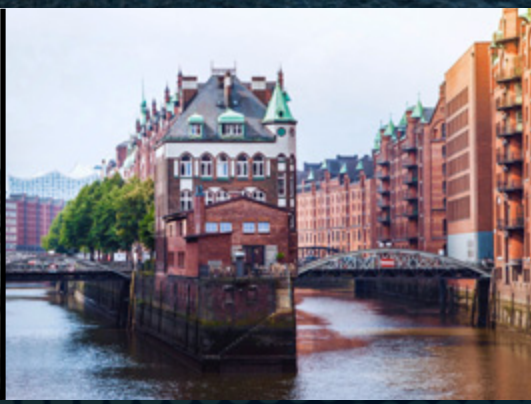
ASME OMAE 2022

41st International Conference on Ocean, Offshore and Arctic Engineering

June 5–10, 2022 • Hamburg, Germany



Journal of Offshore Mechanics and Arctic Engineering

OMAE 2022 Conference Attendees: Access and Download Articles of Interest FREE!

OMAE 2022 Conference attendees will have **access to view and download articles FREE** from the *Journal of Offshore Mechanics and Arctic Engineering* from **June 1, 2022 - September 30, 2022.**

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For queries or support, contact Sharon Giordano:

GiordanoS@asme.org

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Program at a Glance

Sunday, June 5

18:00 – 20:00 Hall G Foyer

Welcome Reception

Catch up with colleagues and make new connections at our first in-person OMAE event in three years. You can register for the conference and then join us for appetizers and drinks in the same room starting at 6 pm, so convenient!

Monday, June 6

08:30 – 10:00 Hall G

Opening Ceremonies and Keynote Presentations

10:00 – 10:30 Hall G Foyer

Refreshment Break

10:30 – 12:00 Hall G

Opening Ceremonies and Keynote Presentations (Continued)

12:00 – 13:30 Hall G Foyer

Opening Lunch

13:30 – 15:00

Concurrent Sessions

OFT	01-01-01	Offshore Platforms I
SSR	02-06-01	Reliability of Mooring and Riser Systems I
MT	03-01-01	Fracture Assessment and Control
PRS	04-01-02	Flexible Pipes and Umbilicals II
OSU	05-02-01	Aquaculture and Related Technology I
OE	06-02-01	Coastal Engineering I
OE	06-03-01	Fluid-structure, Multi-body and Wave-body Interaction I
C&V	08-04-01	FSI
ORE	09-01-01	Installation, Marine Operations and Maintenance I
ORE	09-02-01	Wave Environmental Modeling
OG	10-01-01	Seabed Properties and Processes
PT	11-02-01	Well Drilling Fluids and Hydraulics I
PT	11-10-01	Development of Unconventional Reservoirs I

15:00 – 15:30 Hall G Foyer

Refreshment Break

15:30 – 17:30

Concurrent Sessions

OFT	01-06-01	CFD Modeling Practice and Verification I
SSR	02-06-02	Reliability of Mooring and Riser Systems II
MT	03-02-01	Fatigue Performance and Testing
PRS	04-01-01	Flexible Pipes and Umbilicals I
OSU	05-05-01	Floating System for Renewable Energy I
OE	06-01-01	Computational Mechanics and Design Applications
OE	06-03-02	Fluid-structure, Multi-body and Wave-body Interaction II
PAT	07-01-01	Structures in Ice
C&V	08-06-01	VIV in Time-varying Flows
ORE	09-01-02	Installation, Marine Operations and Maintenance II
ORE	09-04-01	Hybrids and Floating Solar Energy
OG	10-01-02	Seabed Properties and Processes II
PT	11-02-02	Well Drilling Fluids and Hydraulics II
PT	11-10-02	Development of Unconventional Reservoirs II

17:40 – 18:30 Hall F

Afternoon Lecture

18:30 – 19:30 Hall G Foyer

Afternoon Drinks

Tuesday, June 7

08:30 – 10:00

Concurrent Sessions

OFT	01-01-02	Offshore Platforms II
SSR	02-01-01	Abnormal Waves
SSR	02-10-01	Collision and Crashworthiness I
MT	03-03-01	Integrity Assessment and Life Extension
PRS	04-01-03	Flexible Pipes and Umbilicals III
OE	06-02-02	Coastal Engineering II
OE	06-04-01	Marine Engineering and Technology I
PAT	07-02-01	Arctic Sea Transportation
C&V	08-04-02	Ship Design
ORE	09-01-04	FWT Structural Dynamics I
ORE	09-02-02	Techno-economic Modeling of WEC
OG	10-02-01	Piles
PT	11-02-03	Well Drilling Fluids and Hydraulics III
PT	11-12-01	Sustainability and Green Transition in Petroleum Industry I
GFC	12-02-01	Extreme Waves and their Impact on Ships and Structures

10:00 – 10:30 Hall G Foyer

Refreshment Break

10:30 – 12:00

Concurrent Sessions

OFT	01-03-01	Hydrodynamics
SSR	02-01-02	Extreme Waves
SSR	02-10-02	Collision and Crashworthiness II
MT	03-04-01	Environmental Effect on Materials Performance
PRS	04-01-04	Flexible Pipes and Umbilicals IV
OE	06-04-02	Marine Engineering and Technology II
OE	06-05-01	Marine Hydrodynamics I
PAT	07-03-01	Vessels in Ice - Loads
C&V	08-04-04	Advanced Analytics
ORE	09-01-05	FWT Structural Dynamics II
ORE	09-02-03	WEC Performance Analysis
OG	10-04-01	Bucket, Gravity Foundations and Caissons
PT	11-05-01	Well Cementing Theory and Practice I
PT	11-12-02	Sustainability and Green Transition in Petroleum Industry II
GFC	12-03-01	Deterministic Wave and Motion Prediction

12:00 – 13:30 Hall G Foyer

Lunch

13:30 – 15:00

Concurrent Sessions

OFT	01-07-01	Wave Loading and Motions in Extreme Seas
SSR	02-01-03	Extreme Sea States
SSR	02-12-01	Structural Analysis and Optimization I
MT	03-05-01	Performance and Reliability of Non-metallics
PRS	04-01-05	Flexible Pipes and Umbilicals V
OE	06-03-03	Fluid-structure, Multi-body and Wave-body Interaction III
OE	06-05-02	Marine Hydrodynamics II
PAT	07-04-01	Vessels in Ice - Simulations
C&V	08-04-03	Offshore Wind
ORE	09-01-06	Wind Turbine Aerodynamicsl
ORE	09-02-04	WEC Numerical Modeling
OG	10-03-01	Anchors and Pipelines I
PT	11-07-01	Permanent Well Abandonment
PT	11-10-03	Development of Unconventional Reservoirs III
GFC	12-01-01	Hydrodynamics, Seakeeping and Global Performance I

15:00 – 15:30 Hall G Foyer

Refreshment Break

15:30 – 17:30

Concurrent Sessions

OFT	01-02-01	Station Keeping I
SSR	02-02-01	Probabilistic and Spectral Wave Models
SSR	02-12-02	Structural Analysis and Optimization II
MT	03-06-01	Advances in Materials and Manufacturing Technology
PRS	04-02-01	Rigid Risers I
OE	06-03-04	Fluid-structure, Multi-body and Wave-body Interaction IV
OE	06-05-03	Marine Hydrodynamics III
PAT	07-05-01	Ice Model Tests
C&V	08-06-02	VIV of Flexible Risers and Cables
ORE	09-01-03	Installation, Marine Operations and Maintenance III
ORE	09-03-01	Current and Tidal Energy I
OG	10-03-02	Anchors and Pipelines II
PT	11-06-01	Integrity of Well Barriers
PT	11-10-04	Development of Unconventional Reservoirs IV
GFC	12-01-02	Hydrodynamics, Seakeeping and Global Performance II

17:40 – 18:30 Hall F

Afternoon Lecture

18:30 – 19:30 Hall G Foyer

Afternoon Drinks

Wednesday, June 8

08:30 – 10:30 Hall G

Plenary: Climate Change Impacts on the Coasts and Offshore

10:30 – 11:00 Hall G Foyer

Refreshment Break

11:00 – 12:30

Concurrent Sessions

OFT	01-09-01	Adapting/Mitigating Climate Change
SSR	02-07-01	Reliability of Renewable Energy Systems
SSR	02-11-01	Ultimate Strength I
PRS	04-02-02	Rigid Risers II
OSU	05-06-01	High Tide and Tsunamis
OE	06-05-04	Marine Hydrodynamics IV
OE	06-07-01	Metocean, Measurement and Data Interpretation I
OE	06-12-01	Ship Hydromechanics I
PAT	07-06-01	Numerical Ice Modeling
C&V	08-05-01	Free Surface Flows I
ORE	09-01-07	Wind Turbine Aerodynamics II
ORE	09-02-05	WEC Controls and PTO I
PT	11-01-01	Well Drilling Technology I
PT	11-08-01	Production Systems and Subsea Operations

12:30 – 13:30 Hall G Foyer

Lunch

13:30 – 15:00

Concurrent Sessions

OFT	01-05-01	FLNG Technology I
SSR	02-11-02	Ultimate Strength II
SSR	02-16-01	Data-driven Models for Marine Structures I
PRS	04-02-03	Rigid Risers III
OSU	05-05-02	Floating System for Renewable Energy II
OE	06-08-01	Model Tests
PAT	07-07-01	Marine Propulsion System Under Ice Impact
C&V	08-05-02	Free Surface Flows II
ORE	09-01-12	Experimental Methods
ORE	09-02-06	WEC Controls and PTO II
PT	11-05-02	Well Cementing Theory and Practice II
PT	11-13-01	Digitalization of Subsurface, Well Systems, Subsea Systems and Operations

15:00 – 15:30 Hall G Foyer

Refreshment Break

15:30 – 17:30

Concurrent Sessions

OFT	01-08-02	Digitalization, AI, Neural Networks, ML II
SSR	02-03-01	Probabilistic Response Models
SSR	02-16-02	Data-driven Models for Marine Structures II
PRS	04-03-01	Rigid Pipelines I
OSU	05-05-03	Floating System for Renewable Energy III
OE	06-07-02	Metocean, Measurement and Data Interpretation II
OE	06-12-02	Ship Hydromechanics II
OE	06-15-01	Unsteady Hydrodynamics, Vibrations, Acoustics and Propulsion
PAT	07-09-01	Scenario-Based Risk Management for Ice-Covered Waters: LRF- CEPOLAR Activities
C&V	08-03-01	Waves, Motions, Impact
C&V	08-07-01	Internal Flows and FIV I
ORE	09-01-10	FWT Hydrodynamics
ORE	09-05-01	Energy Storage and Hydrogen
PT	11-05-03	Well Cementing Theory and Practice III
PT	11-11-01	Advances in Carbon Capture Utilization and Storage

17:40 – 18:30 Hall F

Afternoon Lecture

19:00 – 24:00 Del Mar Beach Club

Conference Banquet

Thursday, June 9

08:30 – 10:00

Concurrent Sessions

OFT	01-08-01	Digitalization, AI, Neural Networks, ML I
SSR	02-09-01	Extreme Loading and Responses I
SSR	02-13-01	Risk Analysis and Management
PRS	04-03-02	Rigid Pipelines II
OSU	05-02-02	Aquaculture and Related Technology II
OE	06-13-01	Towed and Undersea Cables and Pipes, Mooring, and Buoy Technology
OE	06-14-01	Underwater Vehicles and Design Technology I
OE	06-16-01	Wave Mechanics, Modeling and Wave Effects I
C&V	08-01-01	Waves and Loads
ORE	09-01-08	FWT Moorings and Arrays I
ORE	09-01-13	Novel and Hybrid Offshore Wind Concepts
PT	11-01-02	Well Drilling Technology II
PT	11-04-01	Data Science and Machine Learning Applications in Drilling I

10:00 – 10:30 Hall G Foyer

Refreshment Break

10:30 – 12:00

Concurrent Sessions

SSR	02-09-02	Extreme Loading and Responses II
SSR	02-14-01	Risk Based Maintenance
PRS	04-04-01	Flow Assurance and Subsea Equipment
OSU	05-04-01	Underwater Development and Technology
OE	06-11-01	Ocean Engineering Technology I
OE	06-14-02	Underwater Vehicles and Design Technology II
C&V	08-01-02	Propulsion, VIM, and CFD Spectra
ORE	09-01-09	FWT Moorings and Arrays II
ORE	09-03-02	Current and Tidal Energy II
PT	11-03-01	Well Control and Managed Pressure Drilling I
PT	11-04-02	Data Science and Machine Learning Applications in Drilling II

12:00 – 13:30 Hall G Foyer

Lunch

13:30 – 15:00

Concurrent Sessions

SSR	02-04-01	Fatigue and Fracture Reliability I
SSR	02-09-03	Extreme Loading and Responses III
OE	06-11-02	Ocean Engineering Technology II
OE	06-14-03	Underwater Vehicles and Design Technology III
OE	06-16-02	Wave Mechanics, Modeling and Wave Effects II
C&V	08-02-01	Maneuvering
ORE	09-01-14	Fatigue and Structural Analysis
PT	11-03-02	Well Control and Managed Pressure Drilling II
PT	11-04-03	Data Science and Machine Learning Applications in Drilling III

15:00 – 15:30 Hall G Foyer

Refreshment Break

15:30 – 17:30

Concurrent Sessions

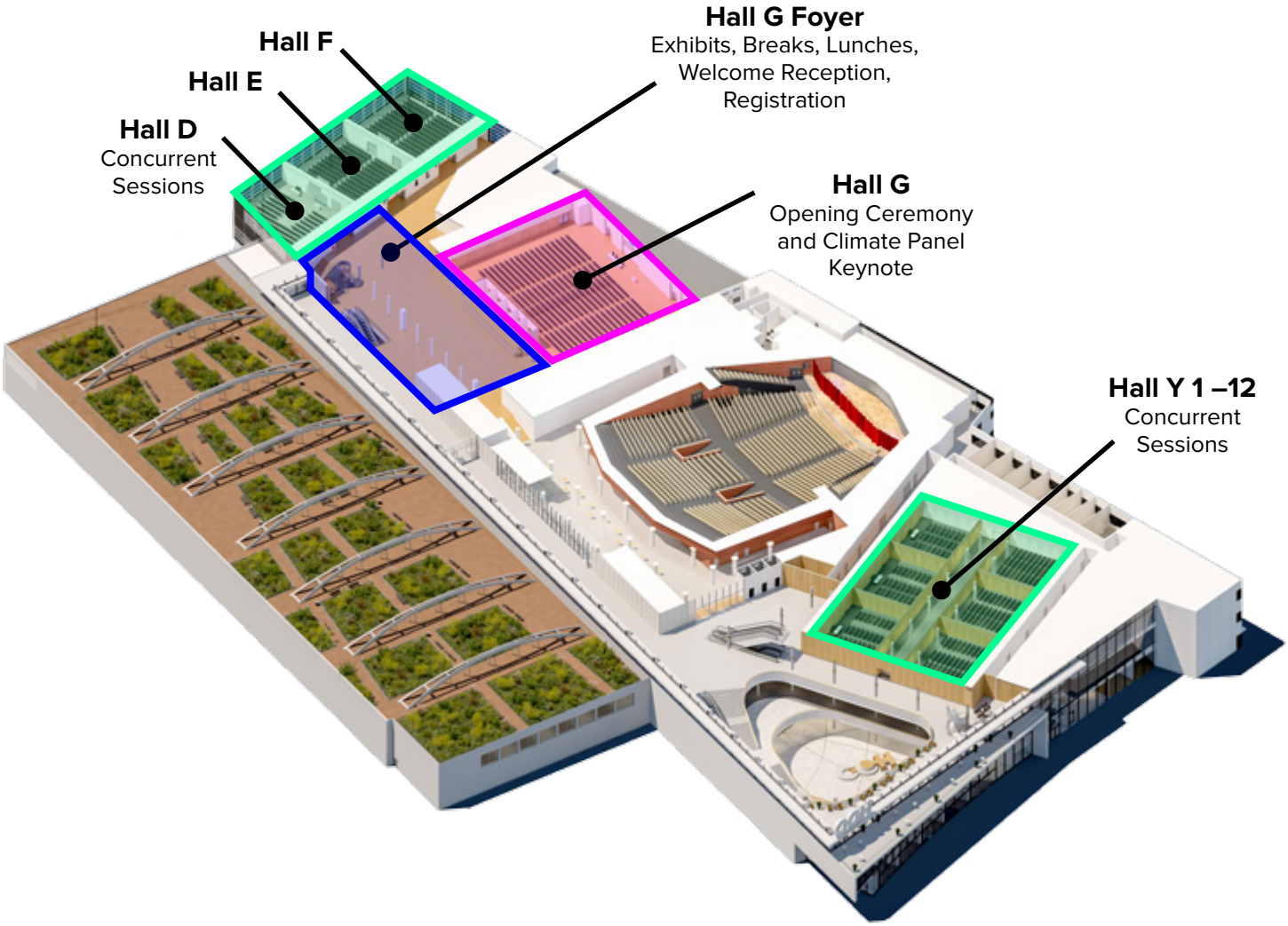
SSR	02-04-02	Fatigue and Fracture Reliability II
SSR	02-05-01	Reliability of Marine Structures
OSU	05-03-01	Deepsea Mining and Ocean Resources
OE	06-11-03	Ocean Engineering Technology III
OE	06-16-03	Wave Mechanics, Modeling and Wave Effects III
C&V	08-07-02	Internal Flows and FIV II
ORE	09-01-11	Design and Optimization
PT	11-05-04	Well Cementing Theory and Practice IV

17:00 – 19:00 Hall F

Farewell Reception

Floor Plan

Congress Center Hamburg: 2nd Floor



Registration, Welcome Reception, Breaks, Lunches, Exhibits	**Hall G Foyer**
Opening Ceremony and Climate Panel Keynote	**Hall G**
Concurrent Sessions	**Halls D, E, F and Y 1–12**

Sören Ehlers,
Conference Chair

Walter L. Kuehnlein,
Conference Co-Chair

Yiannis Constantinides,
Technical Program Chair

Welcome from the Conference Chairs and Technical Program Chair

Welcome to the 41st Ocean, Offshore and Arctic Engineering Conference (OMAE) in Hamburg, Germany, 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 happy and thankful that after two online conferences, we are finally able to meet again in person in Hamburg. We would like to thank all the Symposium Coordinators, Topic and Session Organizers, Reviewers, Session Chairs, Student Volunteers, Sponsors and Exhibitors, Authors, and Conference Participants. Without you, this conference would not have been possible.

Our program this year has exceeded our expectations with many submissions. From the 1000 submitted abstracts, 710 technical papers and 50 presentations have been accepted for presentation at the conference. Apart from our 11 regular symposia, this year we are proud to honor an exceptional individual whose contributions to the fields of offshore engineering and marine hydrodynamics are legendary. Professor Günther F. Clauss has a long history of working theoretically and experimentally on complex problems in wave mechanics, transient wave structure interactions and offshore platform dynamics and operations. On Monday he will also give an afternoon plenary lecture.

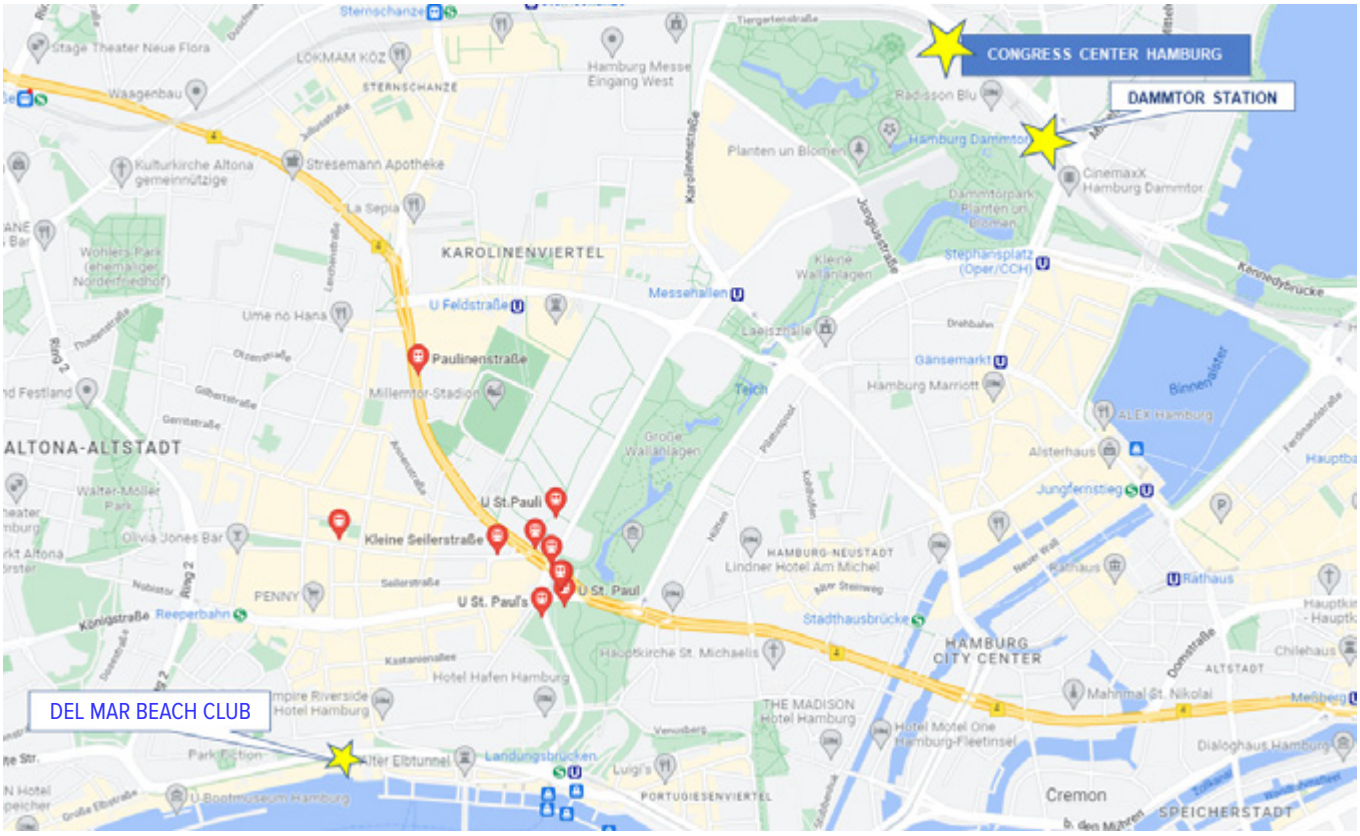
We have an exciting social program organized for you including the Conference Banquet which will take place at a beach club on the river Elbe, directly opposite the shipyard and port. During your stay in Hamburg and in Germany, you can purchase a €9 ticket for the entire public transportation system, valid in all German cities for the month of June.

We wish you all a very productive conference, and a most enjoyable stay in the Marine City of Hamburg.

Welcome to the 41st OMAE!

—**Sören Ehlers,** Conference and Division Chair
—**Walter Kuehnlein,** Conference Co-chair
—**Yiannis Constantinides,** Technical Program Chair

Hamburg City Map



CONGRESS CENTER HAMBURG

Congressplatz 1, 20355 Hamburg, Germany

DEL MAR BEACH CLUB

St. Pauli-Landungsbrücken 20359 Hamburg, Germany

Award Winners

THE SUBRATA CHAKRABARTI YOUNG PROFESSIONAL AWARD

Ragini Gogoi, for his outstanding presentation and paper OMAE2021-61663
Uplift Capacity of Suction Caissons in Sand for General Conditions of Drainage" during OMAE2021.

OMAE 2021 BEST PAPER AWARDS

Offshore Technology Symposium, OMAE2021-66612
Numerical Investigation on Vortex Induced Motion of a Tension Leg Platform with Circular Columns
by Pengfei Zhi and Xinshu Zhang

Structures, Safety and Reliability Symposium, OMAE2021-61988
Bivariate Regional Frequency Analysis of Sea State Conditions
by Erik Vanem

Pipelines, Risers, and Subsea Systems Symposium, OMAE2021-63450
Engineering Critical Assessment of Triple-Point Flaws in Mechanically Lined Pipes
by Aurelien Pepin, Tomasz Tkaczyk and Riadh Abderrazak

Ocean Space Utilization Symposium, OMAE2021-61827
Depth Control Modelling and Analysis of a Subsea Shuttle Tanker
by Yucong Ma, Dan Sui, Yihan Xing, Muk Chen Ong and Tor Henning Hemmingsen

Polar and Arctic Sciences and Technology, OMAE2021-62818
Numerical Modelling of Ice Rubble Interactions Using Discrete Element Method
by Lei Liu, Eleanor Bailey, Rocky Taylor and Tony King

CFD & FSI Symposium, OMAE2021-62185
Hydrodynamic Coupling of Viscous and Non-Viscous Numerical Wave Solutions within the Open-Source Hydrodynamics Framework REEF3D
by Weizhi Wang, Csaba Pakozdi, Arun Kamath, Tobias Martin and Hans Bihs

Petroleum Technology Symposium, OMAE2021-62699
Helical Flow of Drilling Mud with Cuttings in a Vertical Well
by Yaroslav Ignatenko, Andrey Gavrilov and Oleg Bocharov

Attendee Information

CONFERENCE VENUE

OMAE 2022 will be held at the Congress Center Hamburg (CCH) located at Congressplatz 1, 20355 Hamburg, Germany.

ONSITE REGISTRATION

Pick up your name badge at the Registration Desk located in Hall G Foyer of the CCH. The Registration Desk will be open during the following times:

Sunday, June 5th	12:00 – 20:00
Monday, June 6th	07:30 – 17:30
Tuesday, June 7th	08:00 – 17:30
Wednesday, June 8th	08:00 – 17:30
Thursday, June 9th	08:00 – 17:30

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 €20 per badge. Attendees who have paid the author/member, non-member or student registration fee are entitled to admission to all conference sessions, daily refreshment breaks, the Welcome Reception, the Exhibition, the four Lunches, the Conference Banquet and the Farewell Reception. These attendees will also receive a conference bag and a program.

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: To participate in a technical tour on Friday you must have registered in advance. Pre-purchased guest tickets for 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. 400 MB of data per device per day will be provided.

CONFERENCE APP

OMAE 2022 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
- Watch On Demand Content
- Download Final Papers
- And More!

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

Attendee Information continued…

EXHIBITION HALL

The Exhibition hall will be located in Hall G Foyer and will be open during the following hours:

Sunday, June 5th	18:00 – 20:00 (Welcome Reception)
Monday, June 6th	08:30 – 19:00
Tuesday, June 7th	08:30 – 19:00
Wednesday, June 8th	08:30 – 17:30
Thursday, June 9th	08:30 – 15:30

DIETARY REQUIREMENTS

If you advised of any special dietary requirements when registering for the conference, the caterer has been notified of your needs. Please see a catering staff member with any questions. Vegan meals will be served at lunches on separate buffet stations. If you did not include your special dietary needs during the registration process, advise the staff at the Registration Desk before 18:00 on Sunday, June 5.

COVID PROTOCOLS

At the time of writing, Hamburg's COVID guidelines do not require a mask to be worn while inside the CCH. These guidelines are subject to change, please continuously monitor the guidelines that can be found here.

ASME and the conference organizers do recommend wearing a mask wherever possible at the conference sessions and events. Note that some locations in Hamburg will require you to wear a mask to enter, and some will require a FFP2 (N95) mask. There will be a limited amount of N95 masks available for sale at €3 per mask at the Registration Desk if you have forgotten yours.

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.

There are two main emergency numbers in Germany: 112 & 110. As with many European countries, calling the emergency number 112 in Germany will get you through to the fire brigade and ambulance services, but not the police. If you urgently need the police, the number to call is 110.

Hamburg is like any other big city and basic common sense rules apply. Hamburg is generally safe and you should not encounter any problems. Caution should be taken in red-light districts around the Hauptbahnhof and the Reeperbahn. Petty crime is rare but does occur in major tourist areas. During the day, Police Officers and Community Enforcement Officers should be able to assist you if needed.

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 CCH 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.

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better society

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Social Events

WELCOME RECEPTION

Sunday, June 5
18:00 – 20:00
Hall G Foyer, Congress Centre Hamburg

Catch up with colleagues and make new connections at our first in-person OMAE event in three years. You can register for the conference and then join us for appetizers and drinks in the same room starting at 6 pm, so convenient!

CONFERENCE LUNCHES

Monday, June 6 to Thursday, June 9
12:00 – 13:30 (Wednesday at 12:30–13:30)
Hall G Foyer, Congress Centre Hamburg

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

CONFERENCE BANQUET

Wednesday, June 8
19:00 – 24:00
Del Mar Beach Club, St. Pauli-Landungsbrücken

The Del Mar Beach Club is a summer hot spot right on the river Elbe. Enjoy a German BBQ, drinks and watch the boats cruise by in the busy harbour. You are welcome to make your own way to the Beach Club, or join us at the CCH at 6 pm for a leisurely walk through Plantem and Blomen (a 45 hectare park) and several other green spaces for the 3 kilometre walk to the Del Mar Beach Club. Most seating will be outdoors so please keep an eye on the weather forecast and bring a sweater or coat if the weather calls for it. The club does have areas of actual sand on the floor, so wear appropriate footwear, heels are not recommended.

FAREWELL RECEPTION

Thursday, June 9
17:00 – 19:00
Hall F, Congress Centre Hamburg

Hosted by the OMAE 2023 committee, celebrate the end of another amazing conference and find out more about next year's conference in Melbourne, Australia.

Sponsors

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SINTEF
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SINTEF Ocean conducts research and innovation related to ocean space for Norwegian and international industries. Our ambition is to continue Norway's leading position in marine technology and biomarine research.

Many of the challenges of modern society can be solved through sustainable use of the ocean. Transport, food and energy production represent the backbone of ocean-based industries and are also core areas for SINTEF Ocean. In addition, we focus on environmental technology, with one of the world's leading professional environments in marine environmental technology. SINTEF Ocean is part of the SINTEF Group, one of Europe's largest independent research organisations.

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DLR Institute of Maritime Energy Systems

Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR)
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The DLR Institute for Maritime Energy Systems researches and develops innovative solutions for the defossilization of-, emissions reduction from-, and enabling increased usage of renewable energy in waterborne transport. The maritime sector handles 80 percent of international freight transport, while approximately accounting for three percent of the global greenhouse gas emissions. Most ships today operate on fossil-based heavy fuel oil, which also contributes to unfavorable air quality. In order to transform these applications, the entire energy conversion chain needs to be considered. In cooperation with the maritime industry, the developed solutions are transferred into practice.

DRIFT+NOISE Polar Services

Drift+Noise
driftnoise.com

Drift+Noise Polar Services GmbH is fully committed to assisting stakeholders acting in polar waters with operational ice information from models and satellites, by leveraging technology from polar research, geophysics, and remote sensing. We are looking for early-adopters in the marine and polar market who are presently investing in the digitization of their operations. Key users of our IcySea service (https://icysea.app) include icebreakers like Polarstern (the German national icebreaker operated by the AWI), expedition cruise companies such as Hapag Lloyd Cruises and Marine Technology and Engineering Organisations like the Hamburg Ship Model Basin (HSVA).

GMT German Association for Marine Technology

German Association for Marine Technology
www.maritime-technik.de

The German Association for Marine Technology (GMT) represents the national interests of companies and research institutions in the area of marine technology towards the public and policy makers. The GMT is supporting the networking of its members from industry and science in order to initiate national and international research and development projects. The association supports its members regarding the development of innovative products and services to open up new market segments in Germany and abroad. Marine engineering develops, produces and uses technologies for the exploration, protection and sustainable use of the oceans.

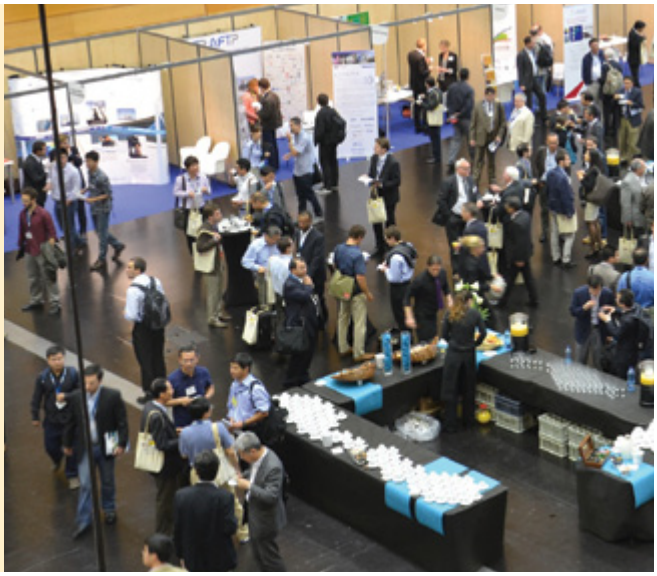
Exhibition Hours

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: Hall G Foyer

Dates & Times:

Sunday, June 5th	18:00 – 20:00 (Welcome Reception)
Monday, June 6th	08:30 – 19:00
Tuesday, June 7th	08:30 – 19:00
Wednesday, June 8th	08:30 – 17:30
Thursday, June 9th	08:30 – 15:30



Hamburg Ship Model Basin
www.hsva.de

Located in Hamburg, the private and independent Hamburg Ship Model Basin - HSVA - is a service and consulting company for clients in the maritime industry worldwide.

Our products contribute to a greener, more sustainable usage of marine environments. We help reducing emissions from shipping and we increase safety in marine transportation. We are partners to our clients for the development of innovative, tailor-made solutions in shipping and offshore operations. For experimental investigations we are offering world class testing facilities.

Its leading role in national and international research programs makes HSVA a most competent partner in science and services in the field of maritime hydrodynamics, maritime aerodynamics and arctic technology as well as associated disciplines.

Helmholtz-Zentrum hereon GmbH
hereon.de

Helmholtz-Zentrum Hereon conducts international cutting-edge research for a changing world: approximately 1,100 employees generate knowledge and innovation to facilitate more resilience and sustainability. Hereon's scientific spectrum encompasses high-performance materials, processes and environmentally friendly technologies for mobility and new energy systems. Furthermore, research is conducted on biomaterials in medicine and for increasing quality of life. Through research and consulting, Hereon addresses the challenges of climate change in a solution-oriented manner and facilitates sustainable management as well as the protection of the coasts and marine environment through comprehensive scientific understanding. From fundamental understanding to practical applications – the interdisciplinary research spectrum covers a unique range.

Sea & Sun Technology GmbH
www.sea-sun-tech.com

SINTEF
www.sintef.no

SINTEF Ocean conducts research and innovation related to ocean space for Norwegian and international industries. Our ambition is to continue Norway's leading position in marine technology and biomarine research.
Many of the challenges of modern society can be solved through sustainable use of the ocean. Transport, food and energy production represent the backbone of ocean-based industries and are also core areas for SINTEF Ocean. In addition, we focus on environmental technology, with one of the world's leading professional environments in marine environmental technology. SINTEF Ocean is part of the SINTEF Group, one of Europe's largest independent research organisations.

