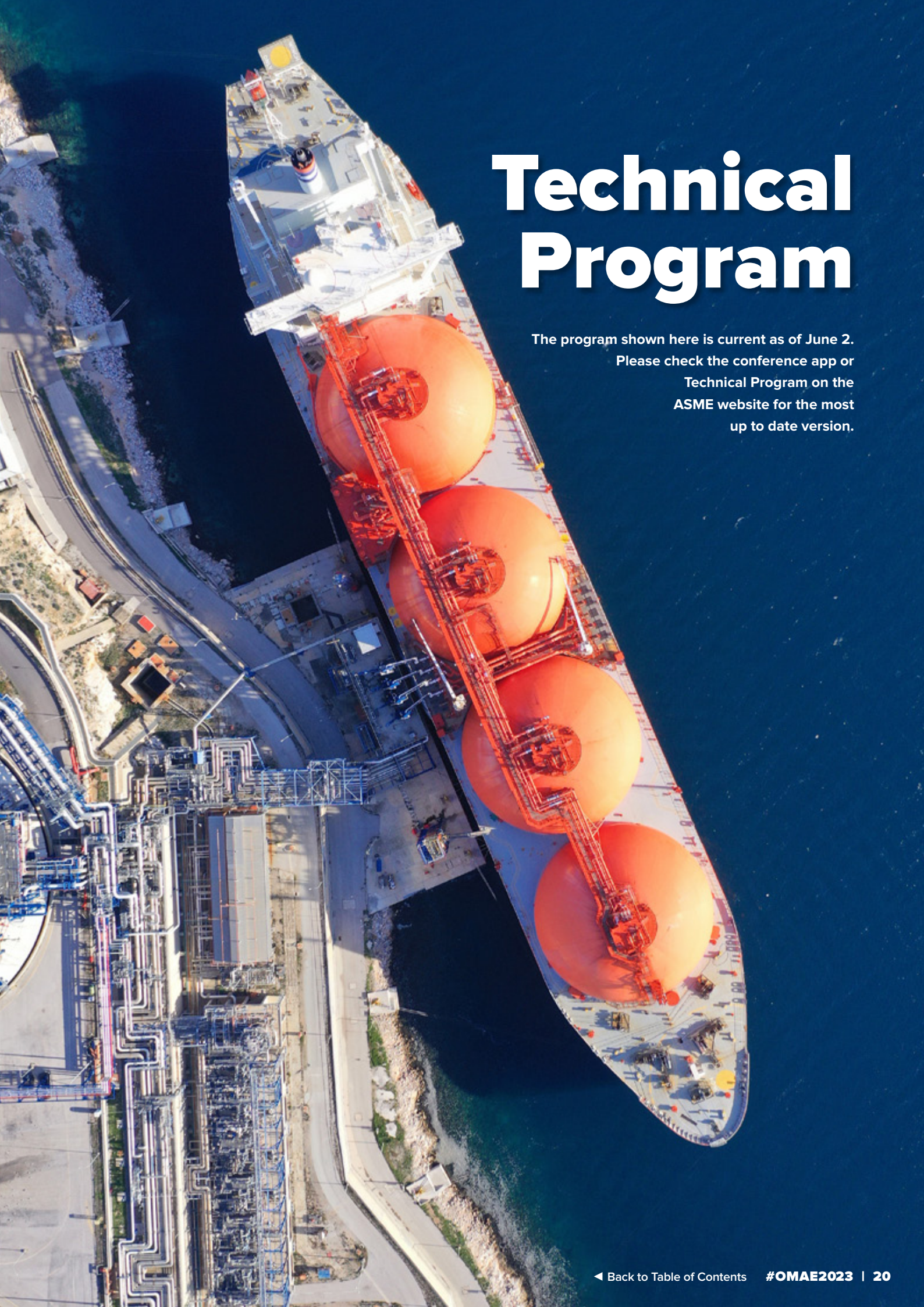
Visit the exhibits to discover new products and services from some of the industry's leading organizations. Coffee and tea will be served amongst the exhibits during refreshment breaks.

Location: Melbourne Room 1

Dates & Times:

Sunday June 11	17:00 – 19:00
Monday June 12	08:30 – 19:30
Tuesday June 13	08:30 – 17:30
Wednesday June 14	08:30 – 17:30
Thursday June 15	08:30 – 13:30





Technical Program

The program shown here is current as of June 2. Please check the conference app or Technical Program on the ASME website for the most up to date version.

Professor Ian Young

Professor Ian Young Honouring Symposium on Global Ocean Wind and Wave Climate

Professor Ian Young has made significant contributions to Physical Oceanography and Metocean Engineering in a number of areas, including spectral wave modelling, air-sea interaction, waves in finite water, satellite oceanography, tropical cyclone waves, global wind and wave climate, climate change impacts on the ocean, extreme value analysis, and global impacts of extreme sea levels.

The objective of the Professor Ian Young Honouring Symposium is to provide a forum for the presentation of relevant research, developments, and views on topics that Professor Young has contributed to over his career. Each session will consist of three presentations and then a panel Q&A session.

Biography: Ian Young is Kernot Professor of Engineering at the University of Melbourne. Prior to this appointment, he held the administrative roles of Vice-Chancellor of the Australian National University and Vice-Chancellor of the Swinburne University of Technology. Prior to joining Swinburne, he was Executive Dean, the Faculty of Engineering, Computer & Mathematical Sciences and Pro-Vice-Chancellor (International) at the University of Adelaide. His research interests concern wind-generated ocean waves. He has an extensive publication record in areas such as: the physics of air-sea interaction, the numerical modelling of waves, finite depth waves, satellite remote sensing and ocean wind and wave climate. In recent years, he has conducted a range of studies aimed at understanding global ocean wind and wave climate. These studies use large satellite databases which he has compiled. The studies investigate seasonal wind and wave climate, extremes and long-term trends in wind speed and wave height. He has published extensively in aspects of remote sensing of the oceans with applications to both engineering design and climate. He is the author of more than 150 refereed papers and two major research monographs in the field. He is also a consultant to offshore industries in Australia, the United States, and Asia, as well as an advisor to the US Navy on ocean wave physics.

Plenary Sessions

OPENING CEREMONIES AND KEYNOTE PLENARIES

Monday, June 12 | Room **Plenary 1** | **08:30 – 12:00**

OPENING CEREMONIES

Alex Babanin, *OMAE 2023 Conference Co-Chair*
Hayden Marcollo, *OMAE 2023 Conference Co-Chair*
Welcome from ASME
Professor Michael Wesley, *Deputy Vice-Chancellor Global, Culture and Engagement, University of Melbourne*

KEYNOTE PRESENTATIONS

Pacific Region Perspective – Sustainably Managing Our Blue Pacific Ocean

Henry Puna, *Secretary General, Pacific Islands Forum*

Woodside Energy: Thriving through the Energy Transition

Jayne Baird, *Vice President for Carbon Solutions, Woodside*

Challenges of the Blue Economy for Sustainable Offshore Development

Professor Irene Penesis, *Research Director, Blue Economy CRC-Co Ltd.*

AFTERNOON LECTURES

Monday, June 12 | **Room 203 & 204** | **17:15 – 18:15**

Preparing for Climate Change Impacts at the Port Interface: Pngpcl Experience

Mr Vagi Eoima, *Chief Infrastructure Officer, PNG Ports Corporation Ltd.*

Eunice J. K. Dalton, *Civil Engineer, Papua New Guinea*

Ms Scholly Masueng, *Acting Manager (Projects and Assets), PNG Ports Corporation Ltd*

Tuesday, June 13 | **Room 203 & 204** | **17:15 – 18:45**

Engineering and Marine Life

Dr Valeri (Val) Lenchine, *Technical Director – Noise and Vibration, GHD, Australia*

Scott Bainbridge, *Senior Research Scientist, Australian Institute of Marine Science*

Wednesday, June 14 | **Room 203 & 204** | **17:15 – 18:45**

Digitalised and Intelligent Ocean Engineering

Phil Watson, *Shell Professor of Offshore Engineering and Director of the ARC Industrial Transformation Research Hub on Transforming Offshore Infrastructure through Digital Engineering (TIDE) at the University of Western Australia*

Martin Anderson, *Principal Data Processor, Fugro*

Daniel Carneiro, *Wood, Australia*

Rasoul Hejazi, *University of Western Australia*

Kanishka Jayasinghe, *Associate Director and Leader of the Digital Team, AMOG*

Sean Murray, *Pipelines Team Lead, Lloyd's Register*

Hema Wadhwa, *Remote Monitoring and Digital Services Manager, Worley*

Hong Zhang, *Professor of Civil Engineering, Griffith University*

Pacific Region Perspective – Sustainably Managing Our Blue Pacific Ocean

Monday, June 12 | Plenary Room 1 | 09:00-09:45

Henry Puna

Henry Puna
Secretary General
Pacific Islands Forum

Abstract: As custodians of the Blue Pacific, we have demonstrated our leadership and collective resolve to protect the Pacific Ocean. It is our endowment fund, inherited from our ancestors and which we share with future generations. The development of the Pacific Roadmap for Economic Development (PRED) to implement the Resource and Economic Development thematic area of the 2050 Strategy for the Blue Pacific Continent, focuses on harnessing the blue economy potentials to optimize benefits to our island countries. Key to this is innovation and investment. Forum Leaders have called for increased investment in coastal and marine ecosystem restoration and management capacities, sustainable aquaculture development and research activities. Investment is needed for the future of sustainable coastal and marine tourism, economic resilience of fisheries, and community-level economic uplift and food security. Forum Leaders recognised that the Blue Pacific's maritime transport industry plays a critical role and call for the sustainable and resilient development of the maritime industry, including investment in new clean technology and operations, to ensure safe, accessible, efficient, and affordable maritime transport. Additionally, investment in sustainable ocean-based renewable energy – for new economic growth opportunities and energy security – is sought and encouraged, especially with our development partners. The Pacific Island countries face the brunt of the impact of climate change despite their insignificant contribution to the problem. A large focus is then on efforts to increase investment for the establishment of systematic oceans observing systems including oceans acidification, to better understand the impacts of climate change on the ocean, blue carbon protection and restoration initiatives for climate mitigation and adaptation, as well as monitoring and prediction to strengthen natural disaster response and risk reduction strategies for our islands.

Biography: Henry Puna is the 10th Secretary General of the Pacific Islands Forum and the first Cook Islander to hold this post.

Born in Aitutaki and raised in Rarotonga, he spent his formative years witnessing the transition of his nation to self-governance. He was one of the first wave of Cook Islands solicitors, studying at Auckland University and University of Tasmania, to be admitted to the bar in 1980

Before politics, Henry Puna served on the board of the South Pacific Ports Association, and the Pacific Forum Line. His executive roles in national government heading Trade, Labour, and Transport as well as operating within the constraints facing regional shipping and transportation, strengthened his affinity for the hardships and vulnerabilities of connecting remote atoll-based communities across ocean states. His formative years combined with his return to atoll life as a pearl farmer and parliamentarian, supplied rich insights and lived knowledge of the resilience and resourcefulness of small island communities bearing the brunt of climate change across the Blue Pacific. Holding portfolios including Foreign Affairs and Immigration, Marine Resources, Energy and Renewable Energy, Climate Change, Tourism, and the Outer Islands, Puna steered his nation on a path that has earned the Cook Islands global recognition for Oceans sustainability and renewable energy.

A key focus in his early years as Prime Minister was transforming access to energy across all inhabited islands of the Cooks. His championing of renewable, clean energy and support ensured the bilateral and global funding partnerships for a successful transition to solar energy, breaking the monopoly of fossil fuel.

At the international level, as the 43rd Forum Chair and host of the 2012 meetings and Leaders Retreat, he invited former US Secretary of State Hilary Clinton to a milestone meeting with Forum Leaders, who renewed their commitment to address human rights for women, through a new Pacific Leaders Gender Equality Declaration.

In 2016, in recognition of his service to the region and academia, he received an honorary Doctorate in Law from the University of the South Pacific, Fiji, and served as Chancellor of the University from 2017-2018.

As a Forum Leader championing climate change, tuna fisheries, and innovative partnerships for oceans and energy sustainability, a landmark global achievement has been the 2017 founding legislation establishing the world's largest multiple-use marine park, the Marae Moana.

Woodside Energy: Thriving through the Energy Transition

Monday, June 12 | Plenary Room 1 | 10:45 – 11:20

Jayne Baird

Jayne Baird
Vice President Carbon

Abstract: Woodside provides energy the world needs to heat and cool homes, keep lights on and enable industry through our portfolio of quality oil and gas assets. The science of climate change is clear: if the world is to limit temperature rise, it will need to change the way that it produces and consumes energy. The energy transition has begun.

Jayne Baird, Woodside Energy Vice President Carbon Solutions – Carbon Services explores how Woodside, as an energy producer, is evolving its business to meet the challenges and capitalise on the opportunities the energy transition presents. From investing in new energy products such as hydrogen and solar as well as lower-carbon services such as carbon capture and storage, Woodside is exploring the technologies that may be capable of reducing the emissions from existing industries, while also having the potential to support the development of new lower-carbon industries.

Biography: Jayne Baird is Woodside's Vice President for Carbon Solutions, a role she has held since November 2018. She is responsible for establishing and delivering Woodside's Carbon Abatement strategy including Offset and CCS solutions.

Previous role VP Exploration: Africa, Europe, and Americas. She has thirty years industry experience across new business development, international new ventures, exploration, development, and subsurface production.

She joined the company in 2005 working in the Mauritania Exploration Team, later as Exploration Manager and Business Development Manager for Africa.

From 2008 she moved into the role of Exploration Manager in the Outer Exmouth Australia Exploration Team, focusing on support for Woodside's core LNG business. She was Senior Manager of Internal Audit in 2011 performing post investment reviews.

From 2012–2014 Jayne was Head of Global New Ventures. Jayne played a critical role in Woodside's return to international exploration. Following the 2016 entry in to the RSSD acreage in Senegal, containing the SNE discovery, Woodside took the Development Lead Role alongside operator Cairn. Jayne led the Sangomar development project for Woodside through appraisal, until hand over to development for Concept Select.

Before Woodside Jayne worked for Conoco Phillips and the Scott Pickford Group, including a three-year secondment into the BP MAST (mature assets) project.

Jayne holds an honours degree in Geology and a masters degree in Basin Dynamics and was educated London University.

Born and raised in the United Kingdom, Jayne is a dual citizen based in Australia. She is also an internationally published fiction author (Jayne Lyons) with a first feature film and television series based on her, released in 2020.

Challenges of the Blue Economy for Sustainable Offshore Development

Monday, June 12 | Plenary Room 1 | 11:25 – 12:00

Prof. Irene Penesis

Professor Irene Penesis
Research Director
Blue Economy CRC-Co Ltd.

Abstract: Established in July 2019, Australia's Blue Economy Cooperative Research Centre (Blue Economy CRC) is aimed at unlocking the potential of the nation's ocean resources, through sustainable developments of offshore aquaculture and renewable energy production systems. Included in these prospects for the Blue Economy is the offshore co-location and/or integration of both aquaculture and renewable energy production systems, which can potentially have several synergistic benefits that include shared resources, efficient use of ocean space, less competition amongst other user groups of marine space, reduced operational and maintenance (O&M) costs from possible shared activities. However, developing sustainable infrastructure in sites located further offshore have more technical and environmental challenges when compared to nearshore or coastal sites. Therefore, relocating such infrastructure from nearshore to offshore sites will require an extensive review, improvements and new innovations in terms of both design and practice.

In this keynote presentation, the Irene will talk about various design and research challenges related to developing sustainable offshore systems for emerging industries and the Blue Economy CRC's initiatives and solutions to overcome these challenges. This will include the recent R&D projects of novel fish pen designs, short-term improvements required to existing infrastructure in the aquaculture industry like the robust collar tie for fish pens, best practices for managing risks including marine spatial planning and data infrastructure, and

decarbonisation of blue economy industries including multi-use platforms (MoorPower™), offshore hydrogen microgrid and hydrogen-powered vessels.

Biography: Professor Irene Penesis is the Research Director for the Blue Economy CRC Co Ltd. Irene was the bid leader responsible for developing the AU $329 million successful application to the Australian Government's Cooperative Research Centre (CRC) program. Irene's passion for a transition to renewable energy, environmental sustainability and decarbonisation of marine and maritime industries led her to developing the successful application to the Commonwealth's CRC program. Irene is on secondment from the Australian Maritime College, University of Tasmania where she led a multi-disciplinary research team working in the field of marine renewable energy and contributing to educating maritime engineering students in the Centre for Maritime Engineering and Hydrodynamics.

Irene is the Australian Primary Delegate of the International Energy Agency's Ocean Energy Systems (OES), and on the Steering Committees of the Tasmanian Government's Renewable Energy Action Plan, the Marine Energy Research Australia (MERA) at the University of Western Australia and MERIC Chile's Scientific International Committee. Irene was the Chair of Marine Renewable Energy Specialist Committee of the International Towing Tank Conference (ITTC) between 2011 and 2017, a peak international body developing technical guidelines and procedures relevant to the hydrodynamic testing of wave energy converters, marine current/tidal turbines and offshore wind turbines.

Irene is the next Chairperson for the International Conference on Ocean Energy (ICOE) to be held in Melbourne, Australia in 2024.

Preparing for Climate Change Impacts at the Port Interface: PNGPCL Experience

Monday, June 12 | Rooms 203 & 204 | 17:15 – 18:15

Abstract: PNG Ports Corporation Limited (PNGPCL) is Papua New Guinea's state-owned and mandated national port custodian and developer, operating PNG's 16 national seaports across the mainland coastline and five other primary islands of Papua New Guinea (PNG). PNGPCL must prepare to face the impacts of climate change (CC) at its 16 ports. Many of these national ports are run as community service obligations, subsidised by the few more profitable ports, namely Lae and Motukea Ports.

Preparing for CC impacts has had to be strategic and comprehensive in its foundational development before staged implementation can begin. PNGPCL's Infrastructure Division has recently collaborated in a national program to build resilience to CC in PNG; funded by the Australia-PNG Strategic Climate Fund and administered by the ADB. Through this collaboration, PNGPCL and international technical experts have compiled four technical documents for PNGPCL and PNG that form the basis of increasing the CC resilience at the port level, specifically in relation to the port infrastructure. The documents are:

- Historic Data for Distinct Climate Zones for PNG Ports,
- Climate Change Projections and Vulnerability Assessment for Ports in Papua New Guinea,
- Guidance Manual for Undertaking Site-specific Vulnerability Assessments and Formulation of Port Infrastructure Climate Change Risk Management Plans, and
- Guidance Manual for Design of Climate Change Resilient Coastal Port Infrastructure.

This paper presents key components of the four technical documents and how they inform improved CC preparation at the ports: the interface of land and sea-based global trade, long-term infrastructure and the forces of ocean and weather. The paper then highlights the next progression of activities that build upon this technical foundation and their applications to parallel projects and technical interventions that PNGPCL is employing and developing to equip its ports. To conclude, key learnings from the PNGPCL experience are discussed. It is expected that the findings from the PNGPCL experience will also benefit other ports in the Pacific.

Biographies:

Vagi Eoima

Mr Vagi Eoima

Mr Vagi Eoima is a Senior Engineer and Executive Manager with vast experience in Project Management, Civil Engineering, Geotechnical Engineering, Structural Engineering, Coastal Engineering and Engineering Division Leadership. Vagi began his career in the structural design field in 1999, continuously adding successful projects and more branches of civil engineering to his repertoire. Upon joining PNG Ports Corporation Ltd. in 2006, Vagi's career began the transition to executive management moving from Design Engineer to Senior Engineer (2008), Manager Engineering (2014) then Chief Infrastructure Officer (2017), a challenging yet rewarding responsibility which he holds to date.

Vagi is passionate about developing PNG through infrastructure projects and capacity development of his engineers.

Eunice J. K. Dalton

Eunice J. K. Dalton

A national (PNG) award winning civil engineer with an MSc Environment from Griffith University majoring in climate change adaptation, Eunice J. K. Dalton has worked closely with the PNG BRCC Project on behalf of PNG Ports, to build climate change resilience in PNG. Eunice is interested in research and developing processes to encourage the incorporation and ease of translation of up-to-date technical guidance, proven best practice and academic findings into practical civil engineering, sustainable development, environmental management and climate change resilience / adaptation projects. Eunice has held roles as part-time lecturer at PNG University of Technology, research assistant with Australian Rivers Institute, chapter vice-president of IEPNG Lae and mentor to a growing number of young engineers. Her career spans mines, municipal water supply and sanitation, project delivery and engagement with extremely remote rural communities, and most areas of civil engineering and project design, scoping, planning, implementation, management, monitoring and audit.

Ms Scholly Masueng

Ms Scholly Masueng

Ms Scholly Masueng comes from Sandaun Province of Papua New Guinea. She has been working for PNG Ports Corporation Ltd for 13 years in the Infrastructure Division as a Civil Engineer before taking on the role as Acting Manager (Projects and Assets). Passionate about sustainable development that is strategic and SMART, taking into consideration all aspects of the ESG, (Environment, Social and Governance).

Engineering and Marine Life

Tuesday, June 13 | Rooms 203 & 204 | 17:15 – 18:45

Internationally recognized speakers will present keynotes of their work on the interface between Engineering and Marine Life (EML).The EML panel event will consist of two 20-minute keynotes and two 10-minute presentations from the panelists followed by an "open" panel discussion.

Keynote speaker Dr Valeri Lenchine is the Technical Director for Noise and Vibration at GHD, Melbourne. His work assesses the impact of noise on marine species during construction and operational phases of marine projects. Underwater noise can cause temporary or permanent auditory damage to marine animals, such as whales and dolphins. Valeri will discuss approaches to assessing noise impacts, which are typically applicable to marine infrastructure projects.

Keynote Speaker Scott Bainbridge is representing Mr. David Mead, the Executive Director of Strategy and Development at the Australian Institute of Marine Science (AIMS). AIMS is the managing entity for the Reef Restoration and Adaptation Project (RRAP), a multi-agency long-term research and development program to develop, engineer, test and risk-assess novel interventions to help keep the reef resilient and sustain critical functions and values.

Panelist Alexia Aubault is the Chief Technical Officer of OCERGY (California). She is a leading authority on wind farms with considerable experience in windfarm development and their interfaces with marine life.

The range of topical content will be expanded by Tamsin Dobson from the University of Bristol, U.K. who (with a background in marine biology as well as engineering) is working on the interface between engineering and marine life. Her research focusses on how biofouling (the attachment of organisms to man-made structures) affects metal corrosion in the marine environment (including current findings on the corrosion and biofouling of welded Nickel Aluminium Bronze).

Audience questions will be encouraged and answered by the panel to develop dialogues between attending engineers and marine scientists. The hope is that the event will initiate discussions on the development of sustainable marine engineering projects that are designed around, with and for marine life.

In addition, the wider conference will include 45 papers on EML and related themes within the three Symposiums; Ian Young Honoring Symposium, Blue Economy Symposium and Small Maritime Nation Symposium.

Biographies:

Dr Valeri (Val) Lenchine

Dr Valeri (Val) Lenchine is the Technical Director- Noise and Vibration in GHD's Melbourne office. He has 30 years' experience in acoustic and vibration research, environmental impact assessment and development of mitigation measures. Val conferred a Ph.D. degree majoring in Acoustics & Vibration. He has assessed noise impact from wind farms and other renewable energy plants, industries, infrastructure and marine projects. Val managed multiple projects relevant to development of methodologies and regulatory documents applicable to wind farms, railways, buildings and industries. Results of the projects have been incorporated into planning documents and policies. Prediction of underwater noise from operation and construction of offshore and onshore infrastructure, mining, power generation and transport projects using variety of modelling tools also forms a part of his project portfolio. Valeri has recognition on national and international level which is reflected in scientific publications (approximately 60) and patents.

Scott Bainbridge

Scott Bainbridge is a Senior Research Scientist at the Australian Institute of Marine Science (AIMS) in Townsville, North Queensland. While trained as an ecologist, he leads a number of engineering projects that look to apply new technologies to current and emerging issues for coral reefs globally. He led a project that installed wireless sensor networks across the Great Barrier Reef and currently heads a team developing novel marine monitoring and surveying systems. AIMS manages the Reef Restoration and Adaptation Project (RRAP), a multi-million dollar program to develop the technology and underlying engineering to re-seed, re-plant, re-establish and restore reefs at scale. This project looks to develop, test and scale to implementation a range of strategies to reduce the impact of climate change globally on reefs and to assist the natural processes of restoration and adaptation.

Digitalised and Intelligent Ocean Engineering

Wednesday, June 14 | Rooms 203 & 204 | 17:15 – 18:45

Data-driven models and artificial intelligence have shown great potential for the offshore industry. This session will explore how data is being used to improve engineering practice in the offshore energy sector, and how the blending of data science approaches with traditional engineering is guiding industry application and academic research. Opening remarks from a number of guest speakers will be followed by a panel discussion to examine the state of the art and explore future trends.

Format: The session will be organised as follows:

- Opening remarks: 5 minutes (Phil Watson, Director of TIDE)
- Individual speakers: 7 x 7 minutes each, with questions saved for panel discussion
- Panel discussion of around 30 minutes

Session chair

- Phil Watson (UWA)

Individual speakers / panel members

- Martin Anderson (Fugro)
- Daniel Carneiro (Wood)
- Rasoul Hejazi (UWA)
- Kanishka Jayasinghe (AMOG)
- Sean Murray (Lloyds Register)
- Hema Wadhwa (Worley)
- Hong Zhang (Griffiths University)

Biographies:

Phil Watson

Session Chair: Phil Watson

Phil is the Shell Professor of Offshore Engineering and Director of the ARC Industrial Transformation Research Hub on Transforming offshore Infrastructure through Digital Engineering (TIDE) at the University of Western Australia. He is a Fellow of The Australian Academy of Technology and Engineering and the Institution of Engineers Australia, and the current Chair of ISSMGE Technical Committee 209 'Offshore Geotechnics'. Phil is passionate about aligning industry and academia to solve challenges facing the offshore sector – and training tomorrows generation of geotechnical leaders.

Abstract: The evolution of point cloud processing from gate filters to PointCNN

Point cloud classification is an important part of the survey workflow to identify the position and orientation of subsea assets from raw sensor data. This presentation explores how Fugro is using machine learning to improve classification accuracy relative to traditional methods. Modern sonar and laser sensors often record billions of points per project therefore scalable cloud computing architectures are discussed to handle these datasets efficiently, in addition to making them more accessible.

Martin Anderson

Martin Anderson

Martin is a Principal Data Processor with Fugro and holds a degree in computer science from the University of Edinburgh, he has over 15 years of experience analysing offshore and subsea data to produce engineering products. He has helped to develop Fugro's solutions to some of the key challenges in subsea survey including registration of subsea data, pipeline out of straightness surveys and integrating subsea photogrammetry to supplement sonar and laser surveys. Martin is Fugro's technical point of contact for its pipeline processing suite—Sense Pipelines—which leverages cloud processing and point cloud classification to efficiently produce pipeline engineering deliverables and make them more accessible.

Daniel Carneiro

Daniel Carneiro

Dr. Daniel Carneiro has 20 years' experience in design and consulting for the energy industry. He's got his degree, masters, and PhD in Civil Engineering from the Federal University of Rio de Janeiro, and has authored over 30 papers, most of them in subsea pipe-soil interaction. Daniel has joined Wood (then J P Kenny) in Perth, Australia in 2012, moved back to Rio to manage Wood's Consulting business in Brazil from 2017 to 2022, and is since back in Perth. He's also been a consistent volunteer supporter of OMAE, organising sessions in the Pipeline, Risers, and Subsea Systems Symposium since 2010.

Abstract: Data-Driven Engineering and the Role of Domain Expertise

AI is transforming how we interact with data. Our ever-growing data processing capabilities have revolutionized engineering. But is this really new? In the last half-century, multiple advancements have reshaped how we work. Recent progress has enabled researchers and engineers to extract valuable insights

from diverse datasets, optimize offshore operations, enhance marine ecosystem monitoring, and develop autonomous systems capable of navigating and exploring the ocean depths. However, domain expertise remains vital for problem framing, model validation, and result interpretation. This presentation will showcase examples illustrate the significant insights data-driven engineering offers while emphasizing the critical role of domain experts in guiding data-based decision-making.


Rasoul Hejazi

Rasoul Hejazi

Rasoul is a dedicated researcher and entrepreneur driven by an unwavering passion for continuous improvement. With ten years of experience in offshore engineering, he has spent the past seven years focused on researching and developing machine learning and AI-based engineering analysis tools. His primary objective is to enhance offshore engineering practices through the creation of innovative frameworks and intelligent analysis tools for integrity management of offshore assets. Recently, Rasoul launched a start-up that aims to further integrate AI and engineering, with a vision to explore new frontiers and contribute to shaping the future of digital engineering.

Abstract: Expanding Horizons: Augmented Intelligence in Engineering

This presentation explores the realm of augmented intelligence, where the fusion of human expertise, physics-based models, and artificial intelligence (AI) or machine learning (ML) can create a transformational synergy in engineering. By harnessing the potential of AI/ML algorithms, engineers can unlock new possibilities in problem-solving, decision-making, and innovation. The presentation examines the potential and challenges of this dynamic combination, highlighting how it can enhance engineering practices.


Kanishka Jayasinghe

Kanishka Jayasinghe

Kanishka is an Associate Director and the Leader of AMOG's Digital Team, focussing on the operationalisation of the hardware and software solutions developed through AMOG's consulting business. Kanishka has a background in ocean engineering with many years of experience in mooring and riser design and analysis, and mooring and riser integrity management. More recently, Kanishka has led the development and product management of AMOG's portfolio of digital products, including its mooring integrity monitoring platform, SMIC, and the SensaWise, LoadWise, and WharfWise suite of smart instrumentation products.

Abstract: A scalable approach to integrity monitoring of floating facilities

Integrity management for moorings and risers/cables of floating assets (including FOWT) will only become more important as we look towards a future of increased scale, arrays, and unmanned facilities. Design plays an important role, as does inspection, but there is a lot of data that can be gathered from these assets. AMOG has developed the Smart Mooring Integrity Checker (SMIC) technology which is now actively monitoring integrity on a number of floating facilities around the world. Retrofitted, or integrated at the design stage, real-time monitoring solutions can not only improve operability and utilization, but increase safety, and reduce risk.


Sean Murray

Sean Murray

Sean Murray leads Lloyd's Register's Pipelines and Risers group, managing and delivering independent assurance for global onshore and offshore pipeline projects. Sean has 15 years of experience in construction and engineering, 13 of which have been in the offshore industry. Sean has developed a strong depth of technical knowledge across a broad range of pipeline engineering aspects and holds a Master's degree in Civil & Structural Engineering from the University of Dundee. Sean is active in the wider pipelines industry, participating in code committees and presenting at conferences on a range of topics.

Abstract: Challenges of Independent Assurance for Digital Twins and Artificial Intelligence in Offshore Engineering

The integration of Digital Twins and AI technologies holds great promise for the offshore industry, offering opportunities to significantly enhance operational efficiency, optimize maintenance strategies, and elevate safety standards. However, alongside these benefits, these technologies present unique challenges that must be addressed to ensure the safety, reliability, and trustworthiness of the systems. This presentation will discuss the challenges faced in providing reliable independent assurance for these technologies in offshore engineering and present an assurance framework to help navigate these challenges.


Hema Wadhwa

Hema Wadhwa

Dr Hema Wadhwa, with her diverse range of experiences, possesses a unique perspective and vision that extends beyond the confines of traditional boundaries and silos. She has been particularly influential in enabling people, remote operations,

and the power industry through digital solutions and unified operations. She recognizes the transformative potential of digital technologies and leverages them to enhance operational efficiency, optimize performance, and streamline processes. She has a keen understanding of market dynamics and emerging trends, enabling her to develop strategic initiatives that drive business success. One of her current major digital enablement projects is being developed through partnership for industry success.

Hong Zhang

Hong Zhang

Professor Hong Zhang is a Professor of Civil Engineering at Griffith University. With a PhD from The University of Western Australia, she began her career at the Tropical Marine Science Institute in Singapore. Prof Zhang's research focuses primarily on ocean and coastal dynamics, with a particular emphasis on hydrodynamics, sediment transport, and fluid-structure-soil interactions. She possesses a comprehensive understanding of these complex phenomena and utilizes a combination of data-driven and process-based modelling techniques to address research challenges. Prof Zhang maintains close ties with academia, government agencies and local consultancies, ensuring her research findings are relevant and applicable to practical engineering solutions.

Abstract: Harnessing the Power of Data: Data Driven Models and Process Based Models in Coastal and Ocean Engineering

In the presentation, the integration of data-driven and process-based models in coastal and ocean engineering is explored. The importance of process-based models, solving equations related to ocean dynamics and sediment transport, is emphasized. Challenges related to data requirements, equation selection, accuracy, and computational power are acknowledged. The presentation highlights the integration of data-driven models and artificial intelligence techniques, utilizing data from various sources. A case study demonstrates how this integration improves the accuracy of process-based models, analyzing the impact of extreme waves on beach erosion for effective coastal protection strategies. The conclusion addresses challenges of handling large data, considering data utilization implications, and fostering national and international collaborations.

Monday Concurrent Sessions

CONCURRENT SESSIONS
13:30 – 15:00

Offshore Technology

01-02-01 Station Keeping

Monday June 12 | Room **205** | **13:30–15:00**

Session Organizer: Allan R Magee, Consultant, USA
Session Co-Organizer: Michael Si, TCOMS, Singapore

Monitoring the Rotational Performance of a Weathervaning Mooring System OMAE2023-102355
Joerik Minnebo[1] Jiaxing Chen[1] Haoyuan Gu[2]
1. SOFEC, Houston, TX, USA; 2. Texas A&M University, College Station, TX, USA

A Dry Monitoring System of Mooring Lines Utilizing Artificial Intelligence OMAE2023-103160
Djoni E. Sidarta[1] Nicolas Tcherniguin[2] Philippe Bouchard[3]
1. Technip Energies, Houston, TX, USA; 2. Technip Energies, Nanterre, France; 3. Technip Energies Cybernetix, Marseille, France

Robust and Adaptive Control for a Marine Autonomous Surface Ship (MAAS) Operations under Harsh Environment OMAE2023-104936
Tanjil Islam[1] **Syed Imtiaz**[1] Salim Ahmed[1] Mohammad Islam[2] Hasanat Zaman[2] Robert Gash[2]
1. Memorial University of Newfoundland, St. John's, NL, Canada; 2. National Research Council Canada, St. John's, NL, Canada

Offloading Operability of Near Shore FLNG with Side-by-Side Moored LNG Carrier in Shallow Water Depth OMAE2023-101405
Mun Sung Kim[1] J. H. Lim[2] R. H. Yuck[3] H. J. Kim[3] J. K. Heo[4]
1. Samsung Heavy Industries, Seong-nam, Korea; 2. SHI, Seong-nam, Korea; 3. SHI, Daejeon, Korea; 4. DNV, Busan, Korea

Structures, Safety and Reliability

02-01-01 Structural Analysis and Optimisation I

Monday June 12 | Room **212** | **13:30–15:00**

Session Organizer: Jonas Ringsberg, Chalmers University of Technology, Sweden
Session Co-Organizer: Paulo Videiro, CENTEC, Portugal

Working Load in a Container Stack Nonlinearity with Twist Lock Separation OMAE2023-101136
Fuminori Yanagimoto, Kinya Ishibashi
Nippon Kaiji Kyokai (Class NK), Tokyo, Japan

High Effectiveness of Stays against H-Mode Vibration of a Main Engine Even with a Foundation Having Reduced Rigidity on a Merchant Ship OMAE2023-102715
Ryo Matsuo, Shuichi Yamatoki, Hiroyuki Onizuka
Namura Shipbuilding Co., Ltd., Imari-Shi, Japan

A Monte Carlo Approach for VIV Fatigue Damage Estimation of Subsea Pipelines Subjected to Design, Installation and Operational Uncertainties OMAE2023-102864
Leonardo Sales, Mohammed Mohammed, Cyprian Gil
Wood PLC, Stavanger, Norway

Effect of Nonlinearity on Tubular Joint of Jacket Structure and Its Response under Dynamics Loading OMAE2023-108068
Ram Kumar, Deepak Kumar
Indian Institute of Technology Madras, Chennai, TN, India

Structures, Safety and Reliability

02-02-01 Ultimate Strength I

Monday June 12 | Room **213** | **13:30–15:00**

Session Organizer: Deyu Wang, Shanghai Jiao Tong University, China
Session Co-Organizer: Yasuhira Yamada, National Maritime Research Institute, Japan

How Loads Interact? A Numerical Investigation of Aluminum Stiffened Panels under Bi-Axial and Lateral Loads OMAE2023-100743
Xintong Wang, Jørgen Amdahl
Norwegian University of Science and Technology, Trondheim, Norway

Progressive Collapse Behavior of Ship Structures considering Fluid-Structure Interaction Effect OMAE2023-102755
Ji Zhou[1] Zhiyong Pei[1] Weiguo Wu[1] Jianliang Ding[2]
1. Wuhan University of Technology, Wuhan, China; 2. China Merchants Jinling Dingheng Shipbuilding, Yangzhou, China

Application of Different Methods to Determine the Ultimate Strength of Ships in Bending OMAE2023-103731
Thomas Lindemann[1] Alessandro La Ferlita[2] Emanuel Di Nardo[3] Patrick Kaeding[1]
1. University of Rostock, Rostock, Germany; 2. American Bureau of Shipping, ABS Europe Ltd., Hamburg, Germany; 3. University of Naples Parthenope, Department of Science and Technology, Naples, Italy, Napoli, Italy

Local Buckling Analysis and Evaluation Method of Dented Submarine Pipelines under the Combined Loadings OMAE2023-104656
Fuheng Hou, Yanfei Chen, Yu Liu, Shengjun Chen, Chunsha Wang, Ruihao Liu
China University of Petroleum, Beijing, China

Pipeline, Risers, and Subsea Systems

04-01-01 Flexible Pipes and Umbilicals I

Monday June 12 | Room **210** | **13:30–15:00**

Session Organizer: Zhimin Tan, BH, USA

Unbonded Flexible Pipeline Upheaval Buckling Design and Sensitivity Analysis OMAE2023-102019
Morten Eriksen[1] Anders A. Larsen[1] Tommy Pedersen[1] Henrik Ollgaard Larsen[1] Andrew Shanks[2] Thierry Gavouyere[3] Johan Kristian Boe[4] Rui Caracol[5] Jian Liu[6] Richard Clements[6] Roberta Pires[7] Linfa Zhu[8] Zhimin Tan[8]
1. NOV, Brøndby, Denmark; 2. TechnipFMC UK, Westhill, Aberdeenshire, United Kingdom; 3. TechnipFMC FlexiFrance, Le Trait, France; 4. TechnipFMC Norway, Lysaker, Norway; 5. TechnipFMC, Lisbon, Portugal; 6. Baker Hughes, Newcastle Upon Tyne, United Kingdom; 7. Baker Hughes, Lisbon, Portugal; 8. Baker Hughes, Houston, TX, USA

Upheaval Buckling Analysis of the Large Deformation of Unbonded Flexible Pipe under Cyclic Pressure and Temperature Loadings OMAE2023-103676
Jian Liu[1] Linfa Zhu[2] Zhimin Tan[2] Andrew Roberts[1] Sean Murray[3] Euan Trousdale[3] Juliana Patrocinio[3] Clara Casanovas Revilla[3] Mario Augusto Lopes de Castro[4]
1. Baker Hughes, Newcastle, United Kingdom; 2. Baker Hughes, Houston, TX, USA; 3. Lloyd's Register, Aberdeen, United Kingdom

New Temporal Approach to Evaluate the Lateral Buckling of Armour Wires OMAE2023-104633
Ludovic Bouy[1] Phellip Frigeri[2] Gilles Lemonnier[1] Pascal Estrier[1]
1. TechnipFMC, Le Trait, France; 2. TechnipFMC Brazil, Rio de Janeiro, RJ, Brazil

State-of-the-Art Methodologies for Upheaval Buckling Design of Flexible Pipes OMAE2023-105427
Lars Wist Amdal, Sune Pettersen, Geir Skeie, Sigbjørn Røneid, Leif Collberg
DNV, Høvik, Norway

Ocean Space Utilization

05-01-01 New Concepts for Ocean Space Utilization I

Monday June 12 | Room **207** | **13:30–15:00**

Session Organizer: Tomoki Ikoma, Nihon University, Japan

Session Co-Organizer: Yutaro Sasahara, Tokyo University of Marine Science and Technology, Japan

Design and Dynamic Analysis of Shared Mooring System between a Semi-Submersible Offshore Fish Cage and a Spar-Type Floating Offshore Wind Turbine OMAE2023-101055
Yu Ma[1] Lin Li[1] Muk Chen Ong[1] Jingzhe Jin[2] Biao Su[3]
1. University of Stavanger, Stavanger, Norway; 2. Shanghai Jiao Tong University, Trondheim, Norway; 3. SINTEF Ocean, Trondheim, Norway

A Design and Study on a New Kelp Culture Facility OMAE2023-103027
Yushun Lian[1] Shutian Shen[1] Jinhai Zheng[1] Samuel Boamah[1] Solomon C. Yim[2]
1. Hohai University, Nanjing, China; 2. Oregon State University, Nanjing, China