Springer Nature
www.springernature.com

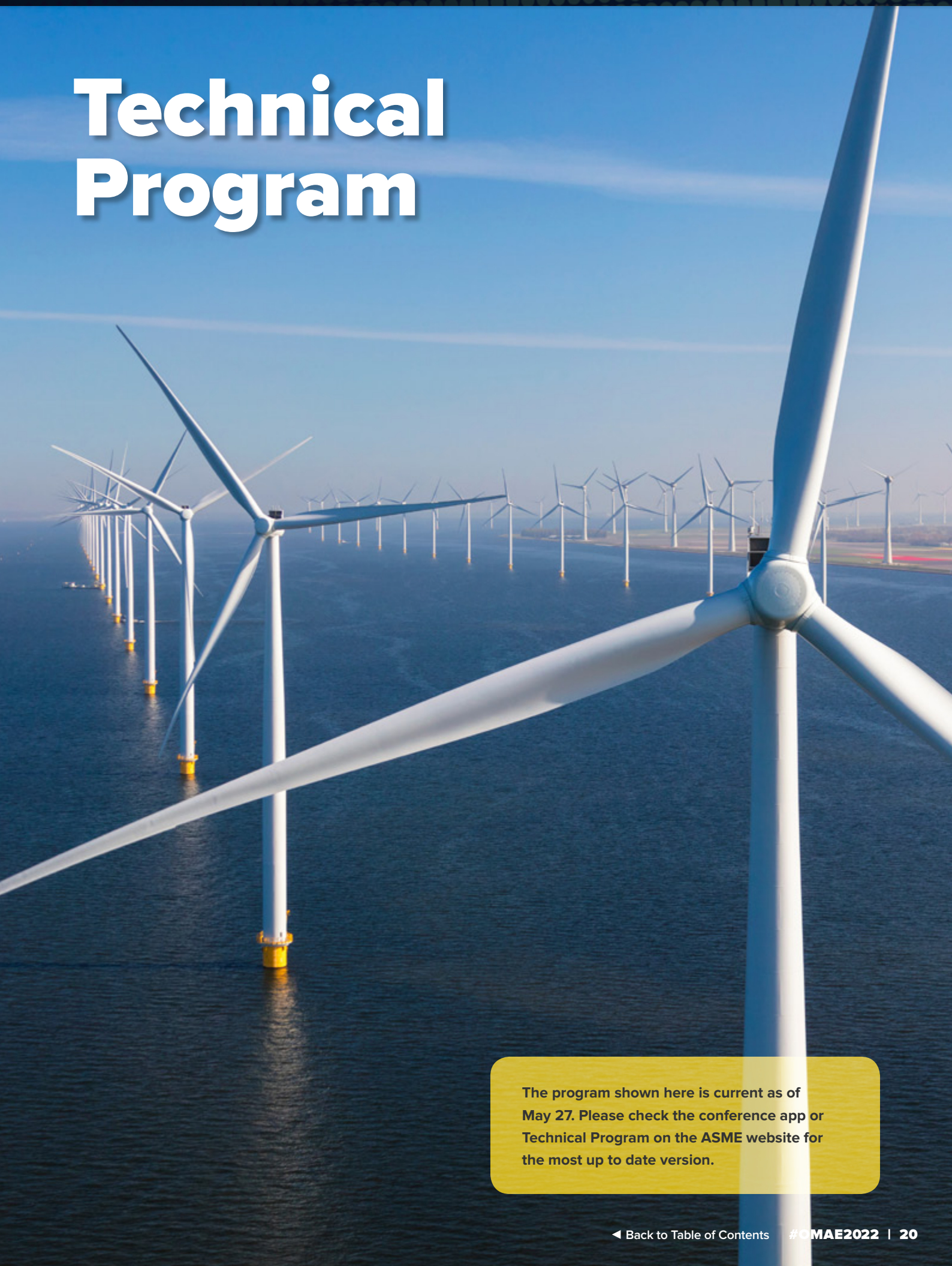
OMAE 2023

Melbourne, Australia

June 11–16, 2023

ABSTRACT SUBMISSION will open in July
with a submission deadline of October 24, 2022

Technical Program



The program shown here is current as of May 27. Please check the conference app or Technical Program on the ASME website for the most up to date version.

Professor Günther F. Clauss

Professor Günther F. Clauss Honoring Symposium on Hydrodynamics and Ocean Engineering

The 41st International Ocean, Offshore and Arctic Engineering (OMAE) 2021 Conference is proud to dedicate an Honouring Symposium on Hydrodynamics and Ocean Engineering to Professor Günther F. Clauss from Technical University of Berlin (TUB), Germany. He has been contributing in an exceptional way for many years to the scientific development of different topics in the field of Naval Architecture and Ocean Engineering, and had a leading role in several areas of research at national and international level.

Professor Clauss studied physics at the Technical Universities of Munich and Berlin. In 1968, he received his doctorate from the Institute of Aerospace Engineering at TUB. Afterwards, at the suggestion of Prof. Alfred Keil, Dean of the Faculty of Engineering at MIT, he shifted his research focus from outer space to inner space – from space to the ocean – and founded, together with his mentor Claus Kruppa, the new Department of Ocean Engineering at TUB. After his habilitation in 1972 and various research stays at MIT (Department of Ocean Engineering), the Institute of Naval and Marine Engineering at the University of California, Berkeley and the Indian Institute of Technology, Madras, he was appointed to the first German Chair of Ocean Engineering at TUB in 1973. Furthermore, he headed the Institute of Marine and Ocean Engineering at TUB for over ten years, was elected Dean of the Faculty of Transport and Mechanical Systems for three terms and was a member of the Academic Senate for a total of twelve years.

Professor Clauss' research activities – with a focus on design and hydromechanics of offshore structures – include projects on ship stability and capsize safety, design and optimisation of offshore platforms, pipeline laying, floating cranes and oil spill response systems. In the field of deep-sea engineering, he developed oceanic resource extraction systems and – with his colleague Hans Gerber – the deep-sea shuttle MODUS. One focus of his research is the deterministic analysis of ships and offshore structures in extreme waves. Numerically and experimentally, it is possible to investigate chains of cause and effect, with tailor-made extreme wave sequences embedded in natural irregular sea states serving to precisely determine non-linear wave-structure interactions. In the field of dismantling offshore platforms, he was appointed to international supervisory bodies, such as the scientific advisory board for the dismantling of the Ekofisk field (ConocoPhillips) and the Brent field (Shell).

Together with colleagues and industrial partners, he authored more than 400 publications as well as the books 'Meerestechnische Konstruktionen' (also translated into Korean) and 'Offshore Structures' (Vol I - Conceptual Design and Hydromechanics, Vol II - Strength and Safety for Structural Design). More than 30 dissertations were written under his supervision, often within the framework of research projects – funded by the European Union, federal ministries (BMBF, BMWi, BMU), the German Research Foundation (DFG) and the German Federation of Industrial Research Associations (AIF). Professor Clauss – member of RINA (F) and Society of Naval Architects and Marine Engineers (SNAME)(M) – was active as chairman and committee member at the International Towing Tank Conference (ITTC) and the International Ship and Offshore Structures Congress (ISSC), served for many years on the board of the Society of Naval Architects and Marine Engineers and chaired the ocean engineering committee there. He was a member of the Technical Advisory Board of Germanischer Lloyd and till today he is the chair of the German Offshore Committee of DNV (former DNV-GL).

AWARDS:

- 2005 – Maritime Technology Award of the Technology Region K.E.R.N. e.V. for his life's work in the field of marine technology.
- 2006 – SOBENA International Reward of the Sociedad Brasileira de Engenharia Naval (for outstanding scientific contributions in the field of marine and maritime technology).
- In 2006/2007, he was honoured by being nominated as Georg Weinblum Memorial Lecturer for outstanding achievements in the field of hydrodynamics

Plenary Sessions

OPENING CEREMONIES AND KEYNOTE PLENARIES

Monday, June 6 | Hall G | 08:30 – 12:00

OPENING CEREMONIES

Sören Ehlers, *OMAE 2022 Conference Chair*
Dr. Walter L. Kuehnlein, *OMAE 2022 Conference Co-Chair*
Yiannis Constantinides, *OMAE 2022 Technical Program Chair*
Welcome from ASME
Claudia Mueller, *Federal Government Coordinator for the Maritime Industry and for Tourism, Germany*

KEYNOTE PRESENTATIONS

7 Years After Outreach

Willem Hendrik Wehner, *Head of Product Architecture Submarines (PHU), Operating Unit Submarines, thyssenkrupp*

Future Technologies in Offshore Wind, how the industry wants to tackle hydrogen production offshore and commercial viable floating OWFs

Dr.-Ing. Bernadette Zipfel, *MBA, Team Lead Engineering Management Future Technologies, RWE*
Dr.-Ing. Michael Biglu, *Engineering Management Future Technologies, RWE*

OMAE 2023 OVERVIEW

Professor Alexander V. Babanin, *OMAE 2023 Conference Chair*

PLENARY: CLIMATE CHANGE IMPACTS ON THE COASTS AND OFFSHORE

Wednesday, June 8 | Hall G | 08:30 – 10:30

Join us on Wednesday morning for a very special plenary session on "Climate Change Impacts on the Coasts and Offshore". Professor Corinna Schrum from the Institut fur Meereskunde; Universitat Hamburg will give a keynote presentation entitled *"Climate Change and its Coastal Impact, a perspective from oceanography and climate science"*. Following the presentation we will hear from each of the panelists below, with an open-ended discussion amongst all presenters on the topics presented and interaction with the audience.

PANEL MODERATOR:
Denby Morrison, *Retired Shell, GreyMor LLC*

PANEL MEMBERS:
Elzbieta M. Bitner-Gregersen, *Retired Senior Principal Researcher, DNV Group Research and Development/Principal, Ocean Wave Research.* Background: Climate Change and Impact on Design Standards

Walter L. Kuehnlein, *Principal, terra.blue.* Background: Adapting Arctic Infrastructure and Design Criteria: Understanding Extremes, Key Infrastructure, Risk and adapting to New Demands on Survivability

Dominique Roddier, *Co-Founder and Principal, OCERGY.* Background: Advances and Challenges in Offshore Wind Energy and Renewables

Solomon Yim, *Inaugural Glenn Willis Holcomb Chair at Oregon State University.* Background: Tsunamis; Coastal; Offshore

Ian Robertson, *Chair and Arthur N.L. Chiu Distinguished Professor; Dept. of Civil and Environmental Engineering, University of Hawaii at Manoa.* Background: Vulnerability of Ports, Harbours and Coastal Infrastructure (Coastal Bridges and Roads) to Severe Environmental Impacts

Franz Von Bock und Polach, *Institute Head at Hamburg University of Technology.* Background: Marine and Ice

Iuliia Polkova, *Institute of Oceanography; CEN, Universitat Hamburg.* Background: Improving Climate Prediction Systems

AFTERNOON LECTURE SERIES

Monday, June 6 | Hall F | 17:40 – 18:30

The Conquest of the Oceans – Facing the Engineering Challenge

Prof. Dr. Günther F. Clauss

Tuesday, June 7 | Hall F | 17:40 – 18:30

Tuesday speaker and title to be confirmed shortly.

Wednesday, June 8 | Hall F | 17:40 – 18:30

Endurance found! The science behind the discovery of Shackleton's Endurance

Dr. Lasse Rabenstein, *General Manager, Drift+Noise GmbH* (driftnoise.com)

Monday Concurrent Sessions

MONDAY, JUNE 6TH
13:30 – 15:00

Offshore Technology

01-01-01 Offshore Platforms I

Monday June 6 | Room **Y1** | **13:30–15:00**

Session Organizer: Anil Sablok, Technip Energies, USA

Session Co-Organizer: Allan Magee, National University of Singapore, Singapore

Dynamic Response of a Generic Self-Elevating Unit in Operation with Hull in Water OMAE2022-78850
Chi Zhang, Harrif Santo, Minbo Cai, Allan Magee
Technology Centre for Offshore and Marine, Singapore

Adhesively Bonded FRP Reinforcement of Steel Structures: Surface Preparation Analysis and Influence of the Primer OMAE2022-79079
Quentin Sourisseau[1] Emilie Lepretre[2] Sylvain Chataigner[2] Xavier Chapeleau[3] Luc Mouton[4] Stéphane Paboeuf[4]
1. Université Gustave Eiffel, Nantes, France; 2. Université Gustave Eiffel, Bouguenais, France; 3. Université Gustave Eiffel, COSYS/SII, I4S Team (Inria), Bouguenais, France; 4. Bureau Veritas, Composite Material Section, Environment and Technologies Department, Saint Herblain, France

Domino Effect Risk Assessment System for Offshore Oil and Gas Facilities Decommissioning OMAE2022-78196
Yihong Li, Zhiqiang Hu
Newcastle University, Newcastle upon Tyene, United Kingdom

Prelude FLNG Free Weathervaning Heading Prediction and Uncertainties, Based on Machine Learning Model OMAE2022-79924
Quentin Delivré[1] Jery Rajaobelina[1] Mengchen Kang[1] Jason Mcconochie[2] Yuriy Drobyshevski[2]
1. Technip Energies, Nanterre, France; 2. Shell Australia Pty Ltd, Perth, WA, Australia

Structures, Safety and Reliability

02-06-01 Reliability of Mooring and Riser Systems I

Monday June 6 | Room **Hall E** | **13:30–15:00**

Session Organizer: Luis Sagrilo, Coppe/Federal University of Rio de Janeiro, Brazil

Session Co-Organizer: Ying Min Low, National University of Singapore

Predicting the Dynamic Response of a Steel Lazy Wave Riser in the Time Domain Using Artificial Neural Networks OMAE2022-78405
Ankang Cheng, Ying Min Low
National University of Singapore, Singapore

An Artificial Neural Network Approach for Fatigue Analysis of Slender Marine Structures OMAE2022-78468
Thiago Rodrigues, Gabriel Gonzalez, Luis Sagrilo
COPPE/UFRJ, Rio de Janeiro, RJ, Brazil

Modified Environmental Contours Approach for Long-term Extreme Response Prediction of Marine Risers OMAE2022-78640
Qingqing Miao, Ying Min Low
National University of Singapore, Singapore

Implementation of a Thorough Treatment of Chain Out-of-Plane (OPB) Bending Fatigue with Chainwheel Interaction OMAE2022-78650
Justin Jones, **Ian Childs**
Petrofac, Woking, United Kingdom

Materials Technology

03-01-01 Fracture Assessment and Control

Monday June 6 | Room **Hall D** | **13:30–15:00**

Session Organizer: Mamdouh Salama, MMS4AIM LLC, USA

Session Co-Organizers: Agnes Marie Horn, DNV, Norway; Carol Johnston, TWI, United Kingdom

Study on Correcting Method for Predicting Brittle Fracture of Surface Cracked Plates in Mixed-Mode Loading OMAE2022-78305
Takuya Akahoshi[1] Koji Azuma[1] Tsutomu Iwashita[2]
1. Sojo University, Kumamoto, Japan; 2. National Institute of Technology, Ariake College, Omuta, Japan

Transitions in Charpy Energy and Splitting for X70 and X80 Pipe Steel OMAE2022-78918
William Mohr, Tom Mcgaughy
EWI, Columbus, OH, USA

Development of a Stress Intensity Factor Solution for Mechanically Lined Pipe OMAE2022-78559
Carol Johnston[1] Tyler London[2]
1. TWI Ltd, Cambridge, United Kingdom; 2. TWI Ltd, Middlesbrough, United Kingdom

Pipeline, Risers, and Subsea Systems

04-01-02 Flexible Pipes and Umbilicals II

Monday June 6 | Room **Y2** | **13:30–15:00**

Session Organizer: Zhimin Tan, Baker Hughes, USA

Session Co-Organizers: Jun Yan, Dalian University of Technology, China (Mainland); Krassimir Doynov, ExxonMobil, USA; José Renato Mendes De Sousa, Federal University of Rio de Janeiro, Brazil; Theodoro Netto, Fundacao Coppetec, Brazil; Duane DeGeer, Intecsea, USA; Anh Tuan Do, TechnipFMC, France; Alan Dobson, TechnipFMC, United Kingdom

Gas Diffusion in Flexible Pipes: a Comparison between Two- and Three-dimensional FE Models to Predict Annulus Composition OMAE2022-78325
João Marcos Bastos Vieira, José Renato Mendes De Sousa
Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil

Experimental Strain Field Assessment of Pressure Armor Profiles Subjected to Compression Loads via Digital Image Correlation OMAE2022-79419
Caio C. P. Santos[1] Celso Pupo Pesce[1] Rafael G. Savioli[1] Diego Sarzosa Burgos[1]
George Carneiro Campello[2] Thiago Brun Coser[2] Rodolfo F. De Souza[2]
1. Offshore Mechanics Laboratory from the University of Sao Paulo (LMO-USP), Sao Paulo, SP, Brazil;
2. CENPES/PETROBRAS, Rio de Janeiro, RJ, Brazil

The Long-Term Stress Range Distribution of Marine Risers considering the Effect of Wave Directionality OMAE2022-80863
Zohreh Sadat Haghayeghi, Mohammad Javad Ketabdari
Amirkabir University of Technology, Tehran, Iran

Ocean Space Utilization

05-02-01 Aquaculture and Related Technology I

Monday June 6 | Room **Y3** | **13:30–15:00**

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

Dynamic Simulation of an Offshore Aquaculture Structure under Combined Wave and Current Conditions OMAE2022-78570
Hui Cheng, Muk Chen Ong, Lin Li
University of Stavanger, Stavanger, Norway

Numerical Modelling of Drag and Lift Forces on Aquaculture Nets: Comparing New Numerical Load Model with Physical Model Test Results OMAE2022-78924
Per Christian Endresen, Heidi Moe Føre
SINTEF Ocean AS, Trondheim, Norway

Comparative Verification of Numerical Analysis and Model Experiments for Oyster Farming OMAE2022-78933
Hiroki Tamura[1] Yasunori Nihei[2]
1. Osaka Prefecture University, Osaka-shi, Japan; 2. Osaka Prefecture University, Sakai-shi, Japan

Experimental Study on Local Scour of Triangular Artificial Reef OMAE2022-78936
Fenfang Zhao, Shiji Xu, Mingda Yang, Yanli Tang, Liuyi Huang, Guangjie Fang
Ocean University of China, Qingdao, China (Mainland)

Ocean Engineering

06-02-01 Coastal Engineering I

Monday June 6 | Room **Y4** | **13:30–15:00**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Yuzhu Pearl Li, National University of Singapore, Denmark; Kuang-An Chang, Texas A&M University, USA; Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil

Numerical Investigation of Flow in Porous Media around a Mono-Pile under Steady Current OMAE2022-79002
Yanyan Zhai, Erik Damgaard Christensen
Technical University of Denmark, Kgs. Lyngby, Denmark

Hydroelastic Simulation of Breaking Wave Impact on a Flexible Coastal Seawall OMAE2022-79099
Yuzhu Li[1] Zhengyu Hu[1] Luofeng Huang[2]
1. National University of Singapore, Singapore, Singapore; 2. University College London, London, United Kingdom

An Experimental Study on the Wave Force on the Slope of Smoothed Mound Breakwater with and without Crown Wall under Medium-long Period Waves OMAE2022-79286
Xinyu Han, Sheng Dong
Ocean University of China, Qingdao, China (Mainland)

On Some Nonlinear Wave Diffraction and Refraction Solutions in Shallow Waters OMAE2022-79413
Masoud Hayatdavoodi[1] R. Cengiz Ertekin[2]
1. University of Dundee, Dundee, United Kingdom; 2. University of Hawaii, Honolulu, HI, USA

Ocean Engineering

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

Monday June 6 | Room **Y12** | **13:30–15:00**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Torgeir Vada, DNVGL, Norway; Pierre Ferrant, Ecole Centrale De Nantes/Cnrs, France; Marcelo Caire, Federal University of Rio de Janeiro, Brazil; Nuno Fonseca, SINTEF Ocean, Norway; Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil; Filipe Salvador Lopes, Universidade Federal do Rio de Janeiro, Brazil

Multiple Hinged Floaters – an Experimental Study on Hydrodynamic Responses in Waves OMAE2022-78435
Gerrit Assbrock[1] Jorge Lucas[2] Jens Ley[1]
1. Development Centre for Ship Technology and Transport Systems, Duisburg, Germany; 2. NEMOS GmbH, Duisburg, Germany

A Single Cavitation Bubble Induced Damage OMAE2022-78536
Hemant Sagar, **Ould El Moctar**
Institute of Ship Technology, Ocean Engineering and Transport Systems (ISMT), University of Duisburg-Essen, Germany, Duisburg, Germany

Evaluation of Hydrodynamic Loads on a Concrete Gravity-Based Offshore Structure in Extreme Waves OMAE2022-78578
M Hasanat Zaman, Ayhan Akinturk
National Research Council Canada, St. John's, NL, Canada

A Comparison of Finite Element Computations and an Analytical Approach for Determining Hull-induced Underwater-radiated Noise OMAE2022-78674
Gyde Andresen-Paulsen[1] Rüdiger Ulrich Franz von Bock und Polach[1] Matthias Donderer[2]
1. Institute for Ship Structural Design and Analysis, Hamburg University of Technology, Hamburg, Germany; 2. MAN Energy Solutions SE, Augsburg, Germany

CFD and VIV

08-04-01 FSI

Monday June 6 | Room **Y6** | **13:30–15:00**

Session Organizer: Guilherme Vaz, blueOASIS, Portugal

Session Co-Organizer: Owen Oakley, Retired, USA

A Fluid-structure Interaction Model on the Hydroelastic Analysis of a Container Ship Using preCICE OMAE2022-78131
Yujia Wei, Tahsin Tezdogan
University of Strathclyde, Glasgow, United Kingdom

A Coupled Wave-Current-Structure Study for a Floating Offshore Wind Turbine Platform OMAE2022-79016
Xiang Li[1] Qing Xiao[2] Rodolfo Gonçalves[3] Christophe Peyrard[4]
1. University of Strathclyde, Glasgow, United Kingdom; 2. Department of Naval Architecture, Ocean and Marine Engineering, University of Strathclyde, Glasgow, United Kingdom; 3. Ocean Space Planning Laboratory, Department of Systems Innovation, School of Engineering, The University of Tokyo, Tokyo, Japan; 4. Saint-Venant Hydraulics Laboratory, Chatou, France

Advanced Methods for Partitioned Fluid-Structure Interaction Simulations Applied to Ship Propellers OMAE2022-80507
Jorrid Lund, Daniel Ferreira González, Lars Radtke, Moustafa Abdel-Maksoud, Alexander Düster
Hamburg University of Technology, Hamburg, Germany

Ocean Renewable Energy

09-01-01 Installation, Marine Operations and Maintenance I

Monday June 6 | Room **Y7** | **13:30–15:00**

Session Organizer: P. R. Thies, Exeter, United Kingdom

Session Co-Organizer: Krish Thiagarajan, University of Massachusetts Amherst, USA

Tow Out Calculations for Floating Wind Turbines OMAE2022-78095
Alan Crowle, P. R. Thies
University of Exeter, Penryn, United Kingdom

A Three Degrees of Freedom Vibration Model for a Partially Installed Wind Turbine OMAE2022-79081
Andreas Haselsteiner, Aljoscha Sander, Klaus-Dieter Thoben
University of Bremen, Bremen, Germany

Installation Potential of Very Large Floating Offshore Wind Turbines in Japan OMAE2022-78964
Toshiki Chujo
National Maritime Research Institute, Tokyo, Japan

Ocean Renewable Energy

09-02-01 Wave Environmental Modeling

Monday June 6 | Room **Y8** | **13:30–15:00**

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

Session Co-Organizer: Krish Thiagarajan, University of Massachusetts Amherst, USA

Wave-by-Wave Prediction in Narrowly Spread Seas Using Fixed- and Drifting-Point Wave Records: Validation Using Physical Measurements OMAE2022-80885
Thobani Hlophe[1] Hugh Wolgamot[2] Paul Taylor[2] Adi Kurniawan[1] Jana Orszaghova[2] Scott Draper[2]
1. University of Western Australia, Albany, WA, Australia; 2. University of Western Australia, Perth, WA, Australia

Wave Record Gap-filling Using a Low-rank Tensor Completion Model OMAE2022-79897
Jiaxin Chen[1] Ian Ashton[2] Ajit Pillai[1]
1. University of Exeter, Penryn, United Kingdom; 2. University of Exeter, Falmouth, United Kingdom

Environmental Extreme Conditions for a Wave Energy Converter: an Integrated Wave-structure Approach OMAE2022-79674
Saghy Saeidtehrani, George Lavidas, Andrei Metrikine
Delft University of Technology, Delft, Netherlands

Design and Optimization of a Point Absorber for the Mediterranean Sea OMAE2022-81530
Alberto Ghigo, Sergej Antonello Sirigu, Fabio Carapellese, Giovanni Bracco
Politecnico di Torino, Turin, Italy

Offshore Geotechnics

10-01-01 Seabed Properties and Processes

Monday June 6 | Room **Y9** | **13:30–15:00**

Session Organizer: Christian Windt, Technical University of Braunschweig, Ireland

Session Co-Organizers: Christian Windt, Technical University of Braunschweig, Ireland

Numerical Modelling of Liquefaction around Marine Structures – Progress and Recent Developments OMAE2022-79821
Christian Windt[1] Nils Goseberg[1] Stefan Schimmels[2] Matthias Kudella[2] Ranjith Khumar Shanmugasundaram[3] Henrik Rusche[3] B. Mutlu Sumer[4] Özgür Kirca[4] Vinay Kumar Vanjakula[5] Frank Adam[5] Dawid Majewski[6] Krystyna Kazimierowicz-Frankowska[6] Grzegorz Hrycyna[7]
1. Leichtweiß-Institute for Hydraulic Engineering and Water Resources, Technische Universität Braunschweig, Braunschweig, Germany; 2. Coastal Research Centre, Hannover, Germany; 3. WIKKI GmbH, Wernigerode, Germany; 4. BM SUMER Consultancy & Research, Maslak, Turkey; 5. GICON GmbH, Rostock, Germany; 6. Institute of Hydro-Engineering of Polish Academy of Sciences, Gdansk, Poland; 7. Projmors, Gdansk, Poland

Numerical Modelling of Wave-Induced Liquefaction around Pipelines and Offshore Cables OMAE2022-78992
V. S. Ozgur Kirca[1, 2] S. Utku Yilmaz[2] B. Mutlu Sumer[1] Ranjith Khumar Shanmugasundaram[3] Henrik Rusche[3] Christian Windt[4] Nils Goseberg[4]
1. BM SUMER Consultancy & Research, Istanbul, Turkey; 2. Istanbul Technical University, Sariyer, Turkey; 3. WIKKI GmbH, Wernigerode, Germany; 4. Leichtweiß-Institute for Hydraulic Engineering and Water Resources, Technische Universität Braunschweig, Braunschweig, Germany

Numerical Modelling of Residual Liquefaction in the Subsoil under a Vibrating Plate OMAE2022-79025
Ranjith Khumar Shanmugasundaram[1] Hernrik Rusche[1] Christian Windt[2] V S Özgür Kirca[3] B Mutlu Sumer[4] Nils Goseberg[5]
1. WIKKI GmbH, Wernigerode, Germany; 2. Leichtweiss-Institute for Hydraulic Engineering and Water Resources, TU Braunschweig, Braunschweig, Germany; 3. Istanbul Technical University, Istanbul, Turkey; 4. BM SUMER Consultancy & Research, Istanbul, Turkey; 5. Leichtweiß-Institut for Hydraulic Engineering and Water Resources, Braunschweig, Germany

The Effect of the Height of the Regular Wave on Seabed Liquefaction OMAE2022-78537
Krystyna Kazimierowicz-Frankowska, Marek Kulczykowski, Dawid Majewski, Jacek Mierczyński, Marcin Smyczyński
Institute of Hydro-Engineering, PAS, Gdańsk, Poland

Petroleum Technology

11-02-01 Well Drilling Fluids and Hydraulics I

Monday June 6 | Room **Y10** | **13:30–15:00**

Session Organizer: Ergun Kuru, University of Alberta, Canada

Session Co-Organizers: Arild Saasen, University of Stavanger, Norway; Evren Ozbayoglu, University of Tulsa, USA

Experimental Bench-scale Study on Cuttings-bed Erosion in Horizontal Wells OMAE2022-78266
Camilo Pedrosa[1] Bjornar Lund[2] Jan David Ytrehus[2] Nils Opedal[2] Arild Saasen[3]
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. SINTEF, Trondheim, Norway; 3. University of Stavanger, Stavanger, Norway

Physic Based Approach for Solid Transport in Deviated and Horizontal Well OMAE2022-78532
Sartika Dwi Purwandari[1] Bjørnar Lund[2] Sigve Hovda[1]
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. SINTEF, Trondheim, Norway

Transient Cuttings Transport for Real-time Systems OMAE2022-78394
Roger Aragall, Alexander Starostin, Roland May, Thomas Dahl
Baker Hughes, Celle, Germany

A Generalized Model for Field Assessment of Particle Settling Velocity in Viscoelastic Fluids OMAE2022-78264
Hongbo Chen, **Ergun Kuru**
University of Alberta, Edmonton, AB, Canada

Petroleum Technology

11-10-01 Development of Unconventional Reservoirs I

Monday June 6 | Room **Y11** | **13:30–15:00**

Session Organizer: Ergun Kuru, University of Alberta, Canada

Session Co-Organizers: Hadi Belhaj, Khalifa University, U.A.E.; Huazhou Li, University of Alberta, Canada

Application of New Viscoelastic Acidizing of Diverting Technology in Horizontal Wells of Tarim Oilfield OMAE2022-78020
Wang Jie[1] Houshun Jiang[2] Hualei Xu[2]
1. Yangtze University, Beijing, China (Mainland); 2. Yangtze University, Wuhan, China (Mainland)

Research on Air-Foam/Polymer-Based Profile Control and Flooding Technology in Heterogeneous Reservoirs OMAE2022-78021
Wang Jie[1] **Houshun Jiang**[2] Hong Yang[3] Lufeng Zhang[4]
1. Yangtze University, Beijing, China (Mainland); 2. Yangtze University, Wuhan, China (Mainland); 3. Shaanxi Yanchang Petroleum (Group) Co. LTD, Wuhan, China (Mainland); 4. Sinopec Exploration and Development Research Institute, Wuhan, China (Mainland)

Optimal Design of Polymer Gel Profile Control for Gaskule E31 Deep Reservoir OMAE2022-78031
Hualei Xu, Houshun Jiang, Jie Wang
Yangtze University, Caidian, Wuhan, China (Mainland)

Optimization and Design of Separate Layer Fracturing in Tight Low Permeability Sandstone Gas Reservoir: a Case Study OMAE2022-78539
Lufeng Zhang[1] Fengxia Li[1] Haibo Wang[1] Jie Wang[2]
1. State Key Laboratory of Shale Oil and Gas Enrichment Mechanisms and Effective Development, Sinopec Petroleum Exploration and Production Development Research Institute, Beijing, China (Mainland); 2. Department of Petroleum Engineering, Yangtze University, Wuhan, China (Mainland)

CONCURRENT SESSIONS
15:30 – 17:30

Offshore Technology

01-06-01 CFD Modeling Practice and Verification I

Monday June 6 | Room **Y1** | **15:30–17:30**

Session Organizer: Jerry Huang, ExxonMobil, USA

Session Co-Organizers: Guangyu Wu, Chevron, USA; Jang Kim, Technip, USA

Slamming Induced Fatigue in a Moonpool with a Recess OMAE2022-78395
Dimitris Chalkias, Zana Sulaiman
GustoMSC, Schiedam, Netherlands

Numerical Simulation of Local Scour around Square Artificial Reef OMAE2022-78941
Mingda Yang, Yanli Tang, **Fenfang Zhao**, Shiji Xu, Guangjie Fang
Ocean University of China, Qingdao, China (Mainland)

A Joint-Industry Effort to Develop and Verify CFD Modeling Practice for Predicting Hydrodynamic Coefficients of Risers: Part II – Staggered Buoyancy Module and Straked Riser OMAE2022-79147
Hyunchul Jang[1] Madhusuden Agrawal[2] Zhenjia (Jerry) Huang[3] Fengjian Jiang[4] Jie Wu[4] Halvor Lie[4] Eloïse Croonenborghs[4]
1. Technip Energies, Houston, TX, USA; 2. BP, Houston, TX, USA; 3. ExxonMobil, Spring, TX, USA; 4. SINTEF Ocean, Trondheim, Norway

Joint-Industry Effort to Develop and Verify CFD Modeling Practice for Predicting Wave Impact OMAE2022-79152
Csaba Pakozdi[1] **Eloise Croonenborghs**[1] Jang Kim[2] Milovan Peric[3] Guillaume Ducrozet[4] Benjamin Bouscasse[4] Haihua Xu[5] Andrea Califano[1] Andreas Akselsen[1] Sebastien Loubeyre[6]
1. SINTEF Ocean, Trondheim, Norway; 2. Front Energies, Houston, TX, USA; 3. CoMeT Continuum Mechanics Technologies GmbH, Erlangen, Germany; 4. LHEEA Laboratory, Nantes, France; 5. Technology Centre for Offshore and Marine, Singapore, Singapore, Singapore; 6. BV Solutions, Nantes, France

A Hybrid Numerical Wave Model for Extreme Wave Kinematics OMAE2022-87901
Jang Kim[1] Sewan Park[2] Johyun Kyoung[1] Aldric Baquet[1] Zhirong Shen[1] Yoon-Jin Ha[2] Kyong-Hwan Kim[2]
1. Front Energies, Houston, TX, USA; 2. KRISO, Daejeon, Korea

Structures, Safety and Reliability

02-06-02 Reliability of Mooring and Riser Systems II

Monday June 6 | Room **Hall E** | **15:30–17:30**

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

Session Co-Organizer: Luis Sagrilo, Coppe/Federal University of Rio de Janeiro, Brazil

The Effect of Pitting Corrosion on Fatigue Performance of Mooring Line Chain Links OMAE2022-78408
Filipe Rezende, Marina Simão, Paulo Videiro, Luis Sagrilo
LACEO/COPPE/UFRJ, Rio de Janeiro, RJ, Brazil

A Hybrid Time-frequency Domain Approach for Estimating Mooring Lines Dynamic Response OMAE2022-79118
Marina Simão, Marcos De Siqueira, Thiago Ângelo De Lacerda, Paulo Maurício Videiro, Luis Volnei Sudati Sagrilo
LACEO, Rio de Janeiro, RJ, Brazil

Recommendations for a Fatigue Design Analysis Calibrated Using Structural Reliability Analysis OMAE2022-81463
Torfinn Hørte, Siril Okkenhaug
DNV, Høvik, Norway

Analysis of Chain Fatigue Test Data for New and Used Mooring Chains OMAE2022-81465
Torfinn Hørte, **Limin Yang**, Siril Okkenhaug
DNV, Høvik, Norway

A Monte Carlo Approach for Fatigue Analysis of Mooring Lines Subjected to Simultaneous Environmental Actions OMAE2022-79098
Pedro Seabra[1] Mauro Oliveira[1] Marina Simão[2] **Paulo Videiro**[2] Luis Sagrilo[2]
1. Petrobras, Rio de Janeiro, RJ, Brazil; 2. Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil

Materials Technology

03-02-01 Fatigue Performance and Testing

Monday June 6 | Room **Hall D** | **15:30–17:30**

Session Organizer: Mamdouh Salama, MMS4AIM LLC, USA

Session Co-Organizers: Agnes Marie Horn, DNV, Norway; Carol Johnston, TWI, United Kingdom

Effect of Low Pretension on the Fatigue Performance of Large Bolts OMAE2022-78556
Carol Johnston
TWI Ltd, Cambridge, United Kingdom

Influence of Grease Lubrication on Fretting-Fatigue Damages of Steel Wire Ropes OMAE2022-79102
Sébastien Montalvo[1] Siegfried Fouvry[2] Michaël Martinez[1]
1. IFPEN, Solaize, France; 2. Ecole Centrale de Lyon, Écully, France

On the Feasibility of Large-scale Resonant Fatigue Testing to Study Bolt Force Relaxation OMAE2022-79247
Jeroen Van Wittenberghe[1] Cedric Vanden Haute[2] Rasoul Shirzadeh[2] Philippe Thibaux[1]
1. OCAS NV, Zwijnaarde, Belgium; 2. Parkwind, Leuven, Belgium

Low Cycle Fatigue Evaluation for High Strength Welded T-Joint Based on Structural Strain Method OMAE2022-79765
Ji Hoon Kim[1] Myung Hyun Kim[1] Won Ki Moon[2] Jong Il Lim[3] Seong Min Kim[4] Kwang Hee Yun[4]
1. Pusan National University, Busan, Korea; 2. Ship & Offshore Technology Team, Korean Register, Busan, Korea; 3. Naval & Special Ship Structural Design Department, Daewoo Shipbuilding & Marine Engineering Co.,LTD., Geoje, Korea; 4. Welding Engineering R&D Department, Daewoo Shipbuilding & Marine Engineering Co.,LTD., Geoje, Korea

Pipeline, Risers, and Subsea Systems

04-01-01 Flexible Pipes and Umbilicals I

Monday June 6 | Room **Y2** | **15:30–17:30**

Session Organizer: Zhimin Tan, Baker Hughes, USA

Session Co-Organizers: Jun Yan, Dalian University of Technology, China (Mainland); José Renato Mendes De Sousa, Federal University of Rio de Janeiro, Brazil; Theodoro Netto, Fundacao Coppetec, Brazil; Duane DeGeer, Intecsea, USA; Anh Tuan Do, TechnipFMC, France; Alan Dobson, TechnipFMC, United Kingdom

A Data-Driven Framework for Fatigue Monitoring of Operating Flexible Risers OMAE2022-78017
Rasoul Hejazi[1] Andrew Grime[1] Ian Milne[1] Phil Watson[1] Elizabeth White[2] Alessio Mariani[2] Max Lanoelle[3]
1. University of Western Australia, Crawley, WA, Australia; 2. Woodside Energy Limited, Perth, Australia; 3. Wood PLC, Perth, Australia

Derivation of Vessel Motions as Operational Limits and Motion Forecasting with 2D Wave Spectra: Case Study of Inter-array Subsea Cable Installation in the North Sea OMAE2022-79459
Javier Riverola Calavia[1] Mark Paalvast[2] Bart Ledoux[1] Jelte Kymmell[2]
1. Jan de Nul Group, Aalst, Belgium; 2. Mocean Forecast BV, Amsterdam, Netherlands

An Alternative Measurement Method to Identify the Minimum Bending Radius of Locked Deformed Bend Restrictor Elements under Load OMAE2022-79709
Lars Jordal[1] Erwin Vermeer[2] Morten Limi[1] Kjetil Andre Karlsen[1]
1. Nexans Norway AS, Halden, Norway; 2. Combiteq AS, Halden, Norway

A Numerical Investigation on Flow Induced Vibration of Flexible Risers in Tandem Arrangements OMAE2022-80601
Arun Periyal[1] Ritwik Ghoshal[2] Vaibhav Joshi[3]
1. Indian Institute of Technology Kharagpur, Paschim Medinipur, WB, India; 2. Indian Institute of Technology Kharagpur, Kharagpur, WB, India; 3. Birla Institute of Technology & Science Pilani, Goa, GA, India

Machine Learning in Fatigue Analysis for an Unbonded Flexible Riser OMAE2022-83730
Jiabei Yuan, Linfa Zhu, Yucheng Hou, Zhimin Tan
Baker Hughes, Katy, TX, USA

Ocean Space Utilization

05-05-01 Floating System for Renewable Energy I

Monday June 6 | Room **Y3** | **15:30–17:30**

Session Organizer: Shigeru Tabeta, The University of Tokyo, Japan

Finite Element Modelling of Ocean Thermal Energy Conversion (OTEC) Cold Water Pipe (CWP) OMAE2022-78135
Ristiyanto Adiputra, Tomoaki Utsunomiya
Kyushu University, Fukuoka, Japan

Experimental Study on Dynamic Characteristics of Fluid-conveying Pipe for OTEC OMAE2022-78136
Ryoya Hisamatsu, Ristiyanto Adiputra, Tomoaki Utsunomiya
Kyushu University, Fukuoka-shi, Japan

Motion Performance of Miniaturized Spar-Buoy with Ring-Fin Motion Stabilizer for Wind Observations by Doppler Lidar and Development of Stabilized Platform to Mount the Doppler Lidar OMAE2022-78175
Yusuke Yamamoto, Mizuki Kinugasa, Mayo Morita, Toru Katayama
Osaka Prefecture University, Sakai, Japan

A Basic Study on the Effect of Deep Learning to Determine the Control Force to Maximize the Power Generation of PA-WEC in Irregular Waves OMAE2022-78521
Motohiko Murai, Sho Sakamoto
Yokohama National University, Yokohama, Japan

Ocean Engineering

06-01-01 Computational Mechanics and Design Applications

Monday June 6 | Room **Y4** | **15:30–17:30**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Wei Qui, MUN, Canada; Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil; Daniel De Oliveira Costa, Universidade Federal do Rio de Janeiro, Brazil

Preliminary Study of Floating Offshore Wind Turbines Motions Using the Smoothed Particle Hydrodynamics Method OMAE2022-78419
Bonaventura Tagliafierro[1] Madjid Karimirad[2] Iván Martínez-Estévez[3] José Manuel Domínguez[3] Alejandro Jacobo Crespo[3] Moncho Gómez Gesteira[3] Giacomo Viccione[1]
1. University of Salerno, Fisciano, Italy; 2. Queen's University Belfast, Belfast, United Kingdom; 3. University of Vigo, Ourense, Spain

A Life-Cycle Cost Framework for Onboard Emission Reduction Technologies: The Case of the Flapping-foil Thruster Propulsion Innovation OMAE2022-79031
Nikolaos Ventikos[1] Lokukaluge Prasad Perera[2] Panagiotis Sotiralis[1] **Manolis Annetis**[3] Eirini Stamatopoulou[1]
1. National Technical University of Athens, Zografou, Greece; 2. UiT The Arctic University of Norway, Tromsø, Norway; 3. National Technical University of Athens, Athens, Greece

Probabilistic Design of Thin-Walled Cylindrical Structures for Application in Large Cargo Submarines OMAE2022-79485
Philip Lundberg Jamissen, **Yucong Ma**, Yihan Xing
University of Stavanger, Stavanger, Norway

Computational Study on the Transmission of COVID-19 Virus inside a Ship OMAE2022-80182
Luofeng Huang[1] Seogeng Riyadi[2] I Ketut Aria Pria Utama[2] Giles Thomas[1]
1. University College London, London, United Kingdom; 2. Sepuluh Nopember Institute of Technology, Surabaya, Indonesia

Ocean Engineering

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

Monday June 6 | Room **Y12** | **15:30–17:30**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Torgeir Vada, DNVGL, Norway; Pierre Ferrant, Ecole Centrale De Nantes/Cnrs, France; Marcelo Caire, Federal University of Rio de Janeiro, Brazil; Nuno Fonseca, SINTEF Ocean, Norway; Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil; Filipe Salvador Lopes, Universidade Federal do Rio de Janeiro, Brazil

Numerical Modeling of Moored Floating Platforms for Wave Energy Converters Using DualSPHysics OMAE2022-78810
Bonaventura Tagliafierro[1] Iván Martínez-Estévez[2] César Crego-Loureiro[2] José Manuel Domínguez[2] Alejandro Jacobo Crespo[2] Ryan Coe[3] Giorgio Bacelli[3] Moncho Gómez Gesteira[2] Giacomo Viccione[4]
1. University of Salerno, Salerno, Italy; 2. University of Vigo, Ourense, Spain; 3. Sandia National Laboratories, Albuquerque, NM, USA; 4. University of Salerno, Fisciano, Italy

Further Investigation on Wave Impact Loads on the Underside of a 2D Flat-bottomed Model OMAE2022-78926
Daniel Costa, Antonio Carlos Fernandes, Joel Sales Junior, Julia Perim
Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil

Application of Dipole Damper Panels in Modelling Gap Resonance OMAE2022-78986
Babak Ommani[1] Senthuran Ravinthrakumar[1] Trygve Kristiansen[2] Idunn Olimb[3] Bernt Karsten Lyngvær[3]
1. SINTEF Ocean, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. Equinor Energy, Sandsli, Norway

Experimental Investigation of the Hydrodynamic Interaction of Syde-by-Syde FPSOS in Waves OMAE2022-79063
Claudio Alexis Rodríguez Castillo, Vinicius Lopes Vileti, Paulo De Tarso Themistocles Esperança
Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil

Polar and Arctic Sciences and Technology

07-01-01 Structures in Ice

Monday June 6 | Room **Y5** | **15:30–17:30**

Session Organizer: Sören Ehlers, Hamburg University of Technology, Germany

Session Co-Organizer: Walter Kuehnlein, terra.blue, Germany

Lessons Learned: the Influence of Testing Properties on Uniaxial Compression Tests of Ice OMAE2022-78068
Angelo Mario Böhm, Hauke Herrnring, Franz von Bock und Polach
Hamburg University of Technology, Hamburg, Germany

Fatigue Strength of Fixed Offshore Structures under Variable Amplitude Loading Due to Wind, Wave, and Ice Action OMAE2022-78764
Moritz Braun[1] Alfons Dörner[1] Tom Willems[2] Marc Seidel[2] Hayo Hendrikse[3] Knut Høyland[4] Claas Fischer[5] Sören Ehlers[6]
1. Institute for Ship Structural Design and Analysis, Hamburg University of Technology, Hamburg, Germany; 2. Siemens Gamesa Renewable Energy GmbH & Co. KG, Hamburg, Germany; 3. Department of Hydraulic Engineering, Delft University of Technology, Delft, Netherlands; 4. Department of Civil and Environmental Engineering, the Norwegian University of Science and Technology (NTNU), Trondheim, Norway; 5. TÜV NORD EnSys GmbH & Co. KG, Hamburg, Germany; 6. DLR Institute for Maritime Energy Systems, Hamburg, Germany

Classification of Ice-induced Vibration Regimes of Offshore Wind Turbines OMAE2022-78972
Tim C. Hammer, Cody C. Owen, Marnix Van Den Berg, Hayo Hendrikse
Delft University of Technology, Department of Hydraulic Engineering, Delft, Netherlands

Ice-Induced Loads on Offshore Wind Turbines in the Baltic Sea OMAE2022-79035
Kristjan Tabri[1] Tõnis Tõns[1] Mikko Suominen[2] Mihkel Kõrgesaar[3]
1. Tallinn University of Technology, Tallinn, Estonia; 2. Aalto University, Espoo, Finland; 3. Small Craft Competence Centre, TalTech, Kuressaare, Estonia

CFD and VIV

08-06-01 VIV in Time-Varying Flows

Monday June 6 | Room **Y6** | **15:30–17:30**

Session Organizer: Shixiao Fu, SJTU, China (Mainland)

Session Co-Organizer: Owen Oakley, Retired, USA

Time Domain Prediction of VIV Responses in Oscillatory Flow Conditions OMAE2022-79191
Jie Wu[1] Decao Yin[1] Jingzhe Jin[1] Halvor Lie[1] Elizabeth Passano[1] Svein Sævik[2] Guttorm Grytøyr[3] Michael A. Tognarelli[4] Daniel Karunakaran[5] Torgrim Andersen[6] Ragnar Igland[7]
1. SINTEF Ocean, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. Equinor, Fornebu, Norway; 4. BP America Production Company, Houston, TX, USA; 5. Subsea7, Stavanger, Norway; 6. Kongsberg Maritime, Aske, Norway; 7. Aker Solutions, Trondheim, Norway

Vortex-induced Vibrations of a Top-tensioned Riser in Combined Currents and Waves OMAE2022-79033
Decao Yin[1] Jie Wu[1] Halvor Lie[1] Elizabeth Passano[1] Svein Sævik[2] Guttorm Grytøyr[3] Michael A. Tognarelli[4] Torgrim Andersen[5] Ragnar Igland[6] Daniel Karunakaran[7] Collin Gaskill[8]
1. SINTEF Ocean, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. Equinor ASA, Fornebu, Norway; 4. BP America Production, Houston, TX, USA; 5. Kongsberg Maritime, Asker, Norway; 6. Aker Solutions, Trondheim, Norway; 7. Subsea7, Stavanger, Norway; 8. CRP Subsea, Skelmersdale, United Kingdom

VIV Responses of a Drilling Riser Subjected to Current and Top Motions OMAE2022-79180
Jie Wu[1] Decao Yin[1] Jingzhe Jin[1] Halvor Lie[1] Elizabeth Passano[1] Svein Sævik[2] Michael A. Tognarelli[3] Guttorm Grytøyr[4] Ragnar Igland[5] Daniel Karunakaran[6] Torgrim Anderson[7] Collin Gaskill[8]
1. SINTEF Ocean, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. BP America Production Co., Houston, TX, USA; 4. Equinor, Fornebu, Norway; 5. Aker Solutions, Trondheim, Norway; 6. Subsea7, Stavanger, Norway; 7. Kongsberg Maritime, Akser, Norway; 8. CRP Subsea Ltd., Skelmersdale, United Kingdom

Application of Optimization Algorithm on Parameters of an Empirical VIV Prediction Tool OMAE2022-79015
Decao Yin[1] Jie Wu[1] Halvor Lie[1] Jingzhe Jin[1] Elizabeth Passano[1] Svein Sævik[2] Solve Eidnes[3] Guttorm Grytøyr[4] Michael A. Tognarelli[5] Torgrim Andersen[6] Ragnar Igland[7] Daniel Karunakaran[8] Collin Gaskill[9]
1. SINTEF Ocean, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. SINTEF Digital, Oslo, Norway; 4. Equinor ASA, Fornebu, Norway; 5. BP America Production, Houston, TX, USA; 6. Kongsberg Maritime, Asker, Norway; 7. Aker Solutions, Trondheim, Norway; 8. Subsea7, Stavanger, Norway; 9. CRP Subsea, Skelmersdale, United Kingdom

Experimental Investigation on Hydrodynamic Forces of Semi-Submerged Cylinder in Combined Steady and Oscillatory Flow OMAE2022-79804
Tengyan Hu, Haojie Ren, Jiawei Shen, Zhibo Niu, Mengmeng Zhang, Yuwang Xu
Shanghai Jiao Tong University, Shanghai, China (Mainland)

Ocean Renewable Energy

09-01-02 Installation, Marine Operations and Maintenance II

Monday June 6 | Room **Y7** | **15:30–17:30**

Session Organizer: P. R. Thies, Exeter, United Kingdom

Session Co-Organizer: Krish Thiagarajan, University of Massachusetts Amherst, USA

A Statistical Model of Motion Maxima of Offshore Wind Turbine Components during Installation OMAE2022-79203
Lena Ströer, Andreas Haselsteiner, Aljoscha Sander, Klaus-Dieter Thoben
Universität Bremen, Bremen, Germany

Offshore Wind Power Construction Efficiency Assessment in Fujian Sea Area Based on the Mixed Integer Linear Programming OMAE2022-79283
Zihao Yang[1] Yifan Lin[2] Sheng Dong[1]
1. Ocean University of China, Qingdao, China (Mainland); 2. Huadian Heavy Industries Co., Ltd., Beijing, China (Mainland)

Investigating the Impact of Disruptive Events on the Fabrication and Installation Processes for a Floating Offshore Wind Farm OMAE2022-79407
Zohreh Sarichloo[1] Adrian Murphy[1] Joseph Butterfield[1] W. John Doran[1] Paddy Hannigan[2] Cian Desmond[3]
1. Queen's University Belfast, Belfast, United Kingdom; 2. Letterkenny Institute of Technology, Letterkenny, Ireland; 3. Gavin & Doherty Geosolutions, Dublin, Ireland

Fmi-based Co-simulation of Low-height Lifting System for Offshore Wind Turbine Installation OMAE2022-79844
Shuai Yuan, Behfar Ataei, Karl Henning Halse, Houxiang Zhang, Hans Petter Hildre
Norwegian University of Science and Technology, ålesund, Norway

Interaction of Offshore Support Vessel with Adjacent Offshore Wind Turbine during Maintenance Operation OMAE2022-79109
Xiudi Ren[1] Longbin Tao[1] **Martin Nuernberg**[2] Iman Ramzanpoor[3]
1. University of Strathclyde, Glasgow, United Kingdom; 2. Newcastle Marine Services, Newcastle upon Tyene, United Kingdom; 3. Department of Naval Architecture, Ocean & Marine Engineering, Glasgow, United Kingdom

Ocean Renewable Energy

09-04-01 Hybrids and Floating Solar Energy

Monday June 6 | Room **Y8** | **15:30–17:30**

Session Organizer: Madjid Karimirad, Queen's University Belfast, United Kingdom

Session Co-Organizer: Arash Abbasnia, Queen's University Belfast, United Kingdom

Wind Parameters Effects on Floating Solar Array Design – Case Study: Japan's Largest Floating Solar Array OMAE2022-78762
Amir Honaryar[1] Madjid Karimirad[1] Arash Abbasnia[1] Trevor Whittaker[2]
1. Queen's University Belfast, Centre for Advanced Sustainable Energy (CASE), Belfast, United Kingdom; 2. Queen's University Belfast, Belfast, United Kingdom

The Development of a Time-Domain BEM to Investigate Dynamics of a Floating Solar Platform in Nonlinear Wave Regimes OMAE2022-79728
Arash Abbasnia, Madjid Karimirad, Gautam Baruah, Trevor Whittaker
Queen's University Belfast, Belfast, United Kingdom

Numerical Simulation of Nonlinear Wave Interaction with Floating Solar Platforms with Double Tubular Floaters Using Viscous Flow Model OMAE2022-79732
Gautam Baruah[1] Madjid Karimirad[2] Arash Abbasnia[2] Abdolmajid Moghtadaei[2] Pauline Mackinnon[2] Nabin Sarmah[3]
1. Queens University Belfast (QUB), Belfast, United Kingdom; 2. Queen's University Belfast, Belfast, United Kingdom; 3. Tezpur University, Tezpur, AS, India

Offshore Geotechnics

10-01-02 Seabed Properties and Processes II

Monday June 6 | Room **Y9** | **15:30–17:30**

Session Organizer: Christian Windt, Technical University of Braunschweig, Ireland

Session Co-Organizer: Pauline Kaminski, Hamburg University of Technology, Germany

Indentation Test Implementation for Rock Strength Correlation by Experimental Method and Simulation Using Distinct Element Method OMAE2022-79227
Prajit Premraj, Zijian Li, Abdelsalam Abugharara, Stephen Butt
Memorial University of Newfoundland, St. John's, NL, Canada

On the Erasing of the Cyclic Preloading by Monotonic Deformations in Granular Soils OMAE2022-79696
Andreas Wappler, Lukas Knittel, Andrzej Niemunis, Hans Henning Stutz
Institute for Soil Mechanics and Rock Mechanics - Karlsruhe Institute of Technology, Karlsruhe, Germany

Importance of Numerical Analyses to Inform Laboratory Testing for Offshore Slope Stability Assessment OMAE2022-80164
Brian Carlton[1] Hadi Suroor[2] Young Jae Choi[3] Ragnhild Christin Hansen[1] Farrokh Nadim[1] Mudasar Saqab[4] Amir Kaynia[5]
1. Norwegian Geotechnical Institute, Oslo, Norway; 2. TechnipFMC, Houston, TX, USA; 3. Norwegian Geotechnical Institute, Houston, TX, USA; 4. Norwegian Geotechnical Institute, Perth, WA, Australia; 5. Norwegian University of Science and Technology, Trondheim, Norway

Decline in Slope Stability as a Consequence of Gassy Soil in Submarine Slopes on the Balearic Promontory OMAE2022-81151
Pauline Kaminski[1] Jürgen Grabe[1] Morelia Urlaub[2] Thore Sager[2]
1. Hamburg University of Technology, Hamburg, Germany; 2. GEOMAR Helmholtz Centre for Ocean Research Kiel, Kiel, Germany

Petroleum Technology

11-02-02 Well Drilling Fluids and Hydraulics II

Monday June 6 | Room **Y10** | **15:30–17:30**

Session Organizer: Ergun Kuru, University of Alberta, Canada

Session Co-Organizers: Arild Saasen, University of Stavanger, Norway; Evren Ozbayoglu, University of Tulsa, USA

A Comprehensive Evaluation of Rheological Models for Non-Aqueous Drilling Fluids OMAE2022-78546
Ismail Hakki Gucuyener, **Kazim Onur Gurcay**, Abdussamed Yanik
GEOS Energy Inc., Ankara, Turkey

Order Reduction of a Transient Model of Viscous Pressure Loss Gradient in Laminar Flow for Non-Newtonian Fluid Flowing in Circular Pipes OMAE2022-78633
Eric Cayeux
NORCE, Stavanger, Norway

Investigation of Eccentricity on Cuttings Transport with Oil-based Drilling Fluids OMAE2022-78830
Jan David Ytrehus[1] Bjørnar Lund[2] Ali Taghipour[2] Camilo Pedrosa[3] Arild Saasen[4]
1. SINTEF Petroleum, Trondheim, Norway; 2. SINTEF, Trondheim, Norway; 3. Norwegian University of Science and Technology, Trondheim, Norway; 4. University of Stavanger, Stavanger, Norway

Primary Cementing of Horizontal Wellbores with Solid Cutting Beds OMAE2022-78935
Rodrigo Mitishita, Parisa Sarmadi, Nile Waldal, Anastasia Vogl, Ian Frigaard
University of British Columbia, Vancouver, BC, Canada

Petroleum Technology

11-10-02 Development of Unconventional Reservoirs II

Monday June 6 | Room **Y11** | **15:30–17:30**

Session Organizer: Hadi Belhaj, Khalifa University, U.A.E.

Session Co-Organizer: Huazhou Li, University of Alberta, Canada

Investigation on Fiber Assisted Multistage Fracturing of Horizontal Well in Tight Low Permeability Sandstone Reservoirs OMAE2022-79132
Lufeng Zhang
State Key Laboratory of Shale Oil and Gas Enrichment Mechanisms and Effective Development, Sinopec Petroleum Exploration and Production Development Research Institute, Beijing, China (Mainland)

A Novel Approach in Modelling Fluid Flow in Unconventional Reservoirs Incorporating Viscous, Inertial, Diffusion, Desorption and Advection Forces Contributions OMAE2022-79249
Mohammed Aldhuhoori, Hadi Belhaj, Bisweswar Ghosh, Hamda Alkuwaiti
Khalifa University of Science and Technology, Abu Dhabi, United Arab Emirates

Challenges in the Implementation of the Air Injection EOR Method: the Venezuelan Experience OMAE2022-79250
Fernancelys Rodriguez
Independent, Houdan, France

A Green and Environmentally Friendly Chelated Retarding Acid for Acidification of Sandstone Reservoirs OMAE2022-79271
Wei Liu[1] **Qing Wang**[2] Changfeng Xu[3] Mengchuan Zhang[2] Xinmin Kong[1] Erdong Yao[2] Que Junren[4]
1. Engineering Technology Research Institute of Xinjiang Oilfield Company, Xinjiang, China (Mainland); 2. China University of Petroleum Beijing, Beijing, China (Mainland); 3. Operation District of Hutubi Gas Storage of Xinjiang Oilfield Company, Xinjiang, China (Mainland); 4. Xinjiang Oilfield Company, Karamay, China (Mainland)

Optimization of Oil Recovery and CO2 Sequestration in Tight Reservoirs during CO2 WAG Flooding with Hydraulic Fracture OMAE2022-81340
Baozhen Li[1] Xiaodong Kang[1] Liqi Wang[2] Jian Zhang[2] Engao Tang[2] Wensheng Zhou[2]
1. CNOOC Research Institute, Beijing, China (Mainland); 2. CNOOC Research Institute Co., Ltd, Changping District, China (Mainland)

Tuesday Concurrent Sessions

TUESDAY, JUNE 7
08:30 – 10:00

Offshore Technology

01-01-02 Offshore Platforms II

Tuesday June 7 | Room **Y1** | **08:30–10:00**

Session Organizer: Anil Sablok, Technip Energies, USA

Session Co-Organizer: Allan Magee, National University of Singapore, Singapore

Investigations on the Effects of Internal Liquid Sloshing of Semi-submersible Floating Offshore Wind Turbines OMAE2022-79942
Yang Zhou, Ling Qian, Wei Bai, Zaibin Lin
Manchester Metropolitan University, Manchester, United Kingdom

Hydrodynamic Motion Behavior of Air-Cushion-Supported Hexagonal Floating Platform for Offshore Wind Turbine OMAE2022-80564
Yining He[1] Shinichiro Hirabayashi[1] Shigeru Tabeta[1] Toshio Nakajima[2] Yoshihiko Yamashita[3] Yuuki Yamashita[4] Motoko Imai[4]
1. The University of Tokyo, Kashiwa, Japan; 2. Waterfront Real Estate Co, Nishinomiya, Japan; 3. Waterfront Real Estate Co., Tokyo, Japan; 4. Business Strategy Promotion Division, Chodai Co., Tokyo, Japan

State of the Art in New Semisubmersible Platform Concepts OMAE2022-81085
Tianying Wang, Qing Cui
Drilling Technology Research Institute, Sinopec Shengli Oilfield Service Corporation, Dongying, China, Dongying, China (Mainland)

Vessel-Less Underwater Inspection at Fixed Offshore Structure by Utilizing Mini Remotely Operated Vehicle (Mini-ROV) OMAE2022-81373
Dave Chen Lung Chong[1] Ave Suhendra Suhaili[1] Sok Mooi Ng[2] W Hariz Fadli W Shafie[2] Biramarta Isnadi[2] Riaz Khan[2] Kheng Hoong Lau[2] Nurzarina Hassan[3] M Faqrudin B Ismail[3]
1. PETRONAS CARIGALI SDN BHD, Kota Kinabalu, Malaysia; 2. PETRONAS CARIGALI SDN BHD, Kuala Lumpur, Malaysia; 3. PETRONAS, Kuala Lumpur, Malaysia

Structures, Safety and Reliability

02-01-01 Abnormal Waves

Tuesday June 7 | Room **Hall E** | **08:30–10:00**

Session Organizer: Elzbieta Maria Bitner-Gregersen, DNV/Ocean Wave Research, Norway

Session Co-Organizer: Alexander Babanin, University of Melbourne, Australia

Freak Wave Forecasting: a Data-driven Approach OMAE2022-78557
Thomas Breunung, Balakumar Balachandran
University of Maryland, College Park, College Park, MD, USA

A Reduced Order Parameterization of Random Wave Fields with Deterministic Wave Groups OMAE2022-80636
Tianning Tang, Thomas Adcock
University of Oxford, Oxford, United Kingdom

Shallow Water Nonlinear Waves: Their Wave Equations, Quasiperiodic Fourier Series Solutions and Statistical Distributions OMAE2022-81191
Alfred Osborne[1] Uggo F. De Pinho[2] Børge Kvingedal[2] Gunnar Lian[2]
1. Nonlinear Waves Research Corporation, Alexandria, VA, USA; 2. Equinor ASA, Stavanger, Norway

Waves Heights Statistics and Characterization of Rogue Waves in the Eastern Mediterranean OMAE2022-78564
Dan Liberzon[1] **Sagi Knobler**[1] Daniel Bar[1] Rotem Cohen[2]
1. The Technion - Israel Institute of Technology, Haifa, Israel; 2. The Israeli Coastal and Marine Engineering Research Institute, Haifa, Israel

Structures, Safety and Reliability

02-10-01 Collision and Crashworthiness I

Tuesday June 7 | Room **Hall F** | **08:30–10:00**

Session Organizer: Sören Ehlers, Hamburg University of Technology, Germany

Session Co-Organizer: Zhiqiang Hu, Newcastle University, United Kingdom

A Semi-analytical Methodology to Assess the Dynamic Elastic Response of a Monopile Offshore Wind Turbine Subjected to Low-energy Ship Impacts OMAE2022-79672
Icaro Ladeira[1] Hervé Le Sourne[1] Jonathan Alexander Morán Arellano[2] Lissette Priscilla Salazar Loor[2]
1. Institut Catholique d'Arts et Metiers, Nantes, France; 2. University of Liège - ANAST, Liège, Belgium

Rapid Assessment of Ship Bottom Grounding Damage considering Combined Surge and Heave Motion OMAE2022-80209
Jean-Philippe Pineau, Hervé Le Sourne
ICAM, Carquefou, France

Aspects of Collision Response of Long-span Floating Bridges OMAE2022-81112
Martin Storheim[1] Cato Dørum[2]
1. Entail AS, Oslo, Norway; 2. Norwegian Public Road Administration, Hamar, Norway

Dynamic Analysis of Collision between Two Floating Bodies considering Hydrodynamic Loads OMAE2022-81221
Burak Can Cerik, Joonmo Choung
Inha University, Incheon, Korea

Materials Technology

03-03-01 Integrity Assessment and Life Extension

Tuesday June 7 | Room **Hall D** | **08:30–10:00**

Session Organizer: Mamdouh Salama, MMS4AIM LLC, USA

Session Co-Organizers: Agnes Marie Horn, DNV, Norway; Carol Johnston, TWI, United Kingdom

Semisubmersible in Service Experiences on the Norwegian Continental Shelf OMAE2022-81289
Gerhard Ersdal, **Marita Halsne**, Narve Oma, Terje L. Andersen, Morten Langøy, Lars G. Bjørheim
PSA, Stavanger, Norway

Sensor Data for Maintenance Planning of Topside Piping OMAE2022-81319
Agnes Horn[1] Frode Wiggen[2] Sandra Gustafsson[3]
1. DNV, Snarøya, Norway; 2. DNV, Stavanger, Norway; 3. Petroliumtilsynet, Stavanger, Norway

Pipeline, Risers, and Subsea Systems

04-01-03 Flexible Pipes and Umbilicals III

Tuesday June 7 | Room **Y2** | **08:30–10:00**

Session Organizer: Zhimin Tan, Baker Hughes, USA

Session Co-Organizers: Jun Yan, Dalian University of Technology, China (Mainland); José Renato Mendes De Sousa, Federal University of Rio de Janeiro, Brazil; Theodoro Netto, Fundacao Coppetec, Brazil; Duane DeGeer, Intecsea, USA; Anh Tuan Do, TechnipFMC, France; Alan Dobson, TechnipFMC, United Kingdom

Three-dimensional Finite Element Models of a Flexible Pipe Interlocked Carcass under Bending OMAE2022-78599
Fernando Geremias Toni, Clóvis De Arruda Martins, Rodrigo Provasi
University of São Paulo, São Paulo, SP, Brazil

Axial In-Place Behaviour of Unbonded Flexible Pipes OMAE2022-78959
Kristian Norland[1] Anders A. Larsen[2] Dorthe De La Cour[2] Henrik Ø. Larsen[2] Tommy Pedersen[2] Morten Eriksen[2]
1. Subsea 7, Stavanger, Norway; 2. NOV, Brøndby, Denmark

Axial Stiffness and Expansion Behaviour of a Flexible Flowline for Various Extents of Axial Restraint when Subject to Pressure and Thermal Loads OMAE2022-79008
Knut Tørnes[1] Ruairi Nestor[2] Kristian Thuen[3] John Picksley[4] Adrian Connaire[2] Bård Owe Bakken[3]
1. Winterhall Dea / Wood, Inverurie, United Kingdom; 2. Wood, Galway, Ireland; 3. Wintershall Dea, Stavanger, Norway; 4. Wood, Aberdeen, United Kingdom

Analytical Model for Non-bonded Flexible Pipe under High Temperature and Axisymmetric Load and Its Application in Upheaval Buckling OMAE2022-81293
Chen Kunpeng, Zhang Mengmeng, Zhao Bing, Luo Chunmiao, Fu Shixiao
Shanghai Jiao Tong University, Shanghai, China (Mainland)

Ocean Engineering

06-02-02 Coastal Engineering II

Tuesday June 7 | Room **Y4** | **08:30–10:00**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Yuzhu Pearl Li, National University of Singapore, Denmark; Kuang-An Chang, Texas A&M University, USA; Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil

Shallow Water Equations with Semi-submerged Structures Solving a Poisson Equation for the Pressure on the Structure Surface OMAE2022-79603
Luiz André Schiaveto Neto[1] Paulo César Colonna Rosman[2] Eduardo Aoun Tannuri[1]
1. Universidade de São Paulo / Numerical Offshore Tank (TPN-USP), São Paulo, SP, Brazil; 2. Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil

On the Calibration of Metocean Time Series Using Machine Learning OMAE2022-80274
Francois Enet, **Olga Podrazka**, Laury Renac
Aktis Hydraulics, Zwolle, Netherlands

Analysis of Structures in Very Shallow Water: CFD Analysis of Wave Propagation and Breaking Waves OMAE2022-80770
Magnus Johannesen, Øystein Lande
DNV, Oslo, Norway

Ocean Engineering

06-04-01 Marine Engineering and Technology I

Tuesday June 7 | Room **Y3** | **08:30–10:00**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Ulisses A. Monteiro, Fundacao Coppetec, Brazil; Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil; Luiz Vaz, Universidade Federal do Rio de Janeiro, Brazil

Life Cycle Assessment of Different Marine Fuel Types and Powertrain Configurations for Financial and Environmental Impact Assessment in Shipping OMAE2022-78774
Hadi Taghavifar, Lokukaluge Prasad Perera
UiT The Arctic University of Norway, Tromsø, Norway

Data Driven Digital Twin Applications towards Green Ship Operations OMAE2022-78775
Mahmood Taghavi, Lokukaluge Perera
UiT The Arctic University of Norway, Tromsø, Norway

Life-cycle Cost Analysis on a Marine Engine Innovation for Retrofit: a Comparative Study OMAE2022-79488
Khanh Bui[1] Lokukaluge Prasad Perera[1] Jan Emblemsvåg[2] Halvor Schøyen[3]
1. UiT The Arctic University of Norway, Tromsø, Norway; 2. NTNU Norwegian University of Science and Technology, Ålesund, Norway; 3. University of South-Eastern Norway, Horten, Norway

Advanced Data Analytics Based Hybrid Engine-Propeller Combinator Diagram for Green Ship Operations OMAE2022-79490
Lokukaluge P. Perera[1] Kostas Belibassakis[2] Evangelos Filippas[2] Maneesha N. Premasiri[3]
1. SINTEF Ocean, Trondheim, Norway; 2. National Technical University of Athens, Athens, Greece; 3. University of Münster, Münster, Germany

Polar and Arctic Sciences and Technology

07-02-01 Arctic Sea Transportation

Tuesday June 7 | Room **Y5** | **08:30–10:00**

Session Organizer: Marc Cahay, Technip Energies, France

Session Co-Organizer: Rüdiger U. Franz von Bock und Polach, TUHH, Germany

An Evaluation of Decision Support Technology in Simulated Offshore Ice Management OMAE2022-78097
Jonathan Soper[1] Jennifer Smith[2] Jonathan Power[3] Brian Veitch[1]
1. Memorial University of Newfoundland, St. John's, NL, Canada; 2. Marine Institute, St. John's, NL, Canada; 3. National Research Council, St. John's, NL, Canada

Assessment of Uncertainty in Sea Ice Charts and Its Impact on Operational Planning in the Kara Sea Region OMAE2022-79051
Nabil Panchi[1] Uttam Verma[2] Ekaterina Kim[1] Nick Hughes[3] Anirban Bhattacharyya[2]
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Indian Institute of Technology Kharagpur, Kharagpur, WB, India; 3. Norwegian Meteorological Institute, Tromsø, Norway

Big Data Analytics for Assistance Operation Identification in Ice-covered Waters OMAE2022-80925
Cong Liu[1] Mashrura Musharraf[1] Pentti Kujala[1] Jarkko Toivola[2]
1. Aalto University, Espoo, Finland; 2. Väylävirasto, Helsinki, Finland