Innovative Crash Barrier Concepts to Prevent Ship Collisions with Wind Turbines OMAE2023-103850
William Otto, Yvonne Koldenhof, Bas Buchner
Maritime Research Institute Netherlands, Wageningen, Netherlands

Development of Integrated Acoustic Communication and Positioning System for Operation of Autonomous Underwater Vehicle and a Sea Trial OMAE2023-106749
Yoshitaka Watanabe[1] Satoshi Kondo[2] Koji Meguro[2] Takuya Shimura[1] Mitsuyasu Deguchi[1] Yukihiro Kida[1]
1. JAMSTEC, Yokosuka, Japan; 2. Hitachi Ltd., Yokohama, Japan

Ocean Engineering

06-03-01 Fluid-Structure, Multi-body and Wave-body Interaction I

Monday June 12 | Room **204** | **13:30–15:00**

Session Organizer: Shuzheng Sun, Harbin Engineering University, China

Environmental Loading on a Concrete Gravity-Based Offshore Structure in the Presence of Freak Waves and Currents OMAE2023-101645
M Hasanat Zaman, Ayhan Akinturk
National Research Council Canada, St. John's, NL, Canada

Data Informed Sequential Model Test Design with Machine Learning – an Example in Nonlinear Load on Vertical Cylinder. OMAE2023-102682
Tianning Tang[1] Haoyu Ding[2] Saishuai Dai[3] Xi Chen[2] Paul H. Taylor[4] Jun Zang[2] Thomas A. A. Adcock[1]
1. University of Oxford, Oxford, United Kingdom; 2. University of Bath, Bath, United Kingdom; 3. University of Strathclyde, Glasgow, United Kingdom; 4. University of Western Australia, Crawley, WA, Australia

Nonlinear Dynamic Feature of the Fluid Resonance in a Recessing-Type Moonpool OMAE2023-100668
Zhiwei Song, Guoqiang Tang, Lin Lu
Dalian University of Technology, Dalian, China

Ocean Engineering

06-04-01 Marine Engineering and Technology I

Monday June 12 | Room **203** | **13:30–15:00**

Session Organizer: Yi-Hsiang Yu, NyCU, Taiwan

Digital Twin for Autonomous Surface Vessels to Generate Situational Awareness OMAE2023-100626
Daniel Menges, Simon Mork Sætre, Adil Rasheed
Norwegian University of Science and Technology, Trondheim, Norway

Modelling and Operation of a Hybrid LNG Propulsion Tugboat OMAE2023-100911
Sharul Baggio Mohamed Roslan[1] Dimitrios Konovessis[2] Joo Hock Ang[3] Nirmal Vineeth Menon[4] **Zhi Yung Tay[1]**
1. Singapore Institute of Technology, SIngapore, Singapore; 2. University of Strathclyde, Glasgow, United Kingdom; 3. Sembcorp Marine, Singapore, Singapore; 4. Sembcorp Marine Limited, Singapore, Singapore

Lifecycle Assessment of Fuel Saving in Bulk Carrier with a Flettner Rotor OMAE2023-101078
Naoto Sogihara, Kenichi Kume
National Maritime Research Institute, Mitaka-shi, Japan

Electrification of the Coastal Fishing Fleet Using Hydrogen and Ammonia-Fed Fuel Cells OMAE2023-101707
Sepideh Jafarzadeh[1] Jarle Ladstein[1] Anders Ødegård[2] Kyrre Sundseth[2] Miguel Muñoz Ortiz[2] Randulf Høyli[3] Federico Zenith[4]
1. SINTEF Ocean, Trondheim, Norway; 2. SINTEF Industry, Trondheim, Norway; 3. SINTEF Nord, Tromsø, Norway; 4. SINTEF Digital, Trondheim, Norway

Ocean Engineering

06-05-01 Marine Hydrodynamics I

Monday June 12 | Room **218** | **13:30–15:00**

Session Organizer: Zhengshun Cheng, SJTU, China

Hydrodynamic Response Analysis of Ultra-Deep Water FPSO System Using Ansys Aqwa, Wamit, and HydRA OMAE2023-100687
K. Sridhar, S. A. Sannasiraj, R. Sundaravadivelu
Indian Institute of Technology Madras, Chennai, TN, India

Numerical Investigation of Hull Vane on a Medium Froude Number Displacement Hull OMAE2023-100975
Sathiyamoorthy Gopinath, Kumar Ashok, Vijayakumar Rajagopalan
Indian Institute of Technology Madras, Chennai, TN, India

Motion Response Study of the Floating Dock during the Spar Installation OMAE2023-102792
Soumyashree Pani, Nilanjan Saha, R. Sundaravadivelu
Indian Institute of Technology, Chennai, TN, India

Comparison between Experiments and Simulations for a Ship Maneuvering in Waves OMAE2023-103432
Krishnavelu Ramachandran[1] Visharad Borsutkar[2] Abhilash Sharma Somayajula[2]
1. Indian Institute of Technology Madras, Ramanathapuram, TN, India; 2. Indian Institute of Technology Madras, Chennai, TN, India

Polar and Arctic Sciences and Technology

07-01-01 Arctic Frontier Regions and Propulsion in Ice

Monday June 12 | Room **208** | **13:30–15:00**

Session Organizer: Kristjan Tabri, TalTech, Estonia
Session Co-Organizer: Mikko Suominen, Aalto University, Finland

SASIL: a Semi-Automated Sea-Ice Labeling Method Based on Erosion Algorithms OMAE2023-102938
Jianxiong Fei, Jinyan Cai, Shifeng Ding, Renwei Liu, Aimin Wang, Sijie Zheng
Jiangsu University of Science and Technology, Zhenjiang, China

On the Relationship between Spectral Models of Ice Drift and Wind Turbulence OMAE2023-104751
Chana Sinsabvarodom[1] Bernt J. Leira[1] Knut V. Høyland[1] Wei Chai[2] Arvid Naess[1] Gowtham Radhakrishnan[1]
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Wuhan University of Technology, Wuhan, China

Influence of Propeller-Ice Loads on the Wear Development in Stern Tube Bearings of Marine Propulsion Systems and Identification of Critical Operating Conditions. OMAE2023-102785
Markus Gilges[1] Ahmed Saleh[1] Mohit Jain[1] Anriëtte Bekker[2] Benjamin Lehmann[1] Georg Jacobs[1]
1. RWTH Aachen - Institute for Machine Elements and System Engineering, Aachen, Germany; 2. Department of Mechanical and Mechatronic Engineering, Stellenbosch University, Stellenbosch, South Africa

Verification of Inverse Propeller Moment Estimation Using a Scale Laboratory Rig: Further Results and Discussion OMAE2023-104878
Brendon Nickerson, Jaco Laas, Anriette Bekker
Department of Mechanical and Mechatronic Engineering, Stellenbosch University, Stellenbosch, South Africa

CFD, VIV and FSI

08-01-01 Risers, Pipelines & VIV I

Monday June 12 | Room **209** | **13:30–15:00**

Session Organizer: Jie Wu, SINTEF, Norway
Session Co-Organizers: Themistocles Resvanis, MIT, USA; Owen Oakley, Retired, USA

Vortex-Induced Vibrations of a Dynamic Power Cable for Floating Wind Turbines OMAE2023-100890
Peter Elrick, Vengatesan Venugopal
University of Edinburgh, Edinburgh, United Kingdom

CFD Simulation of Vortex-Induced Vibration of a Flexible Cylinder with Buoyancy Module under Uniform Flow Using a Two-Way Coupled Model OMAE2023-103724
Karthikeyan S, Nallayarasu S
Indian Institute of Technology Madras
, Chennai, TN, India

Fluid-Structure Interaction Vibration of Flexible Riser Transporting High-Speed Spiral Flow in Deep-Sea Mining OMAE2023-104301
Jiayu Zhang, Nian-Zhong Chen, **Cong Shen**
Tianjin university, Tianjin, China

Investigation on Optimization of Helical Strakes Layout of Marine Riser Vortex-Induced Vibration Suppression Device OMAE2023-104396
Pengqian Deng, Shixiao Fu, Mengmeng Zhang, Haojie Ren, Yuwang Xu, Tongxiao Sun
Shanghai Jiao Tong University, Shanghai, China

Ocean Renewable Energy

09-01-01 Offshore Wind Energy – Installation

Monday June 12 | Room **216** | **13:30–15:00**

Session Organizer: Shuaishuai Wang, NTNU, Norway

Estimation for the Efficiency of Offshore Installation Process of Floating Offshore Wind Turbines in Japan OMAE2023-100973
Tomohiro Hasumi, Takeshi Yokoi, Ken Haneda, Toshiki Chujo, Toshifumi Fujiwara
National Maritime Research Institute, Mitaka-shi, Japan

Comparative Study for Numerical Modelling and Analysis of Floating Offshore Wind Onsite Installation OMAE2023-101206
Sunghun Hong[1] Shuai Yuan[2] Houxiang Zhang[2] Karl Henning Halse[2]
1. Norwegian University of Science and Technology, Sandnes, Norway;
2. Norwegian University of Science and Technology, Ålesund, Norway

Maritime Navigation Simulations to Measure Captain's Perceived Operational Limits for Wind Turbine Feeder Barges OMAE2023-107819
Ali Mohtat[1] Melissa Hertel[2] Christopher Hooper[2] Charles Jors[2] Coulston Van Gundy[2] Benjamin Souquet[2]
1. Crowley Engineering Services, Corvallis, OR, USA; 2. Crowley Engineering Services, Seattle, WA, USA

Predicting Weather Down Time for an Offshore Wind Turbine Installation Vessel (WTIV) with Feeders Using Rapid Spectral Rao-Based Hindcast Vessel Motions in Wave Environment OMAE2023-107904
Ali Mohtat[1] **Melissa Hertel**[2] Christopher Hooper[2] Charles Jors[2] Benjamin Souquet[2] Coulston Van Gundy[2]
1. Crowley Engineering Services, Corvallis, OR, USA; 2. Crowley Engineering Services, Seattle, WA, USA

Ocean Renewable Energy

09-02-01 Wave Energy – Environment

Monday June 12 | Room **217** | **13:30–15:00**

Session Organizer: Azam Dolatshahi, BMT, Australia

Session Co-Organizer: Masoud Hayatdavoodi, The University of Dundee, United Kingdom

Experimental Study of Ocean Wave Refraction Using an Array of Wave Energy Converters OMAE2023-104119
Nataliia Sergiienko, William Tuck, Patrick Cannard, Mikaela Georgiadis, Benjamin Capper, Jesse Schultz, James Cleggett, Benjamin Cazzolato
University of Adelaide, Adelaide, SA, Australia

Techno-Economic Modeling of Marine Energy Systems with the System Advisor Model OMAE2023-105102
Elena Baca
National Renewable Energy Laboratory, Golden, CO, USA

Optimized U-Shaped OWC Wave Energy Converter in the Mediterranean Sea OMAE2023-105242
Alessandra Romolo[1] **Felice Arena**[2]
1. University Mediterranea of Reggio Calabria, Reggio Calabria, Italy;
2. NOEL Laboratory - University Mediterranean of Reggio Calabria, Reggio Calabria, Italy

Parametric Study of Umbilical Cable and Mooring Line Dynamics with Nonlinear Wave Propagation in Varying Sea Conditions OMAE2023-108186
Bruce Dae Joong Kim, **Nasim Adami**, Ming Chen, Solomon C. Yim
Oregon State University, Corvallis, OR, USA

Offshore Geotechnics

10-01-01 Seabed Properties and Processes and Fluid-Soil-Structure Interaction

Monday June 12 | Room **206** | **13:30–15:00**

Session Organizer: Denby Morrison, Shell, USA

Session Co-Organizers: Pauline Kaminski, Hamburg University of Technology, Germany; Ashley Dyson, University of Tasmania, Australia

Miniaturised Testing Device for the Qualitative Analysis of Gas Exsolution in Soil OMAE2023-101605
Pauline Kaminski, Jürgen Grabe, Zeest Fatima
Hamburg University of Technology, Hamburg, Germany

Shansep-Based Approach to Account for Consolidation Induced Strength Gain in Capacity Assessment of Shallow Foundations OMAE2023-107626
Hongjie Zhou[1] Chao Sun[1] Henry Krisdani[1] Helena Dias[2]
1. Norwegian Geotechnical Institute, Perth, WA, Australia; 2. Equinor ASA, Oslo, Norway

Friction Weakening Mechanism of Sandy Seabed around a Suction Pile under Ocean Wave Loading OMAE2023-101571
Jingyao Ma[1] Dong S. Jeng[2]
1. Griffith University, Southport, QLD, Australia; 2. Griffith University, Gold Coast, QLD, Australia

Wave-Induced Dynamic Seabed Response around a Submerged Breakwater with Dynamic Permeability OMAE2023-103600
Zhengxu Li[1] Dong-Sheng Jeng[2]
1. Griffith University, Molendinar, QLD, Australia; 2. Griffith University, Gold Coast, QLD, Australia

Petroleum Technology

11-03-01 Data Science Applications in Drilling Engineering I

Monday June 12 | Room **211** | **13:30–15:00**

Session Organizer: Arild Saasen, University of Stavanger, Norway

Session Co-Organizer: Ergun Kuru, University of Alberta, Canada

Research on Lost Circulation Diagnosis Model Based on Smote-Tomek and Stacking Ensemble Learning OMAE2023-103412
Liang Han[1] Xianzhi Song[1] Haolin Zhang[2] **Zehao Lv**[3] Detao Zhou[1] Zhaopeng Zhu[1] Xuezhe Yao[1] Rui Zhang[1]
1. China University of Petroleum, Beijing, China; 2. SINOPEC Research Institute of Petroleum Engineering Co., Ltd, Beijing, China; 3. Petrobras - Petróleo Brasileiro S.A., Beijing, China

Real-Time Automatic Prediction, Detection, and Mitigation of Fluid Loss during Drilling Operation Employing along String Measurement (ASM) Data along Wired Drill Pipes by Using Digital Twin in Norwegian Continental Shelf OMAE2023-103528
Mostafa Gomar, Behzad Elahifar
Norwegian University of Technology, Trondheim, Norway

Machine Learning Models for Predicting Cuttings Concentration in Annulus Based on Flowloop Experimental Data OMAE2023-104720
Sartika Dwi Purwandari[1] Bjørnar Lund[2] Sigve Hovda[1]
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. SINTEF, Trondheim, Norway

A Hybrid Approach to Detect Bad Hole Cleaning OMAE2023-108151
Mandar Tabib[1] **Philippe Nivlet**[2] Jan Ole Skogestad[2] Roar Nybø[2] Adil Rasheed[3]
1. SINTEF, Trondheim, Norway; 2. SINTEF, Bergen, Norway; 3. Norwegian University of Science and Technology, Trondhiem, Norway

Blue Economy Symposium

13-01-01 Blue Economy I

Monday June 12 | Room **214** | **13:30–15:00**

Session Organizer: Per Arild Aland, DNV, Norway

Session Co-Organizer: C M Wang, The University of Queensland, Australia

The Blue Economy Cooperative Research Centre Path to Sustainable Integrated Systems for Offshore Aquaculture: Salmon Production Biology and What It Contributes to Advancing Offshore Aquaculture OMAE2023-100870
Chris G. Carter
University of Tasmania, Hobart, TAS, Australia

Hydroelastic Analysis of Submersible Circular Seaweed Platform OMAE2023-100857
H. P. Nguyen[1] C. M. Wang[1] R. Tullberg[1] X. Zhang[1] B. von Herzen[2]
1. The University of Queensland, Brisbane, QLD, Australia; 2. The Climate Foundation, Queensland, QLD, Australia

Jellyfish Deflection from Marine Fish Pens Using Bubbler Technology OMAE2023-101058
Premkumar Thodi[1] Vandad Talimi[1] Lei Liu[1] Jan Thijssen[1] David Gauthier[2] Mario Paris[2]
1. C-CORE, St. John's, NL, Canada; 2. CanadianPond.ca Products Ltd., Lac-Brome, QC, Canada

Determination of Mooring Load Levels on a Cage Designed for Exposed Aquaculture in Chile OMAE2023-101308
Cristian Cifuentes[1] Gonzalo Tampier[1] Alonso Echevarría[2] Carlos Hurtado[3]
1. Universidad Austral de Chile, Valdivia, Chile; 2. AEX Group SPA, Puerto Montt, Chile; 3. Pontificia Universidad Católica de Valparaíso, Valparaíso, Chile

CONCURRENT SESSIONS
15:30 – 17:30

Offshore Technology

01-01-01 Offshore Platforms

Monday June 12 | Room **205** | **15:30–17:00**

Session Organizer: Anil Sablok, Technip Energies, USA
Session Co-Organizer: Allan R Magee, Consultant, USA

Study on Deformation Analysis and Prediction Method of Multi-Function FPSO Hull OMAE2023-102830
Hongtao Yuan[1] Huilong Ren[2] Gang Chen[1] Yan Yin[1] Chao Wang[1] Bin Wu[1]
1. Shanghai Waigaoqiao Shipbuilding Co. Ltd., Shanghai, China; 2. Harbin Engineering University, Harbin, China

Study on Cantilever Weighing Technology of Jackup OMAE2023-103327
Hankun Yang, Yan Wen, Bo Zhou, Chunhui Li, Shida Fan, Yongsi Yan
Shanghai Waigaoqiao Shipbuilding Co. Ltd., Shanghai, China

An Efficient Time Domain Structural Assessment of a Floating Wind Turbine Structure OMAE2023-108155
Hyungtae Lee[1] Joongyu Kim[2] Jongoh Kim[2] Zhirong Shen[1] Johyun Kyoung[1] Aldric Baquet[1] Heejung Lee[1] Jang Whan Kim[1]
1. Front Energies, Houston, TX, USA; 2. Korean Register, Busan, Korea

Emissions Reduction Action Plan (ERAP) – Proven Approach for Asset Decarbonization OMAE2023-108469
Felix Ritchie
Worley, Aberdeen, United Kingdom

Structures, Safety and Reliability

02-01-02 Structural Analysis and Optimisation II

Monday June 12 | Room **212** | **15:30–17:00**

Session Organizer: Jonas Ringsberg, Chalmers University of Technology, Sweden
Session Co-Organizer: Paulo Videiro, CENTEC, Portugal

A Tensile Test and Its Finite Element Analysis Prediction of DH36 High-Tensile Steel at Cryogenic Temperature OMAE2023-102747
Haris Nubli[1] Sang Jin Kim[2] Jung Min Sohn[1] Dongho Jung[3] Joung Hyung Cho[1]
1. Pukyong National University, Busan, Korea; 2. National Sun Yat-sen University, Kaohsiung, Taiwan; 3. Korea Research Institute of Ships and Ocean Engineering, Daejeon, Korea

Research on a General Virtual Visualization Approach of Finite Element Analysis Result Data of Ship Structure OMAE2023-102376
Pengyu Wei[1] **Chuntong Li**[2] Naikun Wei[3] Ze Jiang[4] Xiaomeng Luo[3] Deyu Wang[2]
1. Shanghai Jiao Tong University, Wuxi, China; 2. Shanghai Jiao Tong University, Shanghai, China; 3. Shipbuilding Technology Research Institute, Shanghai, China; 4. China Ship Scientific Research Center, Shanghai, China

A Preliminary Study on Design Optimisation of Submerged Floating Tunnels OMAE2023-107918
Wei Lin[1] Yinghui Tian[2] Mark Cassidy[1]
1. University of Melbourne, Melbourne, VIC, Australia; 2. Department of Infrastructure Engineering – Faculty of Engineering and Information Technology, Melbourne, VIC, Australia

Structures, Safety and Reliability

02-02-02 Ultimate Strength II

Monday June 12 | Room **213** | **15:30–17:00**

Session Organizer: Deyu Wang, Shanghai Jiao Tong University, China
Session Co-Organizer: Yasuhira Yamada, National Maritime Research Institute, Japan

Scaling Characteristics of the Unified Similarity Criterion for Geometrically Distorted Scale Models OMAE2023-101312
Yao Wang[1] Qinghu Wang[2] Deyu Wang[1]
1. Shanghai Jiao Tong University, Shanghai, China; 2. Kunming Precision Machiney Research Institute, Kunming, China

A Simple Estimation Method for Ultimate Strength of Curved Plates under Axial Compression OMAE2023-102688
Daisuke Shiomitsu[1] Kinya Ishibashi[1] Fuminori Yanagimoto[1] Masahiko Fujikubo[2]
1. Nippon Kaiji Kyokai (Class NK), Chiyoda-ku, Japan; 2. Osaka University and Hiroshima University, Chiyoda-ku, Japan

Buckling and Post-Buckling Behaviour of Extruded Aluminium Panels Subject to the Combined Effect of Welding and Pitting Corrosion OMAE2023-105048
Mojtaba Mokhtari, Xintong Wang, Jørgen Amdahl
Norwegian University of Science and Technology, Trondheim, Norway

Investigation of Container Ship Structural Dynamic Ultimate Strength under Combined Bending, Torsion and Lateral Pressure OMAE2023-107994
Weilong Zhang, **Jinju Cui**, Deyu Wang
Shanghai Jiao Tong University, Shanghai, China

Pipeline, Risers, and Subsea Systems

04-01-02 Flexible Pipes and Umbilicals II

Monday June 12 | Room **210** | **15:30–17:00**

Session Organizer: Celso Pesce, University of Sao Paulo, Brazil
Session Co-Organizer: Zhimin Tan, BH, USA

An Irregular Wave Approach to Fatigue Life Capacity for Flexible Risers with Severed or Corroded Tensile Armors OMAE2023-101167
Krassimir Doynov[1] Nathan Cooke[2] Dharma Pasala[3] Arya Majed[3]
1. ExxonMobil, Houston, TX, USA; 2. Intecsea, St. John's, NL, Canada; 3. Intecsea, Houston, TX, USA

Calibration of Dynamic Riser Analysis Using Measured Motion Data OMAE2023-104682
Karina Bruun Mortensen, Håvard Skjerve
4Subsea, Asker, Norway

Frequency Domain Analysis and Machine Learning Technique in Field Fatigue Monitoring of Flexible Risers OMAE2023-104905
Jiabei Yuan[1] Linfa Zhu[2] Yucheng Hou[2] Zhimin Tan[2] Eric Wilson[3]
1. Baker Hughes, Katy, TX, USA; 2. Baker Hughes, Houston, TX, USA; 3. Baker Hughes, Newcastle, United Kingdom

Flexible Pipe Fatigue Life Evaluation Based on a Dynamic Full-Scale Test considering a Preconditioning Corrosion Procedure OMAE2023-106952
Tiago Brun Coser[1] Luiz Antonio Sulino de Negreiros[2] George Carneiro Campello[1] Erik Duarte Radke[3] Carolina Delwing Rosa[3] Derek Fonseca De Souza[3] Luiz Francisco Venturini Rodrigues[3] Tiago Samuel Renck[3] Mariana dos Reis Tagliari[3] Marcelo Favaro Borges[3]
1. Petrobras, Rio de Janeiro, RJ, Brazil; 2. Petrobras, Santos, SP, Brazil; 3. LAMEF (UFRGS), Porto Alegre, RS, Brazil

Ocean Space Utilization

05-03-01 Deepsea Mining and Ocean Resources

Monday June 12 | Room **207** | **15:30–17:00**

Session Organizer: Tomoki Ikoma, Nihon University, Japan

Session Co-Organizer: Marcio Yamamoto, National Maritime Research Institute, Japan

Numerical Simulation on Gas–Liquid–Solid Three-Phase Flow by Gas-Lift Pumping System for Deep Sea Mining OMAE2023-100624
Satoru Takano, Sotaro Masanobu
National Maritime Research Institute, Mitaka, Japan

Study on Large Particle Slurry Transport in Inclined Pipes with Pulsating Flow for Subsea Mining OMAE2023-100939
Sotaro Masanobu[1] Satoru Takano[1] Marcio Yamamoto[1] Yuichi Murai[2] Yuji Tasaka[2] Hyun Jin Park[2]
1. National Maritime Research Institute, Mitaka, Japan; 2. Hokkaido University, Sapporo, Japan

Study on the Axial Tension Reduction of a Dual-Bore Vertical Riser System for Deep Sea Mining OMAE2023-101679
Marcio Yamamoto, Joji Yamamoto, Sotaro Masanobu
National Maritime Research Institute, Mitaka-shi, Japan

Localization and Mapping for Deep-Sea Mining Vehicles with Forward-Looking Sonar OMAE2023-104924
Wenhao Xu, Jianmin Yang, Handi Wei, Haining Lu, Xinliang Tian, Lei Liu
Shanghai Jiao Tong University, Shanghai, China

Polar and Arctic Sciences and Technology

07-02-01 Arctic Sea Transportation I

Monday June 12 | Room **208** | **15:30–17:00**

Session Organizer: Mikko Suominen, Aalto University, Finland

Session Co-Organizer: Wei Chai, Wuhan University of Technology, China

Towards Functional Design for the Risk Management System of Maritime Accidents in Ice-Covered Arctic Waters from Resilience Perspectives OMAE2023-101081
Shanshan Fu[1] **Mingyan Wu**[1] Mingyang Zhang[2] Bing Han[3] Zhongdai Wu[3]
1. Shanghai Martime University, Shanghai, China; 2. Aalto University, Espoo, Finland; 3. Shanghai Ship and Shipping Research Institute, Shanghai, China

Development of Ice-Load Algorithm for Real-Time Feedback during Simulator Training OMAE2023-101443
Logan P. Miller[1] Bruce Quinton[2] Jonathan Soper[2] Brian Veitch[2]
1. Memorial University of Newfoundland, Truro Heights, NS, Canada; 2. Memorial University of Newfoundland, St. John's, NL, Canada

Challenges of the Digital Transformation for Shipping: Human-Centered Design for Marine Navigation Systems OMAE2023-101455
Jonathan Soper[1] Jennifer Smith[2] Thomas Browne[3] Brian Veitch[1]
1. Memorial University of Newfoundland, St. John's, NL, Canada; 2. Fisheries and Marine Institute, St. John's, NL, Canada; 3. National Research Council Canada, St. John's, NL, Canada

Assist Observations 2017-2021: Uncertainty, Comparison with Sea Ice Charts, and Ice Concentration from Deep Learning Models OMAE2023-101757
Nabil Panchi[1] Ekaterina Kim[1] Roger Skjetne[1] Nick Hughes[2]
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Norwegian Meteorological Institute, Tromsø, Norway

CFD, VIV and FSI

08-01-02 Risers, Pipelines & VIV II

Monday June 12 | Room **209** | **15:30–17:00**

Session Organizer: Themistocles Resvanis, MIT, USA

Session Co-Organizers: Jie Wu, SINTEF, Norway; Owen Oakley, Retired, USA

Experimental Investigation on Hydrodynamic Characteristics of Water Intake Riser Undergoing Vortex-Induced Vibration in Uniform Flow OMAE2023-104436
Yingli Bai, Mengmeng Zhang, Yuwang Xu, Haojie Ren, Shixiao Fu, Jing Wang, Bin Song
Shanghai Jiao Tong University, Shanghai, China

Numerical Simulations of Three-Dimensional Scour below Subsea Pipelines/Cables OMAE2023-104579
Bingchang Zhang, Hongwei An, Scott Draper, Hongyi Jiang, Liang Cheng
The University of Western Australia, Crawley, WA, Australia

A Report from the Drilling Riser VIV and Wellhead Fatigue Jip: Full-Scale Drilling Riser VIV Measurements and Comparisons with Predictions OMAE2023-104900
Themistocles Resvanis[1] J. Kim Vandiver[2] Scot Mcneill[3]
1. Massachusetts Institute of Technology, Boston, MA, USA; 2. Massachusetts Institute of Technology, Cambridge, MA, USA; 3. Stress Engineering Services, Houston, TX, USA

Stochastic Vortex-Induced Vibration in Free-Stream Turbulence Using a Phenomenological Model OMAE2023-105249
Rameez Badhurshah[1] Narakorn Srinil[1] John Chaplin[2] Philipp Thies[3] Lars Johanning[3] Alistair Borthwick[4] Vengatesan Venugopal[4]
1. Newcastle University, Newcastle Upon Tyne, United Kingdom; 2. University of Southampton, Southampton, United Kingdom; 3. University of Exeter, Penryn, United Kingdom; 4. University of Edinburgh, Edinburgh, United Kingdom

Ocean Renewable Energy

09-01-02 Offshore Wind Energy – Structural Dynamics

Monday June 12 | Room **216** | **15:30–17:00**

Session Organizer: Peter Rohrer, NTNU, Norway

Session Co-Organizer: Amy Robertson, NREL, USA

The Adaption of Condition Monitoring Methodologies from Fixed Wind and Floating Oil and Gas to Floating Offshore Wind. OMAE2023-104715
Kanishka Jayasinghe[1] Jon Gumley[1] Clare Thomas[1] Frank Lemmer[2] Steffen Raach[2]
1. AMOG Consulting, Notting Hill, VIC, Australia; 2. Sowento, Stuttgart, Germany

Damage Initiation in the Coating of Wind Turbine Blades Subjected to Repeated Rain-Drop Impacts: a Continuum Damage Mechanics Approach OMAE2023-102765
Nikesh Kuthe[1] Vibhuti Bhushan Pandey[1] **Suhail Ahmad**[1] Puneet Mahajan[1] Leon Mishnaevsky Jr[2]
1. Indian Institute of Technology Delhi, Delhi, DL, India; 2. Technical University of Denmark, Roskilde, Denmark

Wind Turbine Load Monitoring during Model-Test in a Wave Basin OMAE2023-103266
Sebastien Gueydon[1] Ilmas Bayati[2] Rene Bosman[3] Wouter Van Kampen[3] Erik-Jan de Ridder[3]
1. O3 Engineering Consulting (Sole trader), Springwood, NSW, Australia; 2. Peak-wind, Copenhagen, Denmark; 3. Maritime Research Institute Netherlands, Wageningen, Netherlands

Serviceability Limit State Assessment of Semi-Submersible Floating Wind Turbines OMAE2023-108172
Shuaishuai Wang, Torgeir Moan
Norwegian University of Science and Technology, Trondheim, Norway

Ocean Renewable Energy

09-02-02 Wave Energy – Design and Performance Analysis I

Monday June 12 | Room **217** | **15:30–17:00**

Session Organizer: Binbin Zhao, Harbin Engineering University, China

Session Co-Organizer: Masoud Hayatdavoodi, The University of Dundee, United Kingdom

Experimental Investigation on Dynamic Responses of Floating-Point Absorber Wave Energy Systems OMAE2023-102107
K Aiswaria, Balaji Ramakrishnan
Indian Institute of Technology Bombay, Mumbai, MH, India

Dynamic Response of a Taut-Moored Floating Oscillating Water Column Wave Energy Converter in Extreme Waves OMAE2023-104590
Eric Gubesch[1] Nagi Abdussamie[2] Irene Penesis[2] Christopher Chin[2]
1. Australian Maritime Colllege, Newnham, TAS, Australia; 2. University of Tasmania, Newnham, TAS, Australia

Investigation of Theoretical Solutions to a Bottom-Raised Oscillating Surge Wave Energy Converter (OSWEC) through Experimental and Parametric Studies OMAE2023-106657
Nhu Nguyen[1] Jacob Davis[2] **Krish Thiagarajan**[3] Nathan Tom[4] Salman Husain[5]
1. Sandia National Laboratory, Albuquerque, NM, USA; 2. University of Washington, Seattle, WA, USA; 3. University of Massachusetts, Amherst, MA, USA; 4. National Renewable Energy Laboratory, Golden, CO, USA; 5. National Renewable Energy Laboratory, Arvada, CO, USA

Hydrodynamic Performance of Three Different Oscillating Water Column Devices in Regular Waves OMAE2023-108074
Sandana Socrates S, Sriram Venkatachalam, Sundar V
Indian Institute of Technology Madras, Chennai, TN, India

Offshore Geotechnics

10-02-01 Fluid-Soil-Structure Interaction

Monday June 12 | Room **206** | **15:30–17:00**

Session Organizer: Denby Morrison, Shell, USA

Session Co-Organizers: Pavel Trapper, Ben-Gurion University of the Negev, Israel; Ashley Dyson, University of Tasmania, Australia

Coupled Hydrodynamic and Geotechnical Simulation of Floating Offshore Structures OMAE2023-104397
Ashley P. Dyson[1] Ali Tolooiyan[2] Gholamreza Kefayati[2]
1. University of Tasmania, Blackmans Bay, TAS, Australia; 2. University of Tasmania, Hobart, TAS, Australia

Integrated Modelling of Mooring Systems OMAE2023-104437
Wenlong Liu, Yinghui Tian, Mark Cassidy
The University of Melbourne, Melbourne, VIC, Australia

An Effect of Landslide Trigger Mechanisms on Potential Impact Forces on the Nearby Offshore Infrastructure OMAE2023-104497
Pavel A. Trapper[1] Avshalom Ganz[2] Miriam Gindis[3]
1. Ben-Gurion University of the Negev, Ashqelon, Israel; 2. Ariel University, Ariel, Israel; 3. Ben-Gurion University of the Negev, Beer Sheva, Israel

Residual Liquefaction Modeling Based on a Coupled Model: Biot's Partially Dynamic (u – p) Model OMAE2023-104822
Lin Cui[1] Zhipeng Wan[1] Dong-Sheng Jeng[2]
1. Qingdao University of Technology, Qingdao, China; 2. Griffith University, Gold Coast, QLD, Australia

Petroleum Technology

11-03-02 Data Science Applications in Drilling Engineering II

Monday June 12 | Room **211** | **15:30–17:00**

Session Organizer: Arild Saasen, University of Stavanger, Norway
Session Co-Organizer: Ergun Kuru, University of Alberta, Canada

Intelintelligent Optimization of Drilling Parameters Based on Multiple Drilling Agents OMAE2023-101084
Zhijun Pei[1] Xianzhi Song[1] Zhijian Hu[2] Tao Pan[1]
1. China University of Petroleum, Beijing, China; 2. CNPC Engineering Technology R&D Company Limited, Beijing, China

Early Stuck Detection Using Graph Attention Machine Learning OMAE2023-101928
Tomoya Inoue[1] Yujin Nakagawa[1] Tatsuya Kaneko[1] Ryota Wada[2] Keisuke Miyoshi[3] Shungo Abe[3]
1. JAMSTEC, Yokosuka, Japan; 2. The University of Tokyo, Kashiwa, Japan; 3. JOGMEC, Tokyo, Japan

Exploration of Strategies to Improve Continual Learning from Irregular Sequential Drilling Data OMAE2023-102300
Felix James Pacis[1] Tomasz Wiktorski[2] Adrian Ambrus[3] Sergey Alyaev[4]
1. University of Stavanger, Sola, Norway; 2. University of Stavanger, Stavanger, Norway; 3. Norwegian Research Center (NORCE), Stavanger, Norway; 4. Norwegian Research Center (NORCE), Bergen, Norway

Transient Temperature and Machine Learning Modeling for Wellbore Drilling OMAE2023-108000
Juan Camilo Gonzalez Angarita[1] Mesfin Belayneh[2] Bernt Aadnøy[2]
1. Pro Well Plan AS, Stavanger, Norway; 2. University of Stavanger, Stavanger, Norway

Blue Economy Symposium

13-01-02 Blue Economy II

Monday June 12 | Room **214** | **15:30–17:00**

Session Organizer: C M Wang, The University of Queensland, Australia
Session Co-Organizer: Nagi Abdussamie, Australian Maritime College, Australia

Hydroelastic Response of Submersible Open Net Fish Pens under Wave Action OMAE2023-101407
Yun Il Chu[1] Chien Ming Wang[2] Xinyu Zhang[1] Hong Zhang[1] Leigh Savage[3]
1. Griffith University, Southport, QLD, Australia; 2. The University of Queensland, St Lucia, QLD, Australia; 3. Huon Aquaculture Group Ltd., Tasmania, TAS, Australia

Novel Solution for Mitigating Sloshing in Floating Closed-Containment Aquaculture Tanks OMAE2023-102097
Johannes Wiegerink, Tom Baldock, David Callaghan, Chien Ming Wang
The University of Queensland, Brisbane, QLD, Australia

Numerical Modelling of the Performance of Floating Fish Pen in Harsh Environmental Conditions OMAE2023-103287
Nazhmiddin Nasyrlayev, Ashley Dyson, Gholamreza Kefayati, Ali Tolooiyan
University of Tasmania, Sandy Bay, TAS, Australia

A Comparative Study between Morison Equation and Screen-Type Method for Net Cages under Waves and Currents OMAE2023-104425
Mingyuan Ma[1] Hong Zhang[2] Dong-Sheng Jeng[2] Chien Ming Wang[3]
1. Griffith University, Southport, QLD, Australia; 2. Griffith University, Gold Coast, QLD, Australia; 3. The University of Queensland, Brisbane, QLD, Australia

Small Maritime Nations Symposium

14-01-01 Small Maritime Nations

Monday June 12 | Room **218** | **15:30–17:00**

Session Organizer: Hong Zhang, Griffith University, Australia

Assessing Underwater Noise Impact for Marine Projects OMAE2023-104358
Valeri V. Lenchine
GHD Pty Ltd, Melbourne, VIC, Australia

Ocean Thermal Energy Conversion and Sustainable Island Nations: The Case Study of the Island of Nauru OMAE2023-104431
Jessica Posterari[1] Takuji Waseda[1] Keiji Kiyomatsu[2]
1. University of Tokyo, Kashiwa, Japan; 2. Freelancer, Taketashi, Japan

Preparing for Climate Change Impacts at the Port Interface: P.N.G.P.C.L. Experience OMAE2023-105556
Eunice Dalton, **Vagi Eoima**
PNG Ports Corporation Limited, Port Moresby, Papua New Guinea

Tuesday Concurrent Sessions

CONCURRENT SESSIONS
08:30 – 10:00

Offshore Technology

01-04-01 Design & Analysis I

Tuesday June 13 | Room **205** | **08:30–10:00**

Session Organizer: Masoud Hayatdavoodi, The University of Dundee, United Kingdom
Session Co-Organizer: Xinshu Zhang, Shanghai Jiao Tong University, USA

Wellhead and Well Casing Integrity during an Event of Drift-Off: a Study Case of an Integrated Riser Analysis Solution Using on Site Conditions OMAE2023-100993
Acácio Sarnaglia Do Amaral[1] Edmo Araujo Das Virgens[2] Germain Venero[3] Thiago Mussel Dias Soares da Silva[3] Paul Bohan[4]
1. Petroleo Brasileiro SA Petrobras, Rio das Ostras, RJ, Brazil; 2. Constellation Serviços de Petróleo, Rio das Ostras, RJ, Brazil; 3. Wood PLC, Rio de Janeiro, RJ, Brazil; 4. Wood PLC, Galway, Ireland

Derivation of Adapted Soil Springs for the Buckling Analysis of Suction Caissons during Installation OMAE2023-103701
Juan Pablo Ramos[1] **Viktor Widerspan**[1] Dariya Heinrich[1] Manuela Böhm[2]
1. Fraunhofer Institute for Wind Energy Systems IWES, Hannover, Germany; 2. Leibniz University Hannover, Institute for Steel Construction, Hannover, Germany

Subsea Processing Optimization considering Reliability and Maintenance OMAE2023-104399
Leonardo Sales, Thomas Stolpnes, Milan Stanko, Audun Faanes
Norwegian University of Science and Technology, Trondheim, Norway

Minimum Operating Pressure to Prevent the Onset of Wrinkling Tendency in Mechanically Lined Pipes during Transient Shutdown Condition OMAE2023-105350
Venu Rao, Jens Fernandez-Vega
Subsea 7, Sutton, United Kingdom

Structures, Safety and Reliability

02-03-01 Collision and Crashworthiness

Tuesday June 13 | Room **212** | **08:30–10:00**

Session Organizer: Kristjan Tabri, TalTech, Estonia
Session Co-Organizer: Thomas Lindemann, University Rostock, Germany

Numerical Investigation of Scoured Bridge Response under Ship Collisions OMAE2023-101126
Zihao Wang, Yanyan Sha, Muk Chen Ong
University of Stavanger, Stavanger, Norway

The Safety Assessment of Ship-Bridge Collision Based on a Simplified Dynamic Model OMAE2023-101847
Wenzhe Zhang[1] Jin Pan[1] Na Li[2] Mingcai Xu[3]
1. Wuhan University of Technology, Wuhan, China; 2. China Railway Major Bridge Reconnaissance & Design Institute Co. Ltd., Wuhan, China; 3. Huazhong University of Science and Technology, Wuhan, China

Optimal Design for the Crashworthiness of the Hull Side Structure under the Impact of the Raked Bow OMAE2023-102705
Pengyao Yu[1] **Chengyu Zhang**[1] Runbei Zou[1] Qiang Wang[1] Boran Zhang[2]
1. Dalian Maritime University, Dalian, China; 2. University of Melbourne, Melbourne, VIC, Australia

Study on Crashworthiness Performance of an Airbag Anti-Collision Device for Vessel-Bridge Collision OMAE2023-103776
Jin Pan[1] Hao Peng[1] Jianqiang Gan[2] Wenzhe Zhang[1] Xiaobin Li[1]
1. Wuhan University of Technology, Wuhan, China; 2. TIANMA Microelectronics Co. Ltd., Xiamen, China