Knowledge Elicitation and Digitization Using FRAM to Inform Automation of Marine Operations in Ice OMAE2022-80904
Mashrura Musharraf[1] Doug Smith[2] Jennifer Smith[3] Brian Veitch[2]
1. Aalto University, Espoo, Finland; 2. Memorial University of Newfoundland, St. John's, NL, Canada; 3. Fisheries and Marine Institute of Memorial University of Newfoundland, St. John's, NL, Canada

CFD and VIV

08-04-02 Ship Design

Tuesday June 7 | Room **Y6** | **08:30–10:00**

Session Organizer: Guilherme Vaz, blueOASIS, Portugal

Session Co-Organizer: Owen Oakley, Retired, USA

Propulsive Performance of a Novel Crescent-Shaped Wind Sail Analyzed with Unsteady RANS OMAE2022-79867
Heng Zhu[1] Melisa Begüm Nikmanesh[1] Huadong Yao[1] Bengt Ramne[2] Jonas Ringsberg[1]
1. Chalmers University of Technology, Gothenburg, Sweden; 2. ScandiNAOS AB, Gothenburg, Sweden

Study on the Effect of Twin Bow Shape on Ship Resistance Performance OMAE2022-78951
Chao Lu[1] Han Xiang[2] Dakui Feng[2] **Weihua Deng**[2]
1. China Ship Development and Design Center, Wuhan, China (Mainland); 2. School of Naval Architecture and Ocean Engineering, Huazhong University of Science and Technology, Wuhan, China (Mainland)

Analysis of Interference Characteristics of a Boat in Chasing a Large Ship OMAE2022-79768
Weihua Deng, Jiawei Yu, Dakui Feng, Han Xiang, Chaobang Yao
Huazhong University of Science and Technology, Wuhan, China (Mainland)

Full-Scale Unsteady RANS Simulations of a 5500DWT Self-Propulsion Tanker OMAE2022-79772
Bin Ye, Jiawei Yu, Zhiguo Zhang, Xin Long, Dakui Feng
Huazhong University of Science and Technology, Wuhan, China (Mainland)

Ocean Renewable Energy

09-01-04 FWT Structural Dynamics I

Tuesday June 7 | Room **Y7** | **08:30–10:00**

Session Organizer: Zhengshun Cheng, Shanghai Jiao Tong University, China (Mainland)

Session Co-Organizer: Krish Thiagarajan, University of Massachusetts Amherst, USA

Conceptual Design of a Prestressed Concrete Spar Floater Supporting a 10 MW Offshore Wind Turbine OMAE2022-78808
Wichuda Munbua[1] Muhammad Sohail Hasan[1] Edgard Borges Malta[2] Goncalves Rodolfo[3] Chikako Fujiyama[1] Koichi Maekawa[1]
1. Yokohama National University, Yokohama, Japan; 2. Technomar Engenharia LTD, Pinheiros, SP, Brazil; 3. The University of Tokyo, Bunkyo-ku, Japan

Influence of the Semi-Submersible Platform Flexibility on the Dynamic Response of the Wind Turbine OMAE2022-79124
Sofya Sizova, Elise Maillot, Suzanne Moreau, **Marie Féron**
DORIS Engineering, Paris, France

FRyFAST : A Coupling between FRyDoM and OpenFAST for the Simulation of Floating Offshore Wind Turbines with High Complexity Platforms OMAE2022-79155
Camille Chauvigné, Lucas Letournel, François Rongère, Pierre-Yves Wuillaume, Natalia Castro Casas, Benjamin Maréchal, Sofien Kerkeni
D-Ice Engineering, Nantes, France

Transferability of Meta-model Configurations for Different Wind Turbine Types OMAE2022-79698
Franziska Müller, Clemens Hübler, Raimund Rolfes
Leibniz University Hannover, Institute of Structural Analysis, ForWind, Hannover, Germany

Ocean Renewable Energy

09-02-02 Techno-economic Modeling of WEC

Tuesday June 7 | Room **Y8** | **08:30–10:00**

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

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

The Application of the Spectral Domain Modeling to the Techno-Economic Analysis of the Adjustable Draft Point Absorbers OMAE2022-79119
Jian Tan, Antonio Jarquin Laguna, Henk Polinder, Sape Miedema
Delft University of Technology, Delft, Netherlands

Performance Modelling of Flap-type Wave Energy Converter Array: Flaps with Various Dynamic Characteristics OMAE2022-79869
Saghy Saeidtehrani, George Lavidas
Delft University of Technology, Delft, Netherlands

Minimizing Cost in a 100% Renewable Electricity Grid: a Case Study of Wave Energy in California OMAE2022-80731
Ryan Coe[1] George Lavidas[2] Giorgio Bacelli[1] Peter Kobos[1] Vincent Neary[1]
1. Sandia National Laboratories, Albuquerque, NM, USA; 2. TU Delft, Delft, Netherlands

Wave Energy Converter Optimal Design under Parameter Uncertainty OMAE2022-81464
Filippo Giorcelli[1] **Sergej Antonello Sirigu**[1] Edoardo Pasta[1] Daniele Giovanni Gioia[2] Mauro Bonfanti[1] Giuliana Mattiazzo[3]
1. MOREnergy Lab, Politecnico di Torino, Torino, Italy; 2. Department of Mathematical Sciences, DISMA, Politecnico di Torino, Torino, Italy; 3. MOREnergy Lab, DIMEAS, Politecnico di Torino, Torino, Italy

Offshore Geotechnics

10-02-01 Piles

Tuesday June 7 | Room **Y9** | **08:30–10:00**

Session Organizer: Benjamin Cerfontaine, University of Southampton, United Kingdom

Session Co-Organizer: Anne Stark, Hamburg University of Technology, Germany

Experimental and Numerical Studies on the Axial Bearing Behaviour of a Pile Due to Relevant Foundation Fill Material on the Coastal Tidal Flat OMAE2022-79769
Juntian Yao[1] Kanmin Shen[2] Kuanjun Wang[2] **Jian Yu**[1] Maosong Huang[1]
1. Tongji University, Shanghai, China (Mainland); 2. Powerchina Huadong Engineering Corporation Limited, Hangzhou, China (Mainland)

On the Validity of Miner's Rule and Its Application in Offshore Pile Design Practice OMAE2022-81150
Anne Stark, Sebastian Breidenstein, Jürgen Grabe
Hamburg University of Technology, Hamburg, Germany

Calibration for Interpretation Parameter Nkt of CPTU in Offshore Wind Farm at Coast Area of the Mekong River Delta OMAE2022-79090
Kuanjun Wang, Gang Liu, Kanmin Shen, Shan Gao
PowerChina Huadong Engineering Corporation Limited, Hangzhou, China (Mainland)

Petroleum Technology

11-02-03 Well Drilling Fluids and Hydraulics III

Tuesday June 7 | Room **Y10** | **08:30–10:00**

Session Organizer: Ergun Kuru, University of Alberta, Canada

Session Co-Organizers: Arild Saasen, University of Stavanger, Norway; Evren Ozbayoglu, University of Tulsa, USA

The Role of Particle Size Distribution for Fluid Loss Materials on Formation of Filter-Cakes and Avoiding Formation Damage OMAE2022-79501
Karl Ronny Klungtvedt[1] Arild Saasen[2]
1. EMC, Sandnes, Norway; 2. University of Stavanger, Gullaug, Norway

Comparison of Lost Circulation Material Sealing Effectiveness in Water-Based and Oil-Based Drilling Fluids and under Conditions of Mechanical Shear and High Differential Pressures OMAE2022-79502
Karl Ronny Klungtvedt[1] Arild Saasen[2]
1. EMC, Sandnes, Norway; 2. University of Stavanger, Gullaug, Norway

Development of Guar Gum Fracturing Fluid with Temperature Resistance of 150°C and Specific Gravity of 1.0~1.2g/m3 OMAE2022-79610
Meng Xue[1] **Liyan Zhu**[2] Yongchang Zhao[1] Zhishuo Chen[2] Waili Abulimiti[3] Er-dong Yao[4]
1. Engineering Technology Research Institute of PetroChina Xinjiang Oilfield Company, Karamay, China (Mainland); 2. China University of Petroleum Beijing, Unconventional Petroleum Research Institute, Beijing, China (Mainland); 3. Technology Research Institute of PetroChina Xinjiang Oilfield Company, Karamay, China (Mainland); 4. China University of Petroleum China, Beijing, China (Mainland)

Activation of Local Bentonite for Oil and Gas Industry Application OMAE2022-81446
Abdullah Al-Yami, **Ali Al-Safran**
Saudi ARAMCO, Dhahran, Saudi Arabia

Petroleum Technology

11-12-01 Sustainability and Green Transition in Petroleum Industry I

Tuesday June 7 | Room **Y11** | **08:30–10:00**

Session Organizer: Ergun Kuru, University of Alberta, Canada

Session Co-Organizer: Jan David Ytrehus, SINTEF Petroleum, Norway

Development of Low Carbon Dioxide Intensive Rock-Based Geopolymers for Well Cementing Applications – One-Part Geopolymer OMAE2022-78535
Mohamed Omran, Mahmoud Khalifeh
University of Stavanger, Stavanger, Norway

Offshore Energy Hubs in the Decarbonisation of the Norwegian Continental Shelf OMAE2022-78551
Hongyu Zhang[1] Asgeir Tomasgard[1] Brage Rugstad Knudsen[2] Ignacio E. Grossmann[3]
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. SINTEF Energy Research, Trondheim, Norway; 3. Carnegie Mellon University, Pittsburgh, PA, USA

Dynamic Reservoir Behaviour and Production Due to Periodic Supply of Wind Power OMAE2022-78790
Per Eirik Strand Bergmo[1] Torleif Holt[1] Jan Ole Skogestad[2]
1. SINTEF AS, Trondheim, Norway; 2. SINTEF AS, Bergen, Norway

Operational Planning and Power Management System for Offshore Platform with Wind Energy Supply – Impacts on CO_2 Reduction and Power Quality OMAE2022-78802
Harald G Svendsen[1] Andrzej Holdyk[1] Til Kristian Vrana[1] Idun Runde Mosgren[2] Jan Wiik[2]
1. SINTEF Energy Research, Trondheim, Norway; 2. ABB AS, Oslo, Norway

Honoring Symposium for Professor Günther F. Clauss on Hydrodynamics and Ocean Engineering

12-02-01 Extreme Waves and their Impact on Ships and Structures

Tuesday June 7 | Room **Y12** | **08:30–10:00**

Session Organizer: Marco Klein, Hamburg University of Technology, Germany

Session Co-Organizer: Sascha Kosleck, University of Rostock, Germany

Wave Riding through Time – The Contributions of Günther F. Clauss to the Field of Ocean Wave Research OMAE2022-79170
Florian Sprenger[1] Sascha Kosleck[1] Marco Klein[2]
1. Universität Rostock, Rostock, Germany; 2. Hamburg University of Technology, Hamburg, Germany

Observation of a Giant Nonlinear Wave-Packet on the Surface of the Ocean OMAE2022-78334
Miguel Onorato[1] Pierre Suret[2] Stephane Randoux[2] Marta de Alfonso[3] Alvise Benetazzo[4]
1. University of Torino, Torino, Italy; 2. Université de Lille, CNRS, UMR 8523 - PhLAM - Physique des Lasers Atomes et Molécules, Lille, France; 3. Puertos del Estado., Madrid, Spain; 4. ISMAR, Venezia, Italy

Linear and Nonlinear Rogue Waves. Short Crestedness and Nonplanar Nonlinear Solutions OMAE2022-78569
Norbert Hoffmann
Hamburg University of Technology, Hamburg, Germany

Analysis of the Experimental Data of Slamming Loads on an LNG Carrier in Abnormal Waves OMAE2022-79037
Shan Wang, Carlos Guedes Soares
Instituto Superior Técnico, Universidade de Lisboa, Lisbon, Portugal

CONCURRENT SESSIONS
10:30 – 12:00

Offshore Technology

01-03-01 Hydrodynamics

Tuesday June 7 | Room **Y1** | **10:30–12:00**

Session Organizer: Longbin Tao, University of Strathclyde, United Kingdom

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

Validation of Measurement Techniques Used for Slamming OMAE2022-79068
Ole David Økland[1] Gunnar Lian[2] Tone Vestbøstad[2]
1. SINTEF Ocean, Trondheim, Norway; 2. Equinor ASA, Stavanger, Norway

Experimental Investigation of Slamming Loads on Vertical Column Exposed to Short and Long Crested Waves OMAE2022-79076
Ole David Økland[1] Gunnar Lian[2] Tone Vestbøstad[2]
1. SINTEF Ocean, Trondheim, Norway; 2. Equinor ASA, Stavanger, Norway

Hydrodynamic Coefficients of Generic Subsea Modules in Forced Oscillation Tests – Importance of Structure Parts OMAE2022-79718
Mia Abrahamsen Prsic[1] Frøydis Solaas[1] Trygve Kristiansen[2]
1. SINTEF Ocean, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway

Importance of the Inertial Components in Modal State Covariances OMAE2022-78644
Margaux Geuzaine[1] Aksel Fenerci[2] Øiseth Ole[3] Vincent Denoël[4]
1. University of Liège, Beaufays, Belgium; 2. Norwegian University of Science and Technology, Ålesund, Norway; 3. Norwegian University of Science and Technology, Gløshaugen, Norway; 4. University of Liège, Liège, Belgium

Structures, Safety and Reliability

02-01-02 Extreme Waves

Tuesday June 7 | Room **Hall E** | **10:30–12:00**

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

Session Co-Organizer: Yutaka Ohta, Waseda University, USA

The Global Distribution of Extreme Value Significant Wave Height OMAE2022-79587
Ian Young, Alberto Meucci, Alicia Takbash
University of Melbourne, Melbourne, VIC, Australia

Storm Models for the Calculation of Extreme Wind Speed OMAE2022-81323
Valentina Laface, Felice Arena, Alessandra Romolo
Mediterranea University of Reggio Calabria, Reggio Calabria, Italy

Analysis of Wave Fields during Ship Accidents in the North-Western Mediterranean OMAE2022-78661
Alessio Innocenti[1] Gianni Messeri[2] Miguel Onorato[3] Carlo Brandini[2]
1. Consorzio Lamma, Sesto Fiorentino, Italy; 2. Institute for Bioeconomy, National Research Council of Italy (CNR-IBE) - Consorzio Lamma, Sesto Fiorentino, Italy; 3. Università di Torino, Torino, Italy

Structures, Safety and Reliability

02-10-02 Collision and Crashworthiness II

Tuesday June 7 | Room **Hall F** | **10:30–12:00**

Session Organizer: Zhiqiang Hu, Newcastle University, United Kingdom

Session Co-Organizer: Sören Ehlers, Hamburg University of Technology, Germany

Numerical Investigations on Plastic Responses of Strain-Rate Sensitive Panels under the Lateral Impact OMAE2022-78746
Hongyu Zhou, Deyu Wang
Shanghai Jiao Tong University, Shanghai, China (Mainland)

Numerical Simulation of Dynamic and Static Mechanical Response of Sinusoidal Sandwich Structure OMAE2022-79142
Houqi Yao, Jia Qu
College of Aerospace and Civil Engineering, Harbin Engineering University, Harbin, China (Mainland)

Discretization Challenges in Crash Simulations: Mesh, Geometry and Failure Criterion Effects from the Energy Perspective OMAE2022-79655
Okko Coppejans, Noud Werter
TNO, Delft, Netherlands

Risk Assessment of Collision between Dynamically Positioned Vessel and Offshore Installation OMAE2022-78952
Haibo Chen[1] Bjørn Nygård[2] **Nils Hasund**[1]
1. Vysus Group Norway, Oslo, Norway; 2. Equinor, Oslo, Norway

Materials Technology

03-04-01 Environmental Effect on Materials Performance

Tuesday June 7 | Room **Hall D** | **10:30–12:00**

Session Organizer: Mamdouh Salama, MMS4AIM LLC, USA

Session Co-Organizers: Agnes Marie Horn, DNV, Norway; Carol Johnston, TWI, United Kingdom

Fracture Toughness Characterization of LSAW UOE Pipes in Sour Media and Implications on Burst Pressure OMAE2022-79322
Sebastian Cravero[1] Mariano Coloschi[1] Martín Valdez[1] Fabio Arroyo[2] Philippe Darcis[3]
1. Tenaris, Campana, Argentina; 2. Tenaris, Pindamonhangaba, SP, Brazil; 3. Tenaris, Bergamo, Italy

Quantification of Pitting and Stress Concentration Factors on Steel Coupons Exposed to Seawater in the North Sea OMAE2022-79458
Philippe Thibaux[1] Cedric Vanden Haute[2]
1. OCAS, Gent, Belgium; 2. Parkwind, Leuven, Belgium

Effect of Temperature on Resistance to Hydrogen Embrittlement of Dissimilar Metal Welds Subjected to SENB and SENT Testing OMAE2022-79852
Michael Dodge[1] Lars Magne Haldorsen[2] Mike Gittos[1] Kasra Sotoudeh[1]
1. TWI Ltd, Cambridge, United Kingdom; 2. Equinor ASA, Stavanger, Norway

The Role of Surface Roughness on Pitting Corrosion Initiation in Nickel Aluminium Bronzes in Air OMAE2022-80997
Tamsin Dobson[1] Nicolas Larrosa[1] Saurabh Kabra[2] Harry Coules[1]
1. University of Bristol, Bristol, United Kingdom; 2. Science and Technology Facilities Council (STFC), Didcot, United Kingdom

Pipeline, Risers, and Subsea Systems

04-01-04 Flexible Pipes and Umbilicals IV

Tuesday June 7 | Room **Y2** | **10:30–12:00**

Session Organizer: Zhimin Tan, Baker Hughes, USA

Session Co-Organizers: Jun Yan, Dalian University of Technology, China (Mainland); José Renato Mendes De Sousa, Federal University of Rio de Janeiro, Brazil; Theodoro Netto, Fundacao Coppetec, Brazil; Duane DeGeer, Intecsea, USA; Anh Tuan Do, TechnipFMC, France; Alan Dobson, TechnipFMC, United Kingdom

Smooth Carcass for Flexible Pipe – Field Case Study OMAE2022-81285
Jeremie Barbier[1] Cyril Holyst[2] Renaud Phelut[1] Eric Tran[2]
1. TechnipFMC Plc, le trait, France; 2. TechnipFMC plc, Perth, WA, Australia

Cross Section Analysis of Flexible Risers Including Composite Layers OMAE2022-81326
Geir Skeie, Nils Sødahl, Dag Mcgeorge
DNV, Hovik, Norway

Ocean Engineering

06-04-02 Marine Engineering and Technology II

Tuesday June 7 | Room **Y4** | **10:30–12:00**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Ulisses A. Monteiro, Fundacao Coppetec, Brazil; Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil; Luiz Vaz, Universidade Federal do Rio de Janeiro, Brazil

The Comparison of Two Kinematic Motion Models for Autonomous Shipping Maneuvers OMAE2022-79583
Yufei Wang, Lokukaluge Prasad Perera, Bjørn-Morten Batalden
The University of Tromsø – The Arctic University of Norway, Department of Technology and Safety, Tromsø, Norway

A Study on Safer New Optimal Route for Anti-collision in Coastal Waters OMAE2022-79685
Won-Ouk Kim[1] Song-Jin Kang[1] Young-Rong Kim[2] Chang-Je Kim[3]
1. Korea Institute of Maritime and Fisheries Technology, Busan, Korea; 2. Department of Marine Technology, Norwegian University of Science and Technology, Trondheim, Norway; 3. Division of Navigation Convergence Studies, Korea Maritime and Ocean University, Busan, Korea

Spray Icing on ONEGA Vessel – a Comparison of Liquid Water Content Expressions OMAE2022-79919
Sushmit Dhar, Eirik Mikal Samuelsen, Masoud Naseri, Karl Gunnar Aarsæther, Kåre Edvardsen
UiT The Arctic University of Norway, Tromsø, Norway

Composite Propellers Showing Passive Automatic Bend Twist Characteristics by Combining Several Design Concepts OMAE2022-80646
Sondre Ø. Rokvam, Andreas T. Echtermeyer
Norwegian University of Science and Technology, Trondheim, Norway

Ocean Engineering

06-05-01 Marine Hydrodynamics I

Tuesday June 7 | Room **Y3** | **10:30–12:00**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Emerson Andrade, Federal University of Rio de Janeiro, Brazil; Shuzheng Sun, Harbin Engineering University, China (Mainland); Sanne Van Essen, MARIN, Netherlands; Lin Li, UIS, Norway; Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil; Filipe Salvador Lopes, Universidade Federal do Rio de Janeiro, Brazil; Masoud Hayatdavoodi, University of Dundee, United Kingdom

Machine Learning Based Prediction of Wave-induced Vessel Response OMAE2022-78261
Ali Cetin[1] Vegard R. Solum[1] Cristina Evans[2]
1. 4Subsea, Asker, Norway; 2. Subsea7, Westhill, United Kingdom

Design of the Propulsion System for the Autonomous XLUUV MUM OMAE2022-78583
Martin Greve[1] Martin Kurowski[2] Sebastian Ritz[3] Matthias Golz[3]
Lakshmi Narasiman Vijayasarathi[3] Nursen Bayazit[3] Erik Rentzow[2]
1. Thyssenkrupp Marine Systems, Kiel, Germany; 2. Universität Rostock, Institut für Automatisierungstechnik, Rostock, Germany; 3. Technische Universität Berlin, Institut für Land- und Seeverkehr, FG Entwurf und Betrieb Maritimer Systeme, Berlin, Germany

Nonlinear Hydrostatic Restoring Characteristics of a Spar Floating Wind Turbine OMAE2022-78799
Zhengyang Pang[1] Aichun Feng[1] Zhiyu Jiang[2] Amrit Shankar Verma[3] Ke Chen[1]
1. Shanghai Jiao Tong University, Shanghai, China (Mainland); 2. University of Agder, Grimstad, Norway; 3. The University of Maine, Orono, ME, USA

Estimation of Hydrodynamic Forces on Cylinders Undergoing Flow-induced Vibrations Based on Modal Analysis OMAE2022-78925
Guang Yin, Marek Janocha, Muk Chen Ong
University of Stavanger, Stavanger, Norway

Identification and Investigation of Extreme Events on Marine Structures Using ALE Approach and Hydrodynamic Coupling of Navier Stokes- and Laplace Equation-based Models OMAE2022-79036
Arun Kamath[1] Tobias Martin[1] Weizhi Wang[1] Csaba Pakozdi[2] Hans Bihs[1]
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. SINTEF Ocean, Trondhiem, Norway

Polar and Arctic Sciences and Technology

07-03-01 Vessels in Ice – Loads

Tuesday June 7 | Room **Y5** | **10:30–12:00**

Session Organizer: Gesa Ziemer, DLR, Germany

Session Co-Organizer: Walter Kuehnlein, terra.blue, Germany

Effect of Floe Field Properties on Ice Loads on Ship Hull in Three-dimensional Discrete Element Simulations OMAE2022-81054
Jukka Tuhkuri[1] Hanyang Gong[2] **Arttu Polojärvi**[1]
1. Aalto University, Espoo, Finland; 2. Aker Arctic Technology Inc., Helsinki, Finland

Safety Distance during Escort and Convoy Based on Channel Breakout Simulation and Model Tests OMAE2022-79206
Fang Li[1] Otto Puolakka[1] Floris Goerlandt[2] Pentti Kujala[1]
1. Aalto University, Espoo, Finland; 2. Dalhousie University, Halifax, NS, Canada

On the Structural Analysis of Icebreakers Due to Ramming of First-Year Ice Ridges OMAE2022-79661
Weidong Zhao[1] Bernt Johan Leira[2] Knut Vilhelm Høyland[2] Ekaterina Kim[2] Guoqing Feng[3] Zhanyang Chen[1] Hongbin Gui[1]
1. Harbin Institute of Technology, Weihai, China (Mainland); 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. Harbin Engineering University, Harbin, China (Mainland)

On Design Parameters for Accidental Ice Loading on Ship Hulls OMAE2022-81304
Wei Chai[1] **Bernt Leira**[2] Gowtham Radhakrishnan[2]
1. Wuhan Univeristy of Technology, Wuhan, China (Mainland); 2. NTNU, Department of Marine Technology, Trondheim, Norway

CFD and VIV

08-04-04 Advanced Analytics

Tuesday June 7 | Room **Y6** | **10:30–12:00**

Session Organizer: Guilherme Vaz, blueOASIS, Portugal

Session Co-Organizers: Yiannis Constantinides, Chevron, USA; Owen Oakley, Retired, USA

Physics-informed Neural Network with Numerical Differentiation for Modelling Complex Fluid Dynamic Problems OMAE2022-81237
My Ha Dao, Pao-Hsiung Chiu, Jian Cheng Wong, Chin Chun Ooi
Institute of High Performance Computing, Singapore, Singapore

CFDwavemaker: an Open-source Library for Efficient Generation of Higher Order Wave Kinematics OMAE2022-81272
Øystein Lande[1] Jens Bloch Helmers[2]
1. DNVGL, Høvik, Norway; 2. DNV, Høvik, Norway

Ocean Renewable Energy

09-01-05 FWT Structural Dynamics II

Tuesday June 7 | Room **Y7** | **10:30–12:00**

Session Organizer: Zhengshun Cheng, Shanghai Jiao Tong University, China (Mainland)

Session Co-Organizer: Krish Thiagarajan, University of Massachusetts Amherst, USA

Dynamic Response Analysis of a Novel Semi-submersible Floating Offshore Wind Turbine Based on Different Mooring System Designs OMAE2022-80585
Zhixin Zhao[1] Wenhua Wang[1] Wei Shi[1] Xin Li[1] Bin Wang[2]
1. State Key Laboratory of Coastal and Offshore Engineering, Dalian University of Technology, Dalian, China (Mainland); 2. Renewable Energy Engineering Institute, Power China Huadong Engineering Corporation Limited, Hangzhou, China (Mainland)

Platform Motion Forecast of Hywind Floating Offshore Wind Turbine Based on SADA Method and Full-Scale Measurement Data OMAE2022-79735
Peng Chen, Zhiqiang Hu
Newcastle University, Newcastle upon Tyene, United Kingdom

Experimental and Numerical Investigation on the Dynamic Response of Platform for a Spar-type Floating Wind Turbine under Aerodynamic and Hydrodynamic Forces OMAE2022-81290
Baoxuan Wang[1] Xu Liang[2] Xue Jiang[3]
1. Zhejiang University, Hangzhou, China (Mainland); 2. Zhejiang University, Zhoushan, China (Mainland); 3. Zhejiang Ocean University, Glasgow, United Kingdom

Ocean Renewable Energy

09-02-03 WEC Performance Analysis

Tuesday June 7 | Room **Y8** | **10:30–12:00**

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

Session Co-Organizer: Krish Thiagarajan, University of Massachusetts Amherst, USA

Accurate WEC Power Estimation for Multi-modal Wave Spectra OMAE2022-81155
Kourosh Parsa, Mark Kim, Neil Williams
Ocean Power Technologies, Inc., Monroe Township, NJ, USA

A Novel Zero-discharge Supercritical Water-based Wave Energy Desalination System OMAE2022-78191
Faete Filho[1] Gabriel Glosson[1] Jason Mcmorris[1] Tarek Abdel-Salam[1] Kurabachew Duba[1] Thanh Toan Tran[2] Salman Husain[2]
1. East Carolina University, Greenville, NC, USA; 2. National Renewable Energy Laboratory, Golden, CO, USA

The Influence of Different Configurations and Spacings on the Performance of Oscillating Wave Surge Converters when Operating in Wave Farms OMAE2022-80110
Daniela Benites Munoz[1] Luofeng Huang[2] Giles Thomas[1]
1. University College London, London, United Kingdom; 2. Cranfield University, London, United Kingdom

Input-Unknown Estimation for Arrays of Wave Energy Conversion Systems via LTI Synthesis OMAE2022-81361
Guglielmo Papini[1] Pasta Edoardo[1] Nicolás Faedo[1] Bruno Paduano[2] Giuliana Mattiazzo[2]
1. MOREnergy Lab, Politecnico di Torino, Turin, Italy; 2. Politecnico di Torino, Turin, Italy

Offshore Geotechnics

10-04-01 Bucket, Gravity Foundations and Caissons

Tuesday June 7 | Room **Y9** | **10:30–12:00**

Session Organizer: Giuseppe Abbiati, Aarhus University, Denmark

Session Co-Organizer: Brian Carlton, Norwegian Geotechnical Institute, Norway

On the Influence of the Soil Stratigraphy on the Monopile Deflection Investigated with FEM in a PISA Framework OMAE2022-79329
Manuela Kanitz[1] Carlos Molina Mesa[2] Luís Berenguer Todo Bom[1] Jan Dührkop[1]
1. Ramboll, Hamburg, Germany; 2. Ramboll, Copenhagen, Denmark

A Computational Framework for Integrated Analysis and Hybrid Testing of Mooring Line Foundations OMAE2022-79853
Giuseppe Abbiati[1] Andrea Franza[2] Zili Zhang[2] Lars Vabbersgaard Andersen[2] Hans Henning Stutz[3]
1. Aarhus University, Aarhus, Denmark; 2. Aarhus University, Department of Civil and Architectural Engineering, Aarhus C, Denmark; 3. Karlsruhe Institute of Technology, Institute of Soil Mechanics and Rock Mechanics, Karlsruhe, Germany

Potential and Consequences of Earthquake Induced Liquefaction under a Gravity Based Structure OMAE2022-80169
Brian Carlton[1] Patrick Lee[2] Filippo Belloni[3] Amir Kaynia[4]
1. Norwegian Geotechnical Institute, Oslo, Norway; 2. ExxonMobil, Spring, TX, USA; 3. Adriatic LNG, Milan, Italy; 4. Norwegian University of Science and Technology, Trondheim, Norway

The Bearing Capacity of Monopile Foundations under Combined Loading in Spatially Variable Soil and Local Scour Conditions OMAE2022-80775
Jun Liu, Xinshuai Guo, Ping Yi
Dalian University of Technology, Dalian, China (Mainland)

Petroleum Technology

11-05-01 Well Cementing Theory and Practice I

Tuesday June 7 | Room **Y10** | **10:30–12:00**

Session Organizer: Ergun Kuru, University of Alberta, Canada

Session Co-Organizers: Seyed Mohammad Taghavi, Laval University, Canada; Ian Frigaard, University of British Columbia, Canada

Experimental Study of Displacement Flows in a Vertical Eccentric Annulus OMAE2022-78621
Ruizi Zhang, Heeseok Jung, Alondra Renteria, Ian Frigaard
University of British Columbia, Vancouver, BC, Canada

Viscoplastic Fluid Placements in a Confined Geometry with Applications in the Dump Bailing Method in the Plug and Abandonment of Oil and Gas Wells OMAE2022-78848
Soheil Akbari, Seyed Mohammad Taghavi
Laval University, Quebec City, QC, Canada

Off-bottom Plug Placement: on the Effects of Pulling Out of the Hole OMAE2022-78930
Abdallah M. Ghazal, Ida Karimfazli
Concordia University, Montreal, QC, Canada

The Effect of Fluid Contamination on Rheological Properties of Geopolymer Materials OMAE2022-78994
Pouya Khalili, Mahmoud Khalifeh, Arild Saasen
University of Stavanger, Stavanger, Norway

Petroleum Technology

11-12-02 Sustainability and Green Transition in Petroleum Industry II

Tuesday June 7 | Room **Y11** | **10:30–12:00**

Session Organizer: Ergun Kuru, University of Alberta, Canada

Session Co-Organizer: Jan David Ytrehus, SINTEF Petroleum, Norway

Energy Efficiency and Mitigation of Greenhouse Gases in FPSOs Ships OMAE2022-80003
Gustavo Castro, Alexandre De Barros Gallo, Alberto Fossa, Edmilson Moutinho Dos Santos
University of São Paulo, São Paulo, SP, Brazil

Offshore Wind Farms and Isolated Oil and Gas Platforms: Perspectives and Possibilities OMAE2022-80645
Daniel Dos Santos Mota[1] Erick Fernando Alves[1] Elisabetta Tedeschi[1] Santiago Sanchez-Acevedo[2] Harald Svendsen[2]
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. SINTEF, Trondheim, Norway

Oil and Gas Technologies as Key Elements for a Viable Deep Sea Mining Industry OMAE2022-81273
Egil Tjåland, Steinar Ellefmo, Kurt Aasly, Tor Berge Gjersvik, Christine Fichler
Norwegian University of Science and Technology, Trondheim, Norway

Towards a Market and Industrially Driven Green Transition of the Norwegian Oil and Gas Industry OMAE2022-81330
Ragnhild Skorpa[1] **Lars Sørum**[1] Jan David Ytrehus[2]
1. SINTEF, Trondheim, Norway; 2. SINTEF Petroleum, Trondheim, Norway

Honoring Symposium for Professor Günther F. Clauss on Hydrodynamics and Ocean Engineering

12-03-01 Deterministic Wave and Motion Prediction

Tuesday June 7 | Room **Y12** | **10:30–12:00**

Session Organizer: Marco Klein, Hamburg University of Technology, Germany

Session Co-Organizer: Sascha Kosleck, University of Rostock, Germany

Nonlinear Reconstruction and Prediction of Regular Waves OMAE2022-78988
Nicolas Desmars[1] Moritz Hartmann[1] Jasper Behrendt[2] Marco Klein[1] Norbert Hoffmann[1]
1. Hamburg University of Technology, Hamburg, Germany; 2. BHS Hamburg, Hamburg, Germany

Application of Machine Learning for the Generation of Tailored Wave Sequences OMAE2022-78601
Marco Klein, Merten Stender, Mathies Wedler, **Svenja Ehlers**, Moritz Hartmann,
Nicolas Desmars, Marc-André Pick, Robert Seifried, Norbert Hoffmann
Hamburg University of Technology, Hamburg, Germany

Short-term Forecasting of Surface Wave Elevation Based on an Autoregressive Model OMAE2022-81298
Jialun Chen, Wenhua Zhao, Ian Milne, Scott Draper
University of Western Australia, Perth, WA, Australia

Real-time Ship Motion Prediction Using Artificial Neural Network OMAE2022-80042
Bhushan Taskar[1] Kie Hian Chua[1] Tatsuya Akamatsu[2] Ryo Kakuta[3] Song Wen Yeow[1]
Ryosuke Niki[3] Keita Nishizawa[3] Allan Magee[1]
1. TCOMS, Singapore, Singapore; 2. MTI Co.,Ltd. Singapore Branch, Singapore, Singapore; 3. MTI Co., Ltd., Tokyo, Japan

CONCURRENT SESSIONS
13:30 – 15:00

Offshore Technology

01-07-01 Wave Loading and Motions in Extreme Seas

Tuesday June 7 | Room **Y1** | **13:30–15:00**

Session Organizer: Nuno Fonseca, Marintek, Norway

Session Co-Organizer: Jule Scharnke, MARIN, Netherlands

Finding Dangerous Waves – Towards an Efficient Method to Obtain Wave Impact Design Loads for Marine Structures OMAE2022-79479
Sanne van Essen, Harleigh Seyffert
Delft University of Technology, Delft, Netherlands

IMO Level 3: Parametric Roll Stability Failure Simulation Using 3D Numerical Wave Tank OMAE2022-79654
Shivaji Ganesan Thirunaavukkarasu[1] Amresh Negi[1] Debabrata Sen[2]
1. Indian Register of Shipping, Mumbai, MH, India; 2. Indian Institute of Technology Kharagpur, Kahragpur, WB, India

Increase of Wave Drift Forces in Severe Seastates Due to Wave Frequency Viscous Damping OMAE2022-81461
Nuno Fonseca[1] Babak Ommani[2]
1. SINTEF Ocean, Ranheim, Norway; 2. SINTEF Ocean, Trondheim, Norway

Structures, Safety and Reliability

02-01-03 Extreme Sea States

Tuesday June 7 | Room **Hall E** | **13:30–15:00**

Session Organizer: Alexander Babanin, University of Melbourne, Australia

Session Co-Organizer: Elzbieta Maria Bitner-Gregersen, DNV/Ocean Wave Research, Norway

Performance of the Observation-based Source Terms in a High-resolution Wave Hindcast for the North Sea OMAE2022-78512
Henrique Rapizo[1] Qingxiang Liu[2] Alexander Babanin[3]
1. MetOcean Solutions, Raglan, New Zealand; 2. Physical Oceanography Laboratory, Ocean University of China, Qindao, China (Mainland); 3. University of Melbourne, Melbourne, VIC, Australia

Observation-based Physics in WAVEWATCH-III and SWAN OMAE2022-78938
Alexander V. Babanin
University of Melbourne, Melbourne, VIC, Australia

Cyclonic Wave Field in the Bay of Bengal Region under Changing Climate Scenarios OMAE2022-79092
Bhavithra R S, Sannasiraj S A
Indian Institute of Technology Madras, Chennai, TN, India

Introducing Observation-based Physics into the WAM Wave Model OMAE2022-79652
Joshua Kousal[1] Qingxiang Liu[2] Joanna Staneva[3] Arno Behrens[3] Heinz Günther[3] Jean Bidlot[4] Alexander Babanin[1]
1. University of Melbourne, Melbourne, VIC, Australia; 2. Ocean University of China, Qingdao, China (Mainland); 3. Helmholtz-Zentrum Hereon, Geesthacht, Germany; 4. European Centre for Medium-Range Weather Forecasts, Reading, United Kingdom

Structures, Safety and Reliability

02-12-01 Structural Analysis and Optimization I

Tuesday June 7 | Room **Hall F** | **13:30–15:00**

Session Organizer: Jonas Ringsberg, Chalmers University of Technology, Sweden

Session Co-Organizer: Paulo Videiro, CENTEC, Brazil

Structural Optimization of Ships: Benchmark Study of Metaheuristic Algorithms and Constraint Handling Approaches OMAE2022-79199
Yuecheng Cai, **Jasmin Jelovica**
University of British Columbia, Vancouver, BC, Canada

Topology Optimization of Joints between Prismatic Sandwich Panels and Girders under In-Plane and Bending Loads OMAE2022-79418
Shengyu Yan, **Jasmin Jelovica**
University of British Columbia, Vancouver, BC, Canada

A Strategy for the Reduction of Structural Weight of Composite Vessels OMAE2022-80387
Marco Gaiotti, **Gianmarco Vergassola**, Tatiana Pais
University of Genova, Genova, Italy

Materials Technology

03-05-01 Performance and Reliability of Non-Metallics

Tuesday June 7 | Room **Hall D** | **13:30–15:00**

Session Organizer: Mamdouh Salama, MMS4AIM LLC, USA

Session Co-Organizers: Agnes Marie Horn, DNV, Norway; Carol Johnston, TWI, United Kingdom

Load Capacity of Sandwich Panel with Core Foam Evaluated by 3-Point Bending Test OMAE2022-79308
Lennart Josefson[1] Stephane Paboeuf[2] Konstantinos Anyfantis[3] Albert Zamarin[4]
Carolyn Oddy[1] Benjamin Collier[2] Katerina Ntouni[3] Davor Bolf[4]
1. Chalmers University of Technology, Göteborg, Sweden; 2. Bureau Veritas Marine & Offshore, Saint-Herblain, France; 3. National Technical University of Athens, Athens, Greece; 4. University of Rijeka, Rijeka, Croatia

Development of Fire Integrity Matrix in Order to Achieve Type Approval for FRP Handrails Offshore OMAE2022-80313
Simon Eves[1] David Filho[2] Claudio Jarreta[3] Tom Byrne[4]
1. NOV, Plymouth, United Kingdom; 2. Modec Servicos de Petroleo do Brasil Lida, Rio de Janerio, RJ, Brazil; 3. Petrobras, Rio de Janerio, RJ, Brazil; 4. NOV Fibreglass Systems, Plymouth, United Kingdom

Numerical Analysis of the Efficiency of Corroded Pressure Vessels with Composite Repair OMAE2022-79165
Geovana Drumond[1] **Rodrigo Ribeiro**[1] Ilson Pasqualino[1] Marcelo Igor Lourenço De Souza[1] Valber Perrut[2] Luiz Daniel Lana[2]
1. Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 2. Petrobras, Rio de Janeiro, RJ, Brazil

Performance of PA6C Plastic Sheaves Used for Mooring Line Installation OMAE2022-79057
Vidar Hellum[1] Anders Vaalandsmyr[2] Thomas Schonlau[3] Anette Heimdal[4] Jawk Meijer[3]
1. University of Agder, Arendal, Norway; 2. National Oilwell Varco, Kolbjørnsvik, Norway; 3. Röchling Industrial Xanten, Xanten, Germany; 4. University of Agder, Grimstad, Norway

Pipeline, Risers, and Subsea Systems

04-01-05 Flexible Pipes and Umbilicals V

Tuesday June 7 | Room **Y2** | **13:30–15:00**

Session Organizer: Zhimin Tan, Baker Hughes, USA

Session Co-Organizers: Jun Yan, Dalian University of Technology, China (Mainland); José Renato Mendes De Sousa, Federal University of Rio de Janeiro, Brazil; Theodoro Netto, Fundacao Coppetec, Brazil; Duane DeGeer, Intecsea, USA; Anh Tuan Do, TechnipFMC, France; Alan Dobson, TechnipFMC, United Kingdom

Numerical Evaluation of the Thermal Performance of Modern Offshore Wind Farm Cables Installed in J-Tubes OMAE2022-80962
Panagiotis Delizisis[1] Charilaos Kokkinos[2] Dimitrios Chatzipetros[3] Dionisis Pettas[2] Andreas I. Chrysochos[3] Konstantinos Loukas[2]
1. Hellenic Cables, Galatsi, Greece; 2. FEAC Engineering, Patras, Greece; 3. Hellenic Cables, Marousi, Athens, Greece

New Design Methods for Subsea Power Cables Are Helping the Global Marine Renewable Energy Industry Lower Costs and Improve Reliability OMAE2022-80172
Terry Griffiths[1] Scott Draper[1] Liang Cheng[1] Hongwei An[1] Marie-Lise Schläppy[1] Feifei Tong[1] Antonino Fogliani[1] Wacek Lipski[2] Chas Spradbery[3] Yunfei Teng[4] David White[5] Daniel Coles[6] Stuart Noble[7] Siobhan Doole[8] Fraser Johnson[9]
1. University of Western Australia, Nedlands, WA, Australia; 2. Palisade Integrated Management Services, Melbourne, VIC, Australia; 3. Peritus International, Woking, United Kingdom; 4. Dalian University of Technology, Dalian, China (Mainland); 5. University of Southampton, Southampton, United Kingdom; 6. University of Plymouth, Plymouth, United Kingdom; 7. Sealip Engineering, Rochdale, United Kingdom; 8. JDR Cable Systems, Hartlepool, United Kingdom; 9. Simec Atlantis, Edinburgh, United Kingdom

An Efficient 1st Order Stress Hysteresis Model for Helically Laid Rectangular Elements in Power Cables and Umbilicals OMAE2022-78139
Kjetil André Karlsen
Nexans Norway AS, Halden, Norway

Ocean Engineering

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

Tuesday June 7 | Room **Y4** | **13:30–15:00**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Torgeir Vada, DNVGL, Norway; Pierre Ferrant, Ecole Centrale De Nantes/Cnrs, France; Marcelo Caire, Federal University of Rio de Janeiro, Brazil; Nuno Fonseca, SINTEF Ocean, Norway; Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil; Filipe Salvador Lopes, Universidade Federal do Rio de Janeiro, Brazil

Second Order Difference- and Sum-Frequency Wave Loads in the Open-source Potential Flow Solver NEMOH OMAE2022-79163
Ruddy Kurnia, Guillaume Ducrozet, Jean-Christophe Gilloteaux
LHEEA, Ecole Centrale Nantes, Nantes, France

A Physical-based Damping Model of Gap and Moonpool Resonance in WAMIT OMAE2022-79673
Senthuran Ravinthrakumar[1] Babak Ommani[1] Trygve Kristiansen[2] Idunn Olimb[3] Bernt Karsten Lyngvær[3]
1. SINTEF Ocean, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. Equinor Energy, Bergen, Norway

2d Discrete Module Beam (DMB) Method Formulation to Simulate Hydro-Elastic Structures with Two Horizontal Bending Axes OMAE2022-79802
Farid P. Bakti[1] Chungkuk Jin[2] Moohyun Kim[2]
1. Institut Teknologi Bandung, Bandung, Indonesia; 2. Texas A&M University, College Station, TX, USA

Two-dimensional Numerical Analysis of Mean Wave Drift Loads on Two Fixed Boxes OMAE2022-79910
Lei Tan[1] Tomoki Ikoma[2] Changhong Hu[3]
1. Kyushu University, Funabashi, Japan; 2. Nihon University, Funabashi, Japan; 3. Kyushu University, Kasuga, Japan

Ocean Engineering

06-05-02 Marine Hydrodynamics II

Tuesday June 7 | Room **Y3** | **13:30–15:00**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Emerson Andrade, Federal University of Rio de Janeiro, Brazil; Shuzheng Sun, Harbin Engineering University, China (Mainland); Sanne Van Essen, MARIN, Netherlands; Lin Li, UIS, Norway; Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil; Filipe Salvador Lopes, Universidade Federal do Rio de Janeiro, Brazil; Masoud Hayatdavoodi, University of Dundee, United Kingdom

An Implicit Time-domain Rankine Panel Method for Ship Motions in a Non-inertial Body-fixed Frame of Reference OMAE2022-79054
Hui Liang[1] Yanlin Shao[2] Kie Hian Chua[3] Allan Magee[3]
1. TCOMS, Singapore, Singapore; 2. Technical University of Denmark, Copenhagen, Denmark; 3. Technology Centre for Offshore and Marine, Singapore, Singapore, Singapore

Wave Drift Forces and Low Frequency Drift Motions for Mooring Analysis of a Spread Moored FPSO OMAE2022-79066
Min Zhang[1] Nuoya Xu[1] Tianen Yang[1] Nuno Fonseca[2] Fredrik Mood[3]
1. Ocean University of China, Qingdao, China (Mainland); 2. SINTEF Ocean, Trondheim, Norway; 3. Inocean AS, Oslo, Norway

Data-Driven Propeller and Rudder Modeling for Maneuvering Analysis of the ONR Tumblehome OMAE2022-79139
Bradford Knight, Kevin Silva, Kevin Maki
University of Michigan, Ann Arbor, MI, USA

A Weibull Distribution-based Parametrization for Encounter Wave Spectra OMAE2022-79264
Lariuss Zago[1] Alexandre Kawano[1] Alexandre Simos[1] **Rodolfo Gonçalves**[2]
1. University of São Paulo, São Paulo, SP, Brazil; 2. The University of Tokyo, Tokyo, Japan

Polar and Arctic Sciences and Technology

07-04-01 Vessels in Ice – Simulations

Tuesday June 7 | Room **Y5** | **13:30–15:00**

Session Organizer: Angelo Mario Böhm, TUHH, Germany

Session Co-Organizer: Marc Cahay, Technip Energies, France

Simulation of a Ship Advancing in Pre-sawn Ice OMAE2022-80106
Luofeng Huang[1] Fang Li[2] Minghao Li[3]
1. Cranfield University, London, United Kingdom; 2. Aalto University, Helsinki, Finland; 3. Chalmers University of Technology, Gothenburg, Sweden

Investigations on Hull-Ice Frictional Effects OMAE2022-78885
Quentin Hisette, Daniela Myland
Hamburgische Schiffbau-Versuchsanstalt GmbH (HSVA), Hamburg, Germany

Numerical Research on the Resistance Performance of a Ship under Pack Ice Conditions OMAE2022-78558
Tang Xiang-Jie[1] Zou Ming[1] Zou Lu[2] Zou Zao-Jian[2]
1. Shanghai Jiao Tong University, Shanghai, China (Mainland); 2. School of Naval Architecture, Ocean and Civil Engineering, Shanghai Jiao Tong University, Shanghai, China (Mainland)

Numerical Simulation of Ship-Ice Interaction in Pack Ice Area Based on CFD-DEM Coupling Method OMAE2022-78945
Ming Zou, Xiang-Jie Tang, Lu Zou, Zao-Jian Zou
School of Naval Architecture, Ocean and Civil Engineering, Shanghai Jiao Tong University, Shanghai, China (Mainland)

CFD and VIV

08-04-03 Offshore Wind

Tuesday June 7 | Room **Y6** | **13:30–15:00**

Session Organizer: Guilherme Vaz, blueOASIS, Portugal

Session Co-Organizer: Owen Oakley, Retired, USA

Digital Twining of Horizontal Axis Wind Turbine with Reduced-order Modelling Approach OMAE2022-81334
Xiang Zhao, Quang Tuyen Le, My Ha Dao
*Institute of High Performance Computing, A*STAR Research Entities, Singapore, Singapore*

A Numerical Study on the Thrust and Interaction of a Three-sail Wind-assisted Propulsion System OMAE2022-80679
Zhengqiao Chen, Wei Cai, **Qingsong Zeng**
Wuhan University of Technology, Wuhan, China (Mainland)

Code and Solution Verification of Sliding and Overset Grid Methods on Wind Turbine Flows OMAE2022-81337
Tiago Gomes[1] Sébastien Lemaire[2] Guilherme Vaz[3]
1. Instituto Superior Técnico, Lisboa, Portugal; 2. University of Southampton and MARIN (Maritime Research Institute Netherlands), Southampton, United Kingdom; 3. blueOASIS and ISMT - Universität Duisburg-Essen, Lisboa, Portugal

Data Fusion for Jack-up Wind Load Prediction OMAE2022-81256
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. Department of Mechanical Engineering, National University of Singapore, Singapore, Singapore*

Ocean Renewable Energy

09-01-06 Wind Turbine Aerodynamicsl

Tuesday June 7 | Room **Y7** | **13:30–15:00**

Session Organizer: D. Todd Griffith, University of Texas at Dallas, USA

Session Co-Organizer: Krish Thiagarajan, University of Massachusetts Amherst, USA

Wake Interaction between Two Floating Offshore Wind Turbines with Blade Deformation OMAE2022-78288
Yang Huang[1] Decheng Wan[2] Qing Xiao[1]
1. University of Strathclyde, Glasgow, United Kingdom; 2. Shanghai Jiao Tong University, Shanghai, China (Mainland)

Effect of Protuberances at the Blade Trailing Edge of a Vertical Axis Wind Turbine OMAE2022-78552
Miguel Somoano[1] **Francisco Huera-Huarte**[2]
1. Instituto de Hidraulica Ambiental de la Universidad de Cantabria, Santander, Spain; 2. Universitat Rovira I Virgili, Tarragona, Spain

Impact of Rotor Solidity on the Design Optimization of Floating Vertical Axis Wind Turbines OMAE2022-78715
Ju Gao, **D. Todd Griffith**, Mohammad Jafari, Shulong Yao, Faraz Ahsan
University of Texas at Dallas, Richardson, TX, USA

Impact of Combining Intracycle Rpm Control and Solidity to Increase Power Production of Floating Vertical Axis Wind Turbines OMAE2022-79137
Mohammad Jafari, Mohammad Sadman Sakib, **D. Todd Griffith**
The University of Texas at Dallas, Dallas, TX, USA

Ocean Renewable Energy

09-02-04 WEC Numerical Modeling

Tuesday June 7 | Room **Y8** | **13:30–15:00**

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

Session Co-Organizer: Krish Thiagarajan, University of Massachusetts Amherst, USA

Three-dimensional Simulations for Geometric Optimization of a Shoreline Hybrid Wave Energy Converter OMAE2022-81070
Theofano Koutrouveli, Luciana Das Neves
IMDC nv, Antwerp, Belgium

Solutions to Wave Damping over Time in CFD RANS Simulations Due to Exponential Generation of Numerical Turbulence OMAE2022-81447
Pietro Casalone, Oronzo Dell'edera, Marco Fontana, Giuliana Mattiazzo, Beatrice Battisti
Politenico di Torino - MOREnergy Lab, Torino, Italy

Modeling Comparison of Flexible-inflatable and Rigid Small-scale Heaving Wave Energy Converters OMAE2022-80867
Michael Kelly[1] Thomas Boerner[2] Mohammad-Reza Alam[1]
1. University of California, Berkeley, Berkeley, CA, USA; 2. CalWave Power Technologies, Oakland, CA, USA

Comprehensive Verification and Validation of a CFD Analysis OMAE2022-80578
Tiago Amaral[1] Manuel Rentschler[2] Guilherme Vaz[2] João Baltazar[3]
1. Instituto Superior Técnico, Cascais, Portugal; 2. blueOASIS, Lisbon, Portugal; 3. Instituto Superior Técnico, Lisbon, Portugal

Offshore Geotechnics

10-03-01 Anchors and Pipelines I

Tuesday June 7 | Room **Y9** | **13:30–15:00**

Session Organizer: Katherine Kwa, University of Southampton, United Kingdom

Session Co-Organizers: Kevin Hayes, Genesis, USA; Hyungchui Jang, Technip, USA

Numerical Investigation of Ship Anchor Penetration in Cohesive Baltic Sea Soil OMAE2022-80822
Duy Anh Dao, Jürgen Grabe
Institute of Geotechnical Engineering and Construction Management, Hamburg, Germany

A Whole-life Anchor Macro Model for Floating Offshore Renewable Energy Systems OMAE2022-81101
Katherine Kwa[1] Nallathamby Sivasithamparam[2] Andrew Deeks[2] David White[1]
1. The University of Southampton, Southampton, United Kingdom; 2. Norwegian Geotechnical Institute, Oslo, Norway

Petroleum Technology

11-07-01 Permanent Well Abandonment

Tuesday June 7 | Room **Y10** | **13:30–15:00**

Session Organizer: Ergun Kuru, University of Alberta, Canada

Session Co-Organizers: Kamali Mohammadreza, University of Stavanger, Norway; Paulo Henrique Silva Santos Moreira, University of Stavanger, Norway

Rheological and Mechanical Properties of Rock-Based Geopolymers Developed for Well Abandonment: Effect of Chemical Admixtures at Elevated Temperatures OMAE2022-78376
Fawzi Chamssine, Mahmoud Khalifeh, Arild Saasen
University of Stavanger, Stavanger, Norway

Plug Cementing Stability OMAE2022-79290
Anastasia Vogl[1] Nile Waldal[2] Parisa Sarmadi[2] Adam Fershtman[2] Rodrigo Seiji Mitishita[2] **Ian Frigaard**[2]
1. University of British Columbia, Department of Mechanical Engineering, Vancouver, BC, Canada; 2. University of British Columbia, Vancouver, BC, Canada

Flowability of Dry and Water Wet Barite Powder OMAE2022-81074
Ragnhild Skorpa[1] Blandine Feneuil[1] Franz Otto Von Hafenbradl[2] Chandana Ratnayake[2]
1. SINTEF, Trondheim, Norway; 2. SINTEF AS, Porsgrunn, Norway

Petroleum Technology

11-10-03 Development of Unconventional Reservoirs III

Tuesday June 7 | Room **Y11** | **13:30–15:00**

Session Organizer: Ergun Kuru, University of Alberta, Canada

Session Co-Organizers: Hadi Belhaj, Khalifa University, U.A.E.; Daoyong (Tony) Yang, Petroleum Systems Engineering, Canada

Experimental Study on Temporary Plugging Diverting Acidification of Heterogeneous Sandstone Reservoirs OMAE2022-78751
0 Zhao[1] Liwei Zhang[2] Rongjun Wang[2] **Qing Wang[3]** Mengchuan Zhang[3] Erdong Yao[3] Bo Wang[4]
1. Operation District of Hutubi Gas Storage of Xinjiang Oilfield Company, Changji, China (Mainland); 2. Engineering Technology Research Institute of Xinjiang Oilfield Company, Karamay, China (Mainland); 3. China University of Petroleum Beijing, Beijing, China (Mainland); 4. China University of Petroleum-Beijing, Karamay, China (Mainland)

Small Sizes of Molybdenum Disulfide Nanosheets as Heavy Oil Viscosity Reducers OMAE2022-78776
Guodong Wu[1] Yanchi Liu[2] Maieryemuguli Anwaier[1] **Er-Dong Yao[3]** Hongda Ren[1] Yuan Li[2]
1. Engineering Technology Research Institute of PetroChina Xinjiang Oilfield Company, Xinjiang, China (Mainland); 2. China University of Petroleum Beijing, Unconventional Petroleum Research Institute, Beijing, China (Mainland); 3. China University of Petroleum China, Beijing, China (Mainland)

Experimental Study on the Influence of Hydraulic Fracturing on Hydrogen Sulfide Generation in Longxi Block of Daqing Oilfield OMAE2022-79022
Hongyu Sun[1] Liguo Zhong[1] Jianbin Liu[1] Tongchun Hao[1] Shihao Li[1] Yu Zhu[1] Hailong Zhang[2] Kexin Wang[2]
1. China University of Petroleum Beijing, Beijing, China (Mainland); 2. Downhole Operation Company of Daqing Oilfield Co Ltd, Daqing, China (Mainland)

Evaluation and Understanding the Potential of Enhanced Oil Recovery for a Candidate Offshore Sandstone Field OMAE2022-79074
Chuangchuang Qi[1] Aneesa Ijaz Rabbani[1] Abhijith Suboyin[1] Jassim Abubacker Ponnambathayil[1]
Md Motiur Rahman[1] Mohamed Haroun[1] Qisheng Ma[2] Muhammad Gibrata[3] Lamia Rouis[3] Yanfidra Djanuar[3]
1. Khalifa University of Science and Technology, Abu Dhabi, United Arab Emirates; 2. Power Environmental Energy Research Institute, Covina, CA, USA; 3. Dragon Oil, Dubai, United Arab Emirates

Honoring Symposium for Professor Günther F. Clauss on Hydrodynamics and Ocean Engineering

12-01-01 Hydrodynamics, Seakeeping and Global Performance I

Tuesday June 7 | Room **Y12** | **13:30–15:00**

Session Organizer: Marco Klein, Hamburg University of Technology, Germany

Session Co-Organizer: Florian Sprenger, University of Rostock, Germany

Validation of Time Domain Seakeeping Computations Based on Capsizing Model Tests in Natural Seaways OMAE2022-78413
Stefan Krüger[1] **Wiebke Römhild[1]** Philipp Russell[2] Christian Frühling[3]
1. Hamburg University of Technology, Hamburg, Germany; 2. Marinearsenal, Wilhelmshaven, Germany; 3. Thyssenkrupp Marine Systems GmbH, Kiel, Germany

Wave-Induced Loads Acting on Monopile Configurations considering Wake Effects OMAE2022-78835
Michael Thome, Bettar Ould El Moctar, Thomas Erling Schellin
Institute of Ship Technology, Ocean Engineering and Transport Systems, Duisburg, Germany

Numerical Investigation of Mean Drift Forces Acting on Restrained FPSO in Regular Waves by Linear and Nonlinear Tools OMAE2022-79052
Csaba Pakozdi, Nuno Fonseca
SINTEF Ocean, Trondheim, Norway

Simulation of a Moored Multibody Offshore Structure Articulated by Different Joints in Waves OMAE2022-79571
Changqing Jiang[1] Ould El Moctar[1] Guiyong Zhang[2] Thomas E. Schellin[1]
1. University of Duiburg-Essen, Duisburg, Germany; 2. Dalian University of Technology, Dalian, China (Mainland)

CONCURRENT SESSIONS
15:30 – 17:30

Offshore Technology

01-02-01 Station Keeping I

Tuesday June 7 | Room **Y1** | **15:30–17:30**

Session Organizer: Allan Magee, National University of Singapore, Singapore

Session Co-Organizer: Anil Sablok, Technip Energies, USA

The Likely Cause of Loss of Position for Dynamically Positioned Semi-submersibles under Moderate Wave Conditions OMAE2022-79149
Karl Erik Kaasen[1] Halgeir Ludvigsen[1] Nuno Fonseca[1] Halvor Lie[1] Lars Geir Bjørheim[2]
1. SINTEF Ocean, Trondheim, Norway; 2. Petroleum Safety Authority Norway, Stavanger, Norway

Mooring Line Failure Detection in the Absence of Load Monitoring OMAE2022-79591
Mamoun Naciri[1] **Mathieu Viola**[1] Zhenghua Wang[2] Roderick Yam[3]
1. SBM Offshore, Monaco, Monaco; 2. ABS, Spring, TX, USA; 3. ABS, London, United Kingdom

Fatigue Capacity of Used Mooring Chain – Results from Full Scale Fatigue Testing at Different Mean Loads OMAE2022-79649
Øystein Gabrielsen[1] Svein-Arne Reinholdtsen[2] Bjørn Skallerud[3] Per Haagensen[3] Marius Andersen[4] Pascal-Alexandre Kane[4]
1. Equinor, Ranheim, Norway; 2. Equinor, Sjørdal, Norway; 3. Norwegian University of Science and Technology, Trondheim, Norway; 4. Sintef Industri, Trondheim, Norway

Fatigue Performance of Thermal Spray Aluminium Coated Mooring Chains OMAE2022-80919
Jonathan Fernández[1] Alberto Arredondo[1] Aintzane Exposito[1] Beatriz Albisu[1] Elena Rodríguez[1] José Luis Arana[2]
1. Vicinay Marine Innovación, Leioa, Spain; 2. UPV/EHU, Bilbao, Spain

Structures, Safety and Reliability

02-02-01 Probabilistic and Spectral Wave Models

Tuesday June 7 | Room **Hall E** | **15:30–17:30**

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

Session Co-Organizer: Erik Vanem, DNVGL, Norway

Laboratory and Open Sea Wind Waves Breaking Probabilities and Dependency on Crest Steepness OMAE2022-78567
Dan Liberzon[1] Sagi Knobler[1] Ewelina Winiarska[1] Alexander Babanin[2]
1. Technion - Israel Institute of Technology, Haifa, Israel; 2. University of Melbourne, Melbourne, VIC, Australia

Analyzing Extreme Sea State Conditions by Time-series Simulation OMAE2022-78795
Erik Vanem
DNV, Høvik, Norway

High Frequency Tail in Measured Wave Spectra of Steep to Breaking Sea States OMAE2022-79053
Jule Scharnke[1] Kevin Ewans[2] Cagil Kirezci[3] Alexander Babanin[3]
1. MARIN, Wageningen, Netherlands; 2. MetOcean Research, New Plymouth, New Zealand; 3. University of Melbourne, Melbourne, VIC, Australia

MCMC Based Probabilistic Wave Spectrum Estimation Using Onboard Measurement Data OMAE2022-80627
Myong jin Park, Yooil Kim
Inha University, InCheon, Korea

Structures, Safety and Reliability

02-12-02 Structural Analysis and Optimization II

Tuesday June 7 | Room **Hall F** | **15:30–17:30**

Session Organizer: Jonas Ringsberg, Chalmers University of Technology, Sweden

Session Co-Organizer: Paulo Videiro, CENTEC, Brazil

American and European Hydrostatic Tubular Beam-Column Equation Comparisons OMAE2022-79773
Albert Ku, Mark Richmond
DNV, New Taipei City, Taiwan (Greater China)

Approach to Simulate Fluid-Structure Interaction of a Ship in 3-Dimensional Numerical Towing Tank OMAE2022-78638
Yasuhira Yamada, Chong Ma
National Institute of Maritime, Port and Aviation Technology, Mitaka-city, Japan

Crack Propagation in Dynamic Power Cables OMAE2022-79467
Zhiyuan Li[1] Jonas W. Ringsberg[1] Erland Johnson[2] Yuriy Serdyuk[1]
1. Chalmers University of Technology, Gothenburg, Sweden; 2. RISE Research Institutes of Sweden, Borås, Sweden

Position Specific Monopile Fatigue Load in the Frequency Domain OMAE2022-79907
Niels Christian Dahl[1] Jan Høgsberg[2] Martin Bjerre Nielsen[3] Richard Thyssen Nørby Larsen[4]
1. Wood Thilsted, København S, Denmark; 2. Technical University of Denmark, Kgs. Lyngby, Denmark; 3. Wood Thilsted, Copenhagen, Denmark; 4. Technical University of Denmark, Copenhagen, Denmark

Materials Technology

03-06-01 Advances in Materials and Manufacturing Technology

Tuesday June 7 | Room **Hall D** | **15:30–17:30**

Session Organizer: Mamdouh Salama, MMS4AIM LLC, USA

Session Co-Organizers: Agnes Marie Horn, DNV, Norway; Carol Johnston, TWI, United Kingdom

Finite Element Modeling of the Effect of Different Post-Weld Heat Treatment on Strength of Welded AISI 4130 Steel Pipe OMAE2022-79080
Even Englund
LEIRVIK AS, Lillesand, Norway

Benchmark Study of Welding Deformations in Stiffened Plate OMAE2022-87473
Lennart Josefson[1] Bai-Qiao Chen[2] Koji Gotoh[3] Fang Wang[4] Kun Liu[5] Stephen Van Duin[6] Pingsha Dong[7]
1. Chalmers University of Technology, Göteborg, Sweden; 2. Instituto Superior Técnico, Lisbon, Portugal; 3. Kyushu University, Fukuoka, Japan; 4. Shanghai Ocean University, Shanghai, China (Mainland); 5. Jiangsu University of Science and Technology, Zhenjiang, China (Mainland); 6. University of Wollongong, Wollongong, NSW, Australia; 7. University of Michigan, Ann Arbor, MI, USA

Modeling of Thermo-mechanical Behavior of Laser Powder Bed Fusion of Nickel-based Super Alloy Parts Used in Oil and Gas Industry OMAE2022-79192
Zeinab Malekshahi Beiranvand[1] **R.M. Chandima Ratnayake**[2] Mehdi Rasoulinia[3] Amir Moradiani[1]
1. Tarbiat Modares University, Tehran, Iran; 2. University of Stavanger, Stavanger, Norway; 3. Borujerd Azad Eslami University, Lorestan, Iran

Detection, Quantification and Localization of Delamination Failures in Fibre-based Towers of Floating Offshore Wind Turbines OMAE2022-78308
Cristobal Garcia Pariente, Alfonso Jurado, Santiago Álvarez-Buylla Puente
TSI, Madrid, Spain

Pipeline, Risers, and Subsea Systems

04-02-01 Rigid Risers I

Tuesday June 7 | Room **Y2** | **15:30–17:30**

Session Organizer: Theodoro Netto, Fundacao Coppetec, Brazil

Session Co-Organizers: Theodoro Netto, Fundacao Coppetec, Brazil

Low Cycle Fatigue in Risers and Pipelines OMAE2022-78905
Ghiath (Guy) Mansour
Artifex Engineering, Inc., Houston, TX, USA

Proposal for Cyclic Riser Load Methodology Using High-resolution Current Data OMAE2022-81078
Lasse Moldestad[1] Lorents Reinås[2] Stian Sætre[3] Øistein Johnsen[4]
1. TechnipFMC, Kongsberg, Norway; 2. Equinor ASA, Stavanger, Norway; 3. DNV, Høvik, Norway; 4. NORCE Norwegian Research Centre, Haugesund, Norway

The Challenges of Data Availability for the Life Extension of Steel Catenary Risers OMAE2022-83455
Basim Mekha[1] John Gordon[2]
1. Cuneiform Offshore Consulting, LLC, Houston, TX, USA; 2. , Houston, TX, USA

FPSO Second-order Roll Motions and the Impacts on SLWR Riser Design OMAE2022-79917
Stael Ferreira Senra, Marcos Donato Auler Da Silva Ferreira, Allan Carre De Oliveira, Bernardo Donni De Sena, Vinicius Garcia Prado
Petrobras, Rio de Janeiro, RJ, Brazil

Ocean Engineering

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

Tuesday June 7 | Room **Y4** | **15:30–17:30**

Spatial Distribution of Impact Pressure Impulse on a Semi-submersible in Irregular Waves OMAE2022-80037
Nianfan Zhang[1] Longfei Xiao[1] Handi Wei[1] Xiaoqing Teng[2] Yinghao Guo[1]
1. State Key Laboratory of Ocean Engineering, Shanghai Jiao Tong University, Shanghai, China (Mainland); 2. China Merchants Offshore Technology Research Center, Haimen, China (Mainland)

The Hydrodynamics of Hard-Chine Sections Entering Water OMAE2022-80598
Sasan Tavakoli[1] Alexander Babanin[1] Spyros Hirdaris[2]
1. University of Melbourne, Melbourne, VIC, Australia; 2. Aalto University, Espoo, Finland

Modelling Green Water Impact Load on a Single Circular Cylinder OMAE2022-81242
Min Gao[1] Scott Draper[1] Guy Mccauley[1] Lifen Chen[1] Xiantao Zhang[2] Hugh Wolgamot[1] Paul Taylor[1]
1. University of Western Australia, Crawley, WA, Australia; 2. Shanghai Jiao Tong University, Shanghai, China (Mainland)

Stress Analysis for Three-dimensional Structures considering the Global Hydroelasticity by Beam Connected Discrete Modules Method OMAE2022-81325
Shiyuan Zhang[1] Shuai Li[1] Shixiao Fu[1] Torgeir Moan[2] Zhiyuan Pan[3] Yuwang Xu[1] Bin Song[1]
1. State Key Laboratory of Ocean Engineering, Shanghai Jiao Tong University, Shanghai, China (Mainland); 2. NTNU Centre for Autonomous Marine Operations and Systems, Marine Technology Centre, Trondheim, Norway; 3. DNV, Høvik, Norway

Ocean Engineering

06-05-03 Marine Hydrodynamics III

Tuesday June 7 | Room **Y3** | **15:30–17:30**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Emerson Andrade, Federal University of Rio de Janeiro, Brazil; Shuzheng Sun, Harbin Engineering University, China (Mainland); Sanne Van Essen, MARIN, Netherlands; Lin Li, UIS, Norway; Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil; Filipe Salvador Lopes, Universidade Federal do Rio de Janeiro, Brazil; Masoud Hayatdavoodi, University of Dundee, United Kingdom

Wave Loads and Ship Motions Evaluated by Linear Strip and Panel Methods OMAE2022-79702
Aaro Karola, Spyros Hirdaris, Jerzy Matusiak, Tommi Mikkola
Aalto University, Espoo, Finland

Hydrodynamic Analysis in Marine Operations: a Preprocessing and Postprocessing Tool OMAE2022-80153
Joannes Gullaksen
JG Maritime Engineering Ltd, Bucksburn, United Kingdom

Use of a Linear Discretization of the Velocity Potential in the Frequency-domain Linear Potential Flow Theory OMAE2022-80174
Pierre-Yves Wuillaume, Lucas Letournel, François Rongère, Camille Chauvigné
D-Ice Engineering, Nantes, France

Polar and Arctic Sciences and Technology

07-05-01 Ice Model Tests

Tuesday June 7 | Room **Y5** | **15:30–17:30**

Session Organizer: Brendon Nickerson, Stellenbosch University, South Africa

Session Co-Organizer: Walter Kuehnlein, terra.blue, Germany

Ice Basin Tests for Ice-induced Vibrations of Offshore Structures in the SHIVER Project OMAE2022-78507
Hayo Hendrikse[1] Tim Hammer[1] Cody Owen[1] Marnix Van Den Berg[1]
Kees Van Beek[1] Arttu Polojärvi[2] Otto Puolakka[2] Tom Willems[3]
1. Delft University of Technology, Delft, Netherlands; 2. Aalto University, Espoo, Finland; 3. Siemens Gamesa, Amsterdam, Netherlands