Structures, Safety and Reliability

02-05-01 Extreme Loads and Responses I

Tuesday June 13 | Room **213** | **08:30–10:00**

Session Organizer: Spyros Hirdaris, Aalto University, Finland
Session Co-Organizer: Marco Klein, TUHH, Germany

Extreme Wave and Vertical Bending Moment Predictions by Higher Order Spectrum Method and Form OMAE2023-101876
Tomoki Takami[1] Wataru Fujimoto[2] Hidetaka Houtani[3] Sadaoki Matsui[1]
1. National Maritime Research Institute, Mitaka, Japan; 2. ClassNK, Chiyoda-ku, Japan; 3. University of Tokyo, Bunkyo-ku, Japan

Scale Effects and Variability in Wave-in-Deck Type of Impact Loading, More Insights into the Results of the Breakin Jip OMAE2023-104288
Jule Scharnke, Joop Helder
Maritime Research Institute Netherlands, Wageningen, Netherlands

Numerical Investigation of the Statistics of Vertical Bending Moments of Ships in Nonlinearly Evolving Irregular Waves OMAE2023-104733
Hidetaka Houtani[1] Sadaoki Matsui[2] Wataru Fujimoto[3]
1. The University of Tokyo, Bunkyo-ku, Japan; 2. National Maritime Research Institute, Mitaka-shi, Japan; 3. Nippon Kaiji Kyokai (Class NK), Chiyoda-ku, Japan

Validation of a Time Domain Panel Code for Predicting Impulsive Wave Loads on Naval Ships OMAE2023-108091
Frans van Walree[1] Daniel Sgarioto[2] Peter Graham[2]
1. Maritime Research Institute Netherlands, Wageningen, Netherlands; 2. Defence Science & Technology Group, Fishermans Bend, VIC, Australia

Pipeline, Risers, and Subsea Systems

04-02-01 Rigid Risers I

Tuesday June 13 | Room **210** | **08:30–10:00**

Session Organizer: Theodoro Netto, Fundacao Coppetec, Brazil

Hydrodynamic Damping of an In-Line Oscillating Cylinder in Steady Flow OMAE2023-101340
Chengjiao Ren[1] Liang Cheng[2] Feifei Tong[3]
1. The University of Western Australia, Crawley, WA, Australia; 2. South China University of Technology, Guangzhou, China; 3. Southern Cross University, Gold Coast, QLD, Australia

Hydrodynamic Damping of a Riser Oscillating in an In-Line Steady Current at Low Keulegan-Carpenter Number OMAE2023-102125
Peng Peng, Kun Liu, Jiaxia Wang, **Zhenguo Gao**
Jiangsu University of Science and Technology, Zhenjiang, China

Gimbal Joint Riser – a Novel Concept: Experimental Hydrodynamic Coefficients OMAE2023-103189
Andre Ramiro Amorim[1] Felipe Oliveira Ribeiro[2] Rodrigo Klim Gomes[1] Peyman Asgari[1] Rodrigo Do Nascimento Carvalhal[3] Alexandre Rezende Diezel[4]
1. Subsea 7, Rio de Janeiro, RJ, Brazil; 2. Subsea 7, Niterói, RJ, Brazil; 3. Equinor Brasil, Rio de Janeiro, RJ, Brazil; 4. Repsol Sinopec Brasil, Rio de Janeiro, RJ, Brazil

Ocean Space Utilization

05-05-01 Floating Systems for Renewable Energy

Tuesday June 13 | Room **207** | **08:30–10:00**

Session Organizer: Tomoki Ikoma, Nihon University, Japan

Estimation of Viscous Damping Force and Nonlinear Wave Force Acting on a Floating Offshore Wind Turbine Using Computational Fluid Dynamics (CFD) OMAE2023-100664
Haruki Yoshimoto[1] Ichiro Amaya[1] Ken Kamizawa[1] Shunske Nishimura[1] Norikazu Sato[2]
1. Japan Marine United Corporation, Yokohama, Japan; 2. JFE Techno-Research Corporation, Kawasaki-city, Japan

A Problem of Long Period Yaw Motion of an Ultra-Large Floating Offshore Wind Turbine and Its Reduction Countermeasure OMAE2023-102321
Makoto Ota, **Motohiko Murai**, Isami Otaka, Shuto Kondo
Yokohama National University, Yokohama, Japan

Dynamics of a Cold Water Intaking Pipe Subject to Internal Flow and Motion Excitation OMAE2023-103375
Ryoya Hisamatsu, Tomoaki Utsunomiya
Kyushu University, Department of Marine Systems Engineering, Fukuoka, Japan

Study on the Effect of Proof Load Test on Mooring Chain Wear for Floating Structures OMAE2023-104302
Takaaki Takeuchi, Kazuki Kurokawa, Masato Hironaka
Osaka University, Suita-Shi, Japan

Ocean Engineering

06-03-02 Fluid-Structure, Multi-body and Wave-body Interaction II

Tuesday June 13 | Room **204** | **08:30–10:00**

Session Organizer: Shuzheng Sun, Harbin Engineering University, China

A Meso-Scale Two-Way Coupled Euler-Lagrange Approach for the Simulation of a Dem-Based Bonded-Particle Flexible Net OMAE2023-103594
Andriarimina Daniel Rakotonirina[1] Nicholas Amato[2] Bruno Sainte-Rose[3]
1. The Ocean Cleanup, Utrecht, Netherlands; 2. Siemens Digital Industries Software, New York, NY, USA; 3. The Ocean Cleanup, Rotterdam, Netherlands

Lumped-Mass Model to Represent the Installation Process of Subsea Equipment OMAE2023-104192
Filipe Salvador Lopes, Antonio Carlos Fernandes, **Joel Sena Sales Junior**, Emerson Martins de Andrade, João Paulo Machado
Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil

The Hydroelastic Slamming in Oblique Seas OMAE2023-104304
Sasan Tavakoli[1] Spyros Hirdaris[2]
1. Aalto University, Helsinki, Finland; 2. Aalto University, Espoo, Finland

Scattering of Long Oblique Flexural Gravity Waves by an Articulated Floating Elastic Plate within the Framework of Wave Blocking OMAE2023-104336
Pawan Negi, Susam Boral, Trilochan Sahoo
Indian Institute of Technology Kharagpur, Kharagpur, WB, India

Ocean Engineering

06-04-02 Marine Engineering and Technology II

Tuesday June 13 | Room **203** | **08:30–10:00**

Session Organizer: Marcio Igor Luorenco, Federal University of Rio de Janeiro, Brazil

Barriers for Decarbonisation in the Norwegian Coastal Fishing Fleet: a Background Study Focusing on Safety and Environmental Performance OMAE2023-102113
Anna Sophia Hüllein[1] Ingrid Bouwer Utne[1] Børge Rokseth[2] Eirill Bachmann Mehammer[3]
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. SINTEF Ocean, Trondheim, Norway; 3. SINTEF Energy Research, Trondheim, Norway

Route Optimization on an Irregular Grid Map Based on Historical AIS Data OMAE2023-102348
Seyong Jeong[1] Joonghoo Park[1] Hyungtaek Kim[1] Tae-Wan Kim[2]
1. Korea Shipbuilding & Offshore Engineering, Seongnam-si, Korea; 2. Seoul National University, Seongnam-si, Korea

A Simulation-Based Approach for Evaluating Merchant Fleet Decarbonization Strategies OMAE2023-102401
Martin Bergström, Vaidehi Gosala, Jorgen Depken, Annika Fitz, Frederik Euskirchen, Sören Ehlers
German Aerospace Center (DLR), Geesthacht, Germany

Waste Heat Recovery by Binary Vapor Cycle for Gases from Marine Engines OMAE2023-102501
Kamille Vieira Machado[1] Juan Ordóñez[2] Jeferson Avila Souza[1] **Crístofer Hood Marques**[1]
1. Federal University of Rio Grande, Rio Grande, RS, Brazil; 2. Florida Agricultural and Mechanical University, Tallahassee, FL, USA

Polar and Arctic Sciences and Technology

07-02-02 Arctic Sea Transportation II

Tuesday June 13 | Room **208** | **08:30–10:00**

Session Organizer: Jonathan Soper, Memorial University of Newfoundland, Canada
Session Co-Organizer: Fang Li, Shanghai Jiao Tong University, Finland

Computer Vision-Based Ice Channel Identification and Ship Target Tracking OMAE2023-102742
Dong Wenbo, Cai Jinyan, Ding Shifeng, Liu Renwei, Wang Aiming, Li Feixu
Jiangsu University of Science and Technology, Zhenjiang, China

A Path Planning Method for Polar Ship considering the Influence of Marine Meteorological Environment OMAE2023-104289
Hao Liu[1] Li Zhou[2] Shifeng Ding[1] Renwei Liu[1] Aimin Wang[1]
1. Jiangsu University of Science and Technology, Zhenjiang, China; 2. Shanghai Jiao Tong University, Zhenjiang, China

Multi-Target Detection of Sea Ice Based on Computer Vision OMAE2023-104398
Dinghan Zeng, Shifeng Ding, Renwei Liu, Aimin Wang, Jinyan Cai, Jiayi Bian
Jiangsu University of Science and Technology, Zhenjiang, China

Probabilistic Methods for Estimation of the Extreme Air Trmperature along the Northern Sea Route OMAE2023-104415
Yuexiang Huang, Wei Chai, Jiayan Zeng
Wuhan University of Technology, Wuhan, China

CFD, VIV and FSI

08-02-01 Ship & Floating Systems I

Tuesday June 13 | Room **209** | **08:30–10:00**

Session Organizer: Owen Oakley, Retired, USA
Session Co-Organizer: Themistocles Resvanis, MIT, USA

Interceptor Effect on Lift and Drag in High Speed Planing Hull OMAE2023-100778
Suneela J[1] Naveen Korra[2]
1. AMET University, Chennai, TN, India; 2. Emma Technologies GmbH, Kiel, Germany

Simulation and Characterization of Low-Frequency Flow Oscillations over a Symmetrical Sail at Large Attack Angles for an Unmanned Sailboat OMAE2023-101414
Qingsong Zeng, Wei Cai
Wuhan University of Technology, Wuhan, China

Seakeeping Behavior of a Helicopter Landing in Waves OMAE2023-105235
Eduardo Tadashi Katsuno, Andreas Peters, Ould El Moctar
University of Duisburg-Essen, Duisburg, Germany

Roll Damping Simulations Using CFD for Offshore Wind Installation Operations OMAE2023-102845
Brecht Devolder, Pedro Ramos, Florian Stempinski
DEME Group, Zwijndrecht, Belgium

Ocean Renewable Energy

09-01-03 Offshore Wind Energy – Aerodynamics

Tuesday June 13 | Room **216** | **08:30–10:00**

Session Organizer: Hyunchul Jang, Technip Energies, USA
Session Co-Organizer: Leandro Silva, USP, Australia

Impact of Wake Effect on the Levelized Cost of Energy for a Wind Farm Offshore Rio De Janeiro OMAE2023-102271
Mojtaba Maali Amiri, Jeferson Osmar de Almeida, Clarissa Bergman Fonte, **Milad Shadman**, Segen F. Estefen
Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil

On the Distribution of Aerodynamic Load on Wind Turbine Blade OMAE2023-104406
My Ha Dao, Quang Tuyen Le, Xiang Zhao
Institute of High Performance Computing, Singapore, Singapore

A Detailed Analysis Framework of Fully Coupled Dynamic Responses for Offshore Wind Turbine Blade OMAE2023-104430
Baoxuan Wang[1] Xu Liang[2] Jianwei Zhang[2] Shengjie Rui[3] Xing Zha[1] Shaoyang Wang[2] Yue Chen[2]
1. Zhejiang University, Hangzhou, China; 2. Zhejiang University, Zhoushan, China; 3. Norwegian Geotechnical Institute, Oslo, Norway

Influence of Tower Design on Floating Offshore Wind Turbine Dynamics OMAE2023-104864
Francesco Papi, Alessandro Bianchini, Giulio Ferri, Niccolò Bruschi, Enzo Marino
Università degli Studi di Firenze, Firenze, Italy

Ocean Renewable Energy

09-02-03 Wave Energy – Design and Performance Analysis II

Tuesday June 13 | Room **217** | **08:30–10:00**

Session Organizer: Binbin Zhao, Harbin Engineering University, China
Session Co-Organizer: Masoud Hayatdavoodi, The University of Dundee, United Kingdom

Numerical Analysis of Flexible Tube Wave Energy Convertor Using CFD-FEA Method OMAE2023-101302
Yang Huang, Qing Xiao, **Guillermo Idarraga**, Liu Yang, Saishuai Dai, Farhad Abad, Feargal Brennan, Saeid Lotfian
University of Strathclyde, Glasgow, United Kingdom

FSI Simulations and Analyses of a Non-Resonant Buoyant Wave Energy Converter OMAE2023-101335
Xinyuan Shao[1] Hua-Dong Yao[1] **Jonas W Ringsberg**[1] Jan Skjöldhammer[2] Jianfeng Lin[1]
1. Chalmers University of Technology, Gothenburg, Sweden; 2. Novige AB, Västerås, Sweden

An Efficient Three-Dimensional CFD-Based Numerical Wave Tank for a Wave Energy Converter in Extreme Irregular Waves OMAE2023-105016
Will Wiley[1] **Thanh Toan Tran**[1] Thomas Boerner[2] Collin Weston[2] Lu Wang[3]
1. National Renewable Energy Laboratory, Arvada, CO, USA; 2. CalWave, Oakland, CA, USA; 3. National Renewable Energy Laboratory, Golden, CO, USA

A Preliminary Study of Learning a Wave Energy Converter System Using Physics-Informed Neural Network Method OMAE2023-105123
Bo-Chen Chen[1] Yi-Hsiang Yu[2]
1. National Yang Ming Chiao Tung University, HsinChu, Taiwan; 2. National Yang Ming Chiao Tung University, Department of Civil Engineering, HsinChu, Taiwan

Offshore Geotechnics

10-03-01 Anchors

Tuesday June 13 | Room **206** | **08:30–10:00**

Session Organizer: Denby Morrison, Shell, USA

Session Co-Organizers: Junsik Bae, The University of Western Australia, Australia; Rene Kurniadi, University of Melbourne, Australia

Developing an Optimal Shape for Dynamical Installed Anchor OMAE2023-101044
Junsik Bae, Youngho Kim, Muhammad Shazzad Hossain
Centre for Offshore Foundation Systems (COFS), Oceans Graduate School, University of Western Australia, Perth, WA, Australia

A Case Study on the Seabed Trenching Assessment and the Anchor Design in Clay Based on the Hydrodynamic Calculation of the Floater OMAE2023-104420
Shengjie Rui[1] Zefeng Zhou[1] **Baoxuan Wang**[2] Hongyu Wang[2] Haojie Zhang[2] Yaru Zhang[2]
1. Norwegian Geotechnical institute, Oslo, Norway; 2. Zhejiang University, Hangzhou, China

Numerical Investigation of Comprehensive Behaviors of Omni-Max Anchors in Sand OMAE2023-104477
Chengyang Zhang[1] Haixiao Liu[2] Zhong Xiao[1] Wei Zhang[1]
1. Tianjin University, Tianjin, China; 2. Tianjin University, Jinnan, China

Suction Caisson Anchor and Dynamically Installed Fish Anchor in Calcareous Silt OMAE2023-104680
Muhammad Shazzad Hossain, Mohammad Arif Mohiuddin, Kuntan Chang, Kaixiang Koh, Youngho Kim
The University of Western Australia, Perth, WA, Australia

Petroleum Technology

11-04-01 Well Cementing Theory & Practice I

Tuesday June 13 | Room **211** | **08:30–10:00**

Session Organizer: Ian Frigaard, University of British Columbia, Canada

Session Co-Organizers: Hossein Hassanzadeh, Laval University, Canada; Ergun Kuru, University of Alberta, Canada

Viscous Fluid Injections in an Inclined Closed-End Pipe with Applications in the Dump Bailing Method OMAE2023-101070
Soheil Akbari, Hossein Hassanzadeh, Seyed Mohammad Taghavi
Université Laval, Quebec, QC, Canada

Buoyant Miscible Jets in a Viscoplastic Medium with Applications in Plug and Abandonment of Oil and Gas Wells OMAE2023-101472
Hossein Hassanzadeh, Saptarshi Joshi, Soheil Akbari, Seyed Mohammad Taghavi
Laval University, Québec City, QC, Canada

Experimental Investigation of Annular Displacement with Fluids of Different Density OMAE2023-101611
Bjørnar Lund[1] Jan David Ytrehus[1] Ali Taghipour[1] Arild Saasen[2]
1. SINTEF, Trondheim, Norway; 2. University of Stavanger, Stavanger, Norway

Placing Off-Bottom Cement Plugs: Effects of Density Difference OMAE2023-102009
Abdallah M. Ghazal, Ida Karimfazli
Concordia University, Montréal, QC, Canada

Blue Economy Symposium

13-02-01 Blue Economy III

Tuesday June 13 | Room **214** | **08:30–10:00**

Session Organizer: Adi Kurniawan, University of Western Australia, Australia
Session Co-Organizer: Eric Gubesch, Australian Maritime College, Australia

Numerical Analysis of a New Multi-Use Platform OMAE2023-104385
Ling Wan[1] Zhiyung Tay[2] Wei Shi[3]
1. Ningbo University, Ningbo, China; 2. Singapore Institute of Technology, Singapore, Singapore; 3. Dalian University of Technology, Dalian, China

Finite Element Analysis of Composite Mooring Tensioner Springs in Wave Energy Converters OMAE2023-105262
Yuanzhen Cai, Michael Heitzmann
The University of Queensland, Brisbane, QLD, Australia

Performance Feasibility of a Multi-Source Offshore Renewable Energy Platform for Aquaculture OMAE2023-105346
Sophie Roberts, Damon Howe, Jean-Roch Nader
University of Tasmania, Newnham, TAS, Australia

Techno-Economic Assessment of Developing Combined Offshore Wind and Wave Energy in Australia OMAE2023-107971
Qiang Gao, Boyin Ding, Nesimi Ertugrul
The University of Adelaide, Adelaide, SA, Australia

CONCURRENT SESSIONS
10:30 – 12:00

Offshore Technology

01-04-02 Design & Analysis II

Tuesday June 13 | Room **205** | **10:30–12:00**

Session Organizer: Masoud Hayatdavoodi, The University of Dundee, United Kingdom

Study on Robust Design for Navigation Dynamics Test for Small Catamaran OMAE2023-101845
Chun Cheng Lin, Wei Li Liang
Chung Cheng Institute and Technology, Taoyuan City, Taiwan

Annotated Guidelines for the Simulation of Floating Offshore Wind Turbines in a Real Environment OMAE2023-101926
Francesco Papi, **Alessandro Bianchini**
University of Florence, Florence, Italy

Ship Performance Evaluation and Green Ship Type Scheme under Complex Channel Conditions OMAE2023-104450
Zhengchen Lian, Lizheng Wang
Wuhan University of Technology, Wuhan, China

Aerodynamic Shape Optimization of Offshore Wind Turbine Blades OMAE2023-107794
Jichao Li, Quang Tuyen Le, My Ha Dao
*Institute of High Performance Computing, A*STAR, Singapore, Singapore*

Structures, Safety and Reliability

02-05-02 Extreme Loads and Responses II

Tuesday June 13 | Room **213** | **10:30–12:00**

Session Organizer: Spyros Hirdaris, Aalto University, Finland
Session Co-Organizer: Marco Klein, TUHH, Germany

Semi-Analytical Load Models Accounting for the Tilt and Motion of a Cylinder Impacted by a Plunging Breaking Wave OMAE2023-107740
Paul Renaud[1] Florian Hulin[1] Marc Batlle Martin[1] Yves-Marie Scolan[2] Alan Tassin[3] Nicolas Jacques[2] Jeffrey C. Harris[4] Jean-François Filipot[1]
1. France Energies Marines, Plouzané, France; 2. ENSTA Bretagne, CNRS UMR 6027, IRDL, Brest, France; 3. IFREMER, Plouzané, France; 4. LHSV, Ecole des Ponts, EDF R&D, Chatou, France

Simplified Analytical Procedure Efficiently Assessing the Whipping Response of Hull Subject to Undex Effect OMAE2023-108475
DaSol Lee, KwangSik Kim, JangHyun Lee
INHA University, Incheon, Korea

Nonlinear and Extreme Wave Group Interactions with a Circular Cylinder OMAE2023-104739
Yuchen He[1] Taiga Kanehira[2] Nobuhito Mori[2] Muhannad Gamaleldin[3] Alexander Babanin[3] Kapil Chauhan[1] **Amin Chabchoub**[2]
1. The University of Sydney, Sydney, NSW, Australia; 2. Kyoto University, Kyoto, Japan; 3. The University of Melbourne, Melbourne, VIC, Australia

Numerical Investigation of Air-Blast Performance of Cross-Filled Honeycomb Sandwich Panel OMAE2023-104526
Murlidhar Patel[1] Shivdayal Patel[1] **Suhail Ahmad**[2] Carlos Guedes Soares[3]
1. PDPM Indian Institute of Information Technology Design and Manufacturing Jabalpur, Jabalpur, MP, India; 2. Indian Institute of Technology Delhi, Delhi, DL, India; 3. Centre for Marine Technology and Ocean Engineering (CENTEC), Instituto Superior Técnico, Universidade de Lisboa, Lisbon, Portugal

Structures, Safety and Reliability

02-06-01 Probabilistic Models of Forces and Motions

Tuesday June 13 | Room **212** | **10:30–12:00**

Session Organizer: Carlos Guedes Soares, University of Lisbon, Portugal

Directional Wave Spectra during Hurricane Conditions under Different Directional Spreading Formulations OMAE2023-103377
Franklin Farid Ayala Cruz[1] Alexander Babanin[2] Qingxiang Liu[3] Andrés Fernando Osorio Arias[4] Rubén Darío Montoya Ramirez[5]
1. University of Melbourne, Attwood, VIC, Australia; 2. University of Melbourne, Melbourne, VIC, Australia; 3. Ocean University of China, Qingdao, China; 4. Universidad Nacional de Colombia - Sede Medellin, Medellin, Colombia; 5. Universidad de Medellin, Medellin, Colombia

On the Gaussianity of Wind and Wave Field Data OMAE2023-102239
Valentina Laface, Felice Arena
Mediterranea University of Reggio Calabria, Reggio Calabria, Italy

Bayesian Updating of Estimated Parameters Representing Multi-Modal Directional Wave Spectrum Using Measured Ship Hull Stresses OMAE2023-104224
Hiromi Kubo[1] **Tetsuo Okada**[2] Xi Chen[3] Yasumi Kawamura[2] Taiga Mitsuyuki[2] Ginga Hayakawa[4]
1. Graduate School of Engineering Science, Yokohama National University, Hodogaya-Ku Yokohama-Shi, Japan; 2. Faculty of Engineering, Yokohama National University, Hodogaya-Ku Yokohama-Shi, Japan; 3. National Maritime Research Institute, Mitaka, Japan; 4. Faculty of Engineering Technology Section, Yokohama National University, Hodogaya-Ku Yokohama-Shi, Japan

Dynamic Bending Ultimate Capacity Analysis of Box Girder under Hammer Impact OMAE2023-101632
Guijie Shi, Deyu Wang
Shanghai Jiao Tong University, Shanghai, China

Pipeline, Risers, and Subsea Systems

04-02-02 Rigid Risers II

Tuesday June 13 | Room **210** | **10:30–12:00**

Session Organizer: Theodoro Netto, Fundacao Coppetec, Brazil

Design Drivers for Pre-Lay and Recovery Installation of Deep Water Steel Lazy Wave Riser Systems OMAE2023-101969
Abhilash A. Sebastian, Jaehyeuk Jeon, Vikas Patel, Mayank Lal
TechnipFMC, Houston, TX, USA

Steel Lazy Wave Riser Optimization Using Particle Swarm Optimization Algorithm OMAE2023-103743
Mayank Lal[1] Anurag Yenduri[2] Abhilash Sebastian[1]
1. TechnipFMC, Houston, TX, USA; 2. TechnipFMC, Chennai, TN, India

Life Extension of Risers and Engineering Criticality Assessment OMAE2023-105131
Ghiath (Guy) Mansour
Artifex Engineering, Inc., Houston, TX, USA

Ocean Space Utilization

05-01-02 New Concepts for Ocean Space Utilization II

Tuesday June 13 | Room **207** | **10:30–12:00**

Session Organizer: Tomoki Ikoma, Nihon University, Japan
Session Co-Organizer: Tomoya Inoue, JAMSTEC, Japan

Carbon Footprint Reduction on Aging Offshore Facilities: Case Studies on Electrification and Carbon Capture OMAE2023-108084
Viren Vartak[1] SaiKeong Loh[1] **Nitin Repalle**[2]
1. 2H Offshore, Kuala Lumpur, Malaysia; 2. 2H Offshore, Perth, WA, Australia

Analysis of Swash Flow-Induced Forces on a Human Body Standing on a Slope OMAE2023-104596
Deping Cao[1] **Hao Chen**[2] Zaibin Lin[3]
1. National University of Singapore, Singapore, Singapore; 2. Newcastle University in Singapore, Singapore, Singapore; 3. University of Aberdeen, Aberdeen, United Kingdom

Experimental and Numerical Analysis on the Hydrodynamic Force of an Ice Piece in Model-Scale Brash Ices OMAE2023-104700
Ryota Hayashi[1] Akihisa Konno[1] **Jinxin Zhou**[2] Qiao Li[2] Shuchuang Dong[2] Daisuke Kitazawa[2]
1. Kogakuin University, Hachioji, Tokyo, Japan; 2. Institute of Industrial Science, The University of Tokyo, Chiba-ken, Japan

Ocean Engineering

06-03-03 Fluid-Structure, Multi-body and Wave-body Interaction III

Tuesday June 13 | Room **204** | **10:30–12:00**

Session Organizer: Zhiyuan Pan, DNV, Norway

Experimental Investigation on Response of Ship Rolling Motion Coupled with Liquid Sloshing OMAE2023-104423
Yunhe Wang[1] Shengchao Jiang[2] Tongming Zhou[3]
1. The University of Western Australia, Crawley, WA, Australia; 2. Dalian University of Technology, Dalian, China; 3. The University of Western Australia, Perth, WA, Australia

Experimental Study on Flow-Induced Pitch, Roll, and Heave Motions of a Semi-Submersible Floater with Long Pontoons OMAE2023-104664
Yuki Naito[1] **Shinichiro Hirabayashi**[1] Hideyuki Suzuki[2] Rodolfo Gonçalves[2]
1. The University of Tokyo, Kashiwa, Japan; 2. The University of Tokyo, Bunkyo-ku, Japan

Methodology for the Integration of Experimental and Numerical Fluid Dynamics in the Study of a Floating Body Subjected to Environmental Loads OMAE2023-104676
Guillaume Ducrozet, Benjamin Bouscasse, Félicien Bonnefoy, Vincent Leroy
Ecole Centrale de Nantes, Nantes, France

Non-Linear Hydrodynamic Forces on Fixed Axi-Symmetric Bodies in Incident Waves OMAE2023-104749
Bryan Tan[1] Jana Orszaghova[2] Adi Kurniawan[2] Hugh Wolgamot[2] Jørgen Hals Todalshaug[3]
1. University of Western Australia, Crawley, WA, Australia; 2. University of Western Australia, Perth, WA, Australia; 3. CorPower Ocean, Stockholm, Sweden

Ocean Engineering

06-04-03 Marine Engineering and Technology III

Tuesday June 13 | Room **203** | **10:30–12:00**

Session Organizer: Marcelo Caire, Federal University of Rio de Janeiro, Brazil

A Decentralized Droop-Based Power Management System for Ship Power Systems Using Hybrid Dynamical Systems Framework OMAE2023-102570
Namireddy Praveen Reddy[1] Roger Skjetne[1] Dimitrios Papageorgiou[2]
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Technical University of Denmark, Copenhagen, Denmark

Evaluating Marine Engines under Laboratory Conditions to Achieve Emission Reduction Targets in the Shipping Industry OMAE2023-103192
Lokukaluge Prasad Perera[1] Kostas Belibassakis[2]
1. UiT The Arctic University of Norway, Tromsø, Norway; 2. National Technical University of Athens, Athens, Greece

Multiple Model Adaptive Estimation (MMAE) Applied to Marine Engine Nonlinear Function Approximation for Fuel Consumption Pridiction for Shipping OMAE2023-103249
Mahmood Taghavi, Lokukaluge Prasad Perera
UiT The Arctic University of Norway, Tromsø, Norway

Analysis of Thermal Load of Cylinder Head considering Fluid-Structure Interaction for a Marine Low-Speed Engine OMAE2023-104270
Lei Hu, Hongwei Zhang, Jianguo Yang, Yonghua Yu
Wuhan University of Technology, Wuhan, China

Ocean Engineering

06-05-02 Marine Hydrodynamics II

Tuesday June 13 | Room **218** | **10:30–12:00**

Session Organizer: Sanne Van Essen, Marin, Netherlands

A Mesh Convergence Study for Low Frequency Second Order Wave Forces on Floating Bodies OMAE2023-103793
Zhiyuan Pan[1] Taeyoung Kim[2] Jaekyung Heo[3]
1. DNV, Høvik, Norway; 2. Samsung Heavy Industries, Busan, Korea; 3. DNV, Daejeon, Korea

Evaluation of Parametric Modeling Method for Ship Maneuvering Motion with Experimental Data OMAE2023-104303
Yu-Xuan Zhong[1] **Zi-Hao Wang**[1] Zao-Jian Zou[2]
1. Shanghai University, Shanghai, China; 2. Shanghai Jiao Tong University, Shanghai, China

Online Modeling of Ship Maneuvering Motion with Varying Loading Conditions OMAE2023-104467
Yao-Hui Yu, Zi-Hao Wang, Dong Qu, Rui Song, Yan Peng
Shanghai University, Shanghai, China

Hydrodynamic Forces on a Near-Bottom Pipeline Subject to Wave-Induced Boundary Layer OMAE2023-104495
Guang Yin[1] Muk Chen Ong[1] Naiquan Ye[2]
1. University of Stavanger, Stavanger, Norway; 2. SINTEF Ocean, Trondheim, Norway

Polar and Arctic Sciences and Technology

07-03-01 Vessels in Ice I

Tuesday June 13 | Room **208** | **10:30–12:00**

Session Organizer: Franciska Müller, Hamburg University of Technology, Germany
Session Co-Organizer: Edward Bryson, Memorial University of Newfoundland, Canada

A Statistical Approach for Estimating Sea Ice Thickness OMAE2023-101554
Joshua Veber[1] Jeffrey Brown[2] Jungyong Wang[2] Thomas Browne[2] Brian Veitch[3] David Molyneux[3]
1. Memorial University of Newfoundland, St. Philip's, NL, Canada; 2. National Research Council Canada, St. John's, NL, Canada; 3. Memorial University of Newfoundland, St. John's, NL, Canada

An Investigation of the Influence of Added Mass on the Ice Loads in Regular Waves OMAE2023-101896
Zongyu Jiang[1] Fang Li[2] Mikko Suominen[1] Sasan Tavakoli[1] Pentti Kujala[1] Spyros Hirdaris[1]
1. Aalto University, Espoo, Finland; 2. Shanghai Jiao Tong University, Shanghai, China

Ice Resistance and Propulsion Performance of a Polar Ship in Brash Ice Channel OMAE2023-102381
Sijie Zheng, Shifeng Ding, Chang Xie, Renwei Liu, Aimin Wang
Jiangsu University of Science and Technology, Zhenjiang, China

Empirical Mode Decomposition for Noise Detection and Filtration of Ice-Induced Load Measurements OMAE2023-102504
Mikko Suominen, Ahmad Bahootoroody, Osiris Valdez Banda
Aalto University, Espoo, Finland

CFD, VIV and FSI

08-02-02 Ship & Floating Systems II

Tuesday June 13 | Room **209** | **10:30–12:00**

Session Organizer: Themistocles Resvanis, MIT, USA
Session Co-Organizer: Owen Oakley, Retired, USA

Numerical Simulation of Motion Responses of a Cabin-Suspended Catamaran in Head Waves OMAE2023-103284
Jialin Han[1] Daisuke Kitazawa[2] Motohiko Murai[1]
1. Yokohama National University, Yokohama, Japan; 2. The University of Tokyo, Kashiwa, Japan

Effect of Wind Speed Profile on Wind Loads of Liquefied Natural Gas FPSIS OMAE2023-104833
Byung-Hyuk Lee[1] **Sang-Eui Lee**[2]
1. Korea Shipbuilding & Offshore Engineering, Seoul, Korea; 2. Changwon National University, Changwon, Korea

Preliminar Assessment of the Effect of Bottom Warp on the Dynamics of Planing Hulls Using OpenFOAM OMAE2023-104777
Rubén J. Paredes[1] David Plaza[1] Jose R. Marin[1] Ermina Begovic[2] Raju Datla[3]
1. ESPOL Polytechnic University, Escuela Superior Politécnica del Litoral, ESPOL, Guayaquil, Ecuador; 2. University of Naples Federico II, Napoli, Italy; 3. Stevens Institute of Technology, Hoboken, NJ, USA

Preliminary Investigation into the Dynamic of Planing Hulls in Regular Waves Using the Smoothed Particle Hydrodynamics Method OMAE2023-105049
Salvatore Capasso[1] Bonaventura Tagliafierro[2] Simone Mancini[3] Fabio De Luca[3] Iván Martínez-Estévez[4] José Manuel Domínguez[4] Corrado Altomare[2] Alejandro J.C. Crespo[4] Claudio Pensa[3] Giacomo Viccione[1]
1. Università degli Studi di Salerno, Fisciano, Italy; 2. Universidad Politécnica de Cataluña - UPC BarcelonaTech, Barcelona, Spain; 3. Università degli Studi di Napoli Federico II, Napoli, Italy; 4. EPhysLab - Universidade de Vigo, Ourense, Spain

Ocean Renewable Energy

09-01-04 Offshore Wind Energy – Aerodynamic Control

Tuesday June 13 | Room **216** | **10:30–12:00**

Session Organizer: Amy Robertson, NREL, USA
Session Co-Organizer: Hyunchul Jang, Technip Energies, USA

Lidar-Assisted Feedforward Pitch Control of 15 Megawatt Floating Offshore Wind Turbines OMAE2023-100822
Andrew J. Russell[1] Maurizio Collu[2] Alasdair McDonald[3] Philipp Thies[4] Alan Mortimer[5] Alexander Quayle[6]
1. IDCORE, Newcastle Upon Tyne, United Kingdom; 2. University of Strathclyde, Glasgow, United Kingdom; 3. University of Edinburgh, Edinburgh, United Kingdom; 4. University of Exeter, Exeter, United Kingdom; 5. Wood Group Plc, Glasgow, United Kingdom; 6. Flotation Energy Plc, Edinburgh, United Kingdom

Pitch Motion Control of Spar-Type Floating Wind Turbines OMAE2023-101218
Shuang-Rui Yu[1] Ming Zhang[1] Ming-Lu Chen[2] Zhi-Ming Yuan[1]
1. University of Strathclyde, Glasgow, United Kingdom; 2. Jiangsu University of Science and Technology, Zhenjiang, China

Summary of the Focal Project: Validating Floating Offshore Wind Controls Approaches at Model Scale OMAE2023-101853
Amy Robertson[1] Lu Wang[2] Roger Bergua[2]
1. National Renewable Energy Laboratory, Lakewood, CO, USA; 2. National Renewable Energy Laboratory, Golden, CO, USA

Effects of Controller Dynamics on Aerodynamic Damping of a Semi-Submersible Floating Wind Turbine OMAE2023-101929
Can Yang, Longfei Xiao, Peng Chen, Zhengshun Cheng
State Key Laboratory of Ocean Engineering, Shanghai, China

Ocean Renewable Energy

09-02-04 Wave Energy – Design and Performance Analysis III

Tuesday June 13 | Room **217** | **10:30–12:00**

Session Organizer: Yi-Hsiang Yu, NyCU, Taiwan
Session Co-Organizer: Nathan Tom, NREL, USA

A Neural Network Approach to Minimize Line Forces in the Survivability of the Point-Absorber Wave Energy Converters OMAE2023-102422
Zahra Shahroozi, Malin Göteman, Jens Engström
Uppsala University, Uppsala, Sweden

Shape Optimization Design of a Heaving Buoy of Wave Energy Converter under Bimodal Spectral Waves near Islands and Reefs OMAE2023-109156
Shuo Huang, **Weiqi Liu**, Kai Wang
Sun Yat-sen University, Zhuhai, China

New Developments and Capabilities within WEC-Sim OMAE2023-105030
Nathan Tom[1] **Kelley Ruehl**[2] Adam Keester[2] Dominic Forbush[2] David Ogden[3] Jorge Leon[2] Salman Husain[4] Jeff Grasberger[2] Mathew Topper[5] Yi-Hsiang Yu[6]
1. NREL, Golden, CO, USA; 2. Sandia National Laboratories, Albuquerque, NM, USA; 3. Velocity Global, Hackney, United Kingdom; 4. National Renewable Energy Laboratory, Golden, CO, USA; 5. Data Only Greater, Maynooth, Ireland; 6. National Yang Ming Chiao University, Taipei, Taiwan

Investigation of a Modified Wells Turbine for Wave Energy Extraction OMAE2023-100971
Mohammad Nasim Uddin[1] **Michael Atkinson**[2] Frimpong Opoku[3]
1. North Carolina A&T State University, Greensboro, NC, USA; 2. North Carolina A&T State University, Summerfield, NC, USA; 3. Collins Aerospace, Winston-Salem, NC, USA

Offshore Geotechnics

10-04-01 Pile Foundations

Tuesday June 13 | Room **206** | **10:30–12:00**

Session Organizer: Denby Morrison, Shell, USA

Session Co-Organizers: Guilherme Kronemberger Lopes, LACEO/COPPE/UFRJ, Brazil; Yuxia Hu, The University of Western Australia, Australia

A Numerical Investigation on the Derivation of p-y Curves for Monopile Foundations Installed in Sand OMAE2023-103227
Guilherme Kronemberger Lopes[1] José Renato Mendes de Sousa[1]
Maria Cascão Ferreira de Almeida[2] Márcio de Souza Soares de Almeida[2]
1. LACEO, Rio de Janeiro, RJ, Brazil; 2. Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil

Relating the Stiffness of Load-Transfer Functions for Monopile Foundations to Elastic Soil Modulus OMAE2023-106589
James Doherty[1] Mark Randolph[2] Xiao Wan[2]
1. University of Western Australia, Perth, WA, Australia; 2. University of Western Australia, Crawley, WA, Australia

From Offshore Flexible Flowlines to Torpedo Anchors – a Concept Study OMAE2023-108062
Yuxia Hu, Ming Hui Gao, Scott Draper, Muhammad Shazzad Hossain
The University of Western Australia, Crawley, WA, Australia

Petroleum Technology

11-04-02 Well Cementing Theory & Practice II

Tuesday June 13 | Room **211** | **10:30–12:00**

Session Organizer: Ian Frigaard, University of British Columbia, Canada

Session Co-Organizers: Ida Karimfazli, Concordia University, Canada; Ergun Kuru, University of Alberta, Canada

Predicting the Rate of Cement Plug Failure OMAE2023-104587
Scott Charabin, Ian Frigaard
University of British Columbia, Vancouver, BC, Canada

Squeeze Cementing, a Mathematical Model for Cross Flow Filtration OMAE2023-104944
Mahdi Izadi[1] Ian Frigaard[1] Seyed Mohammad Taghavi[2]
1. University of British Columbia, Vancouver, BC, Canada; 2. Laval University, Quebec, QC, Canada

High Density Microfine Cement for Squeeze Cementing Operations OMAE2023-104986
Abdullah S. Alyami, Vikrant Wagle
Saudi Aramco, Dhahran, Saudi Arabia

Development of High-Density Self-Healing Cement OMAE2023-104992
Abdullah S. Alyami, **Vikrant Wagle**
Saudi Aramco, Dhahran, Saudi Arabia

Blue Economy Symposium

13-04-01 Blue Economy IV

Tuesday June 13 | Room **214** | **10:30–12:00**

Session Organizer: Irene Penesis, Blue Economy Cooperative Research Centre (BE CRC-Co.), Australia

Session Co-Organizer: Adi Kurniawan, University of Western Australia, Australia

Moorpower: Decarbonising the Aquaculture Industry OMAE2023-100742
Alexandre Pichard, Joanthan Fievez, Brighid Jay
Carnegie Clean Energy, North Fremantle, WA, Australia

Blue Economy CRC Hydrogen Microgrid Demonstration Project OMAE2023-102112
Evan Gray
Griffith University, Nathan, QLD, Australia

Numerical Modelling in the Development of the M4 Prototype for Albany, Western Australia OMAE2023-105185
Adi Kurniawan[1] Hugh Wolgamot[2] Christophe Gaudin[2] Chris Shearer[3] Peter Stansby[4] Brad Saunders[5]
1. UWA, Albany, WA, Australia; 2. University of Western Australia, Crawley, WA, Australia; 3. BMT, Melbourne, VIC, Australia; 4. University of Manchester, Manchester, United Kingdom; 5. BMT, Osborne Park, WA, Australia