Hsva Model Ice – a Status Report OMAE2022-79014
Gesa Ziemer, Timo Stange, **Quentin Hisette**
HSVA, Hamburg, Germany

Compressive Failure of Ice during Indentation by Rock Particles OMAE2022-79211
Thomas Fitzpatrick[1] Rocky Taylor[1] Jan Thijssen[2]
1. Memorial University of Newfoundland, St. John's, NL, Canada; 2. C-CORE, St. John's, NL, Canada

Analyzing Flexural Strength Data of Ice: How Useful Is Explainable Machine Learning? OMAE2022-87434
Patrik Buil[1] Leon Kellner[2] Sören Ehlers[2] Franz von Bock und Polach[2]
1. University Duisburg-Essen, Hamburg, Germany; 2. Hamburg University of Technology, Hamburg, Germany

Peridynamic Analysis of Floating Ice under Transverse Pressure OMAE2022-80590
Pranitha Bachimanchi, Nilanjan Saha
Indian Institute of Technology Madras, Chennai, TN, India

CFD and VIV

08-06-02 VIV of Flexible Risers and Cables

Tuesday June 7 | Room **Y6** | **15:30–17:30**

Session Organizer: Jie Wu, SINTEF, Norway

Session Co-Organizer: Owen Oakley, Retired, USA

Numerical Investigation of the Effect of Vortex Induced Vibrations (VIV) Parameters on the Behavior of Submarine Power Cables: a Comparison with Scaled Down Experimental Results OMAE2022-79509
Panagiotis Delizisis[1] Konstantinos Grivas[2] Jaap De Wilde[3] Erik-Jan De Ridder[3] Themistocles L Resvanis[4] Georgios Georgallis[2]
1. Hellenic Cables, Galatsi, Greece; 2. Hellenic Cables, Athens, Greece; 3. MARIN, Wageningen, Netherlands; 4. Massachusetts Institute of Technology, Cambride, MA, USA

Flow around Curved Tandem Cylinders OMAE2022-79469
Tale Aasland[1] Bjørnar Pettersen[2] Helge I. Andersson[3] Fengjian Jiang[4]
1. The Norwegian Unversity of Science and Technology, Trondheim, Norway; 2. The Norwegian University of Science and Technology - Department of Marine Technology, Trondheim, Norway; 3. The Norwegian University of Science and Technology - Department of Energy and Process Engineering, Trondheim, Norway; 4. SINTEF Ocean - Department of Ships and Ocean Structures, Trondheim, Norway

Influence of Internal Slug Flow on Vortex-induced Vibration of Flexible Riser with Variable Curvature OMAE2022-78236
Bowen Ma[1] **Narakorn Srinil**[2]
1. Shanghai Ship and Shipping Research Institute, Shanghai, China (Mainland); 2. Newcastle University, Newcastle upon Tyene, United Kingdom

Three-Dimensional Large Eddy Simulations and Proper Orthogonal Decomposition Analysis of Flow around a Flexibly Supported Circular Cylinder OMAE2022-78378
Marek Janocha, Lukas Fabricius, Guang Yin, Muk Chen Ong
University of Stavanger, Stavanger, Norway

Experimental Investigation of Flow around a Single Circular Cylinder Freely Vibrating in Two Degrees-of-Freedom OMAE2022-80115
Hassan El Sheshtawy, Ould El Moctar, Simon Tödter, Thomas E. Schellin
University of Duisburg-Essen (ISMT), Duisburg, Germany

Ocean Renewable Energy

09-01-03 Installation, Marine Operations and Maintenance III

Tuesday June 7 | Room **Y7** | **15:30–17:30**

Session Organizer: Amir R. Nejad, Norwegian University of Science & Technology, Norway

Session Co-Organizer: Krish Thiagarajan, University of Massachusetts Amherst, USA

Life Cycle Response Analysis of a Floating Offshore Wind Turbine OMAE2022-80112
Bonjun Koo[1] Chan Jeong[2] Hyoungchul Kim[1] Ho-Joon Lim[1] Lawrence Lai[1] Hyunchul Jang[1]
1. Technip Energies, Houston, TX, USA; 2. Fugro USA, Houston, TX, USA

Dynamic Analysis of Blade Mating Process Using Jack-up Crane Vessel: a Code-to-Code Comparison OMAE2022-80701
Saravanan Bhaskaran[1] Amrit Shankar Verma[2] Shuai Yuan[1] Karl Henning Halse[1]
1. Norwegian University of Science and Technology, Ålesund, Norway; 2. The University of Maine, Orono, ME, USA

A Comparison of Approaches for Modelling Walk-to-Work Gangway Access OMAE2022-80926
Ben Moverley Smith[1] Ben Middleditch[1] Philipp Thies[2]
1. Xodus Group, Aberdeen, United Kingdom; 2. University of Exeter College of Engineering, Mathematics and Physical Sciences Renewable Energy Group, Penryn, United Kingdom

A Perspective of Decommissioning Methods for Bottom-fixed Offshore Wind Turbines OMAE2022-80933
Soheil Salahshour[1] Muk Chen Ong[1] Bjørn Skaare[1] Zhiyu Jiang[2]
1. University of Stavanger, Stavanger, Norway; 2. University of Agder, Grimstad, Norway

Offshore Wind Turbine Support Structures along Indian Coast – Multi Criteria Analysis OMAE2022-80930
Mounika Mallela[1] Nilanjan Saha[1] Satya Kiran Raju Alluri[2] M V Ramana Murthy[2]
1. Indian Institute of Technology Madras, Chennai, TN, India; 2. National Centre for Coastal Research, Chennai, TN, India

Ocean Renewable Energy

09-03-01 Current and Tidal Energy I

Tuesday June 7 | Room **Y8** | **15:30–17:30**

Session Organizer: Marc Cahay, Technip Energies, France

Session Co-Organizer: Madjid Karimirad, Queen's University Belfast, United Kingdom

The Relationship between Reliability and Environmental Impact in Tidal Stream Turbine Deployments OMAE2022-78417
Stuart Walker, Philipp Thies, Lars Johanning
University of Exeter, Penryn, United Kingdom

Joint Extremes of Waves and Currents at Tidal Energy Sites in the English Channel OMAE2022-79348
Edward Mackay, Jon Hardwick
University of Exeter, Penryn, United Kingdom

Control Co-design of a Hydrokinetic Turbine with Open-loop Optimal Control OMAE2022-81006
Boxi Jiang, Mohammad Reza Amini, Yingqian Liao, Joaquim R. R. A. Martins, **Jing Sun**
University of Michigan, Ann Arbor, MI, USA

Power Production from a Hydrokinetic Device: Mass of Water Turbine OMAE2022-81210
Azin Lamei[1] Masoud Hayatdavoodi[1] Stuart Moir[2]
1. University of Dundee, Dundee, United Kingdom; 2. MWNW Consulting, Banchory, United Kingdom

Offshore Geotechnics

10-03-02 Anchors and Pipelines II

Tuesday June 7 | Room **Y9** | **15:30–17:30**

Session Organizer: Hyungchui Jang, Technip, USA

Session Co-Organizers: Kevin Hayes, Genesis, USA; Katherine Kwa, University of Southampton, United Kingdom

Geohazard Study of Mudslide Event at a Subsea Escarpment and Structural Response of Crossing Flowlines: Part I – FEA Analysis OMAE2022-81036
Kevin Hayes[1] Hyunchul Jang[2] Lawrence Lai[2] Anthony Musto[3]
1. Genesis, Houston, TX, USA; 2. Technip Energies, Houston, TX, USA; 3. TechnipFMC, Kuala Lumpur, Malaysia

Geohazard Study of Mudslide Event at a Subsea Escarpment and Structural Response of Crossing Flowlines: Part II – CFD and FSI Analysis OMAE2022-80539
Hyunchul Jang[1] **Lawrence Lai**[1] Kevin Hayes[2] Anthony Musto[3]
1. Technip Energies, Houston, TX, USA; 2. Genesis, Houston, TX, USA; 3. TechnipFMC, Kuala Lumpur, Malaysia

Petroleum Technology

11-06-01 Integrity of Well Barriers

Tuesday June 7 | Room **Y10** | **15:30–17:30**

Session Organizer: Ergun Kuru, University of Alberta, Canada

Session Co-Organizer: Jan David Ytrehus, SINTEF Petroleum, Norway

Cement Sheath Integrity Evaluation under Multiple Cyclic Loading Using Mechanical Equivalent Experiment for Gas Storage Wells in Eastern China OMAE2022-80440
Donghua Su, Zaoyuan Li, Xuning Wu, Jin Li, Jinfei Sun, Guanyi Zheng
Southwest Petroleum University, Chengdu, China (Mainland)

Advanced Laboratory Setup to Determine and Verify Cement Sheath Integrity OMAE2022-81072
Ali Taghipour, Blandine Feneuil, Torbjørn Vrålstad, **Ragnhild Skorpa**
SINTEF AS, Trondheim, Norway

Risk Analysis for Wells in an Active CO2-Enhanced Oil Recovery Field in Farnsworth Unit, Anadarko Basin, Texas OMAE2022-81041
Thinh On[1] **Tan Nguyen**[2] Robert Balch[2]
1. New Jersey Institute of Technology, Kearny, NJ, USA; 2. New Mexico Institute of Mining and Technology, Socorro, NM, USA

Experimental and Probability-based Approaches to Estimate Leakage Rates in Plugged and Abandoned Wells in CO2-Enhanced Oil Recovery Fields OMAE2022-80974
Thinh On[1] **Tan Nguyen**[2] Robert Balch[2]
1. New Jersey Institute of Technology, Kearny, NJ, USA; 2. New Mexico Institute of Mining and Technology, Socorro, NM, USA

Petroleum Technology

11-10-04 Development of Unconventional Reservoirs IV

Tuesday June 7 | Room **Y11** | **15:30–17:30**

Session Organizer: Ergun Kuru, University of Alberta, Canada

Session Co-Organizers: Hadi Belhaj, Khalifa University, U.A.E.; Huazhou Li, University of Alberta, Canada

Pore-scale Investigation on Dynamic Permeability Characterization of Hydrate-bearing Sediments OMAE2022-79775
Mingqiang Chen[1] Qingping Li[1] Xin Lyu[1] Qi Fan[1] Yang Ge[1] Chaohui Lyu[2]
1. Research Center of China National Offshore Oil Corporation, Beijing, China (Mainland); 2. China University of Petroleum Beijing, Beijing, China (Mainland)

Experimental Study on Asphaltene Deposition Characteristics in Yudong Block of Yingmaili Oilfield OMAE2022-79908
Hang Xu, Fujian Zhou, Yuan Li, Liyan Zhu, Hao Bai, Erdong Yao
China University of Petroleum Beijing, Beijing, China (Mainland)

Enhancement of Tight Oil Recovery by Amphiphilic Janus Nanosheets OMAE2022-79920
Yuan Li[1] Fujian Zhou[1] Bojun Li[1] Hang Xu[1] Erdong Yao[1] Minghui Li[1] Lufeng Zhang[2]
1. China University of Petroleum Beijing, Beijing, China (Mainland); 2. State Key Laboratory of Shale Oil and Gas Enrichment Mechanisms and Effective Development, Sinopec Petroleum Exploration and Production Development Research Institute, Beijing, China (Mainland)

Treating Agent for Reducing Adsorption Damage of Slick Water on Coal Rock Surface OMAE2022-80060
Guodong Wu[1] **Bojun Li**[2] Maieryemuguli Anwaier[1] Yuan Li[2] Hongda Ren[1] Erdong Yao[2]
1. Engineering Technology Research Institute of PetroChina Xinjiang Oilfield Company, Karamay, China (Mainland); 2. China University of Petroleum Beijing, Beijing, China (Mainland)

Honoring Symposium for Professor Günther F. Clauss on Hydrodynamics and Ocean Engineering

12-01-02 Hydrodynamics, Seakeeping and Global Performance II

Tuesday June 7 | Room **Y12** | **15:30–17:30**

Session Organizer: Marco Klein, Hamburg University of Technology, Germany

Session Co-Organizer: Florian Sprenger, University of Rostock, Germany

Ship Gyroscopic Roll Stabilisation OMAE2022-79530
Sergio Ribeiro e Silva, Jose Miguel Varela
University of Lisbon, Lisbon, Portugal

Seakeeping Analysis of a GRP Fast Patrol Vessel OMAE2022-81100
Venus Hydar[1] Dario Boote[1] Florin Pacuraru[2] Gianmarco Vergassola[1]
1. University of Genova, Genova, Italy; 2. University of Galati, Galati, Romania

Mitigating Spurious Low-frequency Waves in a Model Basin with a Ramped Floor OMAE2022-78434
Bulent Duz, Jule Scharnke, Jaap De Wilde
MARIN, Wageningen, Netherlands

Modified Dam-break Solution for Green Water on the Deck of an FPSO OMAE2022-79903
Jinzhu Xia[1] Huaxing Liu[2] Hilmi Sukri[1]
1. MISC Berhad, Kuala Lumpur, Malaysia; 2. OSMO, Singapore, Singapore

Random Experimental Uncertainty Analysis on the Model Tests of an LNG Carrier in Extreme Seas OMAE2022-79048
Shan Wang, Carlos Guedes Soares
Instituto Superior Técnico, Universidade de Lisboa, Lisboa, Portugal

Wednesday Concurrent Sessions

WEDNESDAY, JUNE 8
11:00 – 12:30

Offshore Technology

01-09-01 Adapting/Mitigating Climate Change

Wednesday June 8 | Room **Y1** | **11:00–12:30**

Session Organizer: Denby Morrison, Shell, USA

Session Co-Organizers: Masoud Hayatdavoodi, University of Dundee, United Kingdom; R. Cengiz Ertekin, University of Hawaii, USA

Improved Climate Change Adaptation in Port of Brisbane Using a Digital Twin Cloud-Based Modelling Approach OMAE2022-79613
Helena Karatvuo[1] Michael Linde[2] Azam Dolatshah[1] Simon Mortensen[1]
1. Seaport OPX, Surfers Paradise, QLD, Australia; 2. Port of Brisbane, Port of Brisbane, QLD, Australia

Structures, Safety and Reliability

02-07-01 Reliability of Renewable Energy Systems

Wednesday June 8 | Room **Hall E** | **11:00–12:30**

Session Organizer: Zhen Gao, Norwegian University of Science & Technology, Norway

Session Co-Organizer: Athanasios Kolios, University of Strathclyde, United Kingdom

Fatigue Assessment of Wind Assisted Propulsion Systems OMAE2022-80511
Gaute Storhaug[1] Guilherme Romar Borzacchiello[2] Hasso Hoffmeister[3]
1. DNV, Oslo, Norway; 2. Kongstein, Hamburg, Portugal; 3. DNV, Hamburg, Germany

Analysis of Life Extension Performance Metrics for Offshore Wind Assets OMAE2022-78184
Baran Yeter, Yordan Garbatov, Carlos Guedes Soares
Centre for Marine Technology and Ocean Engineering (CENTEC), Instituto Superior Técnico, Lisboa, Portugal

Optimal Management of Offshore Wind Assets at Different Stages of Life Extension Accounting for Uncertainty Propagation OMAE2022-78185
Yordan Garbatov, **Baran Yeter**, Carlos Guedes Soares
Centre for Marine Technology and Ocean Engineering (CENTEC), Instituto Superior Técnico, Lisboa, Portugal

Structures, Safety and Reliability

02-11-01 Ultimate Strength I

Wednesday June 8 | Room **Hall F** | **11:00–12:30**

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

Session Co-Organizer: Thomas Lindemann, University of Rostock, Germany

Analysis of Welding Influences on Extruded Aluminum Panel Buckling OMAE2022-78575
Xintong Wang, Jørgen Amdahl
Norwegian University of Science and Technology, Trondheim, Norway

Bottom Lateral Pressure Effect on the Ultimate Bending Moment of the Scaled Hull Girders OMAE2022-78671
Hongyang Ma[1] Qi Wan[2] Deyu Wang[1]
1. School of Naval Architecture, Ocean and Civil Engineering, Shanghai Jiao Tong University, Shanghai, China (Mainland); 2. Marine Design and Research Institute of China, Shanghai, China (Mainland)

Nonlinear Distortion Nature of the Collapse Behaviors for Geometrically Distorted Thin-walled Hull Girder Subjected to Combined Loads OMAE2022-78932
Qinghu Wang, Deyu Wang
Shanghai Jiao Tong University, Shanghai, China (Mainland)

Modification of Double Bottom Height and Its Effect to the Ultimate Strength OMAE2022-79120
Muhammad Zubair Muis Alie, Indah Melati Suci, Andi Muhammad Alfian Arafat, Juswan Juswan, Wahyuddin Mustafa
Hasanuddin University, Makassar, Indonesia

Pipeline, Risers, and Subsea Systems

04-02-02 Rigid Risers II

Wednesday June 8 | Room **Y2** | **11:00–12:30**

Session Organizer: Theodoro Netto, Fundacao Coppetec, Brazil

Session Co-Organizers: Theodoro Netto, Fundacao Coppetec, Brazil

Steel Lazy Wave Riser Integrity Review for Excessive Flowline Walking Conditions OMAE2022-78590
Abhilash Sebastian, Fengbin Xu, Mayank Lal, Yashpal Rana
TechnipFMC, Houston, TX, USA

Small Size Steel Catenary Riser S-Lay Installation with Flexible Joint as 2nd End: Difficulties and Solutions OMAE2022-79231
Song Liu[1] Yongjun Du[2] Wentai Yu[2]
1. COOEC, Katy, TX, USA; 2. COOEC, Tianjin, China (Mainland)

Conductor Instability – Experience from 10 Years of Monitoring Drilling Operations on Subsea Wells in Harsh Environments OMAE2022-81117
Håkon Molven[1] Per Kristian Pöcher[2] Vegard Martinsen[3] Harald Holden[3]
1. 4Subsea, Oslo, Norway; 2. 4Subsea, Kristiansand, Norway; 3. 4Subsea, Asker, Norway

Rationale for Norsok U-001 5th Edition Revision of Static and Cyclic Subsea Wellhead Loads OMAE2022-81380
Harald Holden[1] Anthony Muff[2] Lorents Reinås[3]
1. 4Subsea, Asker, Norway; 2. Equinor, Fornebu, Norway; 3. Equinor, Stavanger, Norway

Ocean Space Utilization

05-06-01 High Tide and Tsunamis

Wednesday June 8 | Room **Y3** | **11:00–12:30**

Automatic Tsunami Barrier OMAE2022-79320
Eigai Hamada
Anti-Tsunami Laboratory, Fujisawa, Japan

A Study on the Construction of the Tsunami Hazard Database for Mooring Vessels in the Ports OMAE2022-79338
Mitsuhiro Masuda
Tokyo University of Marine Science and Technology, Koto-ku, Japan

Understanding the Collision of Debris Carried by Tsunami-like Flows on a Residential Structure OMAE2022-80063
N.R. Josiah[1] Susumu Araki[2] D.P.C. Laknath[3]
1. Osaka Univeristy, Osaka, Japan; 2. Osaka University, Suita, Japan; 3. Lana Hydraulic Institute, Moratuwa, Sri Lanka

Port Plans to Reduce Disaster Damages of High Tide and Tsunamis OMAE2022-81027
Koji Takahashi, Asami Sugiyama, Shuichi Nakamura, Daisuke Shibata
Japan Port Consultants, Ltd., Shinagawa, Japan

Ocean Engineering

06-05-04 Marine Hydrodynamics IV

Wednesday June 8 | Room **Y4** | **11:00–12:30**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Emerson Andrade, Federal University of Rio de Janeiro, Brazil; Shuzheng Sun, Harbin Engineering University, China (Mainland); Sanne Van Essen, MARIN, Netherlands; Lin Li, UIS, Norway; Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil; Filipe Salvador Lopes, Universidade Federal do Rio de Janeiro, Brazil; Masoud Hayatdavoodi, University of Dundee, United Kingdom

On the Effect of Free-Surface Linearization on the Predicted Hydrodynamic Response of Underwater Vehicles Travelling near the Free-Surface OMAE2022-80485
William Lambert, Stefano Brizzolara, Craig Woolsey
Virginia Polytechnic Institute and State University, Blacksburg, VA, USA

Leading-edge Tubercles Applied onto a Flapped Rudder OMAE2022-80807
Moritz Troll, Weichao Shi, Callum Stark
University of Strathclyde, Glasgow, United Kingdom

Investigating Hull Blockage and Thruster-Hull Effects on an ASD Tug OMAE2022-80816
Lucas Yiew, Bhushan Taskar, Yingying Zheng, Allan Magee
Technology Centre for Offshore and Marine, Singapore, Singapore, Singapore

Hydrodynamic Analysis of a Triple Thruster Unit via a BEM/RANS Interactive Method OMAE2022-81026
Seungnam Kim[1] Spyros A. Kinnas[1] Jahn Terje Johannessen[2] Ray Thomas Grebstad[2]
1. Ocean Engineering Group, CAEE, The University of Texas at Austin, Austin, TX, USA; 2. BRUNVOLL, Molde, Norway

Dynamic Response of Local Hull Structures under Moving Slamming Loads OMAE2022-81032
Yunbin Chen, Ling Zhu
Wuhan University of Technology, Wuhan, China (Mainland)

Ocean Engineering

06-07-01 Metocean, Measurement and Data Interpretation I

Wednesday June 8 | Room **Y12** | **11:00–12:30**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Alessandro Iafrati, CNR, Italy; Kevin Ewans, MRL, New Zealand; Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil; Masoud Hayatdavoodi, University of Dundee, United Kingdom

Assessment of Sea State Estimation with Convolutional Neural Networks Based on the Motion of a Moored FPSO Subjected to High-Frequency Wave Excitation OMAE2022-78603
Gustavo Alencar Bisinotto[1] Lucas Pereira Cotrim[1] Fabio Gagliardi Cozman[2] Eduardo Aoun Tannuri[1]
1. Universidade de São Paulo / Numerical Offshore Tank (TPN-USP), São Paulo, SP, Brazil; 2. Universidade de São Paulo, São Paulo, SP, Brazil

Estimation of Ocean's Currents Acting on a Turret-moored FPSO Using Machine Learning OMAE2022-78607
Pedro Felipe Lavra Dias[1] Eduardo Aoun Tannuri[2] Anna Helena Reali Costa[3]
Glauco Augusto De Paula Caurin[4] Gustavo Alencar Bisinotto[2]
1. Universidade de São Paulo / Numerical Offshore Tank (TPN-USP), São Luis, MA, Brazil; 2. Universidade de São Paulo / Numerical Offshore Tank (TPN-USP), São Paulo, SP, Brazil; 3. Universidade de São Paulo, São Paulo, SP, Brazil; 4. Universidade de São Paulo, São Carlos, SP, Brazil

Automatic Clustering of Metocean Conditions in the Brazilian Coast OMAE2022-78608
Felipe Marino Moreno[1] Fabio Gagliardi Cozman[2] Eduardo Aoun Tannuri[3]
1. Universidade de São Paulo / Numerical Offshore Tank (TPN-USP), Guarulhos, SP, Brazil; 2. Universidade de São Paulo, São Paulo, SP, Brazil; 3. Universidade de São Paulo / Numerical Offshore Tank (TPN-USP), São Paulo, SP, Brazil

Changes in Global Ocean Extreme Wave Heights across the 20th and the 21st Century OMAE2022-78610
Alberto Meucci, Ian Young
University of Melbourne, Melbourne, VIC, Australia

Consistency Assessment of Wave Directional Spectrum Predictions from Machine Learning Based Ship-as-a-Wave-Buoy Methods OMAE2022-79126
Thomas Scholcz, Bulent Duz, Remco Hageman, Bart Mak
MARIN, Wageningen, Netherlands

Ocean Engineering

06-12-01 Ship Hydromechanics I

Wednesday June 8 | Room **Y9** | **11:00–12:30**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Rodrigo Soares, Federal University of Rio de Janeiro, Brazil; Ye Li, Shanghai Jiao Tong University, China (Mainland); Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil; João Victor Padilha, Universidade Federal do Rio de Janeiro, Brazil

Application of Machine Learning Algorithms for Predicting Added Resistance in Arbitrary Wave Headings of a Ship OMAE2022-78433
Young-Rong Kim, Sverre Steen
Department of Marine Technology, Norwegian University of Science and Technology, Trondheim, Norway

Estimation of Vertical, Horizontal and Torsional Rigid Body Loads of an Ultra-Large Container Ship (ULCS) in Regular Waves OMAE2022-78474
Suresh Rajendran, **Vijith P P**
Indian Institute of Technology Madras, Chennai, TN, India

A Reliable Multilevel Method for Simulation-based Load Determination on Deck Cell Guides OMAE2022-78713
Ole Detlefsen, Carl Reiner, Moustafa Abdel-Maksoud
Hamburg University of Technology, Hamburg, Germany

On the Influence of Hull-Shape on the Location of Roll-Axis OMAE2022-78781
Lars Johnsen, Stefan Krüger
Hamburg University of Technology, Hamburg, Germany

A Fast and Transparent Method for Setting Powering Margins in Ship Design OMAE2022-78937
Shukui Liu[1] Baoguo Shang[2] Haoliang Chen[3] Apostolos Papanikolaou[4]
1. Nanyang Technological University, Singapore, Singapore; 2. Marine Design and Research Institute of China, Shanghai, China (Mainland); 3. Akzonobel, Singapore, Singapore; 4. National Technical University of Athens, Athens, Greece

Polar and Arctic Sciences and Technology

07-06-01 Numerical Ice Modeling

Wednesday June 8 | Room **Y5** | **11:00–12:30**

Session Organizer: T. C. Hammer, Tu Delft, Netherlands

Session Co-Organizer: Jonas Behnen, TUHH, Germany

A Numerical Scheme to Investigate Ice Fracture in Level Ice-Ship Interaction OMAE2022-78955
Ying Xu[1] Jiameng Wu[1] Zeping Wang[2]
1. Marine Design and Research Institute of China, Shanghai, China (Mainland); 2. Harbin Engineering University, Qingdao, China (Mainland)

Image Processing to Extract Ice Features to Aid Modelling of Ice Force OMAE2022-79255
Shamima Akter[1] Shameem Islam[2] M Hasanat Zaman[2] Salim Ahmed[1] Syed Imtiaz[1] Robert Gash[3]
1. Memorial University of Newfoundland, St. John's, NL, Canada; 2. Ocean, Coastal and River Engineering of National Research Council Canada, (OCRE-NRC), St. John's, NL, Canada; 3. National Research Council Canada, St. John's, NL, Canada

Numerical Simulation Research about the Influence of Nozzle Parameters on the Quality of Ice-core in Hot-water Ice-drilling OMAE2022-80173
An Liu, Zhigang Shan, Ting Shi, Weida Ni
PowerChina Huadong Engineering Co., Ltd., Hangzhou, China (Mainland)

CFD and VIV

08-05-01 Free Surface Flows I

Wednesday June 8 | Room **Y6** | **11:00–12:30**

Session Organizer: Hans Bihs, Norwegian University of Science & Technology, Norway

Session Co-Organizer: Owen Oakley, Retired, USA

Hydrodynamic Performance of 3-D Hydrofoil under the Free Surface Based on Taylor Expansion Boundary Element Method OMAE2022-79000
Jianghao Huang[1] Chaobang Yao[1] Dakui Feng[1] Xiaoshuai Sun[2]
1. Huazhong University of Science and Technology, Wuhan, China (Mainland); 2. China Marine Development and Research Center, Beijing, China (Mainland)

Hydrodynamic Interactions of Multiple Surface-Piercing Struts by Smoothed Particles Hydrodynamics OMAE2022-81431
Giuliano Vernengo[1] Yigit Kemal Demirel[2] Claire De Marco Muscat-Fenech[3] Stefano Gaggero[1] Diego Villa[1]
1. University of Genoa, Genoa, Italy; 2. University of Strathclyde, Glasgow, United Kingdom; 3. University of Malta, Msida, Malta

Statistical Variation of the 3-hour Maximum Crest Height in a Survival Sea State OMAE2022-79045
Tim Bunnik, Jule Scharnke
MARIN, Wageningen, Netherlands

Computational Methods for Wave Structure Interaction Modelling in Coastal Environments under Consideration of Bathymetric Attributes OMAE2022-81080
León-Carlos Dempwolff[1] Tobias Martin[2] Christian Windt[1] Gregor Melling[3] Hans Bihs[2] Nils Goseberg[1]
1. Leichtweiß-Institut, Technische Universität Braunschweig, Braunschweig, Germany; 2. Department of Civil and Environmental Engineering, Norwegian University of Science and Technology (NTNU), Trondheim, Norway; 3. Federal Waterways Engineering and Research Institute, Hamburg, Germany

Ocean Renewable Energy

09-01-07 Wind Turbine Aerodynamics II

Wednesday June 8 | Room **Y7** | **11:00–12:30**

Session Organizer: Tonio Sant, Department of Mechanical Engineering, University of Malta, Malta

Session Co-Organizer: Krish Thiagarajan, University of Massachusetts Amherst, USA

Modelling Aerodynamics of a Floating Offshore Wind Turbine Using the Overset Mesh Solver in OpenFOAM OMAE2022-79230
Zaibin Lin[1] Ling Qian[1] Sergio Campobasso[2] Wei Bai[1] Yang Zhou[1] Zhihua Ma[1]
1. Manchester Metropolitan University, Manchester, United Kingdom; 2. Lancaster University, Lancaster, United Kingdom

A Study of Offshore Wind Turbine Wake Effects in Yaw Conditions Using an Improved Actuator Line Method OMAE2022-79515
Ning Fan, Kangping Liao, Qian Wang
Harbin Engineering University, Harbin, China (Mainland)

Structural Load Estimation of Downstream Wind Turbines in an Offshore Wind Farm OMAE2022-80883
Yiqing Xia, Yosuke Matsumoto, Iman Yousefi, Kazuyoshi Oouchi, Shunsuke Kaneko, Michio Nittouji, Kenji Fujii, Kaho Machida
Tokyo Electric Power Services Co., Ltd., Tokyo, Japan

The Effects of Hydrodynamic and Aerodynamic Loads on the Low Frequency Responses of Floating Offshore Wind Turbines OMAE2022-79879
Edward Land[1] Will Brindley[2] Zhiqiang Hu[3]
1. Newcastle University, Hull, United Kingdom; 2. Offshore Renewable Energy Catapult, Blyth, United Kingdom; 3. Newcastle University, Newcastle upon Tyene, United Kingdom

Ocean Renewable Energy

09-02-05 WEC Controls and PTO I

Wednesday June 8 | Room **Y8** | **11:00–12:30**

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

Session Co-Organizer: Krish Thiagarajan, University of Massachusetts Amherst, USA

Nonlinear Model Predictive Control Based on Real-time Iteration Scheme for Wave Energy Converters Using WEC-Sim OMAE2022-80972
Juan Luis Guerrero-Fernandez[1] Nathan Michael Tom[2] John Anthony Rossiter[1]
1. University of Sheffield, Sheffield, United Kingdom; 2. National Renewable Energy Laboratory, Boulder, CO, USA

Experimental Investigation on a Speed Controlled Wells Turbine for Wave Energy Conversion OMAE2022-80986
Fabio Licheri, Pierpaolo Puddu, Francesco Cambuli, Tiziano Ghisu
Department of Mechanical, Chemical and Materials Engineering, University of Cagliari, Cagliari, Italy

Energy-maximising Control Philosophy for a Cyclorotor Wave Energy Device OMAE2022-80990
John V. Ringwood, Andrei Ermakov
Maynooth University, Maynooth, Ireland

Stochastic Response Determination of U-Oscillating Water Columns in Severe Seas by a Statistical Linearization Scheme OMAE2022-81138
Andrea Scialò[1] **Giovanni Malara**[1] Ioannis A. Kougioumtzoglou[2] Felice Arena[1]
1. Mediterranea University of Reggio Calabria, Reggio Calabria, Italy; 2. Columbia University, New York, NY, USA

Petroleum Technology

11-01-01 Well Drilling Technology I

Wednesday June 8 | Room **Y10** | **11:00–12:30**

Session Organizer: Ergun Kuru, University of Alberta, Canada

Session Co-Organizers: Stephen Butt, Memorial University of Newfoundland, Canada; Mohammad Azizur Rahman, Texas A&M University at Qatar, Qatar

Modeling and Analysis of Non-rotating Damping Subs for Removing Torsional Vibrations in Drilling OMAE2022-78339
Adrian Ambrus, Ulf Jakob Aarsnes, Eric Cayeux, Rodica Mihai
NORCE, Bergen, Norway

Modeling and Algorithm Development for Well Trajectory Plan and Real-time Trajectory Control OMAE2022-78451
Luis Saavedra Jerez, Dan Sui
University of Stavanger, Stavanger, Norway

Design and Evaluation of Wellbore Strengthening Materials for Fractured Reservoirs OMAE2022-78659
Ugur Gargili[1] Ismail Hakki Gucuyener[1] Ismail Durgut[2] Ahmet Ay[1] Huseyin Ali Dogan[1]
1. GEOS Energy Inc., Cankaya, Turkey; 2. Middle East Technical University, Cankaya, Turkey

Drilling Performance Evaluation through Bit Cutters Reconfigurations and Micro Fractures Initiation OMAE2022-79273
Abdelsalam Abugharara, Oluwafemi Tytler, Stephen Butt
Memorial University of Newfoundland, St. John's, NL, Canada

Petroleum Technology

11-08-01 Production Systems and Subsea Operations

Wednesday June 8 | Room **Y11** | **11:00–12:30**

Session Organizer: Ergun Kuru, University of Alberta, Canada

Session Co-Organizers: Marcio Yamamoto, National Maritime Research Institute, Japan; Sergio N. Bordalo, University of Campinas, Brazil

Oscillation of a Flexible Catenary Shaped Submersed Pipe Induced by Two-phase Slug Flow of Liquid and Gas OMAE2022-79985
Jéssica Palma Silva[1] Celso K. Morooka[1] **Sergio N. Bordalo**[1] Caio C. O. Trigo[2]
1. Universidade Estadual de Campinas, Faculdade de Engenharia Mecânica, Departamento de Engenharia de Petróleo., Campinas, SP, Brazil; 2. Universidade Estadual de Campinas, Centro de Estudos de Petróleo., Campinas, SP, Brazil

The Dynamic-Static Coupled Full Field Optimization of ICD/AICD Completion for the Pilot Wells Selection and Design in N Oilfield Middle East OMAE2022-80143
Bohong Wu[1] Shuzhe Shi[1] Jing Liu[2] Chenji Wei[1] Yong Li[1] Baozhu Li[1] Yuankeli Lou[3] Tao Yu[3]
1. The Research Institute of Petroleum Exploration and Development, CNPC, Beijing, China (Mainland); 2. Schlumberger, Beijing, China (Mainland); 3. The Research Institute of Petroleum Exploration and Development, Beijing, China (Mainland)

A More Accurate Approach for the Design of Subsea Chemical Storage Systems regarding Volume Requirements of Valve Leakage Tests OMAE2022-80637
Lucas Sevillano, Sigbjørn Sangesland, Tor Berge Gjersvik, Audun Faanes
Norwegian University of Science and Technology, Trondheim, Norway

Influence of Pigging Velocity on the Wax Removal Process in Subsea Pipelines OMAE2022-79456
Xun Zhang, Qiyu Huang, Wei Chen
China University of Petroleum Beijing, Beijing, China (Mainland)