A Review: DC Microgrids for Sustainable Power Delivery in Offshore Industries OMAE2023-103054
Bawantha Indrajith[1] Kosala Gunawardane[2] Hasith Jayasinghe[3]
1. Auckland University of Technology, Galewela, Sri Lanka; 2. Auckland University of Technology, Auckland, New Zealand; 3. Auckland University of Technology, Welipenna, Sri Lanka

CONCURRENT SESSIONS
13:30 – 15:00

Offshore Technology

01-03-01 Computational Offshore Hydrodynamics

Tuesday June 13 | Room **205** | **13:30–15:00**

Session Organizer: Weichao Shi, Newcastle University, United Kingdom

CFD Simulations of the DeepCwind Semi-Submersible in Bichromatic Waves and Validation with the Experiments from OC6 Phase 1b OMAE2023-101183
Yali Zhang, Harrif Santo
Technology Centre for Offshore and Marine, Singapore, Singapore

Dynamic Analysis of Launching and Recovering ROV OMAE2023-102185
Yulin Deng[1] Xiudi Ren[2] Martin Nuernberg[3] Longbin Tao[1]
1. University of Strathclyde, Glasgow, United Kingdom; 2. PowerChina Huadong Engineering Corporation Limited., Hangzhou, China; 3. O.S. Energy, Newcastle Upon Tyne, United Kingdom

Computational Fluid Dynamic Modelling of Vortex-Induced Motion of Wind Turbine Monopile Foundation during Installation OMAE2023-104634
Shengnan Liu[1] Petter Moen[1] Fabrizio Fiore[2]
1. Subsea 7, Stavanger, Norway; 2. Seaway 7, Zoetermeer, Netherlands

Prediction of Short-Term Non-Linear Response Using Screening Combined with Multi-Fidelity Gaussian Process Regression OMAE2023-100954
Sanne Van Essen[1] Thomas Scholcz[2] Harleigh Seyffert[1]
1. Delft University of Technology, Delft, Netherlands; 2. Maritime Research Institute Netherlands, Wageningen, Netherlands

Structures, Safety and Reliability

02-07-01 Data-driven Models for Marine Structures I

Tuesday June 13 | Room **212** | **13:30–15:00**

Session Organizer: YeongAe Heo, Case Western Reserve University, USA
Session Co-Organizer: Carlos Guedes Soares, University of Lisbon, Portugal

Research on Deformation Characteristics of Cruise Superstructure Based on Digital Twin OMAE2023-102426
Siyuan Liu[1] Zhiyong Pei[2] Bin Yang[1] Weiguo Wu[2]
1. School of Naval Architecture, Ocean and Energy Power Engineering, Wuhan University of Technology, Wuhan, China; 2. Green & Smart River-Sea-Going Ship, Cruisec and Yacht Research Center, Wuhan University of Technology, Wuhan, China

Fault Diagnosis of Rolling Bearing under Marine Noisy Environments and Varying Working Conditions OMAE2023-102540
Chao Gao[1] Yongjin Guo[1] Bing Han[2] Xiaofeng Liang[1] Hongdong Wang[1] Hong Yi[1]
1. Shanghai Jiao Tong University, Shanghai, China; 2. National Engineering Research Center of Ship & Shipping Control System, Shanghai, China

Acoustic Emission Based Damage Source Localization for Heterogeneous Structure of Wind Turbine Blades Using Long Short-Term Memory Neural Networks OMAE2023-103331
Zhimin Zhao, **Nian-Zhong Chen**
Tianjin University, Tianjin, China

A Method for Optimization of Sensor Locations for Inverse Calculation of Impact Load on Stiffened Panel OMAE2023-104702
Xueqian Zhou, Xingzhi Shen, Yishi Xu, Huilong Ren
Harbin Engineering University, College of Shipbuilding Engineering, Harbin, China

Structures, Safety and Reliability

02-08-01 Risk and Reliability of Renewable Energy Devices

Tuesday June 13 | Room **213** | **13:30–15:00**

Session Organizer: Zhen Gao, Shanghai Jiao Tong University, China
Session Co-Organizer: Carlos Guedes Soares, University of Lisbon, Portugal

Failure Rate and Repair Time Analysis of Offshore Wind Turbines OMAE2023-101753
Luis Felipe Guarda Brauning, Leonardo Terra, Marcelo Ramos Martins
Universidade de Sao Paulo, São Paulo, SP, Brazil

Risk Analysis of Composite Blades of Offshore Vawt for the Indian Ocean OMAE2023-104820
Prince Arora, Prashant Parmeshwar Atkale, Badri Prasad Patel, Suhail Ahmad
Indian Institute of Technology Delhi, Delhi, DL, India

Monopile-Supported Offshore Wind Turbine Ultimate Limit State Design Format from a Structural Reliability Point of View – Impact of Uncertainties in Loads and Strength on the Implied Safety Level OMAE2023-106479
Hadi Amlashi
University of South-Eastern Norway, Porsgrunn, Norway

Evaluation of Fatigue Reliability of an XXL Monopile Offshore Wind Foundation Using Stochastic Availability OMAE2023-101651
Gaizka Zarraonandia Simeon[1] Eleni Minga[2]
1. Scottishpower, Bristol, United Kingdom; 2. Empire Engineering, Bristol, United Kingdom

Pipeline, Risers, and Subsea Systems

04-01-03 Flexible Pipes and Umbilicals III

Tuesday June 13 | Room **210** | **13:30–15:00**

Session Organizer: Anh Tuan Do, TechnipFMC, France
Session Co-Organizer: Jose Renato De Sousa, UFRJ, Brazil

Full Scale Validation of Stress Prediction Models for Flexible Pipe Foldless End Fitting Anchoring System OMAE2023-101201
Alessandro Gallina, **Henrique Chiaradia Rigon**, Lucas Alban Geusti, Frederico Wallauer, Fabiano Bertoni, Judimar de Assis Clevelario
SIMEROS, Cachoeirinha, RS, Brazil

Analytical and Finite Element Models for the Analysis of a Hybrid Flexible Pipe under Combined Axisymmetric Loading OMAE2023-104679
Inês S. G. Freitas, José Renato M. de Sousa
LACEO - Laboratory of Analysis and Reliability of Offshore Structures, Rio de Janeiro, RJ, Brazil

Optimization Method Associated with Analytical Approach to Assess the Optimal Flexible Pipe End Fitting Design OMAE2023-105040
Marcelo Noboro Ralim Miyazaki[1] Vinicius Ribeiro Machado Da Silva[2] **Jose Renato Mendes De Sousa[2]** Gilberto Bruno Ellwanger[2]
1. Universidade Federal do Rio de Janeiro, Paris, France; 2. Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil

FAT Pressure Impact on Residual Stress in Flexible Pipe Pressure Armours OMAE2023-105422
Dorine Sautreuil[1] Antoine Deheeger[1] Howard Wang[2]
1. TechnipFMC, Le Trait, France; 2. ExxonMobil, Spring, TX, USA

Ocean Space Utilization

05-06-01 High Tide and Tsunamis

Tuesday June 13 | Room **207** | **13:30–15:00**

Session Organizer: Tomoki Ikoma, Nihon University, Japan
Session Co-Organizer: Koichi Masuda, Nihon Univerfsity, Japan

A Study on Tsunami Disaster Prevention Measures by Floating Tsunami Mooring Bitts for a Vessel Moored at a Wharf OMAE2023-100844
Chiaki Tsutsui, Kiyokazu Minami, Mitsuhiro Masuda
Tokyo University of Marine Science and Technology, Koto-ku, Japan

Large Scale Test of Automatic Tsunami Barrier OMAE2023-101764
Eigai Hamada
Anti Tsunami Laboratory, Fujisawa, Japan

Numerical Study on the Deceleration Effect of Impact Velocity of Tsunami Drifting Objects in Front of Structures OMAE2023-104612
Mebae Takekawa[1] **Yasuhiro Aida[2]** Hibiki Nakazawa[2] Ami Sasaki[2] Tomoki Ikoma[2] Koichi Masuda[2]
1. Nihon University, Chiba-Shi Mihama-Ku, Japan; 2. Nihon University, Funabasi-city, Japan

An Experimental Study on the Basic Floating Performance of the Floating Disaster Prevention House against Flood Disasters OMAE2023-104768
Mitsuhiro Masuda, Kiyokazu Minami
Tokyo University of Marine Science and Technology, Koto-ku, Japan

Ocean Engineering

06-03-04 Fluid-Structure, Multi-body and Wave-body Interaction IV

Tuesday June 13 | Room **204** | **13:30–15:00**

Session Organizer: Chengwang Xiong, Harbin Engineering University, China

Numerical Study of Underwater Implosion of Spherical Pressure Hull on Deep-Sea Submersibles OMAE2023-104797
Jiancai Zheng, Yupei He, Min Zhao
Shanghai Jiao Tong University, Shanghai, China

Wave-Current Interaction with Floating Objects with Square and Circular Waterplane Areas OMAE2023-105065
Azin Lamei[1] **Shuijin Li[1]** Masoud Hayatdavoodi[1] H. Ronald Riggs[2]
1. University of Dundee, Dundee, United Kingdom; 2. University of Hawaii at Manoa, Honolulu, HI, USA

Flow Induced Vibration Analysis Using a Low-Cost Inertial Measurement Unit OMAE2023-105138
Aline Peres Leal[1] André Luís Condino Fujarra[2] Rodrigo Matos Carnier[3] **Rodolfo Trentin Gonçalves[3]** Hideyuki Suzuki[3]
1. Polytechnic School, University of Sao Paulo, São Bento do Sul, SC, Brazil; 2. Federal University of Santa Catarina, Joinville, SC, Brazil; 3. School of Engineering, The University of Tokyo, Tokyo, Japan

Experimental Modeling of Typical Types of Green Water Events OMAE2023-102066
Wei-Liang Chuang[1] Xing-Yu Pan[1] Ting-Chieh Lin[2]
1. Department of Marine Environment and Ocean Engineering, National Sun Yat-sen University, Kaohsiung, Taiwan; 2. Department of Harbor and River Engineering, National Taiwan Ocean University, Keelung, Taiwan

Ocean Engineering

06-04-04 Marine Engineering and Technology IV

Tuesday June 13 | Room **203** | **13:30–15:00**

Session Organizer: Marcelo Caire, Federal University of Rio de Janeiro, Brazil

The Effect of LNG and Diesel Fuel Emissions of Marine Engines on GHG-Reduction Revenue Policies under Life-Cycle Costing Analysis in Shipping OMAE2023-104508
Hadi Taghavifar, Lokukaluage Prasad Perera
UiT the Arctic University of Norway, Tromsø, Norway

Research on Ice Grain Preparation Technology Based on Ice Jet Technology for Marine and Ocean Engineering Industry OMAE2023-104619
Jingru Hu, **Jingbin Li**, Zhongwei Huang, Zhaoting Chen
China University of Petroleum, Beijing, China

Optimal Energy Management for Zero-Emission High-Speed Passenger Vessels OMAE2023-104731
Samieh Najjaran, Roger Skjetne, John Martin Kleven Godø
Norwegian University of Science and Technology, Trondheim, Norway

Trustworthiness Evaluation Framwork for Digital Ship Navigators in Bridge Simulator Envriomeent OMAE2023-104863
Hosna Namazi, Lokukaluge Prasad Perera
UiT The Arctic University of Norway, Tromsø, Norway

Ocean Engineering

06-05-03 Marine Hydrodynamics III

Tuesday June 13 | Room **218** | **13:30–15:00**

Session Organizer: Sanne Van Essen, Marin, Netherlands

Algorithm to Developing Regional Wave Scatter Diagram from Hindcast Data for Offshore Application OMAE2023-104624
Samuel Mangalathu Raj[1] Hossein Enshaei[2] Nagi Abdussamie[2]
1. Australian Maritime College, Newnham, TAS, Australia; 2. University of Tasmania, Newnham, TAS, Australia

Sloshing Loads Estimation Using a Genetic Programming OMAE2023-104632
Yangjun Ahn
Sungshin Women's University, Seongbuk-gu, Korea

Data Driven Identification of Ship Maneuvering Coefficients OMAE2023-104644
Vallabh Vinod Deogaonkar, Aditya Kailas Jadhav, Krishnavelu Ramachandran, **Abhilash Sharma Somayajula**
Indian Institute of Technology Madras, Chennai, TN, India

Current Effect on Nonlinear Wave Height OMAE2023-105333
Arun Kumar, Masoud Hayatdavoodi
University of Dundee, Dundee, United Kingdom

Polar and Arctic Sciences and Technology

07-03-02 Vessels in Ice II

Tuesday June 13 | Room **208** | **13:30–15:00**

Session Organizer: Kristjan Tabri, TalTech, Estonia

Session Co-Organizer: Takahiro Takeuchi, Hachinohe Institute of Technology, Japan

A Numerical Simulation Tool of Ship Navigation in Ice under Various Ice Conditions OMAE2023-103403
Fang Li[1] Pentti Kujala[2]
1. Shanghai Jiao Tong University, Shanghai, China; 2. Aalto University, Espoo, Finland

Experimental and Numerical Analysis of Ice Crushing Tests with Different Shaped Ice Specimens OMAE2023-103425
Franciska Müller[1] Angelo Böhm[1] Hauke Herrnring[1] Rüdiger U. Franz von Bock Und Polach[1] Sören Ehlers[2]
1. Hamburg University of Technology, Hamburg, Germany; 2. German Aerospace Center (DLR) - Institute of Maritime Energy Systems, Geesthacht, Germany

Spatial Distribution Patterns of Ice Load under Turning Operation in Level Ice OMAE2023-104305
Yuhui Ge, Shifeng Ding, Renwei Liu, Aimin Wang
Jiangsu University of Science and Technology, Zhenjiang, China

Numerical Simulation of Ice-Propeller Milling Process with Cohesive Element Method OMAE2023-104308
Chao Liu[1] Li Zhou[2] Shifeng Ding[1] Renwei Liu[1] Aimin Wang[1]
1. Jiangsu University of Science and Technology, Zhenjiang, China; 2. Shanghai Jiao Tong University, Zhenjiang, China

CFD, VIV and FSI

08-03-01 Free Surface Flows I

Tuesday June 13 | Room **209** | **13:30–15:00**

Session Organizer: Narakorn Srinil, Newcastle University, United Kingdom
Session Co-Organizers: Owen Oakley, Retired, USA; Mengmeng Zhang, Shanghai Jiao Tong University, China

Numerical Study on Green Water on Deck and Impact Loads of a Ship Model Advancing in Head Wave OMAE2023-102184
Guohua Dong, Chaobang Yao, Wuyang Liu, Dakui Feng
Huazhong University of Science and Technology, Wuhan, China

Numerical Simulations of Nonlinear Regular and Irregular Waves Based on HOS-CFD Method OMAE2023-102722
Wuyang Liu[1] Jiawei Yu[1] Guohua Dong[1] Chaobang Yao[1] Fanliang Meng[2]
1. Huazhong University of Science and Technology, Wuhan, China; 2. China Special Vehicle Research Institute, Jingmen, China

Numerical Simulation of the Wave-Induced Drift of Flat-Cylinder Floating Marine Debris Modelled as Discrete Particles OMAE2023-103606
Diederik Westerkamp[1] **Andriarimina Daniel Rakotonirina**[2] Bruno Sainte-Rose[1] Ton van den Bremer[3]
1. The Ocean Cleanup, Rotterdam, Netherlands; 2. The Ocean Cleanup, Utrecht, Netherlands; 3. Delft University of Technology, Delft, Netherlands

Analysis of Convergence Behaviour for the Overset Mesh Based Numerical Wave Tank in Openfoam OMAE2023-104586
Hao Chen[1] Ling Qian[2] Deping Cao[3]
1. Newcastle University in Singapore, Singapore, Singapore; 2. Manchester Metropolitan University, Manchester, United Kingdom; 3. Tongji University, Singapore, Singapore

Ocean Renewable Energy

09-01-05 Offshore Wind Energy – Moorings and Cables I

Tuesday June 13 | Room **216** | **13:30–15:00**

Session Organizer: Marc Cahay, Technip Energies, France
Session Co-Organizer: Zhen Gao, NTNU, Norway

Modelling of Fibre Rope Mooring for a Floating Offshore Wind Turbine OMAE2023-102645
Thomas Viuff, Stian H. Sørum, Marit I. Kvittem
SINTEF Ocean, Trondheim, Norway

Analytical Model of Non-Linear Load Reduction Devices for Catenary Moorings OMAE2023-100845
Oscar Festa, Susan Gourvenec, Adam Sobey
University of Southampton, Southampton, United Kingdom

Comparison Study of Shallow Water and Deepwater Mooring Systems for Floating Offshore Wind Turbine OMAE2023-105073
Hyoungchul Kim, **Bonjun Koo**, Anil Sablok, Ho-Joon Lim, Tapio Laihomäki
TechnipEnergies, Houston, TX, USA

Nonlinear Aero-Mooring Effects on Floating Offshore Wind Turbines under Random Wind and Waves: Environmental Direction Effects OMAE2023-104333
Leandro Souza Pinheiro da Silva[1] Nataliia Y. Sergiienko[2] Benjamin S. Cazzolato[2] Kwong Kiu[1] Rodolfo T. Goncalves[3] Boyin Ding[2]
1. Delmar Systems, Perth, WA, Australia; 2. The University of Adelaide, Adelaide, SA, Australia; 3. The University of Tokyo, Tokyo, Japan

Ocean Renewable Energy

09-02-05 Wave Energy Control and Power Take Off

Tuesday June 13 | Room **217** | **13:30–15:00**

Session Organizer: Yi-Hsiang Yu, NyCU, Taiwan
Session Co-Organizer: Daniel Gaebele, Sandia NL, USA

Incorporating Empirical Nonlinear Efficiency into Control Co-Optimization of Real World Heaving Point Absorber Using WecOptTool OMAE2023-103899
Daniel T. Gaebele[1] Carlos A. Michelen Strofer[2] Michael C. Devin[2] Jeff T. Grasberger[2] Ryan G. Coe[2] Giorgio Bacelli[2]
1. Sandia National Laboratories, Corvallis, OR, USA; 2. Sandia National Laboratories, Albuquerque, NM, USA

On Implementing Cummins Equation to Represent Accurate Wave Radiation Forces in Modelica™ OMAE2023-103996
Ajay Menon[1] Ali Shahbaz Haider[2] Kush Bubbar[2]
1. Indian Institute of Technology Kharagpur, Coimbatore, TN, India; 2. University of New Brunswick, Fredericton, BC, Canada

Latching Control of Wave Energy Converters Using Tunable Electrical Load OMAE2023-104774
Uzair Bin Tahir[1] Jingxin Zhang[2] Richard Manasseh[2]
1. Swinburne University of Technology, Camberwell, VIC, Australia; 2. Swinburne University of Technology, Hawthorn, VIC, Australia

Design of a Two-Body Wave Energy Converter Featuring Controllable Geometry OMAE2023-105020
Nathan Tom[1] David Ogden[2] Michaela Byrne[3]
1. National Renewable Energy Laboratory, Golden, CO, USA; 2. Velocity Global, Hackney, United Kingdom; 3. Ohio University, Athens, OH, USA

Offshore Geotechnics

10-05-01 Bucket Foundations, Suction Caissons and Spudcans

Tuesday June 13 | Room **206** | **13:30–15:00**

Session Organizer: Denby Morrison, Shell, USA
Session Co-Organizer: Yuxia Hu, The University of Western Australia, Australia

Decommissioning Analysis for Suction Caisson Foundations OMAE2023-102040
Lupamudra Sharma, Julian Bubel
Ramboll, Hamburg, Germany

Numerical Analysis of the Effect of Multidirectional Load on the Bearing Capacity of Suction Bucket Foundation OMAE2023-105425
Bin Yan[1] Wenxuan Zhu[1] Bin Gao[1] Guanlin Ye[1] Yinghui Tian[2]
1. Shanghai Jiao Tong University, Shanghai, China; 2. The University of Melbourne, Parkville, VIC, Australia

Research on Strengthening Complex Foundations by Combining Multiple Foundation Treatment Methods OMAE2023-108141
Fei Xiao, Yonglai Zheng
Tongji University, Shanghai, China

Petroleum Technology

11-02-01 Well Drilling Fluids and Hydraulics I

Tuesday June 13 | Room **211** | **13:30–15:00**

Session Organizer: Arild Saasen, University of Stavanger, Norway
Session Co-Organizer: Ergun Kuru, University of Alberta, Canada

Dynamic Filtration Loss Control through Optimization of Drilling Fluid Rheological Properties: a Comparative Study of the Fluid Viscoelasticity versus Shear Viscosity Effects OMAE2023-100573
Hongbo Chen, **Ergun Kuru**
University of Alberta, Edmonton, AB, Canada

Dual Shear Gun for Efficient Drilling Fluid Shearing – Laboratory Experiments OMAE2023-104756
Ali Taghipour[1] Bjørnar Lund[1] Jan David Ytrehus[1] **Arild Saasen**[2] Geir Olav Ånesbug[3] Jan Egil Pallin[3]
1. SINTEF, Trondheim, Norway; 2. University of Stavanger, Stavanger, Norway; 3. JAGTech, Orkanger, Norway

Critical Review of the Literature on Curing Losses and Long-Term Shale Inhibition OMAE2023-105051
Abdullah S. Al-Yami, **Muhammad Tahir**, Majad Khan, Vikrant Wagle
Saudi Aramco, Dhahran, Saudi Arabia

Preparation of a Synthetic Geo-Polymer Based LCM Utilizing Saudi Arabian Volcanic Ash for a Sustainable Development: Method, Lab Testing and Applications OMAE2023-104959
Khawlah Alanqari, Abdullah Al-Yami, Vikrant Wagle
Saudi Aramco, Dhahran, Saudi Arabia

Blue Economy Symposium

13-05-01 Blue Economy V

Tuesday June 13 | Room **214** | **13:30–15:00**

Session Organizer: Cristian Cifuentes Salazar, Universidad Austral de Chile, Chile
Session Co-Organizer: Yunil Chu, Griffith University, Australia

Reducing Risk in Design and Operation of Exposed High Volume, Advanced Fish Farms OMAE2023-101782
Per Arild Aland
DNV, Oslo, Norway

The Challenges and Opportunities for the Use of Robotic Autonomous Robotic Systems in Support of the Blue Economy OMAE2023-105124
Damien Guihen
Australian Maritime College, Newnham, TAS, Australia

A Facility Location Model for Uncrewed Surface Vessels in the Maritime Survey Industry OMAE2023-100612
Lucas Moorlag[1, 2] Xiaoli Jiang[2]
1. Fugro, Rotterdam, Netherlands; 2. Delft University of Technology, Rotterdam, Netherlands

Time-Series Forecasting for Real-Time Monitoring of Marine and Offshore Operations OMAE2023-104628
Mohammad Mahdi Abaei[1] Ahmad Bahootoroody[2] Ehsan Arzaghi[3] Rouzbeh Abbassi[1] Tommi Inkinen[4] Vikram Garaniya[3]
1. Macquarie University, Sydney, NSW, Australia; 2. Aalto University, Espoo, Finland; 3. University of Tasmania, Launceston, TAS, Australia; 4. University of Turku, Turku, Finland

CONCURRENT SESSIONS
15:30 – 17:00

Offshore Technology

01-03-02 Hydrodynamic Industrial Applications

Tuesday June 13 | Room **205** | **15:30–17:00**

Session Organizer: Weichao Shi, Newcastle University, United Kingdom

A Practical Approach for Wave Loads on Bilge Keels in Irregular Seas OMAE2023-101408
Jinzhu Xia[1] Huaxing Liu[2] Hilmi Sukri[1]
1. MISC Berhad, Kuala Lumpur, Malaysia; 2. OceanSTAR Marine & Offshore, Singapore, Singapore

Experimental Study of the Draft and Column Aspect Ratio on the Flow-Induced Motions (FIM) of a Semi-Submersible Platform with Four Square Columns OMAE2023-102704
Rodolfo Gonçalves[1] Matheus Marques[2] Leandro Silva[3] Shinichiro Hirabayashi[4] Hideyuki Suzuki[1]
1. The University of Tokyo, Bunkyo-Ku, Japan; 2. UFPE - Federal University of Pernambuco, Recife, RJ, Brazil; 3. JB Energy - Japan Blue Energy, Chiyoda-ku, Japan; 4. The University of Tokyo, Kashiwa-shi, Japan

Frequency Domain Dynamic Response Analysis of Three Parallel Ships in a Twin Marine Lifter System OMAE2023-104660
Huan Zhang, Yanjun Teng, Shida Fan, Yuhan Wang, Chao Wang, Yan Yin
Shanghai Waigaoqiao Shipbuilding Co., Ltd., Shanghai, China

On the Development of Aft Body Hull Form for Ship-Type Offshore Structures OMAE2023-104939
Joo-Sung Kim[1] Gisu Song[2] Hyejong Son[1] Bohee Kim[3] Jungki Park[4] Hyunjoe Kim[1]
1. Samsung Heavy Industries, Daejeon, Korea; 2. Korea Maritime & Ocean University, Busan, Korea; 3. Samsung Heavy Industries, Seongnam, Korea; 4. Samsung Heavy Industries, Geoje, Korea

Structures, Safety and Reliability

02-07-02 Data-driven Models for Marine Structures II

Tuesday June 13 | Room **212** | **15:30–17:00**

Session Organizer: YeongAe Heo, Case Western Reserve University, USA
Session Co-Organizer: Carlos Guedes Soares, University of Lisbon, Portugal

Data-Driven TLP Tendon Loads from Internal Hull Fiber-Optic Sensors OMAE2023-103309
John D. Hedengren[1] David Brower[2] Kody Kidder[3] **Zachary Hillman**[1]
1. Brigham Young University, Provo, UT, USA; 2. Astro Technology, Inc., Houston, TX, USA; 3. EnVen Energy Corporation, Houston, TX, USA

A Methodology for Tuning of Computational Vessel Models Utilizing Wave Measurements from X-Band Marine Radar And Wave Buoy OMAE2023-104492
Gowtham Radhakrishnan[1] Bernt J. Leira[1] Zhen Gao[1] Svein Sævik[1] Karl E. Kaasen[2] Konstantinos Christakos[1] Johann A. Dirdal[1]
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. SINTEF Ocean, Trondheim, Norway

Hydrodynamic Load Prediction of Slosh Flow Using Image-Based Machine Learning OMAE2023-104626
Daegyoum Kim, **Ki Jong Kim**
KAIST, Daejeon, Korea

A Data Driven Decision Support System for Structural Safety of Ships Moving in Waves OMAE2023-104753
Xueqian Zhou[1] Yu Yang[2] Yujie Liu[2] Guoqing Feng[2] Huilong Ren[2]
1. Harbin Engineering University, Harbin, China; 2. Harbin Engineering University, College of Shipbuilding Engineering, Harbin, China

Materials Technology

03-01-01 Fracture Assessment and Control

Tuesday June 13 | Room **206** | **15:30–17:00**

Session Organizer: Mamdouh Salama, MMS4AIM LLC, USA

Session Co-Organizers: Agnes Marie Horn, DNV, Norway; Myung Hyun Kim, Pusan National University, Korea

Stress Intensity Factors and T-Stress Solutions for Mixed-Mode Compact-Tension-Shear (CTS) Specimens with Slanted Propagating Cracks OMAE2023-108192
Pengfei Jin[1] Zheng Liu[1] Xu Chen[1] **Xin Wang[2]**
1. Tianjin University, Tianjin, China; 2. Carleton University, Ottawa, ON, Canada

A Study on the Fracture Toughness Evaluation considering Material Tensile Characteristic for Cryogenic Steel OMAE2023-104718
Ji Hoon Kim[1] Young Cheon Jeong[2] Dong Pil Cho[2] Myung Hyun Kim[1]
1. Pusan National University, Busan, Korea; 2. Samsung Heavy Industry Co. Ltd, Geoje-si, Korea

Prediction of Mechanical Strength of Line Pipe Based on Novel Distortional Hardening Model OMAE2023-107939
Seonghwan Choi[1] **Soo-Chang Kang[2]** Myoung-Gyu Lee[1]
1. Seoul National University, Gwanak-gu, Korea; 2. Steel Solution Research Lab, POSCO, Yeonsu-gu, Korea

Pipeline, Risers, and Subsea Systems

04-01-04 Flexible Pipes and Umbilicals IV

Tuesday June 13 | Room **210** | **15:30–17:00**

Session Organizer: Jose Renato De Sousa, UFRJ, Brazil

Session Co-Organizer: Anh Tuan Do, TechnipFMC, France

Analytical and Finite Element Assessment of Thermoplastic Composite Pipes under Pure Bending and Thermal Gradient OMAE2023-104870
Marcelo Caire[1] Pedro Luna Araújo Oliveira[2] Yangye He[3] Marcus Vinicius Da Cruz[2] Murilo Augusto Vaz[1]
1. COPPE / Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 2. Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 3. China University of Petroleum, Changping District, China

A Theoretical Approach for the Response of Offshore Composite Rubber Hose to the Crush Load OMAE2023-105338
Chuangchuang Li[1] **Pan Gao[1]** Qiang Gao[2] Yanling Gao[2] Youan Li[3]
1. Shanghai Maritime University, Shanghai, China; 2. Shanghai Maritime University, Pudong, China; 3. Hebei Zebung Rubber Technology Co., Ltd., Hengshui, China

Stability of Concrete Mattresses OMAE2023-106777
Dermot O' Brien[1] Scott Draper[2] Hongwei An[2]
1. Atteris Pty Ltd, Perth, WA, Australia; 2. University of Western Australia, Perth, WA, Australia

Pipeline, Risers, and Subsea Systems

04-02-03 Rigid Risers III

Tuesday June 13 | Room **213** | **15:30–17:00**

Session Organizer: Theodoro Netto, Fundacao Coppetec, Brazil

A Novel Numerical Model for Computing the Global Response of a Steel Catenary Riser Based on Absolute Nodal Coordinate Formulation OMAE2023-104291
Jing Hou[1] Lusheng Jia[1] Yi Liu[1] Dejun Wang[1] Xu Jia[1] **Cheng Zhang[2]**
1. CNOOC Research Institute, Beijing, China; 2. South China University of Technology, Guangzhou, China

Incorporation of Effective Stress Analysis into the Global Model of the Subsea Riser: Accounting for Soil Remoulding and Reconsolidation Effect OMAE2023-104471
Hossein Janbazi, Hodjat Shiri
Memorial University of Newfoundland, St. John's, NL, Canada

Proposal for How to Assess the Load Reduction Efficiency of Wellhead Load Relief Systems OMAE2023-104891
Stian Sætre[1] Anthony Muff[1] Torfinn Hørte[2] Michael Macke[2] Per Osen[1] Lorents Reinås[1]
1. Equinor, Stavanger, Norway; 2. DNV, Høvik, Norway

Ocean Space Utilization

05-02-01 Aquaculture and Related Technology I

Tuesday June 13 | Room **207** | **15:30–17:00**

Session Organizer: Tomoki Ikoma, Nihon University, Japan

Session Co-Organizers: Daisuke Kitazawa, IIS, University of Tokyo, Japan; Muk Chen Ong, University of Stavanger, Norway

Alternative Rope Materials in Towed Fishing Gear to Reduce Plastic Waste, a Comparative Study of Mechanical Properties and Tolerance against Wear and Tear OMAE2023-104444
Heidi Moe Føre, Hanne Hjelle Hatlebrekke, Eduardo Grimaldo
SINTEF Ocean, Trondheim, Norway

Wake Effects on the Drag Force Estimation of Downstream Fish Cages OMAE2023-101705
Hui Cheng, Onur Aydemir, Muk Chen Ong
University of Stavanger, Stavanger, Norway

A Physical Model Approach to Mooring Loads and Motion Responses of a Closed Fish Tank Including Internal Free Water OMAE2023-105129
Huaizhi Zhao[1] Shuchuang Dong[1] Jinxin Zhou[2] Qiao Li[2] Daisuke Kitazawa[2]
1. The University of Tokyo, Kashiwa, Japan; 2. Institute of Industrial Science, The University of Tokyo, Kashiwa, Japan

An Experimental Study on the Responses of a Spar-Type Floating Structure Integrated with Aquaculture Systems OMAE2023-104637
Qiao Li, Shuchuang Dong, Jinxin Zhou, Daisuke Kitazawa
The University of Tokyo, Kashiwa, Japan

Ocean Engineering

06-05-04 Marine Hydrodynamics IV

Tuesday June 13 | Room **218** | **15:30–17:00**

Session Organizer: Masoud Hayatdavoodi, The University of Dundee, United Kingdom

A Numerical Study of Wave Impacts on a Semi-Submersible OMAE2023-106568
Yanfei Deng[1] He Li[2] Zixuan Wang[3]
1. Institute of Intelligent Ocean Engineering, Harbin Institute of Technology Shenzhen, Shenzhen, China; 2. School of Mechanical Engineering and Automation, Shenzhen, China; 3. Institute of Intelligent Ocean Engineering, Harbin Institute of Technology (Shenzhen), Shenzhen, China

Doppler Shift Approximation for Predicting the Wave-Induced Response of Advancing Vessels in Following Waves OMAE2023-107733
Raphaël E. G. Mounet[1] Ulrik D. Nielsen[1] Astrid H. Brodtkorb[2]
1. Technical University of Denmark, Kongens Lyngby, Denmark; 2. Norwegian University of Science and Technology, Trondheim, Norway

A Combined Maneuvering and Seakeeping Model for the ONR Tumblehome OMAE2023-108022
Omotayo Oladele[1] William Lambert[2] Stefano Brizzolara[2]
1. Virginia Tech, Christiansburg, VA, USA; 2. Virginia Tech, Blacksburg, VA, USA

Numerical Study on the Evolution of Vortices Influenced by Downstream Undulating Foil with Different Lateral Distances OMAE2023-102766
Pengfei Wang, **Ruoxin Li**, Kai Yu
Qingdao Innovation and Development Centre of Harbin Engineering University, Qingdao, China

Polar and Arctic Sciences and Technology

07-03-03 Vessels in Ice III

Tuesday June 13 | Room **208** | **15:30–17:00**

Session Organizer: Mojtaba Mokhtari, NTNU, Norway

Session Co-Organizer: Franciska Müller, Hamburg University of Technology, Germany

Stress-Strain Predictive Analysis of Ship Structure in Ice Area Based on Neural Network OMAE2023-104315
Feixu Li, Shifeng Ding, Renwei Liu, Aimin Wang
Jiangsu University Of Science And Technology, Zhenjiang, China

Numerical Assessment of Novel Ice Breaking Technology OMAE2023-104670
Kristjan Tabri[1] Kalju Saar[1] Marie Aanensen[2] Steiner Andersen[3]
1. Tallinn University of Technology, Marine Technology Competence Centre, Tallinn, Estonia; 2. Bifrost Tug Estonia, Tallinn, Estonia; 3. Dåfjorden Slipp AS, Sagvåg, Norway

Probable Ice Impact Locations and Magnitudes on a Naval Hull Form in Forward Transit through Marginal Ice Zones OMAE2023-104854
Edward Bryson[1] Bruce W. T. Quinton[2] Claude Daley[2]
1. Memorial University of Newfoundland, Mount Pearl, NL, Canada; 2. Memorial University of Newfoundland, St. John's, NL, Canada

Using Non-Linear Finite Element Analysis to Analyze the Effects of Connection Designs on the Ice Strength of a Vessel OMAE2023-104860
Joshua Gosse[1] Bruce Quinton[1] Claude Daley[1] Andrew Kendrick[2] James Bond[3]
1. Memorial University of Newfoundland, St. John's, NL, Canada; 2. Vard Marine Inc., Ottawa, ON, Canada; 3. American Bureau of Shipping, Ottawa, ON, Canada

CFD, VIV and FSI

08-03-02 Free Surface Flows II

Tuesday June 13 | Room **209** | **15:30–17:00**

Session Organizer: Mengmeng Zhang, Shanghai Jiao Tong University, China

Session Co-Organizers: Owen Oakley, Retired, USA; Narakorn Srinil, Newcastle University, United Kingdom

Study on Self-Propelled Wake Characteristics of Surface Ship OMAE2023-104552
Han Xiang, Weihua Deng, Yanlin Zou, Xunming Wang, Dakui Feng
School of Naval Architecture and Ocean Engineering, Wuhan, China

Design Assessment of Mechanical Wavemakers: a Comprehensive Study towards Wave-Structure Interaction Applications OMAE2023-104594
Muhannad W. Gamaleldin[1] Alexander V. Babanin[1] Amin Chabchoub[2]
1. The University of Melbourne, Melbourne, VIC, Australia; 2. Kyoto University, Uji, Japan

Numerical Prediction of Dynamic Pressure Loads in a Dam Break Case with the Direct Surface Description Method OMAE2023-107186
Jesper Roland Kjærgaard Qwist, **Erik Damgaard Christensen**
Technical University of Denmark, Kgs. Lyngby, Denmark

A Systematic Approach of Developing a Numerical Wavetank to Simulate Driven Shallow- and Deep-Water Waves OMAE2023-108097
Wajiha Rehman, Onno Bokhove, Mark Kelmanson
University of Leeds, Leeds, United Kingdom

Ocean Renewable Energy

09-01-06 Offshore Wind Energy – Moorings and Cables II

Tuesday June 13 | Room **216** | **15:30–17:00**

Session Organizer: Vegard Longva, SINTEF, Norway
Session Co-Organizer: Naiquan Ye, SINTEF, Norway

A Numerical Assessment of Mooring System Modelling Uncertainties in Hydrodynamic Model Testing of Floating Wind Turbines OMAE2023-104699
Petter Andreas Berthelsen[1] Maxime Thys[1] Erin Bachynski-Polić[2]
1. SINTEF Ocean, Trondheim, Norway; 2. Dept. of Marine Technology, Norwegian University of Science and Technology, Trondheim, Norway

A Model for Friction Stresses in Cable Core OMAE2023-104817
Geir Skeie, Nils Sødahl, Sune Pettersen, Lars Helge Verde
DNV, Høvik, Norway

Application of Stablepipe Method C Assessment to Determine On-Bottom Stability of a Cable Crossing in North Sea Mobile Seabed Conditions OMAE2023-102329
Jack Jorgensen[1] Terry Griffiths[1] Nic Mcgrath[1] Doğukan Görmüş[2] Glenn Severs[2] Bryan Thurstan[1] Fabrizio Pistani[1] Bart Ledoux[2]
1. Aurora Offshore Engineering, Nedlands, WA, Australia; 2. Jan De Nul Group, Aalst, Belgium

Improved Reliability Assessment Methods for Subsea Cables on Rocky Seabed Using NPV Calculation OMAE2023-102341
Nicholas McGrath[1] Terry Griffiths[1] Jack Jorgensen[1] Fabrizio Pistani[1] Scott Draper[2] Liang Cheng[2]
1. Aurora Offshore Engineering, Nedlands, WA, Australia; 2. University of Western Australia, Nedlands, WA, Australia

Ocean Renewable Energy

09-05-01 Hydrogen and Energy Storage

Tuesday June 13 | Room **217** | **15:30–17:00**

Session Organizer: Marc Cahay, Technip Energies, France

A Novel Conceptual Design of Modularised Offshore Green Hydrogen System OMAE2023-101527
Ming Zhang, Zhi-Ming Yuan, Long-Bin Tao, Wei-Chao Shi
University of Strathclyde, Glasgow, United Kingdom

Machine Learning Regression-CFD Models for the Hydrogen Dispersion in Upwind Direction from Various Leakage Location in a Naturally Ventilated Space OMAE2023-104522
Parth Patel[1] Vikram Garaniya[1] Til Baalisampang[1] Ehsan Arzaghi[1] Javad Mohammadpour[2] Rouzbeh Abbassi[3] Fatemeh Salehi[3]
1. University of Tasmania, Launceston, TAS, Australia; 2. Macquarie University, School of Engineering, Sydney, NSW, Australia; 3. Macquarie University, Sydney, NSW, Australia

Economic Analysis of Batteries and Fuel Cells for an Offshore Energy Hub OMAE2023-105003
Ramon Abritta Aguiar Santos[1] Alexey Pavlov[1] Damiano Varagnolo[1] Børre T. Børresen[2]
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Equinor, Trondheim, Norway

Energy Storage and Direct Air Carbon Capture for Deep Water Energy Sources OMAE2023-106209
Graydon Hands, Kevin Truong, Yvan Unico, Areeb Ashar, Ali Al-Saiedy, Roman Shor
University of Calgary, Calgary, AB, Canada

Petroleum Technology

11-02-02 Well Drilling Fluids and Hydraulics II

Tuesday June 13 | Room **211** | **15:30–17:00**

Session Organizer: Arild Saasen, University of Stavanger, Norway
Session Co-Organizer: Ergun Kuru, University of Alberta, Canada

Application of the Yield Stress Concept in Drilling Fluid Engineering OMAE2023-101294
Arild Saasen[1] Jan David Ytrehus[2] Bjørnar Lund[2]
1. University of Stavanger, Stavanger, Norway; 2. SINTEF, Trondheim, Norway

Lab Development and Field Deployment of Novel High Molecular Weight Polyamine-Based Shale Inhibitor for Water-Based Drilling Fluids OMAE2023-104418
Vikrant Wagle, Abdullah Alyami, Ali Safran, Sara Alkhalaf
Saudi Aramco, Dhahran, Saudi Arabia