CONCURRENT SESSIONS
13:30 – 15:00

Offshore Technology

01-05-01 FLNG Technology I

Wednesday June 8 | Room **Y1** | **13:30–15:00**

Session Organizer: Marc Cahay, Technip Energies, France

Session Co-Organizer: Wenhua Zhao, University of Western Australia, Australia

Development of Design Procedure for LNG Carriers with IMO Type-B Independent Tank OMAE2022-79445
Beomil Kim, Md Shafiqul Islam
Korean Register, Busan, Korea

Validation of a Simplified Numerical FLNG-Carrier Side-by-Side Offloading Model with Experiment OMAE2022-79449
Yutao Wang, Hugh Wolgamot, Wenhua Zhao, Scott Draper, Ian Milne
University of Western Australia, Crawley, WA, Australia

Influence of Gap Width and Artificial Damping on Gap Resonance OMAE2022-80758
Ivan Ekerhovd[1] Muk Chen Ong[1] **Wenhua Zhao**[2]
1. University of Stavanger, Stavanger, Norway; 2. University of Western Australia, Perth, WA, Australia

Structures, Safety and Reliability

02-11-02 Ultimate Strength II

Wednesday June 8 | Room **Hall F** | **13:30–15:00**

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

Session Co-Organizer: Thomas Lindemann, University of Rostock, Germany

Ultimate Strength Characteristics of Cylindrical Shell in Combined Compression and Bending Moment OMAE2022-79566
Shen Li[1] Do Kyun Kim[2] Simon Benson[3]
1. University of Strathclyde, Glasgow, United Kingdom; 2. Seoul National University, Seoul, Korea; 3. Newcastle University, Newcastle upon Tyene, United Kingdom

Numerical Investigations on Ultimate Strength of a Double Hull VLCC under Combined Loads and Initial Imperfections OMAE2022-80204
Thomas Lindemann[1] Bright Ebikemefa Okpeke[1] Alessandro La Ferlita[2] Markus Mühmer[3] Patrick Kaeding[1]
1. University of Rostock, Rostock, Germany; 2. American Bureau of Shipping, ABS Europe Ltd., Hamburg, Germany; 3. German Aerospace Center, Institute of Maritime Energy Systems, Geesthacht, Germany

Structures, Safety and Reliability

02-16-01 Data-driven Models for Marine Structures I

Wednesday June 8 | Room **Hall E** | **13:30–15:00**

Session Organizer: YeongAe Heo, Case Western Reserve University, USA

Session Co-Organizer: Marco Klein, Hamburg University of Technology, Germany

Artificial Neural Network Surrogate Modeling for Offshore Wind Turbines under Multi-hazards OMAE2022-81048
Xiaowei Wang, **YeongAe Heo**
Case Western Reserve University, Cleveland, OH, USA

A Study on the Error Characteristics and Compensation Algorithm for Strain Gauge in Ship Structure Monitoring Systems OMAE2022-81437
Xueqian Zhou, **Yu Yang**, Yishi Xu, Chenfeng Li, Huilong Ren
Harbin Engineering University, Harbin, China (Mainland)

Digital Twin Based Structural Health Monitoring of Offshore Crane OMAE2022-85896
Terje Rølvåg[1] Øystein Stranden[2]
1. SINTEF / Norwegian University of Science and Technology, Trondheim, Norway; 2. SAP, Trondheim, Norway

Pipeline, Risers, and Subsea Systems

04-02-03 Rigid Risers III

Wednesday June 8 | Room **Y2** | **13:30–15:00**

Session Organizer: Theodoro Netto, Fundacao Coppetec, Brazil

Session Co-Organizers: Theodoro Netto, Fundacao Coppetec, Brazil

Weight Optimisation of Steel Catenary Riser Using Genetic Algorithm and Finite Element Analysis OMAE2022-79084
Joshua Abam, Yongchang Pu, Zhiqiang Hu
Newcastle University, Newcastle upon Tyene, United Kingdom

Cost-Effective Optimal Solutions for Steel Catenary Riser Using Artificial Neural Network OMAE2022-79044
Joshua Abam, Yongchang Pu, Zhiqiang Hu
Newcastle University, Newcastle upon Tyene, United Kingdom

Application of Artificial Intelligence for VIV Strake Optimization of Steel Lazy Wave Risers OMAE2022-80480
Mayank Lal, Abhilash Sebastian, Yashpal Rana
TechnipFMC, Houston, TX, USA

A Novel Free-Standing Riser Concept for Deepwater Developments OMAE2022-85000
Carlos Bomfimsilva[1] Theodoro Netto[2]
1. Pré-Sal Petróleo, Niterói, RJ, Brazil; 2. Universidade Federal do Rio de Janeiro, Niterói, RJ, Brazil

Ocean Space Utilization

05-05-02 Floating System for Renewable Energy II

Wednesday June 8 | Room **Y3** | **13:30–15:00**

Session Organizer: Shigeru Tabeta, The University of Tokyo, Japan

Hydrodynamic Performance Evaluation of a Semi-submersible Floater Using Open-source Tools OMAE2022-78823
Lin Li[1] Milad Hassani[1] Filippos Kalofotias[2] **Zhiyu Jiang**[3]
1. University of Stavanger, Stavanger, Norway; 2. Vorticity Engineering, Bussum, Netherlands; 3. Department of Engineering Sciences, University of Agder, Norway, Grimstad, Norway

Motion Characteristics of a Floating Model with Moonpools for VAWTs OMAE2022-79153
Katsuhide Fujishima[1] **Tomoki Ikoma**[1] Yasuhiro Aida[1] Lei Tan[2] Koichi Masuda[1]
1. Nihon University, Funabashi, Japan; 2. Kyushu University, Funabashi, Japan

Design and Global Performance of a Semi-submersible Floating Offshore Wind Turbine System OMAE2022-79323
Xiaohua Shi[1] **Yongming Cheng**[2] Yang Shen[3] Chunhui Shou[3] Zhuyu Chu[1] Gan Lin[1]
1. Zhejiang Zheneng Jiaxing Offshore Wind Energy CO., LTD, Jiaxing, China (Mainland); 2. Beaver Offshore, LLC, Katy, TX, USA; 3. Zhejiang Energy R&D Institute, Hanzhou, China (Mainland)

Stochastic Weather Window Analysis in Operations and Maintenance Planning Policies for Offshore Floating Multi-Purpose Platforms OMAE2022-79353
Taemin Heo, Ding Peng Liu, Lance Manuel
The University of Texas at Austin, Austin, TX, USA

Ocean Engineering

06-08-01 Model Tests

Wednesday June 8 | Room **Y4** | **13:30–15:00**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Alessandro Iafrati, CNR, Italy; David Molyneux, Memorial University of Newfoundland, Canada; Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil; Masoud Hayatdavoodi, University of Dundee, United Kingdom; Joel Sales Junior, Universidade Federal do Rio de Janeiro, Brazil

Wave Flume Test on Launch and Recovery of ROV under Randomly Generated Waves OMAE2022-79356
Michael Binsar Lubis, Mehrdad Kimiaei
University of Western Australia, Crawley, WA, Australia

Hydrodynamic Performance of Floating Pontoon Type Breakwater with Skirt Walls and Different Porosity OMAE2022-80202
Neelamani Subramaniamkuwait, Alanoud Al-Ragum
Kuwait Institute for Scientific Research, Shuwaikh, Kuwait

Propeller Wake Measurement and Uncertainty Assessment by a Towing-Tank LDV OMAE2022-81133
Xin Long, Liwei Liu, Zhiguo Zhang, Bin Ye, Xianzhou Wang
Huazhong University of Science and Technology, Wuhan, China (Mainland)

On the Quality of Laboratory Water Waves Generated Mechanically by Flap Wavemakers OMAE2022-81324
Sebastien Fouques[1] Andreas Akselsen[1] Trevor Harris[2] Kent Brett[2]
1. SINTEF Ocean, Trondheim, Norway; 2. National Research Council of Canada, St. John's, NL, Canada

Polar and Arctic Sciences and Technology

07-07-01 Marine Propulsion System Under Ice Impact

Wednesday June 8 | Room **Y5** | **13:30–15:00**

Session Organizer: Daniela Myland, HSVA, Germany

Session Co-Organizer: Gesa Ziemer, DLR, Germany

Splitting-Tests of Laboratory-made Granular Ice with a Propeller-like Indenter OMAE2022-78186
Angelo Mario Böhm, Hauke Herrnring, Franz von Bock und Polach
Hamburg University of Technology, Hamburg, Germany

Verification of Inverse Propeller Moment Estimation Using a Scale Laboratory Rig OMAE2022-78787
Brendon Nickerson, Jaco Laas, Anriette Bekker
Stellenbosch University, Stellenbosch, South Africa

Procedure for Torsional-Vibration Calculations in Ice OMAE2022-80194
Gunnar Kistner[1] Kevin Lal[2] Jörn Klüss[2] Patrick Kaeding[1]
1. University of Rostock, Rostock, Germany; 2. Mecklenburger Metallguss GmbH, Waren, Germany

Hydrodynamic and Mechanic Response of a Floating Flexible Ice Floe in Regular Waves with the ICFD Method OMAE2022-78878
Jonas Behnen[1] Rüdiger U. Franz von Bock und Polach[2] Marco Klein[3] Sören Ehlers[4]
1. Technical University Hamburg, Münster, Germany; 2. Institute for Ship Structural Design and Analysis (M-10), Hamburg, Germany; 3. Institute for Structural Dynamics (M-14), Hamburg, Germany; 4. DLR Institute for Maritime Energy Systems, Hamburg, Germany

CFD and VIV

08-05-02 Free Surface Flows II

Wednesday June 8 | Room **Y6** | **13:30–15:00**

Session Organizer: Hans Bihs, Norwegian University of Science & Technology, Norway

Session Co-Organizer: Owen Oakley, Retired, USA

On Simulating Variability of Sloshing Loads in LNG Tanks OMAE2022-81105
Ronald Remmerswaal, **Arthur Veldman**
University of Groningen, Groningen, Netherlands

Numerical Simulation of the Wave-Induced Drift of Floating Marine Plastic Debris Modeled as Discrete Particles OMAE2022-79108
Bruno Sainte-Rose[1] **Andriarimina Rakotonirina**[1] Ton Van Den Bremer[2] Yannick Pham[1]
1. The Ocean Cleanup, Rotterdam, Netherlands; 2. Delft University of Technology, Delft, Netherlands

Solitary Wave Propagation Using a Novel Single Fluid Finite Volume Method for Free Surface Gravity Waves OMAE2022-80255
Jesper Roland Kjærgaard Qwist, Erik Damgaard Christensen
Technical University of Denmark, Kgs. Lyngby, Denmark

Enhancements of Computational Fluid Dynamics Analysis of Air Entrapment and Fluid-Structure Interaction during Plate Entry to Water through VoF-Slip and Adaptive Discretization Schemes OMAE2022-80796
Philipp Mucha[1] Minyee Jiang[2] Raymond Bay[2]
1. Siemens Digital Industries Software, Houston, TX, USA; 2. NSWC, Carderock Division, West Bethesda, MD, USA

Ocean Renewable Energy

09-01-12 Experimental Methods

Wednesday June 8 | Room **Y7** | **13:30–15:00**

Session Organizer: Seung-yoon HAN, Ecole Centrale Nantes, France

Session Co-Organizer: Krish Thiagarajan, University of Massachusetts Amherst, USA

On the Real Time Hybrid Modelling of Floating Offshore Wind Turbine Using Ducted Fan(s) OMAE2022-78985
Alexandre Cinello[1] François Pétrié[1] Benjamin Rousse[1] Cédric Le Cunff[2]
1. Océanide, La Seyne sur Mer, France; 2. PRINCIPIA, La Ciotat, France

Experimental Analysis of Mooring and Power Cable Dynamics when Using Elastic String Models OMAE2022-79834
Miguel Somoano, David Blanco, Alvaro Rodriguez-Luis, Raul Guanche
IHCantabria - Instituto de Hidráulica Ambiental de la Universidad de Cantabria, Santander, Spain

Experimental Study of the Effect of Heave Plate Dimensions on the Flow-induced Motions (FIM) of a Multi-column Floating Offshore Wind Turbine (FOWT) OMAE2022-80344
Rodolfo Trentin Gonçalves[1] Edgard Borges Malta[2] Alexandre Nicolaos Simos[3] Shinichiro Hirabayashi[4] Hideyuki Suzuki[5]
1. The University of Tokyo, Tokyo, Japan; 2. Technomar Engenharia Oceanica, São Paulo, SP, Brazil; 3. University of São Paulo, São Paulo, SP, Brazil; 4. The University of Tokyo, Kashiwa-shi, Japan; 5. The University of Tokyo, Bunkyo-ku, Japan

Model Test and Validation of the Crown Floating Offshore Wind Turbine OMAE2022-81065
Wei Yu[1] Lemmer Frank[2] Katja Lehmann[2] Po Wen Cheng[1] Santiago De Guzmán[3] Jaime Moreu[3] Tommaso Battistella[4]
1. Stuttgart Wind Energy (SWE) @ Institute of Aircraft Design, University of Stuttgart, Germany, Stuttgart, Germany; 2. Sowento GmbH, Stuttgart, Germany; 3. Seaplace SL, Madrid, Spain; 4. Environmental Hydraulics Institute of Cantabria, Santander, Spain

Ocean Renewable Energy

09-02-06 WEC Controls and PTO II

Wednesday June 8 | Room **Y8** | **13:30–15:00**

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

Session Co-Organizer: Krish Thiagarajan, University of Massachusetts Amherst, USA

Nonlinear Moment-based Optimal Control of Wave Energy Converters with Non-ideal Power Take-off Systems OMAE2022-81267
Nicolas Faedo[1] Giuseppe Giorgi[2] John Vincent Ringwood[3] Giuliana Mattiazzo[2]
1. Department of Mechanical and Aerospace Engineering, Politecnico di Torino, Torino, Italy; 2. Politecnico di Torino, Torino, Italy; 3. Maynooth University, Maynooth, Ireland

A Combined Nonlinear Mooring-line and Umbilical Cable Dynamics Model and Application OMAE2022-81470
Solomon Yim[1] Ming Chen[1] Shangmao Ai[2]
1. Oregon State University, Corvallis, OR, USA; 2. Harbin Engineering University, Harbin, China (Mainland)

Influence on Structural Loading of a Wave Energy Converter by Controlling Variable-Geometry Components and the Power Take-off OMAE2022-81518
Salman Husain[1] Jacob Davis[2] Nathan Tom[3] **Krish Thiagarajan**[2] Cole Burge[4] Nhu Nguyen[5]
1. National Renewable Energy Laboratory (NREL), Hancock, MI, USA; 2. University of Massachusetts, Amherst, MA, USA; 3. National Renewable Energy Laboratory (NREL), Golden, CO, USA; 4. University of Washington, Amherst, MA, USA; 5. University of Massachusetts, Amherst, Amherst, MA, USA

Mitigating Force Oscillations in a Wave Energy Converter Using Control Barrier Functions OMAE2022-82707
Mathias Marley[1] Roger Skjetne[2]
1. Department of Marine Technology, Norwegian University of Science and Technology, Oslo, Norway; 2. Department of Marine Technology, Norwegian University of Science and Technology, Trondheim, Norway

Petroleum Technology

11-05-02 Well Cementing Theory and Practice II

Wednesday June 8 | Room **Y10** | **13:30–15:00**

Session Organizer: Ergun Kuru, University of Alberta, Canada

Session Co-Organizers: Seyed Mohammad Taghavi, Laval University, Canada; Ian Frigaard, University of British Columbia, Canada

Jet Cleaning Processes in the Plug and Abandonment of Oil and Gas Wells: an Experimental Study on Horizontal Miscible Jets OMAE2022-79424
Hossein Hassanzadeh, Elliott Cournoyer, Seyed Mohammad Taghavi
Laval University, Quebec City, QC, Canada

Modeling Squeeze Cementing: a Micro Structure Based Continuum Model OMAE2022-79461
Mahdi Izadi[1] Ian Frigaard[1] Seyed Mohammad Taghavi[2]
1. University of British Columbia, Vancouver, BC, Canada; 2. Laval University, Quebec City, QC, Canada

Experimental Study of Newtonian Laminar Annular Horizontal Displacement Flows with Rotating Inner Cylinder OMAE2022-79753
Heeseok Jung, Ian Frigaard, Ruizi Zhang, Alondra Renteria
University of British Columbia, Vancouver, BC, Canada

Experimental Investigation of Flow Velocity Dispersion in Annuli OMAE2022-79937
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

Petroleum Technology

11-13-01 Digitalization of Subsurface, Well Systems, Subsea Systems and Operations

Wednesday June 8 | Room **Y11** | **13:30–15:00**

Session Organizer: Ergun Kuru, University of Alberta, Canada

Session Co-Organizers: Rajiv Aggarwal, Consultant, USA; Mayank Tyagi, Louisiana State University, USA

Design and Demonstration of Autonomous Directional Drilling with a Miniature Scale Rig OMAE2022-80314
Magnus Steinstø[1] Gaute Hånsnar[1] Benedicte Gjersdal[1] Trygve Mikal Viga Skretting[2] Alexey Pavlov[1] Fred Florence[3]
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Norwegian University of Science and Technology, Sandnes, Norway; 3. Rig Operations, LLC, Austin, TX, USA

Designing Subsea Processing Systems Using a Hybrid Genetic Algorithm OMAE2022-78647
Leonardo Sales, Johannes Jäschke, Milan Stanko
Norwegian University of Science and Technology, Trondheim, Norway

A Deep Learning Approach for Underwater Leak Detection OMAE2022-79757
Viviane Ferreira Da Silva, Theodoro Netto, Bessie Ribeiro
Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil

CONCURRENT SESSIONS
15:30 – 17:30

Offshore Technology

01-08-02 Digitalization, AI, Neural Networks, ML II

Wednesday June 8 | Room **Y1** | **15:30–17:30**

Session Organizer: Rajiv Aggarwal, Consultant, USA

Session Co-Organizer: Denby Morrison, Shell, USA

A Stochastic Approach to Short-term Ocean Wave Forecasting: Preliminary Results Using Data from a Remote Sensing Imaging System OMAE2022-81067
Alexis Mérigaud[1] **Paolino Tona**[2]
1. IFP Energies nouvelles, Rueil-Malmaison, France; 2. IFP Energies nouvelles, Lyon, France

Applying Open Web Architectures towards Collaborative Maritime Design and Simulation OMAE2022-81505
Felipe Oliveira, Icaro Fonseca, **Henrique Gaspar**
Norwegian University of Science and Technology, Ålesund, Norway

Sequential Images for Dynamic Features and the Classification of Wave Breaking OMAE2022-79817
Ryan Smith[1] Frederic Dias[1] Gabriele Facciolo[2] Thomas B. Murphy[1]
1. University College Dublin, Dublin, Ireland; 2. ENS Paris-Saclay, Gif-sur-Yvette, France

Assessment of Situation Awareness for Seafarers Using Eye-tracking Data OMAE2022-80754
Satinder Singh Virdi[1] Yong Thiang Ng[2] **Yisi Liu**[2] Kelvin Tan[2] Daniel Zhang[2]
1. Singapore Maritime Academy, Singapore Polytechnic, Singapore, Singapore; 2. CEMS, Singapore Polytechnic, Singapore, Singapore

Structures, Safety and Reliability

02-03-01 Probabilistic Response Models

Wednesday June 8 | Room **Hall F** | **15:30–17:30**

Session Organizer: Lance Manuel, University of Texas at Austin, USA

Session Co-Organizer: Erik Vanem, DNVGL, Norway

The Impact of Climate Change on Offshore Operations and Design Considerations for Offshore Vessels and Installations OMAE2022-79274
Jordan Rosen[1] Hemant Thurumella[2] Jon Gumley[3] Kanishka Jayasinghe[1] **Andrew Kilner**[2]
1. AMOG Pty Ltd, Notting Hill, VIC, Australia; 2. AMOG Consulting Inc., Houston, TX, USA; 3. AMOG Pty Ltd, NottingHill, VIC, Australia

Wave Attenuation Performance of Arranging a Rectangular Buoy in a Perforated Caisson Using Quadratic Pressure Drop Condition OMAE2022-79289
Yuhan Wang, Sheng Dong
Ocean University of China, Qingdao, China (Mainland)

Short-Term Extreme Response Prediction for a Jacket Platform Subjected to Nonlinear Wave Loads OMAE2022-80095
Xiangpeng Yu[1] Wei Chai[1] Bernt Leira[2] Jian Gu[3]
1. Wuhan University of Technology, Wuhan, China (Mainland); 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. China Ship Scientific Research Center, Wuxi, China (Mainland)

A Risk-Based Approach to Determine Mobile Offshore Drilling Unit Disconnect Criteria OMAE2022-81122
Stian Garlid[1] Torfinn Hørte[2] Lorents Reinås[1]
1. Equinor ASA, Stavanger, Norway; 2. DNV, Høvik, Norway

A Kalman Filtering Technique for Prediction of Wave Time Histories around Ship Based on Response Measurements and its Experimental Validation OMAE2022-82308
Yusuke Komoriyama[1] Kazuhiro Iijima[2] Masahiko Fujikubo[2]
1. National Institute of Maritime, Port and Aviation Technology, Tokyo, Japan; 2. Osaka University, Suita, Japan

Structures, Safety and Reliability

02-16-02 Data-driven Models for Marine Structures II

Wednesday June 8 | Room **Hall E** | **15:30–17:30**

Session Organizer: YeongAe Heo, Case Western Reserve University, USA

Session Co-Organizer: Marco Klein, Hamburg University of Technology, Germany

Estimation of Still-Water Bending Moment of Ship Hull Girder Using Beam Finite Element Model and Ensemble Kalman Filter OMAE2022-78630
Akira Tatsumi, Kazuhiro Iijima, Masahiko Fujikubo
Osaka University, Suita, Japan

Motion Response Prediction of Marine Vessels Based on Hydrodynamic Models Updated through On-site Measurements OMAE2022-78912
Gowtham Radhakrishnan, Bernt Johan Leira, Zhen Gao, Svein Sævik, Alojz Gomola
Norwegian University of Science and Technology, Trondheim, Norway

Automated Modal Parameters Identification during Ice-Structure Interactions OMAE2022-81075
Chunlin Wang, Torodd Skjerve Nord, Guoyuan Li
Norwegian University of Science and Technology, Ålesund, Norway

An Impact Load Identification Method Based on Green's Kernel Function OMAE2022-81427
Xueqian Zhou[1] **Yishi Xu**[1] Yu Yang[1] Gang Lu[2] Huilong Ren[1]
1. Harbin Engineering University, Harbin, China (Mainland); 2. China Ship Development and Design Center, Wuhan, China (Mainland)

Pipeline, Risers, and Subsea Systems

04-03-01 Rigid Pipelines I

Wednesday June 8 | Room **Y2** | **15:30–17:30**

Session Organizer: Theodoro Netto, Fundacao Coppetec, Brazil

Session Co-Organizers: Theodoro Netto, Fundacao Coppetec, Brazil

Pipeline Reel-Lay FE Simulation: an Advanced Material Model Calibrated from Testing OMAE2022-79856
Eric Giry[1] Chen Shen[2] Richard Stableford[2]
1. Saipem SA, Montigny Le Bretonneux, France; 2. Saipem SA, Montigny-Le-Bretonneux, France

Methodology for Installation of Under-straight Pipe for Lateral Buckling Mitigation OMAE2022-79862
Alan Roy[1] Thurairajah Sriskandarajah[2] Suwarno Gunawan[2] Pasupathy Ragupathy[2]
Graeme Roberts[2] Yasin Kassim[2] Markus Cederfeldt[3]
1. Subsea 7, Banstead, United Kingdom; 2. Subsea 7, Sutton, United Kingdom; 3. Subsea 7, Stavanger, Norway

A Journey from Daily Engineering to Machine Learning, Application to Rigid Pipeline Reel-Laying OMAE2022-79870
François-Guillaume Capelle, Jonas Durand-Gasselin, **Eric Giry**, Amandine Laye
Saipem SA, Montigny-Le-Bretonneux, France

A Trawl Net Model Tailor-made for Simulation of Pipeline and Trawl Board Pull-over Interaction OMAE2022-79216
Vegard Longva[1] Erik Levold[2] Håvar Ilstad[2]
1. SINTEF Ocean, Trondheim, Norway; 2. Equinor, Ranheim, Norway

Simulation of Trawl Board and Pipeline Pull-over Interaction OMAE2022-79928
Vegard Longva[1] Erik Levold[2] Håvar Ilstad[2] Svein Sævik[3] Frank Klæbo[1] Marie Finstad Opgård[2] Stefan Arenfeldt Vilsen[4]
1. SINTEF Ocean, Trondheim, Norway; 2. Equinor, Ranheim, Norway; 3. Norwegian University of Science and Technology, Trondheim, Norway; 4. DNV, Copenhagen, Denmark

Collapse of Jco-E Pipes; Experiments and Numerical Predictions OMAE2022-79129
Ilias Gavriilidis[1] Aris Stamou[1] Athanasios Tazedakis[2] Nikos Voudouris[2]
Christos Palagas[2] Efthimios Dourdounis[2] **Spyros Karamanos**[1]
1. University of Thessaly, Volos, Greece; 2. Corinth Pipeworks SA, Thisvi, Greece

Ocean Space Utilization

05-05-03 Floating System for Renewable Energy III

Wednesday June 8 | Room **Y3** | **15:30–17:30**

On Common Research Needs for the Next Generation of Floating Support Structures OMAE2022-79167
Vegard Aksnes[1] Hagbart Alsos[1] Erin Bachynski-Polić[2] Petter Andreas Berthelsen[1] Virgile Delhaye[3] Birgitte Rugaard Furevik[4] Hans Petter Jostad[5] Trygve Kristiansen[2] Babak Ommani[1]
1. SINTEF Ocean, Trondheim, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. SINTEF Industry, Trondheim, Norway; 4. MET Norway, Bergen, Norway; 5. NGI, Oslo, Norway

Experimental Investigation on a Cabin-suspended Catamaran for Wave Energy Harvesting OMAE2022-79503
Jialin Han[1] Qiao Li[2] Akito Mochizuki[2] Teruo Maeda[3] Hiroshi Itakura[2] Daisuke Kitazawa[2]
1. Osaka Prefecture University, Osaka, Japan; 2. The University of Tokyo, Kashiwa-shi, Japan; 3. Management Strategy Corporation, Yokohama, Japan

Real-Time Prediction of Incoming Wave Profile Surrounding Floating Offshore Wind Turbine Using Kalman Filter OMAE2022-79636
Rodhiatul Isnaini, Kenta Toichi, Kazuhiro Iijima, **Akira Tatsumi**
Osaka University, Suita, Japan

Numerical Simulations for Impacts of Offshore Wind Power Facilities on Currents and Water Quality OMAE2022-78999
Koki Miki, **Shigeru Tabeta**, Katsunori Mizuno
The University of Tokyo, Kashiwa, Japan

Ocean Engineering

06-07-02 Metocean, Measurement and Data Interpretation II

Wednesday June 8 | Room **Y4** | **15:30–17:30**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Alessandro Iafrati, CNR, Italy; Kevin Ewans, MRL, New Zealand; Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil; Masoud Hayatdavoodi, University of Dundee, United Kingdom

Estimating Joint Extremes of Significant Wave Height and Wind Speed for Tropical Cyclones OMAE2022-79888
Kosuke Sando[1] Ryota Wada[1] Jeremy Rohmer[2] Sophie Lecacheux[2] Philip Jonathan[3]
1. The University of Tokyo, Kashiwa, Japan; 2. Bureau de Recherches Géologiques et Minières, Orléans Cedex 2, France; 3. Shell Research Ltd and Department of Mathematics and Statistics, Lancaster University, London, United Kingdom

Metocean Database of the North Sea OMAE2022-80407
Kai Chu, Alexander Breugem, Boudewijn Decrop
IMDC, Antwerp, Belgium

ISM-Based Study on the Constraints of Yangtze River Mainline Fleet Transportation Development in the Context of Green Intelligence OMAE2022-80642
yinhua Yang, Yan Jin
Wuhan Univeristy of Technology, Wuhan, China (Mainland)

Wind Profile and Structure during Severe Storms in the Gulf of Mexico OMAE2022-86835
Suvabrata Das[1] Soma S Maroju[1] Shejun Fan[2] Pak Leung[2] Cristina C Zwissler[2]
1. BMT Commercial USA Inc., Houston, TX, USA; 2. Shell International Exploration and Production, Inc., Houston, TX, USA

Ocean Engineering

06-12-02 Ship Hydromechanics II

Wednesday June 8 | Room **Y9** | **15:30–17:30**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Rodrigo Soares, Federal University of Rio de Janeiro, Brazil; Ye Li, Shanghai Jiao Tong University, China (Mainland); Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil; João Victor Padilha, Universidade Federal do Rio de Janeiro, Brazil

A Contrastive Study of Two-time Scaled Method and Unified Method in Maneuverability-in-Waves OMAE2022-79532
Chengqian Ma, Ning Ma, Xiechong Gu
Shanghai Jiao Tong University, Shanghai, China (Mainland)

Kinetic Characteristics and Hydrodynamic Forces on Semi-planing Typed High-Speed Vehicle by Model Test and RANS Simulation OMAE2022-80248
Kenta Hasegawa[1] Motoki Araki[1] Kei Ishida[1] Kazuhiro Yukawa[1] Shota Saito[2] Ryoya Sano[2] Keisuke Uemura[2]
1. National Maritime Research Institute, National Institute of Maritime, Port and Aviation Technology, Mitaka, Japan; 2. Ground Systems Research Center, Acquisition, Technology & Logistics Agency, Ministry of Defense, Sagamihara, Japan

Moment Loads on a Two-Dimensional Turret-Moored Vessel under Forced Motion OMAE2022-81219
Feifei Tong, Hugh Wolgamot, Scott Draper
University of Western Australia, Perth, WA, Australia

Ship Path following Control via Output Redefinition Method in Restricted Waters OMAE2022-81422
Xueqian Zhou[1] **Ping Xin**[1] Dezheng Jia[1] Jin Huang[1] Donghao Xu[2]
1. Harbin Engineering University, Harbin, China (Mainland); 2. Harbin University of Science and Technology, Harbin, China (Mainland)

Ocean Engineering

06-15-01 Unsteady Hydrodynamics, Vibrations, Acoustics and Propulsion

Wednesday June 8 | Room **Y12** | **15:30–17:30**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Allan Magee, National University of Singapore, Singapore; Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil; Yihan Xing, University of Stavanger, Norway

Marine Ducted Thruster Underwater Radiated Noise Control through Leading-edge Tubercle Blade Modifications – a Numerical Hybrid Approach OMAE2022-78157
Callum Stark, Weichao Shi, Yunxin Xu, Moritz Troll
University of Strathclyde, Glasgow, United Kingdom

A Dynamical System for the Combined Performance of Innovative Biomimetic Thruster with Standard Propulsion System in Waves OMAE2022-78811
Kostas Belibassakis, Evangelos Filippas
National Technical University of Athens, Athens, Greece

Noise Generation and Propagation from Flapping-Foil Thrusters Used for Marine Propulsion OMAE2022-79699
Iro Malefaki, Angeliki Karperaki, Kostas Belibassakis
National Technical University of Athens, Athens, Greece

Calculation of Thrust and Torque of a Tandem Propeller Using a Combined Vortex Lattice Lifting Line Method OMAE2022-80803
Andreas Buesken, Stefan Krueger
Hamburg University of Technology, Hamburg, Germany

Numerical Analysis and Evaluation of the Sound Source in the Sea, Taking into Account Changes in Sound Velocity, Emission Angles, Bed Roughness and the Presence of the Object OMAE2022-81076
Roya Shademani
IDRO, Tehran, Iran

Polar and Arctic Sciences and Technology

07-09-01 Scenario-based Risk Management for Ice-covered Waters: LRF – CEPOLAR Activities

Wednesday June 8 | Room **Y5** | **15:30–17:30**

Session Organizer: Pentti Kujala, Aalto University, Finland

Session Co-Organizer: Sören Ehlers, Hamburg University of Technology, Germany

Cepolar Activities to Develop Recommended Practice for Scenario-based Risk Management for Icy Waters OMAE2022-80721
Pentti Kujala
Aalto University, Aalto, Finland

Holistic, Quantitative and Spatiotemporally Explicit Oil Spill Risk Assessment in Marine Arctic OMAE2022-80903
Jarno Vanhatalo[1] Inari Helle[2]
1. University of Helsinki, Helsinki, Finland; 2. Natural Resources Institute Finland, Helsinki, Finland

An Evaluation of Consequence Severity of Ship Evacuations in the Canadian Arctic OMAE2022-79514
Thomas Browne[1] Allison Kennedy[2] Caitlin Piercey[1] Jonathan Power[2] Brian Veitch[3]
1. Memorial University of Newfoundland, St. John's, NL, Canada; 2. National Research Council of Canada - Ocean, Coastal and River Engineering, St. John's, NL, Canada; 3. Memorial University of Newfoundland, Faculty of Engineering and Applied Science, St. John's, NL, Canada

General Review and Analysis of Research in CEARCTIC and CEPOLAR Projects OMAE2022-81327
Liangliang Lu[1] Sakari Kuikka[2] Pentti Kujala[1]
1. Aalto University, Espoo, Finland; 2. University of Helsinki, Helsinki, Finland

Scenario-based Risk Management for Arctic Waters OMAE2022-80767
Martin Bergström[1] Thomas Browne[2] Sören Ehlers[3] Inari Helle[4] Hauke Herrnring[3] Faisal Khan[2] Jan Kubiczek[3] Pentti Kujala[1] Mihkel Kõrgesaar[5] Bernt Johan Leira[6] Tuuli Parviainen[7] Arttu Polojärvi[1] Mikko Suominen[1] Taylor Rocky[2] Jukka Tuhkuri[1] Jarno Vanhatalo[8] Brian Veitch[2]
1. Aalto University, Department of Mechanical Engineering, Espoo, Finland; 2. Memorial University of Newfoundland, Faculty of Engineering and Applied Science, St. John's, NL, Canada; 3. Hamburg University of Technology, Institute for Ship Structural Design and Analysis, Hamburg, Germany; 4. University of Helsinki, Organismal and Evolutionary Biology Research Programme, Helsinki, Finland; 5. Tallinn University of Technology, Estonian Maritime Academy / Aalto University, Department of Mechanical Engineering, Tallinn, Estonia; 6. Norwegian University of Science and Technology, Department of Marine Technology, Trondheim, Norway; 7. University of Helsinki, Ecosystems and Environment Research Programme, Helsinki, Finland; 8. University of Helsinki, Department of Mathematics and Statistics, Helsinki, Finland

CFD and VIV

08-03-01 Waves, Motions, Impact

Wednesday June 8 | Room **Hall D** | **15:30–17:30**

Session Organizer: Tim Bunnik, MARIN, Netherlands

Session Co-Organizer: Owen Oakley, Retired, USA

Seakeeping of a Rectangular Barge with Skirts – from Model Tests to Numerical Wave Tank Simulations OMAE2022-79239
Gerard Fernandez, **Mamoun Naciri**
SBM Offshore, , Monaco

A Comparison of Different Numerical Methods to Simulate Forced Roll Oscillations of Floating Structures in Grid-Based Schemes OMAE2022-80510
Jannik Meyer, Henrik Neufeldt, Arndt Hildebrandt
Ludwig-Franzius-Institute, University of Hannover, Hannover, Germany