Application of Insulated Drill Pipe to Supercritical/Super-Hot Geothermal Well Drilling OMAE2023-104713
Ajima Kohei, Shigemi Naganawa, Elvar Karl Bjarkason
Akita University, Akita, Japan

Determination of Drilling Fluid's Elasto-Viscoplastic Thixotropic Properties from Gel Strength Measurements and Transient Models OMAE2023-105303
Kristian Gjerstad
University of Stavanger, Sola, Norway

Blue Economy Symposium

13-06-01 Blue Economy VI

Tuesday June 13 | Room **214** | **15:30–17:00**

Session Organizer: Yunil Chu, Griffith University, Australia
Session Co-Organizer: Ehsan Arzaghi, AMC, UTAS, Australia

Floating Nuclear Power Plants, a Safe Way Out of the Energy and Climate Conundrum OMAE2023-100725
Soon Heng Lim
The Society of Floating Solutions, Singapore, Singapore

Human Element and Sustainable Development in the Context of Industry 4.0 and Blue Economy OMAE2023-101806
Gholam Reza Emad, Mehrangiz Shahbakhsh, Nagi Abdussamie, T. M. Rabiul Islam
University of Tasmania, Launceston, TAS, Australia

Towards Developing a Code of Practice for Offshore Aquaculture Vessels OMAE2023-101836
Saeed Mohajernasab[1] Nagi Abdussamie[2] Andrew Harris[3] Chris Shearer[4] Nick Tighe[4]
Prashant Bhaskar[5] Chris Chin[5] Rabiul Islam[5] Jonathan Binns[6] Hossein Enshaei[5]
1. Blue Economy CRC, Launceston, TAS, Australia; 2. Blue Economy CRC, Newnham, TAS, Australia; 3. BMT, Prospect, SA, Australia; 4. BMT, Melbourne, VIC, Australia; 5. Australian Maritime College, Newnham, TAS, Australia; 6. Defence Science and Technology Group, Melbourne, VIC, Australia

A Feasibility Study on Green Energy Production at the Location of Offshore Oil and Gas Platforms in Australia OMAE2023-105112
Vahid Aryai[1] **Nagi Abdussamie**[2] Rouzbeh Abbassi[3] Irene Penesis[4] Chien-Ming Wang[4] Vikram Garaniya[5]
1. Energy, Commonwealth Scientific and Industrial Research Organization (CSIRO), Newcastle, NSW, Australia; 2. Blue Economy CRC-Co., Riverside, TAS, Australia; 3. School of Engineering, Faculty of Science and Engineering, Macquarie University, Sydney, NSW, Australia; 4. Blue Economy Cooperative Research Centre, Launceston, TAS, Australia; 5. University of Tasmania, Launceston, TAS, Australia

Wednesday Concurrent Sessions

CONCURRENT SESSIONS
08:30 – 10:00

Offshore Technology

01-08-01 Digital Twin Applications to Offshore Systems

Wednesday June 14 | Room **205** | **08:30–10:00**

Session Organizer: Rajiv Aggarwal, Reliable Offshore Systems LLC, USA

Developments of the Glen Lyon Fpso Digital Twin: Vessel Response and Structural Monitoring OMAE2023-105101
Jonathan Bailey[1] Richard J Bamford[1] **Suvabrata Das**[2] Soma S Maroju[3] Robert J. Barker[3]
1. BP, Milton Keynes, United Kingdom; 2. BMT Commercial USA Inc., Katy, TX, USA; 3. BMT Commercial USA Inc., Houston, TX, USA

Digital Twin Concept for Offshore Wind Farm Jacket Lifting Frame OMAE2023-102440
Sabih Laham, **Vijaykumar Mali**, Kurinjivelan Palaniyandi
Lamprell Energy Limited, Sharjah, United Arab Emirates

Quality Assurance of Digital Twins OMAE2023-105285
Kjell Eriksson, Christian Markussen
DNV, Høvik, Norway

Modular Collision Avoidance Using Predictive Safety Filters OMAE2023-103740
Aksel Vaaler, **Haakon Robinson**, Trym Tengesdal, Adil Rasheed
Norwegian University of Science and Technology, Trondheim, Norway

Structures, Safety and Reliability

02-09-01 Reliability of Mooring and Riser Systems

Wednesday June 14 | Room **212** | **08:30–10:00**

Session Organizer: Ying Min Low, National University of Singapore, Singapore
Session Co-Organizer: Luis Sagrilo, Federal University of Rio de Janeiro, Brazil

A Combination of Surrogate Model and Subset Simulation Method for Long-Term Extreme Response Analysis of Marine Risers OMAE2023-101700
Qingqing Miao, Ankang Cheng, Ying Min Low
National University of Singapore, Singapore, Singapore

Ge-Narx Based Data-Driven Modelling of Long-Term Riser Response to Irregular Waves considering Wave Directionality OMAE2023-102807
Ankang Cheng, Ying Min Low
National University of Singapore, Singapore, Singapore

Rapid Residual Strength Assessment of Degraded Mooring Chains Using a Finite Element Analysis Based Response Surface Modelling Tool OMAE2023-104519
David Gunn, Simon Dimopoulos, Chris Carra
AMOG Consulting, Melbourne, VIC, Australia

Structural Reliability of Dynamic Power Cables Used in Floating Wind Turbines – a Review OMAE2023-103433
Rasoul Hejazi
The University of Western Australia, Crawley, WA, Australia

Materials Technology

03-02-01 Fatigue Performance & Inspection Planning

Wednesday June 14 | Room **206** | **08:30–10:00**

Session Organizer: Mamdouh Salama, MMS4AIM LLC, USA

Session Co-Organizers: Agnes Marie Horn, DNV, Norway; David Baker, ExxonMobil Technology and Engineering Company, USA

Fatigue Strength of 3" Subsea Pressure Containing Bolts in Air and Seawater Environment OMAE2023-104674
Agnes Marie Horn[1] Arne Fjeldstad[2] Tore Geir Wernø[3] Anthony. D. Muff[4]
1. DNV, Oslo, Norway; 2. DNV, Høvik, Norway; 3. Equinor, Stavanger, Norway; 4. Equinor, Fornebu, Norway

Surface Corrosion Fatigue Crack Growth Test in Accelerating Environment Where General Surface Corrosion Proceed in Parallel OMAE2023-101139
Hitoshi Hayashibara[1] Ryutaro Fueki[1] Norio Yamamoto[2] Tomohiro Sugimoto[2] Takahiro Ando[1]
Shuichi Tsumura[1] Yosuke Anai[1] Chikahisa Murakami[1] Toshio Niwa[1] Toshiaki Iwata[1] Kinya Ishibashi[2]
1. National Maritime Research Institute, Mitaka-shi, Japan; 2. Nippon Kaiji Kyokai (Class NK), Chiyoda-ku, Japan

Inspection Planning in the Marine Sector, a Case Study of a Hydrogen-Fueled Fishing Boat OMAE2023-100914
Leonardo Giannini[1] Sepideh Jafarzadeh[2] Alessandro Campari[1] Federico Ustolin[1] Nicola Paltrinieri[1]
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. SINTEF, Trondheim, Norway

Pipeline, Risers, and Subsea Systems

04-03-01 Mechanics I

Wednesday June 14 | Room **210** | **08:30–10:00**

Session Organizer: Julian Hallai, Exponent, USA

Experimental Quantification of Collapse Enhancement from Light Thermal Treatment OMAE2023-101113
Chris Timms[1] Duane DeGeer[2] Bruce Chandler[2] Ping Liu[3] Doug Swanek[1] Qishi Chen[1]
1. C-FER Technologies, Edmonton, AB, Canada; 2. Intecsea, Houston, TX, USA; 3. Intecsea, Den Haag, Netherlands

Investigation on Residual Contact Pressure of Mechanically Lined Pipe with Partially Plastified Carrier Pipe Based on Tresca Criterion OMAE2023-101748
Rongzhi Wei[1] Murilo Augusto Vaz[1] Xuefeng Hu[2] Jianing Guo[2]
1. Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 2. CNOOC Petroleum Brasil Ltda., Rio de Janeiro, RJ, Brazil

Lüders Induced Localization in Tubes under Cyclic Bending OMAE2023-101793
Weihan Zhang, **Stelios Kyriakides**
University of Texas, Austin, TX, USA

Ocean Space Utilization

05-05-02 Aquaculture and Related Technology II

Wednesday June 14 | Room **207** | **08:30–10:00**

Session Organizer: Tomoki Ikoma, Nihon University, Japan

Session Co-Organizer: Motohiko Murai, Yokohama National University, Japan

A Basic Investigation of Resonance Characteristics of Water Regions of PW-OWC WECS OMAE2023-104669
Tomoki Ikoma[1] Airi Kuwata[2] Yasuhiro Aida[2] Koichi Masuda[2]
1. Nihon University, Matsudo, Japan; 2. Nihon University, Funabashi, Japan

Development of Numerical Model of Floating Body with Air Chamber for the OWC-WEC Using Two-Phase Flow Mps Method OMAE2023-107202
Yutaro Sasahara, Mitsuhiro Masuda
Tokyo University of Marine Science and Technology, Koto-ku, Japan

Proposal for Motion Stabilized Platform for Offshore Wind Observations by Doppler Lidar and Its Validation OMAE2023-104685
Yusuke Yamamoto, Mizuki Kinugasa, Hiroki Morota, Toru Katayama
Osaka Metropolitan University, Sakai, Japan

LSTM Based Model Predictive Control of Motion Stabilized Platform to Equip Doppler Lidar for Offshore Wind Observations OMAE2023-108083
Mizuki Kinugasa[1] Yusuke Yamamoto[1] Daisuke Terada[2] Toru Katayama[1]
1. Osaka Metropolitan University, Sakai-Shi Naka-Ku, Japan; 2. National Defense Academy of Japan, Yokosuka, Japan

Ocean Engineering

06-01-01 Computational Mechanics and Design Applications I

Wednesday June 14 | Room **218** | **08:30–10:00**

Session Organizer: Yuzhu Pearl Li, National University of Singapore, Denmark

Using CFD to Assess the Wind Loads on the Topside of a Self-Propelled Wind Turbine Installation Jack-Up – a Comparative Study of Simplified with Detailed Topside Structures at Model-Scale and Full-Scale OMAE2023-101096
Zana Sulaiman
GustoMSC, Schiedam, Netherlands

First Principle Design Load Estimation for LH2 Fuel Tanks by Means of 0D Approach OMAE2023-102581
Tobias Lampe, Lukas Roß, Bright Ebikemefa Okpeke, Sören Ehlers
Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR) / German Aerospace Center, Geesthacht, Germany

Temporal Discretization Investigation of the Unsteady Loading on an Infinitely Long Cylinder in High Reynolds Numbers Using DES OMAE2023-104427
Marielle de Oliveira[1] Leandro S. P. da Silva[2] Fabio Saltara[3] Bruno Carmo[1] Rodolfo T. Gonçalves[4]
1. University of São Paulo, São Paulo, SP, Brazil; 2. Delmar Systems, Perth, WA, Australia; 3. Dept. of Mechanical Engineering at University of São Paulo, São Paulo, SP, Brazil; 4. University of Tokyo, Tokyo, Japan

Study of the Scale Effect on the Resistance of a Double-Bow Ferryboat OMAE2023-104963
Luis Antonio Matile Cascelli[1] Juan Ordóñez[2] Jeferson Avila Souza[1] **Crístofer Hood Marques**[1]
1. Federal University of Rio Grande, Rio Grande, RS, Brazil; 2. Florida State University, Tallahassee, FL, USA

Ocean Engineering

06-04-05 Marine Engineering and Technology V

Wednesday June 14 | Room **203** | **08:30–10:00**

Session Organizer: Rodrigo Soares, Federal University of Rio de Janeiro, Brazil

An Expert Knowledge-Based Multi-Criteria Group Decision-Making Framework for Ship Overall Design Selection in Fuzzy Circumstances OMAE2023-106039
Cheng Chen[1] Xiangrui Zhang[2] Pei Zhang[2] Feng Feng[1] Cong Sun[1] Xiuyuan Zhang[1]
1. College of Shipbuilding Engineering, Harbin Engineering University, Harbin, China; 2. Marine Design and Research Institute of China, Shanghai, China

Aerodynamic Investigation of Tower Shadow Effects on the Horizontal Axial Dual-Rotor Wind Turbine OMAE2023-108147
Mengshang Zhao[1] Ruosi Zha[2] Kai Wang[2] Xiaodi Wu[2] Siqi Chen[2]
1. Sun Yat-sen University, Zhuhai, China; 2. School of Ocean Engineering and Technology, Sun Yat-Sen University, Zhuhai, China

Dynamic Response Analysis of an End-Anchored Floating Bridge with a Damaged Pontoon under Repair Operation OMAE2023-101805
Minghao Cui[1] Zhengshun Cheng[1] Peng Chen[1] Torgeir Moan[2]
1. Shanghai Jiao Tong University, Shanghai, China; 2. Norwegian University of Science and Technology, Trondheim, Norway

Wave Attenuation by Submerged Oscillating Plates OMAE2023-105070
Yongbo Chen[1] Masoud Hayatdavoodi[2] Binbin Zhao[1] R. Cengiz Ertekin[3]
1. Harbin Engineering University, Harbin, China; 2. University of Dundee, Dundee, United Kingdom; 3. University of Hawaii at Manoa, Honolulu, HI, USA

Ocean Engineering

06-11-01 Ocean Engineering Technology I

Wednesday June 14 | Room **204** | **08:30–10:00**

Session Organizer: Irving David Fontes, Federal University of Rio de Janeiro, Brazil

Verification of a Swarm Intelligent Underwater Robot System for Marine Environment Observation with Vehicle Loss Compensation and Functionality Maintenance OMAE2023-101043
Kanako Kobatake[1] Masakazu Arima[2]
1. National Maritime Research Institute, Mitaka-shi, Japan; 2. Osaka Metropolitan University, Sakai, Japan

Implementing a Method for Meteorological and Oceanographic Climate and Data Evaluation OMAE2023-101799
Joannes Gullaksen
JG Consultant & Ocean Engineering Services, Basingstoke, United Kingdom

Experimental Study on the Hydrodynamic Performance of a U-Shaped Flexible Membrane Breakwater OMAE2023-102079
Jingping Wu[1] Xi Yi[1] Zaojian Zou[2] Peng Zhan[3] Changzhe Chen[2]
1. Wuhan University of Technology, Wuhan, China; 2. Shanghai Jiao Tong University, Shanghai, China; 3. China Classification Society, Beijing, China

Numerical Study on the Automatic Ballast Control of a Floating Dock OMAE2023-102873
Xueliang Wen, Alejandro Garcia Conde, Jianan Zhang, Muk Chen Ong
University of Stavanger, Stavanger, Norway

Ocean Engineering

06-12-01 Ship Hydromechanics I

Wednesday June 14 | Room **217** | **08:30–10:00**

Session Organizer: Marcio Yamamoto, National Maritime Research Institute, Japan

A 4-Degree of Freedom Velocity / Power Prediction Program for Wind (Assisted) Vessels OMAE2023-101675
Johannes Oettle, Stefan Krüger
Hamburg University of Technology, Hamburg, Germany

A Fast Numerical Model for Evaluating the Stability of a Damaged Ship in Regular Beam Waves OMAE2023-102410
Jianwen Duan, Ning Ma, Qiqi Shi, Xiechong Gu
Shanghai Jiao Tong University, Zhenjiang, China

Numerical Study on the Hydrodynamic Characteristics of a Small High-Speed Craft OMAE2023-102431
Huizi Lv[1] Chengzhu Wei[2] Xiaofeng Liang[1] Hong Yi[1]
1. Shanghai Jiao Tong University, Shanghai, China; 2. China Ship Development and Design Center, Shanghai, China

Reducing Containership Greenhouse Gas Emissions through Speed Optimization by Coupling a Fast Time Manoeuvring Solver to a One-Dimensional Propulsion Model and Under Keel Clearance Prediction System in Shallow Water under Environmental Forcings OMAE2023-103261
Reza Fathi Kazerooni[1] Helena Karatvuo[1] Alex Harkin[1] Timothy Womersley[1] Bugge Jensen[2]
1. Seaport OPX, Surfers Paradise, QLD, Australia; 2. Force Technology, Brøndby, Denmark

Polar and Arctic Sciences and Technology

07-04-01 Vessels in Ice and Model Test

Wednesday June 14 | Room **208** | **08:30–10:00**

Session Organizer: Zou Ming, Shanghai Jiao Tong University, China
Session Co-Organizer: Mikko Suominen, Aalto University, Finland

A Preliminary Investigation of Risk Control Options for Maritime Accidents in Arctic Waters OMAE2023-105765
Si Yuan Gu, Shan Shan Fu, Yue Zhang
Shanghai Maritime University, Shanghai, China

Impact of New Bow Shapes on Fsicr Power Requirements OMAE2023-102474
Riikka Matala[1] Mikko Suominen[2]
1. Aker Arctic Technology Inc, Helsinki, Finland; 2. Aalto University, Espoo, Finland

Effect of Axial Confinement on Flexural Strength of Freshwater Ice OMAE2023-104638
Taha Anwar[1] Rocky Taylor[1] Jungyong Wang[2]
1. Memorial University of Newfoundland, St. John's, NL, Canada; 2. National Research Council Canada, St. John's, NL, Canada

Multi-Particle Modelling of Compressive Ice Failure during Indentation by Rock Particles OMAE2023-107769
Thomas Fitzpatrick[1] Rocky S. Taylor[1] Jan Thijssen[2]
1. Memorial University of Newfoundland, St. John's, NL, Canada; 2. CCORE, St. John's, NL, Canada

CFD, VIV and FSI

08-04-01 CFD Development I

Wednesday June 14 | Room **209** | **08:30–10:00**

Session Organizer: Owen Oakley, Retired, USA

Session Co-Organizers: Rajeev Jaiman, University of British Columbia, Canada; Guang Yin, University of Stavanger, Norway

A GPU-Accelerated High-Order Spectral Model for Numerical Analysis of Nonlinear Waves-Current-Structure Interactions OMAE2023-101331
Xin Lu, My Ha Dao, Quang Tuyen Le
Institute of High Performance Computing, Singapore, Singapore

Symmetry Breaking of a Rigid-Flexible Coupling System at Low Reynolds Numbers OMAE2023-102999
Huanyu Zhang, Xinliang Tian, Yakun Zhao, Xin Li, Wenyue Lu
State Key Laboratory of Ocean Engineering, Shanghai, China

A New Integrated Finite Volume–Finite Volume Numerical Model for Wave-Structure Interactions OMAE2023-103590
Ranjodh S. Rai[1] Zhihua Ma[1] Ling Qian[1] Wei Bai[1] Zaibin Lin[2] Anatoliy Khait[3]
1. Manchester Metropolitan University, Manchester, United Kingdom; 2. University of Aberdeen, Aberdeen, United Kingdom; 3. Ariel University, Ariel, Israel

Hydrodynamic Damping of a Circular Cylinder in Current with High Frequency Inline Oscillation OMAE2023-104334
Dan Pang[1] Liang Cheng[2] Hongyi Jiang[1] Feifei Tong[1] Hongwei An[1]
1. University of Western Australia, Perth, WA, Australia; 2. South China University of Technology, Guangzhou, China

Ocean Renewable Energy

09-01-07 Offshore Wind Energy – Hydrodynamics I

Wednesday June 14 | Room **216** | **08:30–10:00**

Session Organizer: Sebastien Gueydon, O3 Engineering Consulting, Australia

Session Co-Organizer: Jack Jorgensen, UWA, Australia

A Wave Run-Up Empirical Modelling Comparison Study for a Scale Model Semi-Submersible Floating WTG Platform OMAE2023-100980
Tegan S. Foster[1] Amin Ghadirian[2] Michael Borg[2] Per C. Hyldahl[2] Vengatesan Venugopal[3] Longbin Tao[4] Lars Johanning[5]
1. Stiesdal Offshore Technology A/S, Stowmarket, United Kingdom; 2. Stiesdal Offshore A/S, Copenhagen, Denmark; 3. The University of Edinburgh, Edinburgh, United Kingdom; 4. University of Strathclyde, Glasgow, United Kingdom; 5. University of Exeter, Penryn, United Kingdom

Validation of CFD-Based Numerical Wave Basin for a Floating Offshore Wind Turbine in Irregular Waves and Dynamic Wind OMAE2023-104384
Hyunchul Jang[1] Hakun Jang[1] YihJeng Teng[2]
1. Technip Energies, Houston, TX, USA; 2. Technip Energies, Kuala Lumpur, Malaysia

Wave Effects on Vortex-Induced Motions of a Floating Offshore Wind Turbine OMAE2023-104763
Elizabeth Passano, Decao Yin
SINTEF Ocean, Trondheim, Norway

Investigation of Simulation and Tank Tests for Motion Behavior of Semi-Submersible Platform Deltafloat with a 10 MW Floating Wind Turbine. OMAE2023-104742
Zheng-Zhang Huang, Shean-Kwang Chou, Cheng-Hsien Chung, Hua-Tung Wu, Hao-Teng Hsu, Yan-Wen Wu, Forng-Chen Chiu
Ship and Ocean Industries R&D Center, Tamsui Dist, Taiwan

Petroleum Technology

11-05-01 Integrity of Well Barriers I

Wednesday June 14 | Room **211** | **08:30–10:00**

Session Organizer: Jan David Ytrehus, SINTEF, Norway
Session Co-Organizer: Ergun Kuru, University of Alberta, Canada

Investigation of the Microstructure of Bismuth Alloy and Its Interaction with Cement and Steel Casing OMAE2023-103843
Andriani Manataki, Paraskevas Kontis, Sigbjørn Sangesland
Norwegian University of Science and Technology, Trondheim, Norway

The Sealing Behavior of Bismuth-Based Metal Plugs OMAE2023-104309
Lewaa Hmadeh, Behzad Elahifar, Sigbjørn Sangesland
Norwegian University of Science and Technology, Trondheim, Norway

Investigation of the Formation and Detection of Casing-Cement Debonding in Small Scale Samples OMAE2023-104758
Blandine Feneuil, Elie N'gouamba, Idar Larsen, Ragnhild Skorpa
SINTEF, Trondheim, Norway

Laboratory-Scale Experiments to Predict Barite Sedimentation in Drilling Fluids in Wells OMAE2023-104790
Blandine Feneuil, Bjørnar Lund, Ragnhild Skorpa
SINTEF, Trondheim, Norway

Petroleum Technology

11-08-01 Multiphase Flow & Flow Assurance

Wednesday June 14 | Room **213** | **08:30–10:00**

Session Organizer: Mohammad Azizur Rahman, Texax A&M University at Qatar, Qatar
Session Co-Organizers: Stephen D. Butt, Memorial University of Newfoundland, Canada; Ergun Kuru, University of Alberta, Canada

Optimization and Performance Evaluation of a Polymer Gel Plugging Profile Control System on High Water-Cut Reservoirs OMAE2023-102188
SEDDIQI Khwaja Naweed, Abe Kazunori
Akita University, Akita, Japan

Study on Influencing Factors of Deep-Water Shallow Gas Jet Height via Numerical Simulation OMAE2023-102218
Yang Long, Jin Yang, Qishuai Yin, Li Li, Qianling Xue
China University of Petroleum, Beijing, China

Multiphase Seepage Flow Characteristics of Micro-Fractures in Subsurface Reservoirs by Using the Lattice Boltzmann Method OMAE2023-104737
Dan Pu[1] Linfang Shen[1] Zhiliang Wang[1] **Miao Li**[2] Zhenquan Li[3] Pengyu Wang[1]
1. Kunming University of Science and Technology, Kunming, China; 2. Charles Sturt University, Bathurst, NSW, Australia; 3. Charles Sturt University, Albury, NSW, Australia

Classification of Sensor Measurements from Non-Newtonian Fluids Using Batch and Online Analysis of Data OMAE2023-108094
M. Ziyan Sheriff[1] Mohamed Nounou[2] **Mohammad Rahman**[2] Ibrahim Hassan[2] Hazem Nounou[2]
1. Texas A&M University, College Station, TX, USA; 2. Texas A&M University at Qatar, Doha, Qatar

Blue Economy Symposium

13-06-02 Blue Economy VII

Wednesday June 14 | Room **214** | **08:30–10:00**

Session Organizer: Ehsan Arzaghi, AMC, UTAS, Australia

Session Co-Organizer: Saeed Mohajernasab, Australian Maritime College, Australia

Regulatory Reform and the Potential Use of Floating Artificial Reefs under Blue and Ocean Carbon Methodologies OMAE2023-104421
Brydon T. Wang
University of Queensland, St Lucia, QLD, Australia

Interdependency of Human Factors and Turbine State in Offshore Wind Farm Operations OMAE2023-104609
Nima Golestani[1] Ehsan Arzaghi[2] Vikram Garaniya[2] Rouzbeh Abbassi[3]
1. University of Tasmania, Sydney, NSW, Australia; 2. University of Tasmania, Launceston, TAS, Australia; 3. Macquarie University, Sydney, NSW, Australia

Numerical Simulation of Marine and Coastal Zone Multidimensional System Sustainable Development OMAE2023-104647
Yue Deng, Yaning Li, Jiarui Li, Yanli Sun, Yingzhi Cao, Jingli Zhao
National Marine Data and Information Service, Tianjin, China

Research on Offshore Engineering Equipment Industry in Shandong Based on Sustainable Development OMAE2023-104649
Yue Deng, **Jingli Zhao**, Xiaofeng Duan, Weiling Song, Yue Guo
National Marine Data and Information Service, Tianjin, China

CONCURRENT SESSIONS
10:30 – 12:00

Offshore Technology

01-08-02 AI/ML Applications to FPSO and Mooring Systems

Wednesday June 14 | Room **205** | **10:30–12:00**

Session Organizer: Rajiv Aggarwal, Reliable Offshore Systems LLC, USA

Predictions of Wind Load on FPSO with Discrete Empirical Interpolation Method Based Data Assimilation OMAE2023-101352
Xiuqing Xing[1] My Ha Dao[1] Baili Zhang[1] Jing Lou[1] Wei Siang Tan[2] Yongdong Cui[2] Boo Cheong Khoo[2]
*1. Institute of High Performance Computing, A*STAR, Singapore, Singapore; 2. National University of Singapore, Singapore, Singapore*

Combining Model-Based and Data-Driven Methods to Estimate the Roll Motion of a Spread Moored FPSO OMAE2023-102044
Lucas P. Cotrim[1] Alex S. Huang[1] **Gustavo A. Bisinotto**[1] Rodrigo Da S. Cunha[1]
Rodrigo A. Barreira[2] Anna H. R. Costa[1] Edson S. Gomi[1] Eduardo A. Tannuri[1]
1. University of São Paulo, São Paulo, SP, Brazil; 2. Petrobras, Rio de Janeiro, RJ, Brazil

Detection of Long-Term Changes in Mooring Stiffness Using Vessel Position Monitoring OMAE2023-104708
Adrian Eassom, Kanishka Jayasinghe, Clare Thomas
AMOG Consulting, Notting Hill, VIC, Australia

NEMO: a Multi-Draft Mooring Line Failure Detection System Based on FPSO Predicted Motion OMAE2023-104351
Amir Muhammed Sa'ad[1] Rodrigo Da Silva Cunha[1] Rodrigo Augusto Barreira[2]
Eduardo Aoun Tannuri[1] **Edson Satoshi Gomi**[1] Anna Helena Reali Costa[1]
1. Universidade de São Paulo, São Paulo, SP, Brazil; 2. Petróleo Brasileiro S.A. (Petrobras), Rio de Janeiro, RJ, Brazil

Structures, Safety and Reliability

02-10-01 Reliability of Marine Structures

Wednesday June 14 | Room **212** | **10:30–12:00**

Session Organizer: Carlos Guedes Soares, University of Lisbon, Portugal

To Improve the Orientation of a Jetty Exposed to Swell and Current to Minimise Operational Downtime OMAE2023-101382
Coen Eggermont, Alex van Deyzen
Royal HaskoningDHV, Rotterdam, Netherlands

System Reliability Assessment of Jacket Structures Using Fault Tree Analysis Method OMAE2023-104486
A Renugadevi, S Nallayarasu
Indian Institute of Technology, Chennai, TN, India

Basic Study on Monitoring Technique for Concretes Prestressed with Cfrp by Using Fiber-Optic Sensors OMAE2023-104545
Tianjun Zhang[1] Shungo Azuma[1] Daishin Hanaoka[2] Yasushi Tanaka[2] Shinichi Miyazato[2] Kazuro Kageyama[2] Hideaki Murayama[1]
1. The University of Tokyo, Kashiwa, Japan; 2. Kanazawa Institute of Technology, Hakusan, Japan

Reliability Analysis of Crack Growth Occurrence of a Secondary Structural Component OMAE2023-104648
Siri Kolle Kleivane, Bernt J. Leira, Sverre Steen
Norwegian University of Science and Technology, Department of Marine Technology, Trondheim, Norway

Materials Technology

03-05-01 Modeling and Performance of Non-metallics

Wednesday June 14 | Room **206** | **10:30–12:00**

Session Organizer: Mamdouh Salama, MMS4AIM LLC, USA

Session Co-Organizers: Agnes Marie Horn, DNV, Norway; David Baker, ExxonMobil Technology and Engineering Company, USA

Strength Assessment Methods for Adhesively Bonded Repair OMAE2023-102256
Stéphane Paboeuf[1] Maxime Deydier[1] Quentin Sourisseau[2] Marie-Odette Quéméré[3] Jean-Philippe Court[3] Christophe Paillusseau[3]
1. Bureau Veritas, Saint-Herblain, France; 2. Université Gustave Eiffe, Bouguenais, France; 3. Cold Pad, Paris, France

Tribological Performance of Nylon 6 / Oyster Shell Composite Material OMAE2023-104611
Akshay Krishna Ambika Harikumar[1] Michael Tobias Heitzmann[2] Asanka Basnayake[2] Hadis Khakbaz[2] Darren Martin[2]
1. The University of Queensland, Runcorn, QLD, Australia; 2. The University of Queensland, Brisbane, QLD, Australia

Hyperelastic Modelling of Elastomers for Wave Energy Convertors OMAE2023-100523
Guillermo Idarraga, Liu Yang, Farhad Abad, Yang Huang, Saishuai Dai, Qing Xiao, Saeid Lotfian, Feargal Brennan
University of Strathclyde, Glasgow, United Kingdom

Pipeline, Risers, and Subsea Systems

04-03-02 Mechanics II

Wednesday June 14 | Room **210** | **10:30–12:00**

Session Organizer: Julian Hallai, Exponent, USA

Dynamic Response and Damage Assessment of Subsea Pipelines under Dropped Object Impacts OMAE2023-101910
Kun Yang[1] Yanyan Sha[2] Zhenhui Liu[3]
1. IKM Ocean Design AS, Sandnes, Norway; 2. University of Stavanger, Stavanger, Norway; 3. Aker Solutions AS, Trondheim, Norway

Complexities of Capturing Large Plastic Deformations Using Digital Image Correlation: a Test Case on Full-Scale Pipe Specimens OMAE2023-102308
Tyler Johnson[1] Doug Langer[2] Ethan Frigon[1] Chris Timms[1] Shunichi Kobayashi[3] Eiji Tsuru[4]
1. C-FER Technologies, Edmonton, AB, Canada; 2. Consultant, Edmonton, AB, Canada; 3. Nippon Steel Technology Co., Ltd, Hikari-City, Japan; 4. Nippon Steel Technology Co., Ltd, Futtsu-City, Japan

HDD Tunnel Pull-in and In-Place Analysis of Pipeline Used for Carbon Capture and Storage Project OMAE2023-103654
Yi Yu, Stanislav Duplenskiy
Subsea 7 AS, Stavanger, Norway

Long-Term Corrosion of Parked and Abandoned Offshore Steel Pipelines OMAE2023-104513
Robert E. Melchers
The University of Newcastle, Callaghan, NSW, Australia

Ocean Engineering

06-11-02 Ocean Engineering Technology II

Wednesday June 14 | Room **204** | **10:30–12:00**

Session Organizer: Murilo Vaz, Federal University of Rio de Janeiro, Brazil

Development of a Floating Dock Numerical Model and the Ballast Water Distribution Strategy OMAE2023-102996
Jianan Zhang, Xueliang Wen, Muk Chen Ong
University of Stavanger, Stavanger, Norway

Augmented Adaptive Filter for Real-Time Sea State Estimation Using Vessel Motions through Deep Learning OMAE2023-104286
Hamed Majidiyan, Hossein Enshaei, Damon Howe
University of Tasmania, Launceston, TAS, Australia

Deterministic Sea Wave Prediction Using Temporal Convolutional Networks OMAE2023-104377
Tak Yin Pang, Boyin Ding, Lingqiao Liu, Nataliia Sergiienko
University of Adelaide, Adelaide, SA, Australia

Design of Mooring System for a 15MW Semi-Submersible, TaidaFloat, in Taiwan Strait OMAE2023-104394
Chi-Ang Chen[1] **Kai-Hung Chen**[1] Yuki Igarashi[1] Donghui Chen[2] Kai-Tung Ma[1] Zhao-Yu Lai[1]
1. National Taiwan University, Taipei, Taiwan; 2. Genesis Engineering LLC, Taipei, Taiwan

Ocean Engineering

06-12-02 Ship Hydromechanics II

Wednesday June 14 | Room **217** | **10:30–12:00**

Session Organizer: Guang Yin, University of Stavanger, Norway

An Approximate Method for Predicting Nonlinear Time Domain Motion of Shallow Draft Ship Taking Motion Attitude Change at Large Amplitude into Account OMAE2023-103611
Fei Duan[1] Ning Ma[1] Qiqi Shi[1] Xiechong Gu[1] Yaohua Zhou[2]
1. Shanghai Jiao Tong University, Shanghai, China; 2. China Classification Society, Shanghai, China

Maneuvering of Two Ships with Hydrodynamic Interaction Effect in Calm Water OMAE2023-104764
Chen Xu, Fan Jiang, Chaozuo Xu, Xueqian Zhou, Huilong Ren
Harbin Engineering University, College of Shipbuilding Engineering, Harbin, China

Hydrodynamic Performance of a Conceptional Seatrain in Heading Wave Based on Small Water Plane Area Trimaran OMAE2023-104807
Yan Qin[1] Qing Wang[2] Guohua Dong[1] Chaobang Yao[1] Dakui Feng[1]
1. Huazhong University of Science and Technology, Wuhan, China;
2. Wuhan Second Ship Design And Research Institute, Wuhan, China

RANS Simulations of Propeller-Hull Interaction in Model Scale with the Best-Practice Settings OMAE2023-104885
Shanqin Jin, Heather Peng, Wei Qiu
Memorial University of Newfoundland, St. John's, NL, Canada

Ocean Engineering

06-16-01 Wave Mechanics, Modeling and Wave Effects I

Wednesday June 14 | Room **203** | **10:30–12:00**

Session Organizer: Solomon C. Yim, Oregon State University, USA

Two-Sided Wave Generation in a High-Order Spectral Numerical Wave Tank OMAE2023-100850
Tim Aertsens[1] Guillaume Ducrozet[2] Alessandro Toffoli[3] Jaak Monbaliu[1]
1. KU Leuven, Leuven, Belgium; 2. École Centrale de Nantes, Nantes, France; 3. The University of Melbourne, Melbourne, VIC, Australia

Third-Order Steady-State Solutions of Bichromatic Bi-Directional Water Waves OMAE2023-102624
Zhe Gao[1] Yi Liu[2] L. S. Jia[2] Yunfei Teng[1] Dejun Wang[2] Xu Jia[2]
1. Guangzhou International Campus South China University of Technology, Guangzhou, China; 2. CNOOC Research Institute, Beijing, China

When Do JONSWAP Spectra Lead to Soliton Gases in Deep Water Conditions? OMAE2023-104326
Yu-Chen Lee[1] Markus Brühl[2] Sander Wahls[1]
1. Delft University of Technology, Delft, Netherlands; 2. Ramboll, Hamburg, Germany

Wave-Induced Loading Simulation for a Semi-Submersible FOWT Platform Using CFD-Swense Coupled Solver OMAE2023-104383
Cong Shen, Nian-Zhong Chen
Tianjin University, Tianjin, China

Polar and Arctic Sciences and Technology

07-05-01 Numerical Ice Modeling

Wednesday June 14 | Room **208** | **10:30–12:00**

Session Organizer: Yingjie Gu, University of Stavanger, Norway
Session Co-Organizer: Fang Li, Shanghai Jiao Tong University, Finland

Numerical Analysis of Ice Blocks Impact on Stiffened Plates According to a Mohr-Coulomb Material and Node Splitting Technique OMAE2023-102584
Sungwon Yoon, Hauke Herrnring, Franciska Müller, Franz von Bock und Polach
Hamburg University of Technology, Hamburg, Germany

Ice Resistance Prediction Using Explainable Deep Learning Method OMAE2023-102855
Qianyang Sun[1] Li Zhou[2] Shifeng Ding[1] Renwei Liu[1] Aimin Wang[1] Jiaming Chen[1]
1. School of Naval Architecture and Ocean Engineering, Jiangsu University of Science and Technology, Zhenjiang, China; 2. Shanghai Jiao Tong University, Zhenjiang, China

Numerical Simulation of an Aluminium Panel Subject to Ice Impact Load Using a Rate and Pressure Dependent Elastoplastic Material Model for Ice OMAE2023-104771
Mojtaba Mokhtari, Ekaterina Kim, Jørgen Amdahl
Norwegian University of Science and Technology, Trondheim, Norway

The Coupling Effects of Bubble Collapse, Ice Breaking and Structural Response OMAE2023-104794
Qiyang Chen, **Chengwang Xiong**, Qianqian Dong
Harbin Engineering University, Harbin, China

CFD, VIV and FSI

08-04-02 CFD Development II

Wednesday June 14 | Room **209** | **10:30–12:00**

Session Organizer: Owen Oakley, Retired, USA

Session Co-Organizers: Rajeev Jaiman, University of British Columbia, Canada; Guang Yin, University of Stavanger, Norway

Numerical Simulation of a Moored Wave-Buoy in Waves and Current by Smoothed Particle Hydrodynamics OMAE2023-105023
Salvatore Capasso[1] Bonaventura Tagliafierro[2] Raúl González-Ávalos[2] Iván Martínez-Estévez[3] José Manuel Domínguez[3] Corrado Altomare[2] Alejandro j.c. Crespo[3] Giacomo Viccione[1]
1. Università degli Studi di Salerno, Fisciano, Italy; 2. Universidad Politécnica de Cataluña - UPC BarcelonaTech, Barcelona, Spain; 3. EPhysLab - Universidade de Vigo, Ourense, Spain

Numerical Simulation of Jellyfish Deflection Due to Air Bubble Curtain OMAE2023-104966
Lei Liu[1] Vandad Talimi[1] **Premkumar Thodi**[1] David Gauthier[2] Mario Paris[2]
1. C-CORE, St. John's, NL, Canada; 2. CanadianPond, Lac-Brome, QC, Canada

A Multiple Flux Boundary Element Method Fully Nonlinear Potential Flow Based Two Dimensional Numerical Wave Tank OMAE2023-107719
Nitin Babu, Suresh Rajendran
Indian Institute of Technology, Chennai, TN, India

Physics-Informed Deep Generative Adverserial Network for Hull Form Optimisation in High Dimensional Design Spaces OMAE2023-100580
Shahroz Khan[1] Panagiotis Kaklis[2] Kosa Goucher-Lambert[3] Konstantinos Kostas[4]
1. University of Strathclyde, London, United Kingdom; 2. University of Strathclyde, Glasgow, United Kingdom; 3. Unviersity of California Berkeley, Berkeley, CA, USA; 4. Nazarbayev University, Astana, Kazakhstan

Ocean Renewable Energy

09-01-08 Offshore Wind Energy – Hydrodynamics II

Wednesday June 14 | Room **216** | **10:30–12:00**

Session Organizer: Petter Andreas Berthelsen, SINTEF, Norway

Session Co-Organizer: Hyunchul Jang, Technip Energies, USA

Influence of Hydrodynamic Damping Model on Floater and Mooring Responses of 10 MW Class Floating Offshore Wind Turbine OMAE2023-107853
Eungsoo Kim[1] Dongeun Kim[2] Sunny Kumar Poguluri[3] Yoon Hyeok Bae[3] Yoon-Jin Ha[4] Ji Yong Park[4] Jeongbin Kim[5]
1. POSCO, Incheon, Korea; 2. Jeju National University, Jeju, Korea; 3. Hongik University, Seoul, Korea; 4. Korea Research Institute of Ships and Ocean Engineering, Daejeon, Korea; 5. Marine Tech-In, Busan, Korea

CFD Investigation of the Iea Offshore 15 MW Reference Wind Turbine Performance in Full Scale: a Temporal Discretization Analysis OMAE2023-105084
Marielle de Oliveira[1] Leandro Silva[2] Rodolfo Puraca[1] Bruno Carmo[1]
1. University of São Paulo - Department of Mechanical Engineering, São Paulo, SP, Brazil; 2. Delmar Systems, Perth, WA, Australia

Numerical Investigation of Sloshing inside a Column of the OC4 Floating Offshore Wind Turbine OMAE2023-105875
Renjie Zhang, **Yuanchuan Liu**, Liang Li
Ocean University of China, Qingdao, China

Design and Coupled Analysis of Floating Offshore Wind Turbines with Moses and Aerodyn OMAE2023-104576
Daniel Veen[1] Spiro J. Pahos[1] Shawn Meng[1] Simon Dillenburg[2]
1. Bentley Systems, Exton, PA, USA; 2. THEC Offshore, Hamburg, Germany

Ocean Renewable Energy

09-04-01 Hybrid and Novel Renewable Energy Systems I

Wednesday June 14 | Room **218** | **10:30–12:00**

Session Organizer: Marc Cahay, Technip Energies, France
Session Co-Organizer: Sumit Kumar, UTas, Australia

NextFloat: Disrupting Floating Wind OMAE2023-102974
Marc Cahay[1] Hedy Mahmoudi[2]
1. Technip Energies, Nanterre, France; 2. X1 Wind, Barcelona, Spain

Performance Analysis and Optimization of a Wave Energy-Based Zero-Liquid-Discharge Hybrid Desalination System OMAE2023-104013
Gabriel Glosson, **Faete Filho**, Jinbo Chen, Tarek Abdel-Salam, Kurabachew Duba
East Carolina University, Greenville, NC, USA

Experimental Study on the Combination of Split Heave Point Absorber and TLP-Type Floating Turbine OMAE2023-104446
Huidong Zhang, Tong Wang, Cong Xu, Hongda Shi
Ocean University of China, Qingdao, China

Experimental Hydrodynamic Investigation of a Co-Located Wind Turbine and Wave Energy Converter OMAE2023-105348
Eric Gubesch[1] **Jean-Roch Nader**[2] Boyin Ding[3] Ben Cazzolato[3] Ye Li[4] Nataliia Sergiienko[5] Irene Penesis[6]
1. Australian Maritime College, Newnham, TAS, Australia; 2. University of Tasmania, Newnham, TAS, Australia; 3. University of Adelaide, Adelaide, SA, Australia; 4. Shanghai Jiao Tong University, Shanghai, China; 5. The University of Adelaide, Adelaide, SA, Australia; 6. Australian Maritime College, University of Tasmania, Newnham, TAS, Australia

Petroleum Technology

11-05-02 Integrity of Well Barriers II

Wednesday June 14 | Room **211** | **10:30–12:00**

Session Organizer: Jan David Ytrehus, SINTEF, Norway
Session Co-Organizer: Ergun Kuru, University of Alberta, Canada

Effect of Squeeze Cementing Perforation Pattern on Flow Rate through a Microannulus OMAE2023-107063
Elizabeth Trudel, Ian Frigaard
University of British Columbia, Vancouver, BC, Canada

New Alternative Cement for Supercritical Geothermal Well Applications OMAE2023-107301
Ragnhild Skorpa[1] Blandine Feneuil[1] Toshi Sugama[2] Tatiana Pyatina[2]
1. SINTEF, Trondheim, Norway; 2. Brookhaven National Lab, Upton, NY, USA

Ultrasonic Well Integrity Logging Using Phased Array Technology OMAE2023-108101
Tonni Franke Johansen[1] Philip Erik Buschmann[1] Knut Marius Røsberg[1] Anja Diez[1] Erlend Magnus Viggen[2]
1. SINTEF, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway

Well Integrity Experience Transfer Using Recurrent Neural Network OMAE2023-108149
David Semwogerere, Alexey Pavlov, Sigbjørn Sangesland
Norwegian University of Science and Technology, Trondheim, Norway

Petroleum Technology

11-10-01 Advances in Carbon Capture Utilization and Storage (CCUS) I

Wednesday June 14 | Room **213** | **10:30–12:00**

Session Organizer: Huazhou Li, University of Alberta, Canada

Session Co-Organizers: Ergun Kuru, University of Alberta, Canada; Daoyong (Tony) Yang, University of Regina, Canada

Evaluation of Novel Particle Gels to Enhance CO_2 Flooding Sweep and Storage Efficiency OMAE2023-104172
Baojun Bai, Mingzhen Wei
Missouri University of Science and Technology, Rolla, MO, USA

Microscale Simulation of Mineralisation of CO_2 Injected in Basalt Layers OMAE2023-104215
Toru Sato[1] Takayoshi Koyama[2] Alan Junji Yamaguchi[1]
1. University of Tokyo, Kashiwa, Japan; 2. University of Tokyo, Tokyo, Japan

Experimental Evaluation of Supercritical CO_2 Enhanced Oil Recovery and Storage Capacity Using Dual-Core Flooding Technology for Carbonate Reservoirs OMAE2023-104389
Xianmin Zhou[1] Wei Yu[2] Muhammad Shahzad Kamal[2] Yu-Shu Wu[3] Sarmad Zafar Khan[2] Ridha Al-Abdrabalnabi[2]
1. King Fahd University of Petroleum & Minerals, Cypress, Saudi Arabia; 2. King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia; 3. Colorado School of Mines, Golden, CO, USA

Integrated Optimization of Hybrid Steam-Solvent Injection in Post-Chops Reservoirs under Uncertainty OMAE2023-104485
Senhan Hou, Shikai Yang, Liwu Jiang, **Daoyong (Tony) Yang**
University of Regina, Regina, SK, Canada

Professor Ian Young Honouring Symposium on Global Ocean Wind and Wave Climate

12-01-01 Wave/Ocean/Atmosphere Coupling and Climate Change Impacts on Ocean Waves

Wednesday June 14 | Room **207** | **10:30–12:00**

Session Organizer: Kevin Ewans, MRL, New Zealand

Session Co-Organizer: Alexander Babanin, University of Melbourne, Australia

Quantum Algorithms for Simulating Nonlinear Ocean Surface Waves at High Order OMAE2023-105072
Alfred R. Osborne
Nonlinear Waves Research Corporation, Alexandria, VA, USA

CMIP6 Observation-Based Weighted Projections of Arctic and Antarctic Surface Waves' Climate OMAE2023-102094
Alberto Meucci, Ian Robert Young
University of Melbourne, Parkville, VIC, Australia

Is the 100-Year Return Period Significant Wave Height Increasing in the Tasman Sea? Estimates Based on FIO-ESM v2.0 CMIP6 Data Set OMAE2023-104360
Kevin Ewans[1] Philip Jonathan[2]
1. MetOcean Research Ltd., New Plymouth, New Zealand; 2. Lancaster University, London, United Kingdom

Blue Economy Symposium

13-06-03 Blue Economy VIII

Wednesday June 14 | Room **214** | **10:30–12:00**

Session Organizer: Hong Zhang, Griffith University, Australia

Session Co-Organizer: Nagi Abdussamie, Australian Maritime College, Australia

Ethical Risk in the Offshore Blue Economy Integrity System OMAE2023-104524
Hugh Breakey[1] Charles Sampford[2]
1. Griffith University, Fernvale, QLD, Australia; 2. Griffith University, Brisbane, QLD, Australia

Dynamics of the Regional Shipping Network: a Case Study of Ports along the Maritime Silk Road OMAE2023-107987
Yong Zhou, Shihui Luo
Shanghai Maritime University, Shanghai, China

Efficiency Evaluation of Resources Allocation in Port Cluster in the Yangtze River Delta Area Based on BBC-DEA Model OMAE2023-108134
Yong Zhou, Wenkang Lian
Shanghai Maritime University, Shanghai, China

A New Multi-Criteria Decision-Making Tool for Subsea O&G Asset Decommissioning OMAE2023-108204
Jean-David Caprace[1] Marcelo Igor Lourenço De Souza[1] Claudio Violante Ferreira[2] Eduardo Ribeiro Nicolosi[2]
1. Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 2. Petroleo Brasileiro S.A. - Petrobras, Rio de Janeiro, RJ, Brazil

CONCURRENT SESSIONS
13:30 – 15:00

Offshore Technology

01-08-03 AI/ML Applications to Offshore Systems and Subsurface

Wednesday June 14 | Room **205** | **13:30–15:00**

Session Organizer: Rajiv Aggarwal, Reliable Offshore Systems LLC, USA

Weakly Nonlinear Surface Wave Prediction Using a Data-Driven Method with the Help of Physical Understanding OMAE2023-102780
Jialun Chen[1] Wenhua Zhao[1] Ian A. Milne[1] David Gunawan[2] Paul H. Taylor[1]
1. The University of Western Australia, Perth, WA, Australia; 2. The University of Wollongong, Wollongong, NSW, Australia

Motion-Based Wave Inference with Neural Networks: Transfer Learning from Numerical Simulation to Experimental Data OMAE2023-101967
Gustavo Alencar Bisinotto[1] Pedro Cardozo de Mello[1] Fabio Gagliardi Cozman[2] Eduardo Aoun Tannuri[1]
1. Universidade de São Paulo / Numerical Offshore Tank, São Paulo, SP, Brazil; 2. Universidade de São Paulo, São Paulo, SP, Brazil

Uncertainty of Virtually Sensed Stress Ranges in Offshore Wind Support Structures OMAE2023-101045
Johan F. Toftekær[1] Jonas T. Vestermark[2] Michael Sandholm Jepsen[2]
1. Vattenfall, København V, Denmark; 2. Vattenfall, Kolding, Denmark

Cross-Domain Knowledge Discovery and Sharing in Digital Subsurface Based on Federated Learning OMAE2023-104639
0 Zhang[1] Ye Liu[2] Jiahui Geng[1] Boyu Cui[1] **Jungwon Seo**[1] Jie Cao[3] Chunming Rong[1]
1. University of Stavanger, Stavanger, Norway; 2. Xian Shiyou University, Xi'an, China; 3. eDrilling AS, Stavanger, Norway

Structures, Safety and Reliability

02-11-01 Fatigue and Fracture Reliability I

Wednesday June 14 | Room **212** | **13:30–15:00**

Session Organizer: Yordan Garbatov, Universidade De Lisboa, Instituto Superior Técnico, Portugal
Session Co-Organizer: Carlos Guedes Soares, University of Lisbon, Portugal

Comparative Fatigue Damage Estimation Due to Local Wave Loads Using a Developed Methodology for Tubular Joints of Jacket Structures Varying Member Locations along with Depth in Splash Zone OMAE2023-104750
Sambit Supriya Dash, Seeninaidu Nallayarasu
Indian Institute of Technology Madras, Chennai, TN, India

Damage Analysis of OC4 Jacket under Fatigue Loading by Peridynamic Approach OMAE2023-105144
Pranitha Bachimanchi, Nilanjan Saha
Indian Institute of Technology, Chennai, TN, India

Fatigue Crack Propagation Prediction for Pipeline Steel under Gaseous Hydrogen Environment OMAE2023-104210
Tingsen Zheng, **Nian-Zhong Chen**
Tianjin University, Tianjin, China

A Study on the Degree of Bending (DOB) in Two-Planar Tubular DYT-Joints of Offshore Jacket Structures: Geometrical Effects and Fatigue Design Formulation OMAE2023-100940
Hamid Ahmadi[1] Hassan Karampour[2] Mahdi Ghorbani[3] Hamid Fard[4]
1. University of Southern Queensland, Toowoomba, QLD, Australia; 2. Griffith University, Gold Coast, QLD, Australia; 3. Tabriz University, Tabriz, Iran; 4. Bureau Veritas, Brisbane, QLD, Australia

Materials Technology

03-06-01 Materials Selection

Wednesday June 14 | Room **206** | **13:30–15:00**

Session Organizer: Mamdouh Salama, MMS4AIM LLC, USA

Session Co-Organizers: Agnes Marie Horn, DNV, Norway; Myung Hyun Kim, Pusan National University, Korea

UNS S32654 as Alternative CRA Liner Material to UNS N06625 for Offshore Mechanically Lined Pipes OMAE2023-100628
Rodrigo Signorelli[1] Elisabeth Johansson[2] Bjorn Helmersson[2] Tiago Kaspary[3]
1. Outokumpu, São Paulo, SP, Brazil; 2. Outokumpu Stainless AB, Avesta, Sweden; 3. Cladtek Brazil, Santa Cruz, RJ, Brazil

A Roadmap for Cloning Legacy Assets through an On-Demand Solution Aimed at the Norwegian Continental Shelf – a Case Example OMAE2023-104921
Jon Erik Karlsen, Chandima Ratnayake Mudiyanselage
University of Stavanger, Stavanger, Norway

Manufacturing Method Selection for Mechanical Legacy Assets Aimed at the Norwegian Continental Shelf – a Case Example OMAE2023-104972
Jon Erik Karlsen, Chandima Ratnayake Mudiyanselage
University of Stavanger, Stavanger, Norway

Pipeline, Risers, and Subsea Systems

04-01-05 Flexible Pipes and Umbilicals V

Wednesday June 14 | Room **210** | **13:30–15:00**

Session Organizer: Krassimir Doynov, ExxonMobil, USA

Session Co-Organizer: Alan Dobson, TechnipFMC, United Kingdom

Numerical Simulation to Collapse of a Carcass of a Flexible Riser Using a Dynamic Model with Quasi-Static Behavior through of an Explicit Solve Method OMAE2023-103764
José Luis Párraga Quispe[1] Rodrigo Ribeiro[1] Geovana Drumond[1] Luisa Nogueira Soares[1] Marcelo Igor Lourenço[1] Anderson Barata[2] Lucas Ramalho Dos Santos Ferreira[2] Alexandre Dos Santos Cordeiro[2]
1. Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 2. CENPES - PETROBRAS, Rio de Janeiro, RJ, Brazil

Simulation of Hydrate Plug Capacity of Flexible Pipe OMAE2023-104730
Henrik Blicher Schmidt, Thomas Iversen Solfeldt, Tommy Pedersen
NOV Flexibles, Brøndby, Denmark

As-Built Carcass Fatigue Modelling OMAE2023-104781
Michele Bonanni, Phil Nott, Andrew Mccormick, Trevor Bailey, Andrew Roberts
Baker Hughes, Newcastle Upon Tyne, United Kingdom

A Simplified Model of the Carcass Axial Capacity for Unbonded Flexible Pipes under Differential Pressure Loading OMAE2023-104926
Linfa Zhu[1] Jian Liu[2] Zhimin Tan[1] Andrew Roberts[2]
1. Baker Hughes, Houston, TX, USA; 2. Baker Hughes, Newcastle Upon Tyne, United Kingdom

Ocean Engineering

06-01-02 Computational Mechanics and Design Applications II

Wednesday June 14 | Room **218** | **13:30–15:00**

Session Organizer: Rodrigo Soares, Federal University of Rio de Janeiro, Brazil

Slamming Effects on Fpso Balconies: Numerical and Experimental Analysis of Alternative Configurations for Impact Attenuation OMAE2023-105066
Daniel Fonseca de Carvalho e Silva[1] Fabio Gouveia Telles de Menezes[1] Dilnei Schmidt[1] Pedro Cardozo de Mello[2]
1. Petrobras, Rio de Janeiro, RJ, Brazil; 2. University of São Paulo, São Paulo, SP, Brazil

Analysis of Offshore Helidecks Turbulence and Hot Gas Plumes – a Systematic Approach OMAE2023-105085
Daniel Fonseca de Carvalho e Silva, Allan Carre de Oliveira, Carlos Eduardo Holmes Chads, Marcos Donato Auler da Silva Ferreira, Denis Alvin Liang, Mauro Cresta de Barros Dolinsky
Petrobras, Rio De Janeiro, RJ, Brazil

Propagation of Hydrodynamic Waves past Two Vertically Submerged Flexible Barriers of Non-Uniform Thickness OMAE2023-100794
Mansi Singh, R. Gayen
Indian Institute of Technology Kharagpur, Kharagpur, WB, India

Ocean Engineering

06-11-03 Ocean Engineering Technology III

Wednesday June 14 | Room **204** | **13:30–15:00**

Session Organizer: Allan R Magee, Consultant, USA

Autonomous Port Navigation with Ranging Sensors Using Model-Based Reinforcement Learning OMAE2023-104455
Siemen Herremans[1] Ali Anwar[1] Arne Troch[1] Ian Ravijts[1] Maarten Vangeneugden[2] Siegfried Mercelis[1] Peter Hellinckx[1]
1. IDLab, University of Antwerp - imec, Antwerp, Belgium; 2. University of Ghent, Antwerp, Belgium

The Study of the Wave Attenuation Performance of Triple Plates Interacting with a Solitary Wave OMAE2023-104566
Chang-Qing Wen, Jing-Ping Wu
Wuhan University of Technology, Wuhan, China

Visibility Enhancement in Turbid Water Based on Polarization and Clahe OMAE2023-104881
Luping Liu[1] Xin Li[1] Xiantao Zhang[1] Fan Zhang[2]
1. Shanghai Jiao Tong University, Shanghai, China; 2. DNV, Shanghai, China

2D Wave Spectra Forecast Correction Applying Machine Learning OMAE2023-108536
Filipe Salvio[1] Fernanda Achete[2] Bruno Primo[3] **Nicholas Barbosa**[1] Aline Kaji[3] Andre Ramiro[1]
1. Subsea 7, Rio de Janeiro, RJ, Brazil; 2. Universidade Federal do Rio de Janeiro, COPPE, Rio de Janeiro, RJ, Brazil; 3. Vortex Mundus, Rio de Janeiro, RJ, Brazil

Ocean Engineering

06-12-03 Ship Hydromechanics III

Wednesday June 14 | Room **217** | **13:30–15:00**

Session Organizer: Guang Yin, University of Stavanger, Norway

RANS Simulations of Self-Propulsion Model Tests for a Fishing Vessel OMAE2023-105053
Emre Cilkaya, Heather Peng, Wei Qiu
Memorial University of Newfoundland, St. John's, NL, Canada

Experimental Investigation on the Natural Frequency of the Roll and Damping Coefficient from Vessel Response in Random Seas OMAE2023-105399
Mohammadreza Javanmardi[1] Javad Mehr[2] Zi Heng[2]
1. OMC International, Abbotsford, VIC, Australia; 2. Australian Maritime College, Newnham, TAS, Australia

The Experimental Study of AUV Path-Following Control Based on Deep Reinforcement Learning under Wave Conditions OMAE2023-101588
Yu-Hsien Lin, Zen Chao
National Cheng Kung University, Tainan, Taiwan

Data Extraction Algorithm for Motion and Wave Added Resistance Analysis of an Operating Vessel Based on Sliding Time Window OMAE2023-104299
Yiyan Wen[1] Ning Ma[1] Qiqi Shi[1] Yanfei Zhang[2] Ziwen Zhang[1]
1. Shanghai Jiao Tong University, Shanghai, China; 2. Shanghai Ship and Shipping Research Institute Co.,Ltd, Shanghai, China

Ocean Engineering

06-16-02 Wave Mechanics, Modeling and Wave Effects II

Wednesday June 14 | Room **203** | **13:30–15:00**

Session Organizer: Masoud Hayatdavoodi, The University of Dundee, United Kingdom

Exponential Integrator for Nonlinear Surface Water Waves OMAE2023-104655
Yan Li[1] Zirui Xin[2] Xin Li[2]
1. University of Bergen, Bergen, Norway; 2. Shanghai Jiao Tong University, Shanghai, China

Phase-Resolved Wave Prediction in Spread Seas Using an Optimised Array of Buoys: Theory and Validation Using Field Data OMAE2023-104672
Thobani Hlophe[1] Paul Taylor[2] Adi Kurniawan[1] Jana Orszaghova[2] Hugh Wolgamot[2]
1. The University of Western Australia, Albany, WA, Australia; 2. The University of Western Australia, Crawley, WA, Australia

Development of Phase-Resolved Real-Time Wave Forecasting with Unidirectional and Multidirectional Seas OMAE2023-104857
In-Chul Kim, **Guillaume Ducrozet**, Yves Perignon
Ecole Centrale Nantes, Nantes, France

Riemann-Hilbert Formulation and Solution of Nonlinear Shallow Water Wave Equations: Nonlocal DBAR Problem as a Unified Approach to Computing Exact Solutions in the Time Domain OMAE2023-108051
Patrik Nabelek, Solomon Yim
Oregon State University, Corvallis, OR, USA

Polar and Arctic Sciences and Technology

07-06-01 Structures in Ice I

Wednesday June 14 | Room **208** | **13:30–15:00**

Session Organizer: Brendon Nickerson, Stellenbosch University, South Africa
Session Co-Organizer: Thomas Fitzpatrick, Memorial University of Newfoundland, Canada

On Wear Thickness of Rust Layers of Steel Structure Due to Ice Impact Load OMAE2023-101599
Takahiro Takeuchi[1] Sinji Kioka[2] Hitoshi Miyazaki[3]
1. Hachinohe Institute of Technology, Hachinohe, Japan; 2. Civil Engineering Research Institute for Cold Region Public Works Research, Sapporo, Japan; 3. Maruta-gumi Corp., Abashiri, Japan

Simple Experimental and Theoretical Investigation of Erosion-Corrosion of a Steel Structure Caused by Sea Ice-Based Friction OMAE2023-101702
Shinji Kioka[1] Takahiro Takeuchi[2]
1. Civil Engineering Research Institute for Cold Region, Sapporo, Japan; 2. Hachinohe Institute of Technology, Hachinohe, Japan

Fixed Wind Turbine Ice Induced Frequency Lock in Vibration Analysis OMAE2023-101844
Haoyang Yin[1] Bin Wang[2] Shan Gao[2] Zhenju Chuang[3] Yan Qu[1] Diyi Chen[1]
1. South China University of Technology, Guangzhou, China; 2. Key Laboratory of Farshore Wind Power Technology, Hangzhou, China; 3. Dalian Maritime University, Dalian, China

Numerical Simulation of a Ship Advancing in Pack Ice Area Based on CFD-DEM Method OMAE2023-102378
Ming Zou, Xiang-Jie Tang, Lu Zou, Zao-Jian Zou, Xinshu Zhang
Shanghai Jiao Tong University, Shanghai, China

CFD, VIV and FSI

08-05-01 Model Reduction and Machine Learning

Wednesday June 14 | Room **209** | **13:30–15:00**

Session Organizer: Owen Oakley, Retired, USA

Session Co-Organizers: Madhu Agrawal, BP, USA; Muk Chen Ong, University of Stavanger, Norway

Comprehensive Evaluation of Surface Ship Performance Based on Deep Reinforcement Learning OMAE2023-104322
Shengchen Ji[1] Hao Wang[1] Liang Luo[1] Zhailiu Hao[2] Shengzhong Li[2]
1. Wuhan University of Technology, Wuhan, China; 2. China Ship Scientific Research Center, Wuxi, China

Real-Time Deterministic Prediction of Ship Motion Based on Multi-Layer LSTM OMAE2023-102195
Guolian He[1] Guohua Dong[1] Chaobang Yao[1] Xiaoshuai Sun[2]
1. Huazhong University of Science and Technology, Wuhan, China; 2. China Marine Development and Research Center, Beijing, China

Deep Learning Based Prediction of Hydrodynamic Forces on Offshore Platforms OMAE2023-104748
Tharindu Pradeeptha Miyanawala, Yulong Li, Yun Zhi Law, Harrif Santo
Technology Centre for Offshore and Marine, Singapore, Singapore

Predicting Frequency Lock-in Phenomenon Using Deep Learning OMAE2023-101030
Amir Chizfahm, **Rajeev Jaiman**
University of British Columbia, Vancouver, BC, Canada

CFD, VIV and FSI

08-06-01 Internal Flows & FIV

Wednesday June 14 | Room **214** | **13:30–15:00**

Session Organizer: Owen Oakley, Retired, USA

Session Co-Organizers: Madhu Agrawal, BP, USA; Narakorn Srinil, Newcastle University, United Kingdom

Dynamics of a Coupled Rigid-Flexible System in Wind Tunnel Experiments OMAE2023-102927
Yakun Zhao, Xinliang Tian, Huanyu Zhang, Shuyue Sun, Xiaoxian Guo, Tao Peng
State Key Laboratory of Ocean Engineering, Shanghai, China

Numerical Investigation of Internal Flow Effect on the Cross-Flow Vortex-Induced Vibration OMAE2023-103416
Guixin Zhao, Shuai Meng
Shanghai Jiao Tong University, Shanghai, China

Dynamic Small-Scale Riser Model Experiments: a Physics-Based Algorithm to Recover Lost Measures from Optical Tracking Systems OMAE2023-105119
Guilherme J. Vernizzi, Vitor Schwenck Franco Maciel, Wagner A. Defensor Filho, Renato M. M. Orsino, Guilherme R. Franzini, **Celso P. Pesce**
Universidade de São Paulo, São Paulo, SP, Brazil

Experimental Modeling of Water-Wave Interactions with a Flexible Beam OMAE2023-108105
Wajiha Rehman[1] Tim Bunnik[2] Onno Bokhove[1] Mark Kelmanson[1]
1. University of Leeds, Leeds, United Kingdom; 2. Maritime Research Institute Netherlands, Wageningen, Netherlands

Ocean Renewable Energy

09-01-09 Offshore Wind Energy – Design Optimization

Wednesday June 14 | Room **216** | **13:30–15:00**

Session Organizer: Zhengshun Cheng, SJTU, China

Session Co-Organizer: Peng Chen, SJTU, China

Dynamic Power Cable Configuration Design for Floating Offshore Wind Turbines Using Gradient-Based Optimization OMAE2023-102788
Anja Schnepf[1] Knut Erik Teigen Giljarhus[2] Øyvind Johnsen[3] Carlos Lopez-Pavon[4]
1. University of Stavanger, CoreMarine, Stavanger, Norway; 2. University of Stavanger, Stavanger, Norway; 3. CoreMarine, Oslo, Norway; 4. CoreMarine, Leioa, Spain

Design Considerations on Semi-Submersible Columns and Pontoons for Floating Wind OMAE2023-101503
Glib Ivanov, I Jen Hsu, Kai-Tung Ma
National Taiwan University, Taipei, Taiwan

The General Nonlinear Stiffness Matrix of Taut-Leg Platforms, TLPs and Suspension Systems of Cable-Connected Floater-Keel Platforms OMAE2023-104705
Ghaith Esber, Sascha Kosleck
University of Rostock, Rotock, Germany

Monopile Depth Optimization of Fixed Offshore Wind Turbines on Indian Territorial Waters: Dynamic Analysis of Towers under Wind and Ocean Loads OMAE2023-104337
Souvik Basak, Nabanita Datta
Indian Institute of Technology Kharagpur, Kharagpur, WB, India

Petroleum Technology

11-02-03 Well Drilling Fluids and Hydraulics III

Wednesday June 14 | Room **211** | **13:30–15:00**

Session Organizer: Arild Saasen, University of Stavanger, Norway

Session Co-Organizer: Ergun Kuru, University of Alberta, Canada

Cuttings Bed Creation and Removal When Circulating Field Applied Oil-Based Drilling Fluids OMAE2023-101628
Jan David Ytrehus[1] Bjørnar Lund[2] Ali Taghipour[2] Arild Saasen[3]
1. SINTEF Petroleum, Trondheim, Norway; 2. SINTEF, Trondheim, Norway; 3. University of Stavanger, Stavanger, Norway

Cuttings-Bed Erosion in Horizontal Wells: Effect of Biopolymers and Its Rheological Impact OMAE2023-101694
Camilo Pedrosa[1] Mohsen Baynabaj[1] Kristofer Paso[1] Arild Saasen[2]
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. University of Stavanger, Stavanger, Norway

Impact of Cleaning Efficiency on Disc Cutter Drilling Performance OMAE2023-108187
Oluwatimilehin Mary Akindele, **Judith Onyedikachi George**, Abdelsalam Abugharara, Stephen D. Butt
Memorial University of Newfoundland, St. John's, NL, Canada

Application of Drilling Fluid Circulation Technology to Lifting System of Deep-Sea Mineral Resources OMAE2023-104712
Ryuta Kitago, Shigemi Naganawa, Elvar Karl Bjarkason
Akita University, Akita, Japan

Petroleum Technology

11-10-02 Advances in Carbon Capture Utilization and Storage (CCUS) II

Wednesday June 14 | Room **213** | **13:30–15:00**

Session Organizer: Daoyong (Tony) Yang, University of Regina, Canada

Session Co-Organizers: Ergun Kuru, University of Alberta, Canada; Huazhou Li, University of Alberta, Canada

A Novel Multi-Phase Strategy for Optimizing CO_2 Utilization and Storage in an Oil Reservoir OMAE2023-107753
Jiangyuan Yao[1] Wanju Yuan[1] Xiaolong Peng[1] Zhuoheng Chen[1] Yongan Gu[2]
1. Natural Resources of Canada, Calgary, AB, Canada; 2. University of Regina, Regina, SK, Canada

Dissociation Pressure of CO_2 Hydrate in Sulfate Solutions OMAE2023-108222
Ying Zhou, Nobuo Maeda, **Huazhou Li**
University of Alberta, Edmonton, AB, Canada

Overview of CO_2 Potential Storage Capacity Assessment OMAE2023-108021
Fatima Al Hameli, Hadi Belhaj, Mohammed Al Dhuhoori
Khalifa University of Science and Technology, Abu Dhabi, United Arab Emirates

Hydrodynamic Mechanism of Bottom Water Invasion into Oil Storage within Strategic Petroleum Reserve – Weeks Island SPR Case OMAE2023-104531
Andrew K. Wojtanowicz, **Adam T. Bourgoyne Jr.**
Louisiana State University, Baton Rouge, LA, USA

Professor Ian Young Honouring Symposium on Global Ocean Wind and Wave Climate

12-03-01 Global Ocean Wave Climate

Wednesday June 14 | Room **207** | **13:30–15:00**

Session Organizer: Kevin Ewans, MRL, New Zealand

Ocean Swell Propagation across the Pacific OMAE2023-101809
Sachini Pathirana, Ian Young, Alberto Meucci
The University of Melbourne, Parkville, VIC, Australia

Numerically Efficient Method for Tropical Cyclone Wave Height Prediction OMAE2023-103260
Guisela Grossmann-Matheson[1] Ian Young[2] Jose-Henrique Alves[3] Alberto Meucci[2]
1. The University of Melbourne, Point Cook, VIC, Australia; 2. The University of Melbourne, Melbourne, VIC, Australia; 3. NOAA Research, Silver Spring, MD, USA

Have Recent Changes in Global Wave and Storm Surge Climate Had a Measurable Impact on Global Shorelines? OMAE2023-109008
Mandana Ghanavati[1] Ian Young[1] Ebru Kirezci[2]
1. University of Melbourne, Melbourne, VIC, Australia; 2. Bureau of Meteorology, Melbourne, VIC, Australia

CONCURRENT SESSIONS
15:30 – 17:00

Offshore Technology

01-06-01 CFD Modeling Practice & Verification

Wednesday June 14 | Room **205** | **15:30–17:00**

Session Organizer: Guangyu Wu, Chevron, USA

Session Co-Organizers: Zhenjia (Jerry) Huang, ExxonMobil, USA; Jang Whan Kim, Front Energies, USA

Creating a Realistic Piloted Simulation of Helicopter Recovery to an Offshore Platform OMAE2023-101602
Neale A. Watson[1] Mark Prior[2] Ieuan Owen[1] Mark D. White[1]
1. University of Liverpool, Liverpool, United Kingdom; 2. M Prior Consulting Ltd, Kexby, United Kingdom

Numerical Study of Wind Loads and Experimental Validation for a FPSO Vessel Model OMAE2023-102369
Baili Zhang[1] My Ha Dao[1] Xiuqing Xing[1] Jing Lou[1] Wei Siang Tan[2] Yongdong Cui[2] Boo Cheong Khoo[2]
1. Institute of High Performance Computing, Singapore, Singapore; 2. National University of Singapore, Singapore, Singapore

Structures, Safety and Reliability

02-11-02 Fatigue and Fracture Reliability II

Wednesday June 14 | Room **212** | **15:30–17:00**

Session Organizer: Yordan Garbatov, Universidade De Lisboa, Instituto Superior Técnico, Portugal

Session Co-Organizer: Carlos Guedes Soares, University of Lisbon, Portugal

Some Background for the 2023 Revision of the Recommended Practice DNV-RP-C203 Fatigue Design of Offshore Steel Structures OMAE2023-104845
Inge Lotsberg, **Arne Fjeldstad**
DNV, Høvik, Norway

A Live Fatigue Monitoring Framework for Offshore Risers Using Accelerometer Data OMAE2023-104675
Vikas Kejriwal, **Eric Hoo**, Hamid Nikoo, George Papageorgopoulos
Kent PLC, Perth, WA, Australia

Intelligent Assessment of Fatigue Damage Based on the Monitoring Data of Offshore Structures OMAE2023-104540
Xueliang Wang[1] Libin Zhou[2] Guoqing Wu[1] Yucheng Wang[2] Hongtao Mei[3] Hengyang Lu[3] Zhe Liu[2] Wei Fang[2]
1. China Ship Scientific Research Center, Wuxi, China; 2. School of Artificial Intelligence and Computer Science, Jiangnan University, Wuxi, China; 3. Jiangnan University, Wuxi, China

Prediction of Welding Residual Stress According to Constraint Using Regression Analysis and DNN in V-Groove Butt Welding OMAE2023-102208
Jeongung Park, Gyubaek An
Chosun University, Gwangju, Korea

Structures, Safety and Reliability

02-12-01 Reliability Based Maintenance and Inspection Planning: Life Cycle Cost Optimization

Wednesday June 14 | Room **214** | **15:30–17:00**

Session Organizer: Bernt Leira, NTNU, Norway

Session Co-Organizer: Ge Wang, ABS, USA

Combined Fatigue Damages of Bridges from Wind and Wave Actions – Application to Offshore Bridge Structures OMAE2023-101111
Magnus Knoph, Gudfinnur Sigurdsson, Mélanie Devergez
DNV AS, Høvik, Norway

A Framework for Defining Risk-Based Inspection Plans for Subsea OMAE2023-103603
Adriana M. Schleder[1] Marcos C. Maturana[2] Marcelo Ramos Martins[2] Paulo F. F. Frutuoso e Melo[3] Leonardo de Oliveira Barros[4] Rene Thiago Capelari Orlowski[4]
1. University of São Paulo, São Paulo, SP, Brazil; 2. Analysis, Evaluation and Risk Management Laboratory – LabRisco, University of Sao Paulo, São Paulo, SP, Brazil; 3. COPPE, Graduate Program of Nuclear Engineering, Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 4. Research and Development Center – CENPES - Petrobras, Rio de Janeiro, RJ, Brazil

Probabilistic Approach for Fatigue Life Extension of Subsea Wells Using Pressure Testing OMAE2023-104800
Arne Fjeldstad[1] Torfinn Hørte[1] Gudfinnur Sigurdsson[1] Stian Sætre[2]
1. DNV, Høvik, Norway; 2. Equinor, Fornebu, Norway

Structural Integrity Risk Assessment of Offshore Terminals Based on Key Measurable Indicators OMAE2023-107731
Sam Mazaheri
Daly Bay Terminal, Mount Waverley, VIC, Australia

Pipeline, Risers, and Subsea Systems

04-01-06 Flexible Pipes and Umbilicals VI

Wednesday June 14 | Room **210** | **15:30–17:00**

Session Organizer: Krassimir Doynov, ExxonMobil, USA

Decommissioning of Umbilicals and Flexible Pipes – a Sensitivity Analysis in Decision-Making Process OMAE2023-101121
Luisa Nogueira Soares[1] Marcelo Igor Lourenço[1] **Ilson Paranhos Pasqualino**[1] Eduardo Ribeiro Nicolosi[2] Claudio Violante Ferreira[2]
1. Subsea Technology Laboratory, Rio de Janeiro, RJ, Brazil; 2. Petrobras - Petróleo Brasileiro S.A., Rio de Janeiro, RJ, Brazil

Lateral Buckling of Tensile Armor Wires in Flexible Pipe Subject to Axial Compressive and Cyclic Bending Load OMAE2023-104823
Naiquan Ye[1] Guomin Ji[2] Svein Saevik[3]
1. SINTEF Ocean, Trondheim, Norway; 2. Norwegian University of Science and Technology, Gjøvik, Norway; 3. Norwegian University of Science and Technology, Trondheim, Norway

DEA Model Applied to Risk Based Inspection for Offshore Flexible Pipelines with Virtual Relative Risk Frontier from Event Trees OMAE2023-105095
Henrique Jaques Honorato[1] Theodoro Antoun Netto[2] Marcelo Igor Lourenço De Souza[2] Carolina Ferraz Netto[2]
1. Federal University of Rio de Janeiro, Niterói, RJ, Brazil; 2. Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil

Low and High Cycle Fatigue Performance Limits of Seamless and Seam-Welded Umbilical Super Duplex Stainless Steel Tubes OMAE2023-108686
Hauwa Raji[1] **Jamie Fletcher-Woods**[2] Alan Dobson[1]
1. TechnipFMC, Newcastle Upon Tyne, United Kingdom; 2. TechnipFMC Umbilicals Ltd, Newcastle Upon Tyne, United Kingdom

Pipeline, Risers, and Subsea Systems

04-03-03 Hydrodynamics

Wednesday June 14 | Room **213** | **15:30–17:00**

Session Organizer: Julian Hallai, Exponent, USA

Two-Degree-of-Freedom Flow-Induced Vibrations of a Circular Cylinder Close to a Free Surface OMAE2023-104736
Xiang Qi[1] Shaoshi Dai[1] Chengjiao Ren[2] Qianqian Dong[1] Chengwang Xiong[1]
1. Harbin Engineering University, Harbin, China; 2. University of Western Australia, Perth, WA, Australia

Identification of Interacting Free-Spans in a Subsea Pipeline OMAE2023-107635
Rajil Saraswat[1] Palash Patil[2] Edward Ciecko[3] Parul Koul[4]
1. ExxonMobil Services and Technology Private Limited, Bangalore, KA, India; 2. ExxonMobil Services and Technology Private Limited, Bengaluru, KA, India; 3. Esso Exploration Angola Limited, Torres Atlantico, Luanda, Angola; 4. ExxonMobil PNG Limited, Port Moresby, Papua New Guinea

Hydrodynamic Forces of Subsea Small-Diameter Pipeline in a Deep/Wide Trench OMAE2023-103310
Zinan Liu[1] Liang Cheng[2] Chengjiao Ren[3] Terry Griffiths[3] Feifei Tong[3]
1. South China University of Technology, Crawley, WA, Australia; 2. The South China University of Technology, Guangzhou, China; 3. The University of Western Australia, Crawley, WA, Australia

Hydrodynamic Forces Acting on Small-Diameter Pipelines under Random Waves and Currents: a Case Study OMAE2023-104379
Yunfei Teng[1] Zhanjie Chen[2] Terry Griffiths[3] Hongwei An[3] Scott Draper[4] Henning Mohr[3] Xin Cheng[2] Xiaoyuan Hu[1] Liang Cheng[1]
1. South China University of Technology, Guangzhou, China; 2. Dalian University of Technology, Dalian, China; 3. The University of Western Australia, Perth, WA, Australia; 4. The University of Western Australia, Dalian, WA, Australia

Ocean Engineering

06-14-01 Underwater Vehicles and Design Technology I

Wednesday June 14 | Room **217** | **15:30–17:00**

Session Organizer: Muk Chen Ong, University of Stavanger, Norway
Session Co-Organizer: Xueliang Wen, Norway

Modelling and Analysis of the Bending Moment in a Subsea Shuttle Tanker under the Effect of Waves Using a Multi-Body Approach OMAE2023-100707
Karan Sandipkumar Patel, Yucong Ma, **Yihan Xing**, Lin Li
Univeristy of Stavanger, Stavanger, Norway

Uncertainity Analysis of the Safety Operating Envelope of a Subsea Shuttle Tanker OMAE2023-101027
Hassan Hasan Yousef[1] Yucong Ma[1] **Yihan Xing**[1] Xiaosen Xu[2]
1. University of Stavanger, Stavanger, Norway; 2. Jiangsu University of Science and Technology, Stavanger, China

A Computational Study to Predict Seakeeping Performance of a Surfaced Submarine in Irregular Waves OMAE2023-102771
Doojin Jung[1] Sanghyun Kim[2]
1. Daewoo Shipbuilding & Marine Engineering Co., Ltd., Siheung-si, Korea; 2. INHA University, Incheon, Korea

Numerical Simulation of Implosions in Chain Reaction and the Analysis of Different Implosion Beginning Positions OMAE2023-102820
Sun Shengxia, Min Zhao
Shanghai Jiao Tong University, Shanghai, China

Polar and Arctic Sciences and Technology

07-06-02 Structures in Ice II

Wednesday June 14 | Room **208** | **15:30–17:00**

Session Organizer: Thomas Fitzpatrick, Memorial University of Newfoundland, Canada
Session Co-Organizer: Brendon Nickerson, Stellenbosch University, South Africa

Feasibility Study on Bottom-Fixed Offshore Wind Development in the Arctic OMAE2023-102822
Yingjie Gu[1] Muk Chen Ong[1] Marek Jan Janocha[1] Atle Blomgren[2]
1. Department of Mechanical and Structural Engineering and Materials Science, University of Stavanger, Stavanger, Norway; 2. Norwegian Research Center (NORCE), Stavanger, Norway

Numerical Investigation of Mooring System and First-Year Ice Ridge Keel Interaction OMAE2023-104251
Jiaming Chen[1] Li Zhou[2] Shifeng Ding[1] Renwei Liu[1] Yi Ding[1]
1. Jiangsu University of Science and Technology, Zhenjiang, China; 2. Shanghai Jiao Tong University, Shanghai, China

CFD, VIV and FSI

08-07-01 Data-Driven Models and Digital Twins

Wednesday June 14 | Room **209** | **15:30–17:00**

Session Organizer: Owen Oakley, Retired, USA

Session Co-Organizers: Madhu Agrawal, BP, USA; Muk Chen Ong, University of Stavanger, Norway

Parameter Estimation for 1-Eq./2-Eq. Turbulence Models by EnKF Data Assimilation: Twin Experiment with 2D Flat Plate OMAE2023-101237
Nobuaki Sakamoto
National Maritime Research Institute, Mitaka-shi, Japan

Methodology for Selection of Co-Simulation Platform for Digital Twin Development of Maritime Energy Systems OMAE2023-101505
Vaidehi Gosala[1] Ludger Hachmeister[2] Sophie Stutz[1] Jan-Erik Giering[1] Sören Ehlers[1]
1. DLR Institute of Maritime Energy Systems, Geesthacht, Germany; 2. RWTH Aachen, Aachen, Germany

On the Digital Twin of the Ocean Cleanup Systems OMAE2023-103055
Andriarimina Daniel Rakotonirina[1] **Martin Gonzalez**[2] Bruno Sainte-Rose[2]
1. The Ocean Cleanup, Utrecht, Netherlands; 2. The Ocean Cleanup, Rotterdam, Netherlands

Extrapolating Fluid Dynamics with Spatiotemporal Convolution Networks OMAE2023-101031
Indu Kant Deo, **Rajeev Jaiman**
University of British Columbia, Vancouver, BC, Canada

Ocean Renewable Energy

09-01-10 Offshore Wind Energy – Data Science and Digital Twins

Wednesday June 14 | Room **216** | **15:30–17:00**

Session Organizer: Zhen Gao, NTNU, Norway

Session Co-Organizer: Peter Rohrer, NTNU, Norway

Bayesian Network Modelling of Aero-Mechanical Performance of Wind Turbine OMAE2023-102743
My Ha Dao[1] Quang Tuyen Le[1] Xiang Zhao[1] Chin Chun Ooi[1] Trung Pham Duong Luu[2] Nagarajan Raghavan[2]
1. Institute of High Performance Computing, Singapore, Singapore;
2. Singapore University of Technology and Design, Singapore, Singapore

Demonstration of a Standalone, Descriptive, and Predictive Digital Twin of a Floating Offshore Wind Turbine OMAE2023-103112
Florian Stadtmann, Henrik Andreas Gusdal Wassertheurer, Adil Rasheed
Norwegian University of Science and Technology, Trondheim, Norway

Time Domain Structural Analysis and Digital Twin Application for Floating Offshore Wind Turbine OMAE2023-105074
Ho-Joon Lim[1] Sagar Samaria[1] Sukjoo Choi[2] **Anil Sablok**[1] Hakun Jang[1] Bonjun Koo[1]
1. Technip Energies, Houston, TX, USA; 2. Technip Energies, Genesis, Houston, TX, USA

Gradient-Based Design Optimization of Fully-Flexible Floating Wind Turbines Using Modal Analysis OMAE2023-101930
Peter J. Rohrer[1] Erin E. Bachynski-Polić[1] John Marius Hegseth[2]
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Dr.Techn. Olav Olsen, Lysaker, Norway

Ocean Renewable Energy

09-04-02 Hybrid and Novel Renewable Energy Systems II

Wednesday June 14 | Room **218** | **15:30–17:00**

Session Organizer: Narakorn Srinil, Newcastle University, United Kingdom
Session Co-Organizer: Weilin Chen, NUS, Singapore

Optimising the Interactions between an Offshore Wind Turbine and a Co-Located WEC OMAE2023-105352
Shelby Hewins[1] **Jean-Roch Nader**[2] Eric Gubesch[1] Nataliia Sergiienko[3]
1. Australian Maritime College, University of Tasmania, Newnham, TAS, Australia; 2. University of Tasmania, Newnham, TAS, Australia; 3. University of Adelaide, Adelaide, SA, Australia

Non-Linear and Survivable Experimental Modelling of a WEC Co-Located with an OWT OMAE2023-105353
Jack Crawford[1] Eric Gubesch[1] **Jean-Roch Nader**[2]
1. Australian Maritime College, University of Tasmania, Newnham, TAS, Australia; 2. University of Tasmania, Newnham, TAS, Australia

Motion Suppression of a Floating Offshore Wind Turbine Using Heaving Point Absorbers: a Case Study in Australia OMAE2023-104330
Leandro Souza Pinheiro da Silva[1] Nataliia Y. Sergiienko[2] Benjamin S. Cazzolato[2] Fantai Meng[3] Marielle de Oliveira[4] Boyin Ding[2]
1. Delmar Systems, Perth, WA, Australia; 2. The University of Adelaide, Adelaide, SA, Australia; 3. Shanghai Jiao Tong University, Shanghai, China; 4. University of São Paulo, São Paulo, SP, Brazil

A Site Selection Decision Framework for Offshore Wind-Powered Hydrogen Production Infrastructure OMAE2023-104627
Sumit Kumar[1] Ehsan Arzaghi[2] Til Baalisampang[2] Vikram Garaniya[2] Rouzbeh Abbassi[3]
1. Australian Maritime College, University of Tasmania, Prospect Vale, TAS, Australia; 2. Australian Maritime College, University of Tasmania, Launceston, TAS, Australia; 3. Macquarie University, Sydney, NSW, Australia

Petroleum Technology

11-02-04 Well Drilling Hydraulics and Cementing

Wednesday June 14 | Room **211** | **15:30–17:00**

Session Organizer: Arild Saasen, University of Stavanger, Norway
Session Co-Organizer: Ergun Kuru, University of Alberta, Canada

A Coupled Fluid-Structure Model for Estimation of Hydraulic Forces on the Drill-Pipes OMAE2023-104443
Lucas P. Volpi[1] Eric Cayeux[2] Rune Wiggo Time[1]
1. University of Stavanger, Stavanger, Norway; 2. Norwegian Research Center (NORCE), Stavanger, Norway

Dynamic Torque and Drag Model Coupled with Transient Hydraulic OMAE2023-104704
Eric Cayeux[1] Espen Jettestuen[2] Adrian Ambrus[3]
1. Norwegian Research Center (NORCE), Sandnes, Norway; 2. Norwegian Research Center (NORCE), Oslo, Norway; 3. Norwegian Research Center (NORCE), Stavanger, Norway

Investigation of Polymer Latex Effects on Cement Mechanical Properties for Improved Wellbore Integrity OMAE2023-105029
Abdullah S. Al-Yami, Hussam Al-Qahtani, Nizar Jaber, **Majad Khan**, Vikrant Wagle
Saudi Aramco, Dhahran, Saudi Arabia

Thursday Concurrent Sessions

CONCURRENT SESSIONS
10:30 – 12:00

Structures, Safety and Reliability

02-04-01 Extreme and Freak Waves

Thursday June 15 | Room **212** | **10:30–12:00**

Session Organizer: Carlos Guedes Soares, University of Lisbon, Portugal

Nonlinear Fourier Analysis Using Quasiperiodic Fourier Series OMAE2023-101978
Alfred R. Osborne
Nonlinear Waves Research Corporation, Alexandria, VA, USA

Are Rogue Waves Predictable from Field Measurements? OMAE2023-103020
Thomas Breunung, Balakumar Balachandran
University of Maryland, College Park, College Park, MD, USA

How Incoming Wave Directions from the Southern Ocean Affect Wave Propagation in the Austral Winter Antarctica Ice Cover OMAE2023-104207
Takehiko Nose[1] Tomotaka Katsuno[1] Takuji Waseda[1] Tsubasa Kodaira[1] Jean Rabault[2] Shuki Ushio[3] Mario Hoppmann[4]
1. The University of Tokyo, Kashiwa, Japan; 2. Norwegian Meteorological Institute, Blindern N, Norway; 3. National Institute of Polar Research, Tachikawa, Japan; 4. Alfred Wegener Institute, Bremerhaven, Germany

Slope Effect on the Evolution of Kurtosis over a Shoal OMAE2023-107884
Saulo Mendes[1] Jérôme Kasparian[2]
1. University of Geneva, Onex, Switzerland; 2. University of Geneva, Geneva, Switzerland

Structures, Safety and Reliability

02-13-01 Risk Analysis and Safety Management I

Thursday June 15 | Room **208** | **10:30–12:00**

Session Organizer: Ângelo Teixeira, Instituto Superior Técnico, Universidade de Lisboa, Portugal
Session Co-Organizer: Carlos Guedes Soares, University of Lisbon, Portugal

A Fire Safety Assessment Method for the Cruise Ship Space Based on Firefighting Contribution OMAE2023-101935
Wei Cai[1] **Zhiyan Yu**[1] Min Hu[1] Xinyun Zhang[1] Ziyu Wang[2]
1. Wuhan University of Technology, Wuhan, China; 2. Wuhan University of Technology, Guangzhou, China

A New Approach for Natural Gas and Hydrogen Blast Loading Analysis: a Fixed Mass Perspective OMAE2023-104306
Hyunho Lee, Jungkwan Seo
Pusan National University, Busan, Korea

A Risk-Based Fire Protection Design of a LNG Fueled Ship OMAE2023-104652
Hyunpyo Kim, Hyunjoon Nam, Ga Hyeong Kang, Min Joo Kim, Sunghee Kim, Dongkyu Shin, **Sung-In Park**
Korea Shipbuilding & Offshore Engineering, Seongnam-si, Korea

Offshore Oil Wells: Indicators for Configuration Selection OMAE2023-105150
Joaquim Rocha dos Santos[1] Danilo Taverna Martins Pereira de Abreu[1] Danilo Colombo[2] Marcelo Ramos Martins[1]
1. University of São Paulo, São Paulo, SP, Brazil; 2. Petrobras, Rio de Janeiro, RJ, Brazil

Pipeline, Risers, and Subsea Systems

04-01-07 Flexible Pipes and Umbilicals VII

Thursday June 15 | Room **214** | **10:30–12:00**

Session Organizer: Alan Dobson, TechnipFMC, United Kingdom
Session Co-Organizer: Celso Pesce, University of Sao Paulo, Brazil

Comparison of VIV Response of Lazy-Wave and W-Shaped FOWT Power Cable Configurations OMAE2023-103244
Alex Fuglsang[1] Anesu J. Kusangaya[1] Craig Dillon-Gibbons[2] Peter Bauer[2] Hayden Marcollo[1]
1. AMOG Consulting, Notting Hill, VIC, Australia; 2. AMOG Inc., Houston, TX, USA

Torque Evaluation under Cable Transport OMAE2023-104935
Decao Yin[1] Philippe Mainçon[1] Vegard Longva[1] Sjoerd Warringa[2] Carl Smith[2]
1. SINTEF Ocean, Trondheim, Norway; 2. DEME Group, Breda, Netherlands

Reliability Challenges Associated with 66KV Dynamic Submarine Cables OMAE2023-107668
Alan Dobson
TechnipFMC, Newcastle Upon Tyne, United Kingdom

Pipeline, Risers, and Subsea Systems

04-03-04 Thermo-Mechanical

Thursday June 15 | Room **210** | **10:30–12:00**

Session Organizer: Julian Hallai, Exponent, USA

Thermo-Mechanical Assessment and Challenges of Mero 1 HPHT Flowlines OMAE2023-102939
Adel Jebali[1] Rafael F. Solano[2] Marcio Scultori[3] Matthieu Novel[3] Carlos Valer[3] Olivier Mustiere[4]
1. TechnipFMC, Nîmes, France; 2. Petrobras, Rio de Janeiro, RJ, Brazil; 3. TechnipFMC, Rio de Janeiro, RJ, Brazil; 4. TechnipFMC, Aberdeen, United Kingdom

Anchoring System of Rigid Riser – Flowline Connection with Torpedo Piles OMAE2023-102990
Matthieu Novel[1] Rachel C. Genzani[2] Rafael F. Solano[2] Adel Jebali[3] Marcio Scultori[1]
Florent Camilleri[1] Carlos Valer[1] Olivier Mustiere[4]
1. TechnipFMC, Rio de Janeiro, RJ, Brazil; 2. Petrobras, Rio de Janeiro, RJ, Brazil; 3. TechnipFMC, Nîmes, France; 4. TechnipFMC, Courbevoie, France

Demonstrating Electrically Heat Traced Flowline Performance – As-Built Engineering Model vs. Field Data, the Perfect Matching OMAE2023-104729
Guy Mencarelli[1] Yves Minier[1] Donald Silcock[2] Camille Pradeilles[1] Xavier Michel[1] David Gibson[3]
1. Subsea 7, Suresnes, France; 2. Subsea 7, Aberdeen, United Kingdom; 3. AkerBP, Stavanger, Norway

Deepwater RCM and SRI Design of Production Rigid Flowline Loops OMAE2023-104359
Nikolaos Chatzimanolis, Hossein Jalali, Arek Bedrossian, Min Xie, Mark Lewis
Subsea 7, Sutton, United Kingdom

Ocean Engineering

06-02-01 Coastal Engineering

Thursday June 15 | Room **203** | **10:30–12:00**

Session Organizer: Yuzhu Pearl Li, National University of Singapore, Denmark

Bragg Resonance of Surface Gravity Waves by Surface-Piercing Vertical Multi-Plate Breakwaters OMAE2023-100531
Chen Chang-Zhe[1] Jing-Ping Wu[2] Jun Pan[3] Zao-Jian Zou[1]
1. Shanghai Jiao Tong University, Shanghai, China; 2. Wuhan University of Technology, Wuhan, China; 3. Sany Marine Heavy Industry Co., Ltd Testing institute, Zhuhai, China

Hydrodynamic Forces on Near-Bed Cylinders in Steady Currents OMAE2023-104297
Xiaoyuan Hu[1] Liang Cheng[1] Feifei Tong[2] Yunfei Teng[1] Yan Qu[3] Hongyi Jiang[4]
1. South China University of Technology, Guangzhou, China; 2. Southern Cross University, Perth, WA, Australia; 3. South China Unversity of Technology, Guangzhou, China; 4. The University of Western Australia, Perth, WA, Australia

High-Order Phase-Resolving Method for Wave Transformation over Natural Shorelines OMAE2023-104544
Wen-Huai Tsao, Rebecca Schurr, **Christopher E. Kees**
Louisiana State University, Baton Rouge, LA, USA

Spatial and Temporal Evolution Characteristics of Water Quality in the Port Waters – a Case Study of Zhanjiang Port, China OMAE2023-104716
Jianqun Guo[1, 2] Zhonglian Jiang[1] Zhen Yu[3] Jianglong Ying[1, 2]
1. National Engineering Research Center for Water Transport Safety, Wuhan University of Technology, Wuhan, China; 2. School of Transportation and Logistics Engineering, Wuhan University of Technology, Wuhan, China; 3. Changjiang Waterway Institute of Planning and Design, Wuhan, China

Ocean Engineering

06-07-01 Metocean, Measurement and Data Interpretation I

Thursday June 15 | Room **205** | **10:30–12:00**

Session Organizer: Kai Wang, Sun Yat-Sen University, China

Comparison of Ocean Wave Directional Spectra Estimated Using an Array of Three Optech Lasers and a Directional Waverider Buoy OMAE2023-101196
Pramod Kumar Jangir, Kevin C. Ewans, Ian R. Young
The University of Melbourne, Melbourne, VIC, Australia

Resolving Observational Differences in Measurements of Tropical Cyclone Wave Spectra OMAE2023-101592
Ian R. Young
University of Melbourne, Melbourne, VIC, Australia

Echo State Networks for Surface Current Forecasting in a Port Access Channel OMAE2023-103265
Felipe Marino Moreno, Jefferson Fialho Coelho, **Marlon Sproesser Mathias**, Marcel Rodrigues de Barros, Caio Fabricio Deberaldini Netto, Lucas Palmiro de Freitas, Marcelo Dottori, Fabio Gagliardi Cozman, Anna Helena Reali Costa, Edson Satoshi Gomi, Eduardo Aoun Tannuri
Universidade de São Paulo, São Paulo, SP, Brazil

What a Wave Buoy Actually Measures in 3D: analysis of a Mild Sea State OMAE2023-104281
Yue Ding[1] Paul H. Taylor[2] Wenhua Zhao[2] Jean-Noel Dory[3]
1. The University of Western Australia, Innaloo, WA, Australia; 2. The University of Western Australia, Perth, WA, Australia; 3. BW Ideol, La Ciotat, France

Ocean Engineering

06-08-01 Model Tests

Thursday June 15 | Room **204** | **10:30–12:00**

Session Organizer: Motohiko Murai, Yokohama National University, Japan

Wakes of Surface-Piercing Cylinders OMAE2023-101473
Douglas Potts[1] Zhi Leong[1] Jonathan Binns[2] Hayden Marcollo[3] Alex Skvortsov[4]
1. Australian Maritime College, Launceston, TAS, Australia; 2. Defence Science and Technology Group (DSTG), Launceston, TAS, Australia; 3. AMOG Consulting, Notting Hill, VIC, Australia; 4. Defence Science and Technology Group (DSTG), Newnham, TAS, Australia

Evaluation of Seakeeping Model Tests in Open Waters Using Two Submarine Hull Forms OMAE2023-101872
Wiebke Büsken, Stefan Krüger
Hamburg University of Technology, Hamburg, Germany

Use of Low-Cost Drifter Buoys by Students to Update Ocean Current Models OMAE2023-101202
Dan Dickerson[1] Evan Li[2] Nikhil Mehta[2] Joseph Dickerson[3] Petros Katsioloudis[4] Shawn Moore[3]
1. East Carolina University, Gatesville, NC, USA; 2. East Carolina University - Summer Ventures, Greenville, NC, USA; 3. East Carolina University, Greenville, NC, USA; 4. Old Dominion University, Norfolk, VA, USA

Ocean Engineering

06-14-02 Underwater Vehicles and Design Technology II

Thursday June 15 | Room **217** | **10:30–12:00**

Session Organizer: Muk Chen Ong, University of Stavanger, Norway
Session Co-Organizer: Xueliang Wen, Norway

Sea Trials of Multiple Heterogenous Cruising AUVs and ASV with Basic Formation Control OMAE2023-103370
Takumi Sato[1] Kangsoo Kim[1] Masahiko Sasano[1] Akihiro Okamoto[1] Shogo Inaba[1] Satoshi Kondo[2]
Hiroshi Matsumoto[2] Takashi Murashima[2] Toshifumi Fujiwara[1] Hiroyuki Osawa[2]
1. National Maritime Research Institute, Mitaka, Japan; 2. Japan Agency for Marine-Earth Science and Technology, Yokosuka, Japan

Experimentally Determined Motion Response Due to Waves of a Loitering Remote Operated Vehicle OMAE2023-104393
Johnathan D. Marks[1] **Joseph T. Klamo**[2]
1. United States Navy, Monterey, CA, USA; 2. Naval Postgraduate School, Monterey, CA, USA

Investigating the Free Surface Effect on the Hydrodynamics of an ROV Moving along a Straight Path at Design Speed OMAE2023-106517
Ruinan Guo[1] Yingfei Zan[1] Fuxiang Huang[2] Duanfeng Han[1] Baozhong Li[3]
1. Harbin Engineering University, Harbin, China; 2. Offshore Oil Engineering Co., Ltd., Tianjin, China; 3. China Classification Society Tianjin Branch., Ltd., Tianjin, China

Numerical Estimation of Hydrodynamic Derivatives of a Biomimetic Autonomous Underwater Vehicle by Captive Model Tests OMAE2023-108006
Vignesh D[1] Pramod Suresh Jadhav[1] Asokan Thondiyath[1] Rajagopalan Vijayakumar[1] Parameswaran Krishnankutty[2]
1. Indian Institute of Technology Madras, Chennai, TN, India; 2. Indian Institute of Technology Madras, Kochi, TN, India

CFD, VIV and FSI

08-08-01 VIV & Offshore Wind Turbines

Thursday June 15 | Room **209** | **10:30–12:00**

Session Organizer: Rajeev Jaiman, University of British Columbia, Canada
Session Co-Organizer: Owen Oakley, Retired, USA

Toward Environmental and Structural Digital Twining of Offshore Wind Turbine OMAE2023-101859
Xiang Zhao, My Ha Dao, Quang Tuyen Le
Institute of High Performance Computing, Singapore, Singapore

A Hybrid Numerical Framework for Engineering Design of Floating Offshore Wind Turbine Foundations OMAE2023-102429
Pietro D. Tomaselli[1] Xerxes Mandviwalla[2] Bjarne Jensen[1]
1. DHI, Hørsholm, Denmark; 2. Vattenfall, Hørsholm, Denmark

Evaluation of VIV Prediction Practice of Deep-Water Steel Lazy Wave Risers (SLWRS) OMAE2023-105583
Jie Wu[1] Fengjian Jiang[2] Halvor Lie[2] Elizabeth Passano[2] Decao Yin[2] Svein Sævik[3]
Guttorm Grytøyr[4] Brendan Francis Hogg[4] Themistocles Resvanis[5] Kim Vandiver[5]
1. SINTEF, Trondheim, Norway; 2. SINTEF Ocean, Trondheim, Norway; 3. Norwegian University of Science and Technology, Trondheim, Norway; 4. Equinor, Fornebu, Norway; 5. Massachusetts Institute of Technology, Cambridge, MA, USA

Flow Induced Vibration of Flexible Risers with Spanwise Grooves OMAE2023-105214
Arun Periyal[1] Harsh Pipal[1] **Ritwik Ghoshal**[1] Vaibhav Joshi[2]
1. Indian Institute of Technology Kharagpur, Kharagpur, WB, India; 2. Birla Institute of Technology & Science (BITS) Pilani - K K Birla Goa Campus, Goa, GA, India

Ocean Renewable Energy

09-03-01 Current and Tidal Energy – Design Considerations

Thursday June 15 | Room **216** | **10:30–12:00**

Session Organizer: Kelley Ruehl, Sandia NL, USA

A Parametric Study to Enhance the Design of Hydrokinetic Turbine OMAE2023-103329
Cheng Yee Ng[1] Nauman Riyaz Maldar[2] Lee Woen Ean[3] Bak Shiiun Wong[4] Hooi Siang Kang[5]
1. Universiti Teknologi PETRONAS, Seri Iskandar, Malaysia; 2. Department of Civil, Environmental, and Ocean Engineering, Stevens Institute of Technology, Hoboken, NJ, USA; 3. Institute of Sustainable Energy, Universiti Tenaga Nasional, Kajang, Malaysia; 4. Petronas Global Technical Solutions, Miri, Malaysia; 5. Universiti Teknologi Malaysia, Johor Bahru, Malaysia

Analysis of Turbulence Parameters for a Tidal Energy Site in a Wave-Current Environment OMAE2023-104347
Tian Tan, Vengatesan Venugopal, Brian Sellar
The University of Edinburgh, Edinburgh, United Kingdom

Possibility of Tidal Farms for the Gulf of Kutch OMAE2023-107680
Vijaya Lakshmi Thiagarajan, Abdus Samad, Suresh Rajendran
Indian Institute of Technology Madras, Chennai, TN, India

Energy for Tidal in Indonesia: Opportunity and Challenges OMAE2023-108028
Ahmad Firdaus
Bandung Institute of Technology, Bandung, Indonesia

Ocean Renewable Energy

09-04-03 Hybrid and Novel Renewable Energy Systems III

Thursday June 15 | Room **218** | **10:30–12:00**

Session Organizer: Jean-roch Nader, UTAS, Australia
Session Co-Organizer: Parth Patel, UTAS, Australia

Energy Harvesting from Multiple Responses of an Elastically Mounted D-Section Prism OMAE2023-104810
Weilin Chen, Yuzhu Li
National University of Singapore, Singapore, Singapore

Experimental Observation on Chaotic Vortex-Induced Vibration of Circular Cylinder in Turbulent Flow OMAE2023-101301
Yan Naung Aye, Narakorn Srinil
Newcastle University, Newcastle Upon Tyne, United Kingdom

Optimisation of Energy Extraction of Multiple Wave Energy Converter in Moonpool and Channel Using Anti-Node OMAE2023-102732
Zhi Yung Tay[1] Ling Wan[2]
1. Singapore Institute of Technology, Singapore, Singapore; 2. Ningbo University, Ningbo, China

Hydrodynamic Modelling of Membrane Floats Floating PV System in Offshore Environments OMAE2023-104432
Marvin Ananda Taneli[1] **Farid Putra Bakti**[2]
1. Institut Teknologi Bandung, Jakarta Utara, Indonesia; 2. Institut Teknologi Bandung, Bandung, Indonesia

Petroleum Technology

11-01-01 Well Drilling Technology I

Thursday June 15 | Room **211** | **10:30–12:00**

Session Organizer: Stephen D. Butt, Memorial University of Newfoundland, Canada

Session Co-Organizers: Mohammad Azizur Rahman, Texax A&M University at Qatar, Qatar; Ergun Kuru, University of Alberta, Canada

Analytical, Numerical and Field Data Investigation for Deriving the Condition of Stick-Slip Drill String Vibration OMAE2023-102439
Tatsuya Kaneko[1] Tomoya Inoue[2] Ryota Wada[3] Tokihiro Katsui[4] Hiroyoshi Suzuki[5]
1. Japan Agency for Marine-Earth Science and Technology, Yokohama, Japan; 2. Japan Agency for Marine-Earth Science and Technology, Yokosuka, Japan; 3. The University of Tokyo, Kashiwa, Japan; 4. Kobe University, Kobe, Japan; 5. Osaka University, Suita, Japan

Evaluation of Wear and Damage on Large-Diameter Disc Cutters OMAE2023-103836
Oluwafemi Tytler, Zijian Li, Judith George, **Stephen Butt**
Memorial University of Newfoundland, St. John's, NL, Canada

The Sidetracking Configuration Optimization and Detailed Scheme Design in a Oilfield Middle East OMAE2023-108061
Zhen Nie, **Shuzhe Shi**, Zhengxue Du, Xueqin Huang, Bohong Wu, Chunpeng Wang, Yanna Zhang
Research Institute of Petroleum Exploration and Development, Beijing, China

Evaluation of Granite Deformation through Non-Compliant versus Compliant Indirect Tensile Strength Application OMAE2023-105090
Abdelsalam Abugharara, **Stephen Butt**
Memorial University of Newfoundland, St. John's, NL, Canada

Petroleum Technology

11-07-01 Production Systems and Subsea Operations

Thursday June 15 | Room **213** | **10:30–12:00**

Session Organizer: Marcio Yamamoto, National Maritime Research Institute, Japan

Session Co-Organizers: Ergun Kuru, University of Alberta, Canada; Sergio Bordalo, University of Campinas, Brazil

The Dynamic Optimization of Lower Completion Configurations Based on the Liquid/Gas Flow Streamline in an Middle East Oilfield OMAE2023-101346
Shuzhe Shi[1] Bohong Wu[1] Zhen Nie[1] Yong Li[1] Xin Li[1] Lufeng Zhang[2]
1. The Research Institute of Petroleum Exploration and Development, CNPC, Beijing, China; 2. SINOPEC Petroleum Exploitation and Production Research Institute, Beijing, China

Maintaining Constant Oil and Gas Export Rates in Offshore Installations Powered by Fluctuating Wind Energy OMAE2023-102454
Leila Eyni[1] Milan Stanko[1] Heiner Schümann[2]
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. SINTEF Industri, Trondheim, Norway

Development of an Ipm Tool for Subsea System Design considering Lifecycle Production/injection Performance OMAE2023-103289
Yuxi Wang[1] **Cheng Hong**[2] Segen Estefen[1]
1. Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 2. Ningbo University, Ningbo, China

A Dynamics Experiment with a Submerged and Suspended Vertical Riser Pipe Small Scale Model Undergoing Forced Motions at the Top OMAE2023-104375
Caio Cesar de Oliveira Trigo, Sergio Nascimento Bordalo, Celso Kazuyuki Morooka
University of Campinas, Campinas, SP, Brazil

CONCURRENT SESSIONS
13:30 – 15:00

Structures, Safety and Reliability

02-04-02 Probabilistic and Spectral Wave Modelling

Thursday June 15 | Room **212** | **13:30–15:00**

Session Organizer: Carlos Guedes Soares, University of Lisbon, Portugal

A Joint Probability Distribution Model for Multivariate Wind and Wave Conditions OMAE2023-101961
Erik Vanem[1] Elias Fekhari[2] Nikolay Dimitrov[3] Mark Kelly[3] Alexis Cousin[4] Martin Guiton[4]
1. DNV Group Research & Development, Høvik, Norway; 2. EDF R&D, Nanterre, France; 3. DTU, Roskilde, Denmark; 4. IFPEN, Rueil-Malmaison, France

Directional Wave Spectra by Means of a Fully Nonlinear Wave Model OMAE2023-102095
Omar Zain Torres Rios[1] Alexander Babanin[1] Ian Young[1] Sannasi Annamalaisamy Sannasiraj[2]
1. University of Melbourne, Parkville, VIC, Australia; 2. Indian Institute of Technology, Chennai, TN, India

Sea Spray Production During Extreme Marine Weather Conditions: Observations During Tropical Cyclones Olwyn and Veronica OMAE2023-104355
Joey Voermans[1] Xingkun Xu[2] Alexander Babanin[2]
1. University of Melbourne, Parkville, VIC, Australia; 2. University of Melbourne, Melbourne, VIC, Australia

On Nonlinear Wave Evolution Under the Ice OMAE2023-104435
Takuji Waseda[1] Alberto Alberello[2] Takehiko Nose[1] Takenobu Toyota[3] Tsubasa Koraira[1] Yasushi Fujiwara[4]
1. The University of Tokyo, Kashiwa, Japan; 2. University of East Anglia, Norwich, United Kingdom; 3. Institute of Low Temperature Science, Sapporo, Japan; 4. Low Temperature Lab, Hokkaido University, Kobe, Japan

Structures, Safety and Reliability

02-13-02 Risk Analysis and Safety Management II

Thursday June 15 | Room **213** | **13:30–15:00**

Session Organizer: Ângelo Teixeira, Instituto Superior Técnico, Universidade de Lisboa, Portugal
Session Co-Organizer: Carlos Guedes Soares, University of Lisbon, Portugal

Application of Technique for Early Consideration of Human Reliability in the Specification of the Maximum Acceptable Probability of Failure on Demand and the Maximum Spurious Operation Frequency of a Floating Nuclear Power Plant Safety Control System OMAE2023-104971
Marcos Coelho Maturana, Danilo Taverna M. Pereira Abreu, Marcelo Ramos Martins
University of São Paulo, São Paulo, SP, Brazil

Cognitive Models for Human Reliability Analysis Applications in the Oil and Gas Industry OMAE2023-105027
Marco Antonio Bayout Alvarenga[1] Paulo Fernando Frutuoso e Melo[2] **Marcos C. Maturana**[3] Marcelo Ramos Martins[3]
1. National Commission of Nuclear Energy, Rio de Janeiro, RJ, Brazil; 2. COPPE, Graduate Program of Nuclear Engineering, Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 3. LABRISCO/USP, São Paulo, SP, Brazil

Offshore Oil Wells Integrity: Safety Analysis of an Offshore Oil Well at the Production Phase Using STPA (System-Theoretic Process Analysis) OMAE2023-105039
Lucas Ribeiro de Almeida, Joaquim Rocha dos Santos, Marco Aurélio Pestana, Marcelo Ramos Martins
Escola Politécnica - Universidade de São Paulo (USP), São Paulo, SP, Brazil

Pipeline, Risers, and Subsea Systems

04-03-05 Pipe-Soil Interaction

Thursday June 15 | Room **210** | **13:30–15:00**

Session Organizer: Julian Hallai, Exponent, USA

Testing to Reveal Soil Stiffness and Damping at Pipeline Free-Span 'Shoulders' OMAE2023-101816
Vasileios Papavasileiou, Fraser Bransby, Phil Watson, Michael O' Neill
The University of Western Australia, Perth, WA, Australia

Seabed Proximity Effect on Free Spanning Pipelines: the FIST JIP OMAE2023-103464
Mário Caruso[1] James Sutherland[2]
1. DNV, Bœrum, Norway; 2. HR Wallingford, Wallingford, United Kingdom

Predicting the As-Laid Embedment of Surface-Laid Pipelines in Sandwave Regions OMAE2023-104434
Zhechen Hou[1] Fraser Bransby[1] Phil Watson[1] David White[2] Jean-Christophe Ballard[3] Pierre Delvosal[3] Raphael Denis[3] Han Eng Low[4]
1. The University of Western Australia, Crawley, WA, Australia; 2. University of Southampton, Southampton, United Kingdom; 3. Fugro Belgium, Ottignies-Louvain-la-Neuve, Belgium; 4. Fugro Australia Marine, West Perth, WA, Australia

Pipeline, Risers, and Subsea Systems

04-04-01 Subsea Systems and Flow Assurance

Thursday June 15 | Room **208** | **13:30–15:00**

Session Organizer: Theodoro Netto, Fundacao Coppetec, Brazil

Linearized Model for Subsea Installation Based on Natural KC Number OMAE2023-100990
Antonio C. Fernandes[1] Rodrigo Batista Soares[2] Emerson Martins de Andrade[1] Joel Sena Sales Junior[1]
1. Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 2. Federal University of Rio de Janeiro, Itaguaí, RJ, Brazil

Design Assessment and Optimization of a Barrier Valve for Subsea Application OMAE2023-102907
Mehman Ahmadli, Tor Berge Gjersvik, Sigbjørn Sangesland
Norwegian University of Science and Technology, Trondheim, Norway

A Mechanistic Model for Predicting the Formation of the Riser Blockage OMAE2023-104475
Deping Sun, Haixiao Liu
Tianjin University, Tianjin, China

Impact of Chemical Impurities on the Integrity of Carbon Dioxide Transport Pipelines OMAE2023-105428
Stephen Stokes[1] Hooman Haghighi[2] Craig Mckay[2]
1. Wood plc, Perth, WA, Australia; 2. Wood plc, Aberdeen, United Kingdom

Ocean Engineering

06-07-02 Metocean, Measurement and Data Interpretation II

Thursday June 15 | Room **205** | **13:30–15:00**

Session Organizer: Kai Wang, Sun Yat-Sen University, China

Modeling Oceanic Variables with Graph-Guided Networks for Irregularly Sampled Multivariate Time Series OMAE2023-104603
Jefferson Fialho Coelho, Marcel Rodrigues de Barros, Caio Fabricio Deberaldini Netto, Felipe Marino Moreno, Lucas Palmiro de Freitas, Marlon Sproesser Mathias, Fabio Gagliardi Cozman, Marcelo Dottori, **Edson Satoshi Gomi**, Eduardo Aoun Tannuri, Anna Helena Reali Costa
University of São Paulo, São Paulo, SP, Brazil

Retrieval of Ocean Wave Spectra From X-Band Marine Radar Images Using Inversion Schemes Based on Auto-Spectral Analysis OMAE2023-104877
Gowtham Radhakrishnan, Bernt J. Leira, Zhen Gao, Svein Sævik, Konstantinos Christakos
Norwegian University of Science and Technology, Trondheim, Norway

The Effect of Steady Currents in Weather Downtime Assessment OMAE2023-104910
Bepo Schira[1] Gohar Shoukat[1] **Indrasenan Thusyanthan**[2]
1. Gavin & Doherty Geosolutions Ltd., Dublin, Ireland; 2. Gavin & Doherty Geosolutions Ltd., London, United Kingdom

Wind-Wave Misalignment and Dynamic Response of Fixed-Bottom Offshore Wind Turbine OMAE2023-100910
Hiroaki Kashima[1] Haruo Yoneyama[1] Chathura Manawasekara[2] Yoji Tanaka[2]
1. Port and Airport Research Institute, Yokosuka, Japan; 2. Ecoh Corporation, Daito-ku, Japan

Ocean Engineering

06-14-03 Underwater Vehicles and Design Technology III

Thursday June 15 | Room **217** | **13:30–15:00**

Session Organizer: Allan R Magee, Consultant, USA

UUV Target Tracking Method Based on High Order CGHF Algorithm OMAE2023-109014
Kai Zhang[1] Hongjian Wang[1] Weiquan Huang[1] Shihao Huang[2]
1. Harbin Engineering University, Harbin, China; 2. The University of Melbourne, Parkville, VIC, Australia

Application of Extended Game in Multi-UUV Pursuit-Escape Task OMAE2023-109449
Dan Yu[1] **Hongjian Wang**[1] Weiquan Huang[1] Shihao Huang[2]
1. Harbin Engineering University, Harbin, China; 2. The University of Melbourne, Parkville, VIC, Australia

An Experimental Study on Vortex Induced Motion of a Submerged Cylindrical Buoy with a Short Tether Chain OMAE2023-103312
Thomas Ledoux, Florentin Anne, Cédric Béguin, Frédérick Gosselin, Stéphane Étienne
École Polytechnique de Montréal, Montréal, QC, Canada

CFD, VIV and FSI

08-09-01 Neural Network for Waves & Cylinders, Symposium Summary

Thursday June 15 | Room **209** | **13:30–15:00**

Session Organizer: Owen Oakley, Retired, USA

Session Co-Organizer: Rajeev Jaiman, University of British Columbia, Canada

A Physics-Informed Neural Operator for the Simulation of Surface Waves OMAE2023-104950
Marlon Sproesser Mathias[1] Caio Fabricio Deberaldini Netto[1] Felipe Marino Moreno[1] Jefferson Fialho Coelho[1] Lucas Palmiro De Freitas[1] Marcel Rodrigues De Barros[1] Pedro Cardozo De Mello[1] Marcelo Dottori[1] Fábio Gagliardi Cozman[1] Anna Helena Reali Costa[1] Alberto Costa Nogueira Junior[2] Edson Satoshi Gomi[1] Eduardo Aoun Tannuri[1]
1. Universidade de São Paulo, São Paulo, SP, Brazil; 3. IBM Research, São Paulo, SP, Brazil

On the Performance of a Backward Compatible Physics Informed Neural Network (BC-PINN) for Prediction of a Flow Past a Cylinder OMAE2023-105343
Vamsi Sai Krishna Malineni, **Suresh Rajendran**
Indian Institute of Technology Madras, Chennai, TN, India

Ocean Renewable Energy

09-03-02 Current and Tidal Energy: Hydrodynamic Analysis

Thursday June 15 | Room **216** | **13:30–15:00**

Session Organizer: Kelley Ruehl, Sandia NL, USA

The Effect of Power Take-Off System on S-Shaped Vertical Axis Autorotation Current Turbine OMAE2023-100991
Rodrigo Soares[1] **Antonio Carlos Fernandes**[2] Joel Sena Sales Junior[2]
1. Federal University of Rio de Janeiro, Itaguaí, RJ, Brazil; 2. Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil

Open Water Blade Strain Measurements on a Vertical-Axis Tidal Turbine OMAE2023-101076
Aidan Bharath[1] Hannah Ross[1] Casey Nichols[1] Andrew Simms[1] Mark Murphy[1]
Robert Raye[1] Patrick O'byrne[2] Michael Monahan[2] Martin Wosnik[2]
1. National Renewable Energy Laboratory, Golden, CO, USA; 2. University of New Hampshire, Durham, NH, USA

Numerical Study of the Effects of Lateral Blockage and Free Surface on the Performance of a Novel Vertical-Axis Turbine OMAE2023-103551
Hao Wu[1] Renjing Cao[2] Enhao Wang[1]
1. Tsinghua University, Shenzhen, China; 2. Southern University of Science and Technology, Shenzhen, China

Computational Fluid Dynamics Study of a Cross-Flow Marine Hydro-Kinetic Turbine and the Combined Influence of Struts and Helical Blades OMAE2023-105021
Will Wiley[1] Thanh Toan Tran[1] Michael Lawson[1] Matthew Barrington[2]
1. National Renewable Energy Laboratory, Arvada, CO, USA; 2. Ocean Renewable Power Company, Portland, ME, USA

Ocean Renewable Energy

09-04-04 Floating Solar Energy

Thursday June 15 | Room **218** | **13:30–15:00**

Session Organizer: Marc Cahay, Technip Energies, France
Session Co-Organizer: Parth Patel, UTas, Australia

Hazard Analysis of Floating PV Systems OMAE2023-101868
Shengnan Zhao, Ying Min Low, Carlos David Rodriguez Gallegos, Thomas Reindl
National University of Singapore, Singapore, Singapore

Hydrodynamic Modelling of Modularized Floating Photovoltaics Arrays OMAE2023-102530
De-Qing Zhang[1] Jun-Feng Du[1] **Zhi-Ming Yuan**[2] Ming Zhang[2] Feng-Shen Zhu[2]
1. Ocean University of China, Qingdao, China; 2. University of Strathclyde, Glasgow, United Kingdom

Hydrodynamic Analysis of Pontoon-Type Floating Photovoltaic Based on Frequency-Domain Model OMAE2023-103443
Yongkang Shi[1] Yanji Wei[2] Zuogang Chen[1]
1. Shanghai Jiao Tong University, shanghai, China; 2. Eastern Institute for Advanced Study, Ningbo, China

CFD-Based Simulation for the Stability of Floating Solar Arrays OMAE2023-108232
Prince Arora[1] Badri Prasad Patel[2] Suhail Ahmad[2] **Arvind Kumar Jain**[2] C S Joe Joe[3] Pratham Aggarwal[4]
1. Floatex Solar Private Limited, Delhi, DL, India; 2. Indian Institute of Technology Delhi, Delhi, DL, India; 3. Great Waters Maritime LLC, Dubai, United Arab Emirates; 4. Floatex Solar Pvt. Ltd, Delhi, DL, India

Petroleum Technology

11-01-02 Well Drilling Technology II

Thursday June 15 | Room **211** | **13:30–15:00**

Session Organizer: Stephen D. Butt, Memorial University of Newfoundland, Canada
Session Co-Organizers: Mohammad Azizur Rahman, Texax A&M University at Qatar, Qatar; Ergun Kuru, University of Alberta, Canada

A Novel Hybrid Transfer Learning Method for Bottom Hole Pressure Prediction OMAE2023-103302
Rui Zhang[1] Xianzhi Song[1] Gensheng Li[1] Zehao Lv[2] Zhaopeng Zhu[1] Chengkai Zhang[1] Chenxing Gong[3]
1. China University of Petroleum, Beijing, China; 2. Petrochina Oil&Gas and New Energy Company, Beijing, China, Beijing, China; 3. Reasearch Institute of Oil & Gas Technology, PetroChina Changqing Oilfield Company, Xi'an, China

Study of the Influence of Microwave Irradiation on Hard Formation Property Alteration through Nondestructive/Destructive Tests and Drilling/Coring Operations OMAE2023-105113
Abdelsalam Abugharara, Salum Mafazy, Stephen Butt
Memorial University of Newfoundland, St. John's, NL, Canada

Deepwater Oil and Gas Well Automatic Control Pressure System and Indoor Simulation Experiment OMAE2023-108010
Wang Chen[1] Jun Li[2] Hongwei Yang[1] Zhenyu Long[1] Ming Luo[3] Wentuo Li[3]
1. China University of Petroleum, Beijing, China; 2. China University of Petroleum, Karamay, China; 3. CNOOC China Limited, Zhanjiang, China

Investigation of the Relation Between Coring Parameters and Formation Representation OMAE2023-105315
Abdelsalam Abugharara, Stephen Butt
Memorial University of Newfoundland, St. John's, NL, Canada

Petroleum Technology

11-09-01 Development of Unconventional Reservoirs

Thursday June 15 | Room **214** | **13:30–15:00**

Session Organizer: Hadi Belhaj, Khalifa University, U.A.E.
Session Co-Organizer: Ergun Kuru, University of Alberta, Canada

Pilot Application of Re-fracturing in Deep Tight Sandstone Gas Reservoir by Using Weighted Fracturing Fluid OMAE2023-104546
Lufeng Zhang[1] Haibo Wang[1] Fengxia Li[1] Shuzhe Shi[2]
1. Sinopec Petroleum Exploration and Production Development Research Institute, Beijing, China; 2. Research Institute of Petroleum Exploration and Development, Beijing, China

Investigation on "One Stage-One Policy" Differential Staged Fracturing in Shale Oil Reservoir OMAE2023-104573
Haibo Wang, **Lufeng Zhang**, Fengxia Li, Shuzhe Shi
SINOPEC, Beijing, China

Advancements of Transient Pressure/Rate Analysis for Mulitifractured Horizontal Wells (MFHWs) in a Tight Formation by Considering Complex Fracture Networks and Flow Dynamics OMAE2023-107874
Daoyong (Tony) Yang[1] Liwu Jiang[2] Yunhao Zhang[2] Tongjing Liu[3] Yee-Chung Jin[2]
1. Petroleum Systems Engineering, Regina, SK, Canada; 2. University of Regina, Regina, SK, Canada; 3. China University of Petroleum, Beijing, China

Scale Modelling, Prediction and Management Strategy in High Temperature High Salinity Reservoir in Middle East OMAE2023-107230
Bohong Wu, Jingyao Wang, Shuzhe Shi, Yanna Zhang, Zhen Nie, Yong Li
Research Institute of Petroleum Exploration and Development, Beijing, China

Technical Tours

TOUR OF THE AUSTRALIAN MARITIME COLLEGE AT THE UNIVERSITY OF TASMANIA IN LAUNCESTON AND QUEEN VICTORIA MUSEUM

Fee: AUD $335
Date: Friday, June 16, 2023, 07:30 – 17:40
Capacity: 20 people maximum
As this tour involves two short commercial flights it is non-transferable. Registration cut off May 31st.

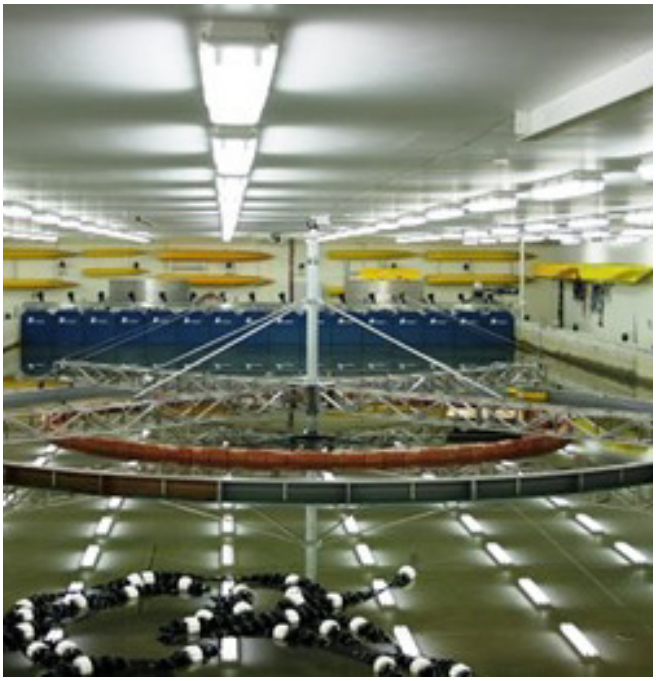
The Australian Maritime College (AMC) is the national institute for maritime education, training, and research and also one of the seven founding members of the International Association of Maritime Universities.

AMC with its specialist maritime research and learning facilities, known as the most advanced in the Southern Hemisphere, has developed a global reputation for the highest quality education and research, producing first-class graduates keenly desired by industry.

During this technical tour, you will have the chance to visit the AMC testing facilities including:

- the hydrodynamic facilities,
- the upgraded Cavitation Laboratory,
- a state-of-the-art Maritime Simulation Centre, and,
- the recently established autonomous maritime research facilities, with a fleet of underwater robots for sub-sea and Antarctic exploration.

Tour description continued on next page.



AMC Model Test Basin (MTB): Our 35 metre long Model Test Basin simulates maritime operations in shallow water environments such as ports, harbours, rivers and coastal regions.

AMC AUV: The AUV is capable of diving up to 5,000 meters, operating underneath the ice and gathering data on the Antarctic research missions. The polar vehicle was granted the name nupiri muka, which means 'Eye of the Sea' in palawa kani, the language of Tasmanian Aborigines.

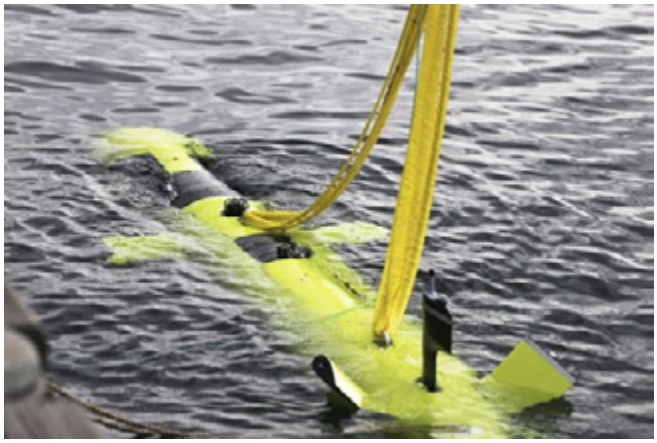


Photo copyright: AMC/UTAS; Photos: A courtesy of Dr Damien Guihe

Following the technical tour, you will visit the Queen Victoria Museum which is Northern Tasmania's home of art, history, and natural science. The tour will take you to the Museum facility where you can explore collections of natural sciences displays, transport and railway memorabilia, blacksmith workshops, the iconic Launceston Planetarium and artefacts from Australia's oldest merchant shipwreck.

Schedule:

07:30	Meet at MCEC to take shuttle to the Melbourne Airport (bring passport or ID)
09:25 – 10:35	Flight to Launceston and transfer to Australian Maritime College
11:00 – 13:30	**Welcome and morning tea** **Technical tour of Australian Maritime College followed by lunch**
13:30	Bus transfer to Queen Victoria Museum at Inveresk
13:40 – 15:15	**Tour of Queen Victoria Museum at Inveresk**
15:15	Bus transfer for the Launceston airport
16:20 – 17:25	Flight to Melbourne
17:40	Bus transfer to MCEC

The Blacksmith Shop, Queen Victoria Museum at Inveresk. Photo: QVMAG

Transforming the Island: railways in Tasmania exhibition at the Queen Victoria Museum at Inveresk. Photo: QVMAG

TOUR OF THE PORT OF MELBOURNE BY BOAT

Date: Friday, June 16, 2023, 10:00 – 12:00
Capacity: 70 people maximum
Cost: Free

The Port of Melbourne is Australia's largest container and general cargo port, handling more than one-third of the nation's container trade.
This technical tour offers a great opportunity to explore the Port from the water and you will have the chance to see and learn about:

- Overview of the Port ownership model (i.e. landlord port model)
- Melbourne's unique port location
- Victoria and Appleton docks – current tenants and potential future uses.
- Swanson dock swing basin – challenges with maneuvering larger vessels into Swanson Dock.
- Swanson Dock East and West – operations, types of cargo and the size of vessels that call, current remediation project at SDW.
- Pipelines and liquid bulk facilities.
- Under the Westgate – discussion on height limitations, vessel sizes and safety measures.

- Webb dock – discussion on facilities, automation, Tasmanian Trades and Ro-ros, potential expansion at Webb Dock.

Schedule:

10:00	Arrive at 55 Victoria Harbour Promenade for tour with Magic Charters
10:15	Tour departs 10:15 sharp
12:00	Tour concludes with return to Victoria Harbour Promenade

Short Courses

WEC Design Practices and Tools

Date: Saturday, June 10, 2023, 08:00 – 17:00

Instructors:

- **Kelley Ruehl,** Senior R&D Engineer, Sandia National Laboratories
- **Nathan Tom,** Researcher IV-Mechanical Engineering/Water Power Program, National Renewable Energy Laboratory
- **Daniel Gaebele,** Ph.D. Postdoctoral appointee, Sandia National Laboratories

Course Description:

While similar in many ways to other ocean systems, wave energy converters (WECs) pose a number of novel design challenges. This course reviews several considerations related to design and operation of wave energy converters and demonstrates a series of design tools/methods. Fundamentals of hydrodynamics, power take-off (PTO) systems, and implementation of controls for WECs are presented and the complete WEC system will be model from wave to wire. Best practices for designing experiments and performing system identification to obtain numerical models for WECs will also be discussed. The course also covers background and practical considerations for WEC design optimization as well as design load analysis for WEC system and components.

Course Highlights:

- Introduction to WECs
- Operational and survival wave conditions
- Fundamentals of hydrodynamics for WECs
- PTO systems for WECs
- Implement WEC control
- Model WEC from wave to wire (with introduction to WEC-Sim)
- System identification and experimental testing of WECs
- Extreme response and fatigue analyses (design load case study and WDRT)

You will learn to:

- Understand basic WEC design concepts, components and subcomponents
- Identify challenges in WEC design and applications
- Model WECs from wave to wire, including hydrodynamics, PTO, and control
- Design experiments and perform system identification to obtain numerical models for WECs

Who should attend:

Those interested in learning more about the current state of WEC design practices

Experimental Uncertainty analysis for Hydrodynamic Tests

Date: Saturday, June 10, 2023, 08:15 – 12:00

Instructor:

Michael Woodward, Associate Professor in Marine Engineering, AMC/AMC Search/UTAS

Course Description:

Aims and Objectives: The aim of the course is to provide a working knowledge (including CPD) for the practicing maritime engineer and/or project manager, with respect to Experimental Uncertainty Analysis (EUA). The objective is to, for the practicing engineer, build competency through broader engineering knowledge and, for the project manager, inform decision making when precuring/contracting hydrodynamic tests.

Topics Covered:

The course will introduce the fundamental concepts of EUA, and the underlying mathematics. It will provide case study examples for typical hydrodynamic situations, that will be tackled in an experiential learning environment. It will cover the roles of regulatory bodies and present the methodologies agreed in the hydrodynamic community for standard experiments.

Pre-requisites and Materials:

- Introductory level understanding of statistics and basic naval architecture.
- Bring a pen, paper, and a laptop with Spread Sheet application (Excel or similar).

Autonomous Maritime Systems

Date: Sunday, June 11, 2023, 08:15 – 12:00

Instructor: Dr. Damien Guihen

Course Description:

Autonomous Maritime Systems (AMS) are advancing rapidly and will play an increasingly important role in the offshore industry, including supporting logistics and the provision of hydrographic survey. This short course covers an overview of Autonomous Underwater Vehicle and Unmanned Surface Vehicles technology, key terminology, operating concepts, and system capabilities/limitations.

Short courses continued…

What will students learn in your course:
The elements of autonomous maritime systems will be illustrated. Their operation will be described and used to explore the current operational contexts and development trajectories for autonomous operation in the maritime environment. The meaning of autonomy will be discussed, and placed within technical, operational, and legislative contexts.

High-Order Spectral Wave Models

Date: Sunday, June 11, 2023, 8:00-17:00

Instructor:
Guillaume Ducrozet, Associate Professor, PhD, Ecole Centrale Nantes, LHEEA Lab (France)

Course Description:
The design of marine structures is mainly driven by the forces induced by ocean waves. Then, the accurate description of those nonlinear waves is essential in ocean engineering. To understand, model and reproduce the propagation of complex wave fields (irregular, short-crested) in domains of significant size, the most relevant approach relies on the use of potential flow theory. Different approaches can be used to discretize and solve numerically the problem. This course aims to present one accurate and efficient methodology to address the fully nonlinear wave propagation problem, namely the High-Order Spectral (HOS) method. It includes a theoretical description of this nonlinear wave model with a focus on the numerical properties of the method. The advantages and drawbacks, compared to other existing approaches, are presented. Special emphasis is placed on the practical use of HOS models with recommended practices, taking as reference the open-source codes HOS-ocean and HOS-NWT. A specific section introduces the possibility of coupling between HOS and other models requiring the description of the velocity/pressure fields induced by the waves (such as CFD models to address the wave-structure interaction problems). The course is primarily intended for industry professionals, researchers, and graduate students in marine and offshore engineering who desire an introduction on nonlinear wave propagation models as well as those who are eager to perform nonlinear wave simulations for specific applications: Digital Twin of an experimental wave tank, specific irregular sea state configuration in open ocean, wave-structure interactions, etc.

You will learn:
The students will learn the theoretical background of the HOS models as well as their numerical properties (convergence, efficiency, accuracy). The will learn how to use the open-source solvers HOS-ocean and HOS-NWT as well as how to choose the numerical parameters. After the course, they will be able to perform numerical simulations of nonlinear wave propagation of different types of sea states (regular waves, irregular waves, long- and short-crested) in an open-ocean context as well as in a wave tank. Finally, they will know the proper methodology to couple the HOS solvers to other numerical codes such as CFD.

Outreach for Engineers

15TH ANNUAL OUTREACH FOR ENGINEERS SPECIALTY FORUM

This is the fifteenth year of the Outreach for Engineers Specialty Forum. Highlights of the Forum will include presentations of the various technologies required (e.g. from ocean /or offshore engineering, civil engineering, petroleum engineering, aerospace engineering, mechanical/ structural engineering project management), types of job opportunities, possible career paths, and a team building activity. In addition, the Outreach for Engineers Specialty Forum delegates are provided with the opportunity to participate at the 42nd International Conference on Ocean, Offshore Arctic Engineering as full conference delegates.

Through funding provided by the OOAE Division of ASME and corporate sponsors, the organizers of the 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.

PRELIMINARY AGENDA FOR SUNDAY, JUNE 11, 2023

Co-Chairs: Jon Mikkelsen and Jillian Hansen

Time (including Q&A)	Topic	Presenter
9:00 – 9:45	Introduction and Scene Setting	Jon Mikkelsen (University of British Columbia)
9:45 – 10:55	An Overview of Offshore Wind Systems Design and Technology, with a Focus on NREL's Research Areas	Amy Robertson (NREL)
10:55 – 11:10	Refreshment break	
11:10 – 12:00	Life Cycle of a Floating Wind Project	Alexia Aubault (Ocergy)
12:00 – 13:00	Networking Lunch	
13:00 – 13:50	Overview of Nearshore and Offshore Receiving LNG Terminals	Laurent Le Berre (Advisian)
13:50 – 14:40	Marine Renewable Energy Current Perspectives and Development	Nathan Tom (NREL)
14:40 – 14:55	Refreshment break	
14:55 – 15:45	Title TBD	Daniel Veen (Bentley)
15:45 – 16:30	Panel Session: Career Paths & Outlook • How has your path lead you to your current role? • Your most rewarding experiences? • Biggest challenges faced by the industry today?	All Speakers
16:30 – 17:00	Closing remarks	Jon Mikkelsen and all

Committees & Organizers

Chairs

OMAE 2023 Conference Co-Chairs
- Alex Babanin, Professor, Ocean Engineering, University of Melbourne
- Hayden Marcollo, Director, AMOG Consulting Ltd.

OMAE 2023 Technical Program Chair
- Sören Ehlers, German Space Centre (DLR). Institute for Maritime Energy Systems
  Full Professor for Ship Structural Design and Analysis, Hamburg University of Technology (TUHH)

Volunteers

The Conference Organizing Committee would like to express their gratitude to all the OMAE 2023 volunteers. We sincerely appreciate all the support they provide!

Technical Program Committee

SYMP 1: Offshore Technology
Symposium Coordinator: R. Cengiz Ertekin, *University of Hawaii*

SYMP 2: Structures, Safety and Reliability
Symposium Coordinator: Carlos Guedes Soares, *Instituto Superior Técnico*

SYMP 3: Materials Technology
Symposium Coordinator: Mamdouh Salama, *ConocoPhillips*

SYMP 4: Pipelines, Risers, and Subsea Systems
Symposium Coordinator: Theodoro Netto, *COPPE-Federal University of Rio de Janeiro*
Symposium Co-Coordinator: Duane Degeer, *INTECSEA*

SYMP 5: Ocean Space Utilization
Symposium Coordinator: Tomoki Ikoma, *Nihon University*

SYMP 6: Ocean Engineering
Symposium Coordinator: Solomon Yim, *Oregon State University*
Symposium Co-Coordinator: Antonio Carlos Fernandes, *UFRJ/COPPE*

SYMP 7: Polar and Arctic Sciences and Technology
Symposium Coordinator: Sören Ehlers, *German Space Centre (DLR). Institute for Maritime Energy Systems. Full Professor for Ship Structural Design and Analysis, Hamburg University of Technology (TUHH)*
Symposium Co-Coordinator: Walter Kuehnlein, *terra.blue*

SYMP 8: CFD, VIV & FSI
Symposium Coordinator: Yiannis Constantinides, *Chevron*

SYMP 9: Ocean Renewable Energy
Symposium Coordinator: Krish Thiagarajan Sharman, *University of Massachusetts*

SYMP 10: Offshore Geotechnics
Symposium Coordinator: Dr. Denby Morrison, *FASME, Retired Shell Major Projects*

SYMP 11: Petroleum Technology
Symposium Coordinator: Ergun Kuru, *University of Alberta*

SYMP 12: Professor Ian Young Honouring Symposium on Global Ocean Wind and Wave Climate
Symposium Coordinator: Kevin Ewans, *MRL*

SYMP 13: Blue Economy Symposium
Symposium Coordinator: Nagi Abdussamie, *AMC, UTAS*

SYMP 14: Small Maritime Nations Symposium
Symposium Coordinator: Hong Zhang, *Griffith University*
Symposium Co-Coordinator: Venket Naidu, *P & M Consultants Pty Ltd.*

Topic Organizers

SYMP 1: Offshore Technology
01-01 **Offshore Platforms:** Anil Sablok, *Technip Energies, USA*
02-01 **Station Keeping:** Allan R Magee, *Consultant, USA*
03-01 **Computational Offshore Hydrodynamics:** Weichao Shi, *Newcastle University, United Kingdom*
03-02 **Hydrodynamic Industrial Applications:** Weichao Shi, *Newcastle University, United Kingdom*
04-01 **Design & Analysis I:** Masoud Hayatdavoodi, *The University of Dundee, United Kingdom*
04-02 **Design & Analysis II:** Masoud Hayatdavoodi, *The University of Dundee, United Kingdom*
06-01 **CFD Modeling Practice & Verification:** Guangyu Wu, *Chevron, USA*
08-01 **Digital Twin Applications to Offshore Systems:** Rajiv Aggarwal, *Reliable Offshore Systems LLC, USA*
08-02 **AI/ML Applications to FPSO and Mooring Systems:** Rajiv Aggarwal, *Reliable Offshore Systems LLC, USA*
08-03 **AI/ML Applications to Offshore Systems and Subsurface:** Rajiv Aggarwal, *Reliable Offshore Systems LLC, USA*

SYMP 2: Structures, Safety and Reliability
01-01 **Structural Analysis and Optimisation I:** Jonas Ringsberg, *Chalmers University of Technology, Sweden*
01-02 **Structural Analysis and Optimisation II:** Jonas Ringsberg, *Chalmers University of Technology, Sweden*
02-01 **Ultimate Strength I:** Deyu Wang, *Shanghai Jiao Tong University, China*
02-02 **Ultimate Strength II:** Deyu Wang, *Shanghai Jiao Tong University, China*
03-01 **Collision and Crashworthiness:** Kristjan Tabri, *TalTech, Estonia*
04-01 **Extreme and Freak Waves:** Carlos Guedes Soares, *University of Lisbon, Portugal*
04-02 **Probabilistic and Spectral Wave Modelling:** Carlos Guedes Soares, *University of Lisbon, Portugal*
05-01 **Extreme Loads and Responses I:** Spyros Hirdaris, *Aalto University, Finland*
05-02 **Extreme Loads and Responses II:** Spyros Hirdaris, *Aalto University, Finland*
06-01 **Probabilistic Models of Forces and Motions:** Carlos Guedes Soares, *University of Lisbon, Portugal*
07-01 **Data-driven Models for Marine Structures I:** YeongAe Heo, *Case Western Reserve University, USA*
07-02 **Data-driven Models for Marine Structures II:** YeongAe Heo, *Case Western Reserve University, USA*

08-01 **Risk and Reliability of Renewable Energy Devices:** Zhen Gao, *Shanghai Jiao Tong University, China*
09-01 **Reliability of Mooring and Riser Systems:** Ying Min Low, *National University of Singapore, Singapore*
10-01 **Reliability of Marine Structures:** Carlos Guedes Soares, *University of Lisbon, Portugal*
11-01 **Fatigue and Fracture Reliability I:** Yordan Garbatov, *Universidade De Lisboa, Instituto Superior Técnico, Portugal*
11-02 **Fatigue and Fracture Reliability II:** Yordan Garbatov, *Universidade De Lisboa, Instituto Superior Técnico, Portugal*
12-01 **Reliability Based Maintenance and Inspection Planning; Life Cycle Cost Optimization:** Bernt Leira, *NTNU, Norway*
13-01 **Risk Analysis and Safety Management I:** Ângelo Teixeira, *Instituto Superior Técnico, Universidade de Lisboa, Portugal*
13-02 **Risk Analysis and Safety Management II:** Ângelo Teixeira, *Instituto Superior Técnico, Universidade de Lisboa, Portugal*

SYMP 3: Materials Technology

01-01 **Fracture Assessment and Control:** Mamdouh Salama, *MMS4AIM LLC, USA*
02-01 **Fatigue Performance & Inspection Planning:** Mamdouh Salama, *MMS4AIM LLC, USA*
05-01 **Modeling and Performance of Non-metallics:** Mamdouh Salama, *MMS4AIM LLC, USA*
06-01 **Materials Selection:** Mamdouh Salama, *MMS4AIM LLC, USA*

SYMP 4: Pipeline, Risers, and Subsea Systems

01-01 **Flexible Pipes and Umbilicals I:** Zhimin Tan, *BH, USA*
01-02 **Flexible Pipes and Umbilicals II:** Celso Pesce, *University of Sao Paulo, Brazil*
01-03 **Flexible Pipes and Umbilicals III:** Anh Tuan Do, *TechnipFMC, France*
01-04 **Flexible Pipes and Umbilicals IV:** Jose Renato De Sousa, *UFRJ, Brazil*
01-05 **Flexible Pipes and Umbilicals V:** Krassimir Doynov, *ExxonMobil, USA*
01-06 **Flexible Pipes and Umbilicals VI:** Krassimir Doynov, *ExxonMobil, USA*
01-07 **Flexible Pipes and Umbilicals VII:** Alan Dobson, *TechnipFMC, United Kingdom*
02-01 **Rigid Risers I:** Theodoro Netto, *Fundacao Coppetec, Brazil*
02-02 **Rigid Risers II:** Theodoro Netto, *Fundacao Coppetec, Brazil*
02-03 **Rigid Risers III:** Theodoro Netto, *Fundacao Coppetec, Brazil*
03-01 **Mechanics I:** Julian Hallai, *Exponent, USA*
03-02 **Mechanics II:** Julian Hallai, *Exponent, USA*
03-03 **Hydrodynamics:** Julian Hallai, *Exponent, USA*
03-04 **Thermo-Mechanical:** Julian Hallai, *Exponent, USA*
03-05 **Pipe-Soil Interaction:** Julian Hallai, *Exponent, USA*
04-01 **Subsea Systems and Flow Assurance:** Theodoro Netto, *Fundacao Coppetec, Brazil*

SYMP 5: Ocean Space Utilization

01-01 **New Concepts for Ocean Space Utilization I:** Tomoki Ikoma, *Nihon University, Japan*
01-02 **New Concepts for Ocean Space Utilization II:** Tomoki Ikoma, *Nihon University, Japan*
02-01 **Aquaculture and Related Technology I:** Tomoki Ikoma, *Nihon University, Japan*
03-01 **Deepsea Mining and Ocean Resources:** Tomoki Ikoma, *Nihon University, Japan*
05-01 **Floating Systems for Renewable Energy:** Tomoki Ikoma, *Nihon University, Japan*
05-02 **Aquaculture and Related Technology II:** Tomoki Ikoma, *Nihon University, Japan*
06-01 **High Tide and Tsunamis:** Tomoki Ikoma, *Nihon University, Japan*

SYMP 6: Ocean Engineering

01-01 **Computational Mechanics and Design Applications I:** Yuzhu Pearl Li, *National University of Singapore, Denmark*
01-02 **Computational Mechanics and Design Applications II:** Rodrigo Soares, *Federal University of Rio de Janeiro, Brazil*
02-01 **Coastal Engineering:** Yuzhu Pearl Li, *National University of Singapore, Denmark*
03-01 **Fluid-Structure, Multi-body and Wave-body Interaction I:** Shuzheng Sun, *Harbin Engineering University, China*
03-02 **Fluid-Structure, Multi-body and Wave-body Interaction II:** Shuzheng Sun, *Harbin Engineering University, China*
03-03 **Fluid-Structure, Multi-body and Wave-body Interaction III:** Zhiyuan Pan, *DNV, Norway*
03-04 **Fluid-Structure, Multi-body and Wave-body Interaction IV:** Chengwang Xiong, *Harbin Engineering University, China*
04-01 **Marine Engineering and Technology I:** Yi-Hsiang Yu, *NyCU, Taiwan*
04-02 **Marine Engineering and Technology II:** Marcio Igor Luorenco, *Federal University of Rio de Janeiro, Brazil*
04-03 **Marine Engineering and Technology III:** Marcelo Caire, *Federal University of Rio de Janeiro, Brazil*
04-04 **Marine Engineering and Technology IV:** Marcelo Caire, *Federal University of Rio de Janeiro, Brazil*
04-05 **Marine Engineering and Technology V:** Rodrigo Soares, *Federal University of Rio de Janeiro, Brazil*
05-01 **Marine Hydrodynamics I:** Zhengshun Cheng, *SJTU, China*
05-02 **Marine Hydrodynamics II:** Sanne Van Essen, *Marin, Netherlands*
05-03 **Marine Hydrodynamics III:** Sanne Van Essen, *Marin, Netherlands*
05-04 **Marine Hydrodynamics IV:** Masoud Hayatdavoodi, *The University of Dundee, United Kingdom*
07-01 **Metocean, Measurement and Data Interpretation I:** Kai Wang, *Sun Yat-Sen University, China*
07-02 **Metocean, Measurement and Data Interpretation II:** Kai Wang, *Sun Yat-Sen University, China*
08-01 **Model Tests:** Motohiko Murai, *Yokohama National University, Japan*
11-01 **Ocean Engineering Technology I:** Irving David Fontes, *Federal University of Rio de Janeiro, Brazil*
11-02 **Ocean Engineering Technology II:** *Murilo Vaz, Federal University of Rio de Janeiro, Brazil*
11-03 **Ocean Engineering Technology III:** Allan R Magee, *Consultant, USA*
12-01 **Ship Hydromechanics I:** Marcio Yamamoto, *National Maritime Research Institute, Japan*
12-02 **Ship Hydromechanics II:** Guang Yin, *University of Stavanger, Norway*
12-03 **Ship Hydromechanics III:** Guang Yin, *University of Stavanger, Norway*
14-01 **Underwater Vehicles and Design Technology I:** Muk Chen Ong, *University of Stavanger, Norway*
14-02 **Underwater Vehicles and Design Technology II:** Muk Chen Ong, *University of Stavanger, Norway*
14-03 **Underwater Vehicles and Design Technology III:** Allan R Magee, *Consultant, USA*
16-01 **Wave Mechanics, Modeling and Wave Effects I:** Solomon C. Yim, *Oregon State University, USA*
16-02 **Wave Mechanics, Modeling and Wave Effects II:** Masoud Hayatdavoodi, *The University of Dundee, United Kingdom*

SYMP 7: Polar and Arctic Sciences and Technology

01-01 **Arctic Frontier Regions and Propulsion in Ice:** Kristjan Tabri, *TalTech, Estonia*
02-01 **Arctic Sea Transportation I:** Mikko Suominen, *Aalto University, Finland*
02-02 **Arctic Sea Transportation II:** Jonathan Soper, *Memorial University of Newfoundland, Canada*
03-01 **Vessels in Ice I:** Franciska M√∞ller, *Hamburg University of Technology, Germany*
03-02 **Vessels in Ice II:** Kristjan Tabri, *TalTech, Estonia*
03-03 **Vessels in Ice III:** Mojtaba Mokhtari, *NTNU, Norway*
04-01 **Vessels in Ice and Model Test:** Zou Ming, *Shanghai Jiao Tong University, China*
05-01 **Numerical Ice Modeling:** Yingjie Gu, *University of Stavanger, Norway*
06-01 **Structures in Ice I:** Brendon Nickerson, *Stellenbosch University, South Africa*
06-02 **Structures in Ice II:** Thomas Fitzpatrick, *Memorial University of Newfoundland, Canada*

SYMP 8: CFD, VIV and FSI

01-01 **Risers, Pipelines & VIV I:** Jie Wu, *SINTEF, Norway*
01-02 **Risers, Pipelines & VIV II:** Themistocles Resvanis, *MIT, USA*
02-01 **Ship & Floating Systems I:** Owen Oakley, *Retired, USA*
02-02 **Ship & Floating Systems II:** Themistocles Resvanis, *MIT, USA*
03-01 **Free Surface Flows I:** Narakorn Srinil, *Newcastle University, United Kingdom*
03-02 **Free Surface Flows II:** Mengmeng Zhang, *Shanghai Jiao Tong University, China*
04-01 **CFD Development I:** Owen Oakley, *Retired, USA*
04-02 **CFD Development II:** Owen Oakley, *Retired, USA*
05-01 **Model Reduction and Machine Learning:** Owen Oakley, *Retired, USA*
06-01 **Internal Flows & FIV:** Owen Oakley, *Retired, USA*
07-01 **Data-Driven Models and Digital Twins:** Owen Oakley, *Retired, USA*
08-01 **VIV & Offshore Wind Turbines:** Rajeev Jaiman, *University of British Columbia, Canada*
09-01 **Neural Network for Waves & Cylinders, Symposium Summary:** Owen Oakley, *Retired, USA*

SYMP 9: Ocean Renewable Energy

01-01 **Offshore Wind Energy - Installation:** Shuaishuai Wang, *NTNU, Norway*
01-02 **Offshore Wind Energy - Structural Dynamics:** Peter Rohrer, *NTNU, Norway*
01-03 **Offshore Wind Energy - Aerodynamics:** Hyunchul Jang, *Technip Energies, USA*
01-04 **Offshore Wind Energy - Aerodynamic Control:** Amy Robertson, *NREL, USA*
01-05 **Offshore Wind Energy - Moorings and Cables I:** Marc Cahay, *Technip Energies, France*
01-06 **Offshore Wind Energy - Moorings and Cables II:** Vegard Longva, *SINTEF, Norway*
01-07 **Offshore Wind Energy - Hydrodynamics I:** Sebastien Gueydon, *O3 Engineering Consulting, Australia*
01-08 **Offshore Wind Energy - Hydrodynamics II:** Petter Andreas Berthelsen, *SINTEF, Norway*
01-09 **Offshore Wind Energy - Design Optimization:** Zhengshun Cheng, *SJTU, China*
01-10 **Offshore Wind Energy - Data Science and Digital Twins:** Zhen Gao, *NTNU, Norway*
02-01 **Wave Energy - Environment:** Azam Dolatshahi, *BMT, Australia*
02-02 **Wave Energy - Design and Performance Analysis I:** Binbin Zhao, *Harbin Engineering University, China*
02-03 **Wave Energy - Design and Performance Analysis II:** Binbin Zhao, *Harbin Engineering University, China*
02-04 **Wave Energy - Design and Performance Analysis III:** Yi-Hsiang Yu, *NyCU, Taiwan*
02-05 **Wave Energy Control and Power Take Off:** Yi-Hsiang Yu, *NyCU, Taiwan*
03-01 **Current and Tidal Energy - Design Considerations:** Kelley Ruehl, *Sandia NL, USA*
03-02 **Current and Tidal Energy: Hydrodynamic Analysis:** Kelley Ruehl, *Sandia NL, USA*
04-01 **Hybrid and Novel Renewable Energy Systems I:** Marc Cahay, *Technip Energies, France*
04-02 **Hybrid and Novel Renewable Energy Systems II:** Narakorn Srinil, *Newcastle University, United Kingdom*
04-03 **Hybrid and Novel Renewable Energy Systems III:** Jean-roch Nader, *UTas, Australia*
04-04 **Floating Solar Energy:** Marc Cahay, *Technip Energies, France*
05-01 **Hydrogen and Energy Storage:** Marc Cahay, *Technip Energies, France*

SYMP10: Offshore Geotechnics

01-01 **Seabed Properties and Processes and Fluid-Soil-Structure Interaction:** Denby Morrison, *Shell, USA*
02-01 **Fluid-Soil-Structure Interaction:** Denby Morrison, *Shell, USA*
03-01 **Anchors:** Denby Morrison, *Shell, USA*
04-01 **Pile Foundations:** Denby Morrison, *Shell, USA*
05-01 **Bucket Foundations, Suction Caissons and Spudcans:** Denby Morrison, *Shell, USA*

SYMP11: Petroleum Technology

01-01 **Well Drilling Technology I:** Stephen D. Butt, *Memorial University of Newfoundland, Canada*
01-02 **Well Drilling Technology II:** Stephen D. Butt, *Memorial University of Newfoundland, Canada*
02-01 **Well Drilling Fluids and Hydraulics I:** Arild Saasen, *University of Stavanger, Norway*
02-02 **Well Drilling Fluids and Hydraulics II:** Arild Saasen, *University of Stavanger, Norway*
02-03 **Well Drilling Fluids and Hydraulics III:** Arild Saasen, *University of Stavanger, Norway*
02-04 **Well Drilling Hydraulics and Cementing:** Arild Saasen, *University of Stavanger, Norway*
03-01 **Data Science Applications in Drilling Engineering I:** Arild Saasen, *University of Stavanger, Norway*
03-02 **Data Science Applications in Drilling Engineering II:** Arild Saasen, *University of Stavanger, Norway*
04-01 **Well Cementing Theory & Practice I:** Ian Frigaard, *University of British Columbia, Canada*
04-02 **Well Cementing Theory & Practice II:** Ian Frigaard, *University of British Columbia, Canada*
05-01 **Integrity of Well Barriers I:** Jan David Ytrehus, *SINTEF, Norway*
05-02 **Integrity of Well Barriers II:** Jan David Ytrehus, *SINTEF, Norway*
07-01 **Production Systems and Subsea Operations:** Marcio Yamamoto, *National Maritime Research Institute, Japan*
08-01 **Multiphase Flow & Flow Assurance:** Mohammad Azizur Rahman, *Texax A&M University at Qatar, Qatar*
09-01 **Development of Unconventional Reservoirs:** Hadi Belhaj, *Khalifa University, U.A.E.*
10-01 **Advances in Carbon Capture Utilization and Storage (CCUS I:** Huazhou Li, *University of Alberta, Canada*
10-02 **Advances in Carbon Capture Utilization and Storage (CCUS) II:** Daoyong (Tony) Yang, *University of Regina, Canada*

SYMP12: Professor Ian Young Honouring Symposium on Global Ocean Wind and Wave Climate

01-01 **Wave/Ocean/Atmosphere Coupling and Climate Change Impacts on Ocean Waves:** Kevin Ewans, *MRL, New Zealand*
03-01 **Global Ocean Wave Climate:** Kevin Ewans, *MRL, New Zealand*

SYMP13: Blue Economy Symposium

01-01 **Blue Economy I:** Per Arild Aland, *DNV, Norway*
01-02 **Blue Economy II:** C M Wang, *The University of Queensland, Australia*
02-01 **Blue Economy III:** Adi Kurniawan, *University of Western Australia, Australia*
04-01 **Blue Economy IV:** Irene Penesis, *Blue Economy Cooperative Research Centre (BE CRC-Co.), Australia*
05-01 **Blue Economy V:** Cristian Cifuentes Salazar, *Universidad Austral de Chile, Chile*
06-01 **Blue Economy VI:** Yunil Chu, *Griffith University, Australia*
06-02 **Blue Economy VII:** Ehsan Arzaghi, *AMC, UTAS, Australia*
06-03 **Blue Economy VIII:** Hong Zhang, *Griffith University, Australia*

SYMP14: Small Maritime Nations Symposium

01-01 **Small Maritime Nations:** Hong Zhang, *Griffith University, Australia*

Event Organizer

Sea to Sky Meeting and Association Management Inc.
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Project Director: Ian Holliday
Project Managers: Kat Duda
Registration Manager: Katrina Sutela

Co-sponsoring Organizations

Association/Institution	Country
American Society of Mechanical Engineers International	USA
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Università degli Studi Mediterranea di Reggio Calabria	Italy
Brazilian Society of Naval Architects	Brazil
Canadian Association of Petroleum Producers	Canada
Canadian Society for Mechanical Engineering	Canada
Chinese Society of Ocean Engineers	China
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Portuguese Engineering Association	Portugal
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Royal Flemish Engineers Association	Belgium
Society of Danish Engineers	Denmark
Society of Naval Architects and Marine Engineers	USA
Society of Naval Architects and Marine Engineers	Taiwan, China
Society for Underwater Technology	UK
TWI (formerly The Welding Institute)	UK

Past and Future Conferences

PAST CONFERENCES

1982 New Orleans, USA
1983 Houston, USA
1984 New Orleans, USA
1985 Dallas, USA
1987 Houston, USA
1988 Houston, USA

1986
Tokyo, Japan

1989
The Hague, Netherlands

Jin S. Chung
Chair 1982–1989

Hisaaki Maeda
Co-chair
1986

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1984 & 1985

1990
Houston, USA

Mamdouh Salama
Chair, 1990–1991

1991
Stavanger, Norway

Bjorn Lian
Co-chair

1992
Calgary, Canada

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Chair

R. Brawn
Co-chair

1993
Glasgow, U.K.

Geoff Booth
Chair

1994
Houston, USA

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Chair

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Copenhagen, Denmark

Christian Aage
Chair

1996
Florence, Italy

Daniela Mercati
Chair

1997
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1998
Lisbon, Portugal

Carlos Guedes Soares
Chair

1999
St. John's, Canada

Stephen Jones
Chair

2000
New Orleans, USA

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Chair

2001
Rio de Janeiro, Brazil

Segen Farid Estefen
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2002
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Arvid Naess
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2003
Cancun, Mexico

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Vancouver, Canada

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2005
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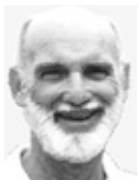
Chair



Richard Seymour
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2009 Honolulu, USA

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Chair

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Chair

2019 Glasgow, U.K.

Atilla Incecik
Chair

2020 Ft. Lauderdale, USA (Virtual)

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Dr. Franz von Bock und Polach
Chair

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2024 Singapore

Allan Magee
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Michael Si
Co-Chair

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14 Small Maritime Nations Symposium

ASME 2024 OMAE

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Submission deadline: October 26, 2023

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