Reconstruction of Fish Farm Model Tests in CFD for Detailed Analysis of Internal Sloshing and Wave Loading in Extreme Sea States OMAE2022-80520
Peter Van Der Plas[1] Jorrit-Jan Serraris[1] Joop Helder[1] Finn-Christian Hanssen[2] Lars Bjar[3] Kåre Olav Krogenes[4]
1. MARIN, Wageningen, Netherlands; 2. Semar, Lysaker, Norway; 3. Moss Maritime, Lysaker, Norway; 4. Viewpoint, Haugesund, Norway

GPU-Accelerated High-Order Spectral – OpenFOAM Coupled Model for Numerical Analysis of Ship Motion in Nonlinear Waves OMAE2022-81236
My Ha Dao, Xin Lu, Quang Tuyen Le
Institute of High Performance Computing, Singapore, Singapore

CFD and VIV

08-07-01 Internal Flows and FIV I

Wednesday June 8 | Room **Y6** | **15:30–17:30**

Session Organizer: Owen Oakley, Retired, USA

Session Co-Organizer: Narakorn Srinil, Newcastle University, United Kingdom

Two-Phase Flow Induced Vibrations: Methodology Validation – Part 1 OMAE2022-78833
Arnout Klinkenberg[1] Hajo Pereboom[2] Stefan Belfroid[2] Steinar Orre[3]
1. Aker Solutions, Oslo, Norway; 2. TNO, Delft, Netherlands; 3. Equinor, Stavanger, Norway

Two-Phase Flow Induced Vibrations: Methodology Validation – Part 2 OMAE2022-78758
Olivier Macchion[1] **Paul Emmerson**[2] Mike Lewis[2] Leszek Stachyra[1] Steinar Orre[3]
1. TechnipFMC, Lysaker, Norway; 2. Xodus Group, London, United Kingdom; 3. Equinor ASA, Stavanger, Norway

Two-Phase Flow Induced Vibrations with CO2 Multiphase Flow OMAE2022-78693
Stefan Belfroid[1] Steinar Orre[2] Rens Bazuin[1] Knud Lunde[2]
1. TNO, Delft, Netherlands; 2. Equinor, Forus, Norway

Analysis of the Influence of Opening Design Parameters on Cavity Flow Characteristics OMAE2022-79104
Luqun Wang, Jiawei Yu, Xianzhou Wang, Weihua Deng, Dakui Feng
Huazhong University of Science and Technology, Wuhan, China (Mainland)

Hybrid Multiphase CFD Model for Bubbly, Slug, Churn and Annular Flow Regimes in Vertical Pipes OMAE2022-79277
Madhusuden Agrawal[1] Samir Khanna[1] Ardjan Kopliku[1] Timothy Lockett[2]
1. BP, Houston, TX, USA; 2. BP (former employee), Torquay, United Kingdom

Ocean Renewable Energy

09-01-10 FWT Hydrodynamics

Wednesday June 8 | Room **Y7** | **15:30–17:30**

Session Organizer: Enzo Marino, Department of Civil and Environmental Engineering, University of Florence, Italy

Session Co-Organizer: Madjid Karimirad, Queen's University Belfast, United Kingdom

The Application of Semi-Analytical Diffraction Formulas to Predict Second-order Dynamic Response of a TLP Floating Wind Turbine in Monochromatic Waves OMAE2022-78673
Elie Ronge[1] Christophe Peyrard[2] Vengatesan Venugopal[3] Qing Xiao[4] Lars Johanning[5]
1. IDCORE - The University of Edinburgh, Chatou, France; 2. EDF Lab, Chatou, France; 3. The University of Edinburgh, Edinburgh, United Kingdom; 4. University of Strathclyde, Glasgow, United Kingdom; 5. University of Exeter, Penryn, United Kingdom

Simulation of VIM of an Offshore Floating Wind Turbine OMAE2022-79006
Elizabeth Passano[1] Guttorm Grytøyr[2] Herbjørn Haslum[2] Halvor Lie[1] Decao Yin[1]
1. SINTEF Ocean, Trondheim, Norway; 2. Equinor, Stavanger, Norway

Hydrodynamic Performance of an Innovative Semisubmersible Platform with Twin Wind Turbines OMAE2022-79248
Mujahid Elobeid[1] Longbin Tao[2] David Ingram[3] Ajit Pillai[4] Pedro Mayorga[5] Jan Erik Hanssen[5]
1. The University of Edinburgh, Glasgow, United Kingdom; 2. University of Strathclyde, Glasgow, United Kingdom; 3. The University of Edinburgh, Edinburgh, United Kingdom; 4. University of Exeter, Cornwall, United Kingdom; 5. EnerOcean S,L., Málaga, Spain

Validation Study of a CFD Numerical Solver for the Oscillatory Flow Features around Heave Plates OMAE2022-81116
Seung-Yoon HAN, Benjamin Bouscasse, Jean-Christophe Gilloteaux, David Le Touze
Ecole Centrale Nantes, Nantes, France

Identification of Wave Drift Forces on a Floating Wind Turbine Sub-structure with Heave Plates and Comparison with Predictions OMAE2022-81467
Nuno Fonseca[1] Synne Nybø[2] Jose Miguel Rodrigues[2] Aitor Gallego[3] Carlos Garrido-Mendoza[3]
1. SINTEF Ocean, Ranheim, Norway; 2. SINTEF Ocean, Trondheim, Norway; 3. SAITEC, Leioa-Bizkaia, Spain

Ocean Renewable Energy

09-05-01 Energy Storage and Hydrogen

Wednesday June 8 | Room **Y8** | **15:30–17:30**

Session Organizer: Tonio Sant, Department of Mechanical Engineering, University of Malta, Malta

Session Co-Organizer: Krish Thiagarajan, University of Massachusetts Amherst, USA

Investigating the Increase in Energy Storage Density of Subsea Hydro-Pneumatic Accumulators Using a Compressible Fluid Undergoing Phase Change OMAE2022-78138
Tonio Sant[1] Charise Cutajar[2] Luke Jurgen Briffa[2] Daniel Buhagiar[3]
1. Dept of Mechanical Engineering,University of Malta, Msida, Malta; 2. University of Malta, Msida, Malta; 3. FLASC B.V., Delft, Netherlands

Fuel Cells for Reducing Emissions from the Petroleum Industry – Experience from Work in the Lowemission Research Centre OMAE2022-78379
Belma Talic[1] Øyvind Lindgård[2] Katie Mccay[2] Einar Vøllestad[1] Yash Raka[2] Patrick Fortin[2] Luis Colmenares-Rausseo[2] Anders Ødegård[2]
1. SINTEF AS, Oslo, Norway; 2. SINTEF AS, Trondheim, Norway

Hydro-Pneumatic Energy Storage Using Subsea Bundles OMAE2022-79073
Daniel Buhagiar[1] Ernst Kloster[2] Tonio Sant[1] Robert N. Farrugia[1]
1. FLASC B.V., Delft, Netherlands; 2. Subsea 7, Stavanger, Norway

Subsea Buoyancy and Gravity Energy Storage System for Deep-water Applications: a Preliminary Assessment OMAE2022-80422
Andre Novgorodcev[1] Frank Mols[2] Antonio Jarquin Laguna[1]
1. Delft University of Technology, Delft, Netherlands; 2. Delft University of Technology, Amsterdam, Netherlands

Performance of Slosh-induced Energy Harvesting OMAE2022-87116
Daegyoum Kim, **Ki Jong Kim**
KAIST, Daejeon, Korea

Petroleum Technology

11-05-03 Well Cementing Theory and Practice III

Wednesday June 8 | Room **Y10** | **15:30–17:30**

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

Session Co-Organizer: Seyed Mohammad Taghavi, Laval University, Canada

Influence on Sealing Integrity by Pressurization during Cement Sheath Setting OMAE2022-80506
Xuning Wu[1] Zaoyuan Li[2] Jian Liu[2] Zhengmeng Hou[3] Donghua Su[2] Jin Li[2]
1. Technische Universitaet Clausthal, Goslar, Germany; 2. Southwest Petroleum University, Chengdu, China (Mainland); 3. Research Center of Energy Storage Technologies, Goslar, Germany

Effects of Rheological Properties on Primary Cementing of Irregular Horizontal Wells OMAE2022-80561
Parisa Sarmadi, **Ian Frigaard**
University of British Columbia, Vancouver, BC, Canada

Development of New Inhibited Spacer for Cementing Operation OMAE2022-80939
Sara Alkhalaf, Abdullah Alyami, Vikrant Wagle, Ali Safran
Saudi ARAMCO, Dhahran, Saudi Arabia

Development of a Geopolymer Cement for Primary Well Cementing: Method, Preparation and Particle Size Effect on Reaction Reactivity OMAE2022-81049
Khawlah Alanqari, Abdullah Al-Yami, Vikrant Wagle
Saudi ARAMCO, Dhahran, Saudi Arabia

Petroleum Technology

11-11-01 Advances in Carbon Capture Utilization and Storage

Wednesday June 8 | Room **Y11** | **15:30–17:30**

Session Organizer: Ergun Kuru, University of Alberta, Canada

Session Co-Organizers: Daoyong (Tony) Yang, Petroleum Systems Engineering, Canada; Huazhou Li, University of Alberta, Canada

Development of a Permeability Reduction Model Using Deep Learning for CO2 Hydrate Storage OMAE2022-78523
Alan Junji Yamaguchi[1] Toru Sato[1] Takaomi Tobase[2] Xinran Wei[3] Lin Huang[3] Jia Zhang[3] Jiang Bian[3] Tie-Yan Liu[3]
1. The University of Tokyo, Kashiwa, Japan; 2. Electric Power Development Co. Ltd., Chigasaki, Japan; 3. Microsoft Research Asia, Beijing, China (Mainland)

Phase Behavior Modeling for Carbon Dioxide/Brine Mixtures Using PR EOS and Huron-Vidal Mixing Rule OMAE2022-80010
Ziting Sun, Huazhou Li
University of Alberta, Edmonton, AB, Canada

Correlation/Prediction of CO2 Solubility in Single-salt and Multi-salt Brines Using PR EOS Incorporated with Modified Alpha Functions and BIP Correlations OMAE2022-80869
Zehua Chen[1] Daoyong Yang[2]
1. China University of Petroleum (East China), Qingdao, China (Mainland); 2. University of Regina, Regina, SK, Canada

Integrated Optimization of Hybrid Steam-solvent Processes in a Post-CHOPS Reservoir with Consideration of Wormhole Networks OMAE2022-81225
Daoyong (Tony) Yang[1] Min Zhao[2]
1. Petroleum Systems Engineering, Regina, SK, Canada; 2. University of Regina, Regina, SK, Canada

Thursday Concurrent Sessions

THURSDAY, JUNE 9
8:30 – 10:00

Offshore Technology

01-08-01 Digitalization, AI, Neural Networks, ML I

Thursday June 9 | Room **Y1** | **08:30–10:00**

Session Organizer: Rajiv Aggarwal, Consultant, USA

Session Co-Organizer: Denby Morrison, Shell, USA

Generating a Digital Twin of the Glen Lyon FPSO OMAE2022-80547
Suvabrata Das[1] Soma Maroju[2] Robert Barker[3] Richard Bamford[4] Jonathan Bailey[4]
1. BMT Commercial USA Inc., Katy, TX, USA; 2. BMT Commercial USA Inc., Houston, TX, USA; 3. BMT Commercial USA Inc., Fareham, United Kingdom; 4. BP, Dyce, United Kingdom

A Proposal for Achieving a Comprehensive Digital Twin for Floating Units OMAE2022-81198
Jose Esteve
Bureau Veritas, Paris, France

Digital Thread Applications for Offshore Floating Energy OMAE2022-82026
Mat Podskarbi
Akselos, Houston, TX, USA

Structures, Safety and Reliability

02-09-01 Extreme Loading and Responses I

Thursday June 9 | Room **Hall F** | **08:30–10:00**

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

Session Co-Organizer: Spyros Hirdaris, Aalto University, Finland

Development of Practical Simplified Formula of Wave Pressure in Equivalent Design Wave OMAE2022-79056
Kyohei Shinomoto[1] Kei Sugimoto[2] Sadaoki Matsui[3]
1. ClassNK, Tokyo, Japan; 2. ClassNK, Chiyoda-ku, Japan; 3. National Maritime Research Institute, Mitaka-shi, Japan

Wave Impact Pressures on U-OWC Breakwater OMAE2022-79148
Alessandra Romolo, Bruna Timpano, Valentina Laface, Vincenzo Fiamma, Felice Arena
Natural Ocean Engineering Laboratory (NOEL), University "Mediterranea" of Reggio Calabria, Reggio Calabria, Italy

Estimation of Design Slamming Loads from Laboratory Test of a Circular Cylinder OMAE2022-80945
Gunnar Lian[1] Sverre Kristian Haver[2] Chris Swan[3]
1. Equinor, Stavanger, Norway; 2. University of Stavanger, Stavanger, Norway; 3. Imperial College, London, United Kingdom

Wave Impact on Semi-submersible Units: a Review of Design Standards OMAE2022-81456
Renjeev Gopalakrishnakurup
UK Health & Safety Executive, Aberdeen, United Kingdom

Structures, Safety and Reliability

02-13-01 Risk Analysis and Management

Thursday June 9 | Room **Hall E** | **08:30–10:00**

Session Organizer: Marcelo Ramos Martins, USP, Brazil

Session Co-Organizer: YeongAe Heo, Case Western Reserve University, USA

Restoration Models for Quantifying Resilience of FPS under Mooring Failure OMAE2022-81033
Jingyi Wu, Yang Yu, Jianxing Yu, Lixin Xu, Fanlei Wu, Xueying Chang
Tianjin University, Tianjin, China (Mainland)

Temperature Reduction on LNG Bunkering Ship Structure under Accidental Cryogenic Gas Release Using CFD Simulation OMAE2022-78729
Haris Nubli[1] Jung Min Sohn[1] Dongho Jung[2]
1. Pukyong National University, Busan, Korea; 2. Korea Research Institute of Ship and Ocean Engineering, Daejeon, Korea

Pipeline, Risers, and Subsea Systems

04-03-02 Rigid Pipelines II

Thursday June 9 | Room **Y2** | **08:30–10:00**

Session Organizer: Theodoro Netto, Fundacao Coppetec, Brazil

Session Co-Organizers: Theodoro Netto, Fundacao Coppetec, Brazil

Structural Response of Subsea Pipe Elbows under Monotonic and Cyclic Loading OMAE2022-79151
George E. Varelis[1] Elie Dib[1] Spyros A. Karamanos[2]
1. Worley Europe Ltd, London, United Kingdom; 2. Department of Mechanical Engineering - University of Thessaly, Volos, Greece

The Impact of Extreme Turbidity Flow on Subsea Pipeline Design in a Deepwater Canyon Crossing OMAE2022-79292
Qiang Bai[1] Xinhai Qi[2] William Pearl[1] Joanne Shen[1] Mark Brunner[1]
1. TechnipFMC, Houston, TX, USA; 2. Genesis, Houston, TX, USA

Integrity Assessment of Electrically Heat Traced Pipe-in-Pipe Plug Weld OMAE2022-79401
Daowu Zhou, **Lingjun Cao**
Subsea 7, Sutton, United Kingdom

Numerical Simulation of a Subsea Pipeline Subjected to near-Field Underwater Explosion Loads with the Coupled Eulerian-Lagrangian (CEL) Method OMAE2022-80657
Zhenhui Liu[1] Ragnar Igland[2]
1. Western Norway University of Applied Science, Haugesund, Norway; 2. Aker Solutions, Trondheim, Norway

Ocean Space Utilization

05-02-02 Aquaculture and Related Technology II

Thursday June 9 | Room **Y3** | **08:30–10:00**

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

Numerical Study of an Alternative Way of Evaluating the Remaining Volume of a Fish Cage OMAE2022-79431
Hung-Jie Tang[1] Po-Hung Yeh[2] Ray-Yeng Yang[3] Fan-Hua Nan[4]
1. National Cheng Kung University, Tainan, Taiwan (Greater China); 2. National Sun Yat-sen University, Kaohsiung, Taiwan (Greater China); 3. Department of Hydraulic and Ocean Engineering, National Cheng Kung University, Tainan, Taiwan (Greater China); 4. National Taiwan Ocean University, Keelung, Taiwan (Greater China)

A New (Or Forgotten?) Stochastic Linearization Technique for Stiffness Dominated Structures Subjected to Morison Type Loading OMAE2022-80446
Martin Slagstad, Jørgen Amdahl
Norwegian University of Science and Technology, Trondheim, Norway

System Simulation-based Feasibility and Performance Study of Alternative Fuel Concepts for Aquaculture Wellboats OMAE2022-81106
Lene Æsøy, Henry Peter Piehl, Ann Rigmor Nerheim
Norwegian University of Science and Technology, Ålesund, Norway

Ocean Engineering

06-13-01 Towed and Undersea Cables and Pipes, Mooring, and Buoy Technology

Thursday June 9 | Room **Y4** | **08:30–10:00**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Yi-Hsiang Yu, National Yang Ming Chiao Tung University, Department of Civil Engineering, Taiwan; Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil; Muk Chen Ong, University of Stavanger, Norway

Model Experiments and Numerical Simulations on GPS Buoy with Steep Wave Mooring OMAE2022-79783
Motoki Araki[1] Mitsushi Watanabe[2] Sotarou Masanobu[2] Atsuo Omura[3] Shouhei Kaita[3] Atsushi Kunita[3]
1. National Maritime Research Institute, National Institute of Maritime, Port and Aviation Technology, Mitaka, Japan; 2. National Maritime Research Institute, Mitaka, Japan; 3. Coastal Development Institute of Technology, Minato-ku, Japan

Numerical and Empirical Based Fatigue Life Analyses of Submarine Cables under Hydrodynamic Loads OMAE2022-80516
Clemens Schütt, **Christoph Otto**, Sascha Kosleck
University of Rostock, Rostock, Germany

Bending Study of Copper Conductors from Power Cables OMAE2022-86113
Xiaoli Jiang[1] Hans Hopman[1] Yong Bai[2] **Pan Fang**[1]
1. Technology University of Delft, Delft, Netherlands; 2. Zhejiang Univsersity, Hangzhou, China (Mainland)

Ocean Engineering

06-14-01 Underwater Vehicles and Design Technology I

Thursday June 9 | Room **Y12** | **08:30–10:00**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Emerson Andrade, Federal University of Rio de Janeiro, Brazil; Yi-Hsiang Yu, National Yang Ming Chiao Tung University, Department of Civil Engineering, Taiwan; Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil; Muk Chen Ong, University of Stavanger, Norway; Mohammad Mobasheramini, Federal University of Rio de Janeiro, Brazil

Hydrodynamic Investigation of a Remora-Inspired Autonomous Underwater Vehicle Docking onto a Benchmark Submarine OMAE2022-78048
Yunxin Xu, Weichao Shi, Callum Stark
Strathclyde of University, Glasgow, United Kingdom

Modelling of a Subsea Shuttle Tanker Hovering in Ocean Currents OMAE2022-78146
Yucong Ma, Yihan Xing, Marina Simplicio Da Silva, Dan Sui
University of Stavanger, Stavanger, Norway

UiS Subsea Freight-Glider: Controller Design and Analysis OMAE2022-79448
Usman Nawaz Ahmad, **Yihan Xing**
University of Stavanger, Stavanger, Norway

Propeller Full Parameterization Modeling Method OMAE2022-79642
Chunxiao Wu, Yu Lu, Shewen Liu, Zhuhao Gu, Wu Shao, Chuang Li
Dalian Maritime University, Dalian, China (Mainland)

Ocean Engineering

06-16-01 Wave Mechanics, Modeling and Wave Effects I

Thursday June 9 | Room **Y9** | **08:30–10:00**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Alessandro Iafrati, CNR, Italy; Hans Bihs, Norwegian University of Science & Technology, Norway; Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil; João Victor Padilha, Universidade Federal do Rio de Janeiro, Brazil; Guang Yin, University of Stavanger, Norway

Characterisation of Ship-Induced Long-Period Primary Waves Using Nonlinear Fourier Transform (KdV-NFT) OMAE2022-78098
Markus Brühl, Sander Wahls
Delft University of Technology, Delft Center for Systems and Control (DCSC), Delft, Netherlands

Water-depth Identification from Free-surface Data Using the KdV-based Nonlinear Fourier Transform OMAE2022-78882
Pascal de Koster, Markus Bruehl, **Sander Wahls**
Delft University of Technology, Delft, Netherlands

A Numerical Investigation on Wave Spectrum Identification and Transformation from Deep to Shallow Waters for the Coastal and Offshore Installations OMAE2022-79010
Weizhi Wang[1] Arun Kamath[1] Csaba Pakozdi[2] Hans Bihs[1]
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. SINTEF Ocean, Trondheim, Norway

Effects of Nonlinearity on the Formulation of the Crest Elevation and the Crest Width of Extreme Waves in Random Seas OMAE2022-79089
George Spiliotopoulos, Vanessa Katsardi
University of Thessaly, Volos, Greece

CFD and VIV

08-01-01 Waves and Loads

Thursday June 9 | Room **Y6** | **08:30–10:00**

Session Organizer: Stephen Cosgrove, Altair, USA

Session Co-Organizer: Owen Oakley, Retired, USA

Development and Verification of Modelling Practice for CFD Calculations to Obtain Hydrodynamic Damping of Offshore Vessels OMAE2022-78981
Arjen Koop[1] Sebastien Loubeyre[2] Kai Yu[3] Haihua Xu[4] Yingying Zheng[4] Jerry Huang[5]
1. MARIN, Wageningen, Netherlands; 2. Bureau Veritas Solutions Marine & Offshore, Paris, France; 3. American Bureau of Shipping, Spring, TX, USA; 4. Technology Centre for Offshore and Marine, Singapore, Singapore, Singapore; 5. ExxonMobil, Spring, TX, USA

Investigation of Springing Responses to High Harmonics of Wave Loads by Direct Coupling between CFD and FEM OMAE2022-79446
Sumit Kumar Pal, Kazuhiro Iijima
Osaka University, Suita, Japan

Full Scale CFD Validation Using Ship Performance and Wave Pattern Measurements of a Mega Cruise Ship OMAE2022-79208
D.R. Schouten[1] Aurelien Drouet[2] Miloš Birvalski[1] Loic Morand[2]
1. MARIN, Wageningen, Netherlands; 2. Chantiers de l'Atlantique, Saint-Nazaire, France

Response Mitigation of Floating Platform by Porous-media Tuned Liquid Dampers OMAE2022-79607
Wen-Huai Tsao[1] Ying-Chuan Chen[2] Christopher E. Kees[1] Lance Manuel[3]
1. Department of Civil and Environmental Engineering, Louisiana State University, Baton Rouge, LA, USA; 2. KBR, Houston, TX, USA; 3. Dept. of Civil, Architectural and Environmental Engineering, The University of Texas at Austin, Austin, TX, USA

Ocean Renewable Energy

09-01-08 FWT Moorings and Arrays I

Thursday June 9 | Room **Y7** | **08:30–10:00**

Session Organizer: Zhen Gao, Norwegian University of Science & Technology, Norway

Session Co-Organizer: Krish Thiagarajan, University of Massachusetts Amherst, USA

Analysis of a Hybrid Mooring System Concept for a Semi-submersible Wind Turbine in Intermediate Water Depth under Operational, Extreme, and Yaw Error Conditions OMAE2022-78666
Qun Cao[1] Erin Bachynski-Polić[2] Zhen Gao[2] Longfei Xiao[1] Zhengshun Cheng[1] Mingyue Liu[1]
1. Shanghai Jiao Tong University, Shanghai, China (Mainland); 2. Norwegian University of Science and Technology, Trondheim, Norway

Influence of Aerodynamic Loads on a Dual-spar Floating Offshore Wind Farm with a Shared Line in Parked Conditions OMAE2022-78929
Guodong Liang[1] Zhiyu Jiang[1] Karl Merz[2]
1. University of Agder, Grimstad, Norway; 2. SINTEF Energy Research, Trondheim, Norway

Development of a Modular, Adaptable and Scalable Gravity Anchor System for Various Floating Foundations OMAE2022-79916
Imanol Flores Ganuza[1] Johannes Wahrendorf[2] Eva Hlawatsch[2] Frank Adam[2] Jochen Großmann[2]
1. GICON®-Großmann Ingenieur Consult GmbH, Rostock, Germany; 2. GICON®-Großmann Ingenieur Consult GmbH, Dresden, Germany

Double Braid Mooring Damper for Floating Offshore Wind Application OMAE2022-79855
Faryal Khalid[1] Philipp R. Thies[1] Peter Halswell[1] David Newsam[2] Lars Johanning[1]
1. University of Exeter, Penryn, United Kingdom; 2. Intelligent Moorings Limited, Denbighshire, United Kingdom

Ocean Renewable Energy

09-01-13 Novel and Hybrid Offshore Wind Concepts

Thursday June 9 | Room **Y8** | **08:30–10:00**

Session Organizer: Amir R. Nejad, Norwegian University of Science & Technology, Norway

Session Co-Organizer: Krish Thiagarajan, University of Massachusetts Amherst, USA

Assessment of the Power Obtained by a Multi Wind Turbine Floating Platform OMAE2022-79827
Raquel Martín-San-Román[1] José Azcona-Armendáriz[1] Mikel Iribas-Latour[1] Alvaro Cuerva-Tejero[2]
1. CENER, Sarriguren, Spain; 2. Universidad Politécnica de Madrid, Madrid, Spain

Dynamic Analysis of an Integrated Structure Consists of Jacket Offshore Wind Turbine and Aquaculture Cage OMAE2022-80493
Na Li, Haisheng Zhao, Wei Shi, Wenhua Wang, Xin Li
State Key Laboratory of Coastal and Offshore Engineering, Dalian University of Technology, Dalian, China (Mainland)

Power Performance and Response Analysis of a Semi-Submersible Wind Turbine with Combined Flap Type and Torus Wave Energy Converters OMAE2022-79483
Chern Fong Lee, Christodoulos Tryfonidis, Muk Chen Ong
University of Stavanger, Stavanger, Norway

Development of 12MW Cross-shaped Semi-submersible Floating Offshore Wind Turbine OMAE2022-79432
Ryo Matsuoka[1] Takashi Takeda[1] Hiroki Kusumoto[1] Shu Kuwada[1] Haruki Yoshimoto[2] Ken Kamizawa[2]
1. Nihon Shipyard, Yokohama, Japan; 2. Japan Marine United, Yokohama, Japan

Petroleum Technology

11-01-02 Well Drilling Technology II

Thursday June 9 | Room **Y11** | **08:30–10:00**

Session Organizer: Ergun Kuru, University of Alberta, Canada

Session Co-Organizers: Stephen Butt, Memorial University of Newfoundland, Canada; Mohammad Azizur Rahman, Texas A&M University at Qatar, Qatar

Empirical Evaluation of Influence of pVARD on Drilling Performance through Static, Dynamic, and Drilling Applications OMAE2022-79349
Abdelsalam Abugharara, Mohammad Shafaet Jamil, Stephen Butt
Memorial University of Newfoundland, St. John's, NL, Canada

Casing Collapse Resistance under Long-term, Non-uniform Salt Loading OMAE2022-80089
Peter Batruny[1] Scott Campbell[1] Azral Abdul Rahim[1] Yun Thiam Yap[1]
Syed Yunus Syed Kamarul Ariffin[2] Pete Lumley[3] Poodipeddi V Suryanarayana[4]
1. PETRONAS, Kuala Lumpur, Malaysia; 2. Petronas Petroleo Brasil Limitada, Rio de Janeiro, RJ, Brazil; 3. Blade Energy Partners, Newmachar, United Kingdom; 4. Blade Energy Partners, Frisco, TX, USA

A Special Thread Design Based on TC4 Titanium Alloy and its Successful Application in Offshore Extended-reach Drilling OMAE2022-80261
Zhenkun Li[1] Qishuai Yin[2] **Yingying Guo**[3] Yang Long[2] Minshi Li[2] Xu Zhou[3] Shujun Guo[4] Fanhua Meng[1]
1. CNOOC Ener Tech-Drilling & Production Co., Tianjin, China (Mainland); 2. China University of Petroleum Beijing, Beijing, China (Mainland); 3. Louisiana State University, Baton Rouge, LA, USA; 4. Zhongshi Titanium Industry Co., Dandong, China (Mainland)

A New Approach for Rock Strength Estimation through a Semi-point Load Strength Index and Correlation with Destructive and Nondestructive Tests OMAE2022-81556
Abdelsalam Abugharara, Salum Mafazy, **Stephen Butt**
Memorial University of Newfoundland, St. John's, NL, Canada

Petroleum Technology

11-04-01 Data Science and Machine Learning Applications in Drilling I

Thursday June 9 | Room **Y10** | **08:30–10:00**

Session Organizer: Ergun Kuru, University of Alberta, Canada

Session Co-Organizer: Evren Ozbayoglu, University of Tulsa, USA

Well Path Design Using Q-Learning Algorithms and Bezier Curves with Obstacles Avoidance OMAE2022-78427
Jie Cao, Samiul Ehsan, Tomasz Wiktorski, Dan Sui
University of Stavanger, Stavanger, Norway

Application of Recurrent Neural Network Long Short-term Memory Model on Early Kick Detection OMAE2022-78739
Junzhe Wang[1] **Evren Ozbayoglu**[2]
1. University of Tulsa, Tulsa, OK, USA; 2. University of Tulsa - Petroleum Engineering Dept., Tulsa, OK, USA

Evaluation and Interpretation on Data Driven ROP Models from Engineering Perspectives OMAE2022-78752
Miguel Fernandez Berrocal, Jie Cao, **Dan Sui**
University of Stavanger, Stavanger, Norway

Rate of Penetration Prediction Using Quantile Regression Deep Neural Networks OMAE2022-79046
Adrian Ambrus[1] Sergey Alyaev[1] Nazanin Jahani[1] Felix James Pacis[2] Tomasz Wiktorski[2]
1. NORCE, Bergen, Norway; 2. University of Stavanger, Stavanger, Norway

CONCURRENT SESSIONS
10:30 – 12:00

Structures, Safety and Reliability

02-09-02 Extreme Loading and Responses II

Thursday June 9 | Room **Hall F** | **10:30–12:00**

Session Organizer: Spyros Hirdaris, Aalto University, Finland

Session Co-Organizer: Martin Storheim, Entail AS, Norway

Study on Protective Structure Penetrated by the Shaped-charge Jet for Ship Hull OMAE2022-79898
Jingjing Song, Jingxia Yue, Xiaobin Li, Runze Tan
Wuhan University of Technology, Wuhan, China (Mainland)

Prediction of Structural Damages and Armament Accelerations of a Surface Naval Ship due to Underwater Explosions OMAE2022-80686
Hyunwoo Kim, Burak Can Cerik, Joonmo Choung
Inha University, Incheon, Korea

Prediction of Inclined Surface Spreading Extent for High Flashpoint Fuel in Large Compartments under Ship Motion OMAE2022-81061
Daeyu Baeg[1] Hyun Ho Lee[1] Seung Yul Lee[2] Seon Jin Kim[1] Jeong Hwan Kim[2] Jung Kwan Seo[3]
1. Pusan National University, Busan, Korea; 2. The Korea Ship and Offshore Research Institute, Busan, Korea; 3. Pusan National University, The Korea Ship and Offshore Research Institute, Busan, Korea

Blast Loading Profile of Gaseous Hydrogen in Confined Space under Various Leak Conditions OMAE2022-81305
Seonjin Kim[1] Hyun Ho Lee[1] Soung Woo Park[2] Dae Yu Baeg[1] Jeong Hwan Kim[2] Jung Kwan Seo[1, 2]
1. Pusan National University, Busan, Korea; 2. The Korea Ship And Offshore Research Institute, Busan, Korea

Structures, Safety and Reliability

02-14-01 Risk Based Maintenance

Thursday June 9 | Room **Hall E** | **10:30–12:00**

Session Organizer: Marcelo Ramos Martins, USP, Brazil

Session Co-Organizer: Bernt Leira, Norwegian University of Science & Technology, Norway

Genetic Algorithms Applied to the Concept of Risk Based Inspection (RBI): Optimization of Inspection Plans OMAE2022-78612
Carlos Henrique Bittencourt Morais[1] Elcio Abrahão[1] Marcos Coelho Maturana[1] Marcelo Ramos Martins[1] André Luis Debiaso Rossi[2] Adriana Miralles Schleder[3] Fernanda M. Moura[4] Leonardo Oliveira Barros[5] Rene Thiago Capelari Orlowski[6]
1. Analysis, Evaluation and Risk Management Laboratory - LabRisco; University of São Paulo, São Paulo, SP, Brazil; 2. UNESP - Universidade Estadual Paulista "Júlio Mesquita Filho", Itapeva, SP, Brazil; 3. UNESP – Itapeva / LabRisco, USP, São Paulo, SP, Brazil; 4. University of São Paulo, São Paulo, SP, Brazil; 5. Research and Development Center – CENPES - Petrobras, Sao Paulo, SP, Brazil; 6. Research and Development Center – CENPES - Petrobras, Rio de Janeiro, RJ, Brazil

Sensitivity Analysis of a Corrosion Prediction Model Using Monte Carlo Simulation OMAE2022-79179
Stephane Santana De Miranda Santos[1] Gilberto Francisco Martha Souza[2] Leonardo Oliveira De Barros[3] Rene Thiago Capelari Orlowski[3] Marcelo Ramos Martins[1] **Adriana Miralles Schleder**[4]
1. Analysis, Evaluation and Risk Management Laboratory - LabRisco; University of São Paulo, São Paulo, SP, Brazil; 2. Mechanical Engineering Department - University of São Paulo Brazil, São Paulo, SP, Brazil; 3. Research and Development Center – CENPES - Petrobras, Rio de Janeiro, RJ, Brazil; 4. UNESP – Itapeva / LabRisco, USP, São Paulo, SP, Brazil

Inspection and Maintenance Planning for Offshore Wind Support Structures: Modelling Reliability and Inspection Costs at the System Level OMAE2022-78269
Felipe Giro, Jose Mishael, Pablo G. Morato, Philippe Rigo
ANAST, Liège, Belgium

Methodology for Defining Risk Indices Applicable to Subsea Equipment OMAE2022-79316
Marcos Maturana[1] Adriana Schleder[1] Paulo Frutuoso E Melo[2] Marcelo Martins[1] Leonardo Barros[3]
1. LABRISCO/USP, São Paulo, SP, Brazil; 2. COOPE/UFRJ, Rio de Janeiro, RJ, Brazil;
3. Subsea Group/PETROBRAS, Rio de Janeiro, RJ, Brazil

Pipeline, Risers, and Subsea Systems

04-04-01 Flow Assurance and Subsea Equipment

Thursday June 9 | Room **Y2** | **10:30–12:00**

Session Organizer: Theodoro Netto, Fundacao Coppetec, Brazil

Session Co-Organizers: Theodoro Netto, Fundacao Coppetec, Brazil

CFD Modelling of Flexible Concrete Mattress Hydrodynamic Forces OMAE2022-78728
Terry Griffiths[1] Randall Griggs[2] Mehdi Khiadani[2]
1. Aurora Offshore Engineering, Perth, WA, Australia; 2. Edith Cowan University, Perth, WA, Australia

Time Series Prediction of the Trend of Hydrate Risk Using Principal Component Analysis and Deep Learning OMAE2022-79494
Nayoung Lee[1] Hyunho Kim[2] Yutaek Seo[1]
1. Seoul National University, Seoul, Korea; 2. National University of Singapore, Singapore, Singapore

Technical and Environmental Evaluation of a Hydrate Cold Flow Technique to Produce an Oil Reservoir Using a Long Tie-Back and Comparison against Traditional Development Concepts OMAE2022-79513
Leila Eyni[1] Mostafa Fattahi[2] Heiner Schumann[3] Fredrik Lund[4] Milan Stanko[1] Lars Strømmegjerde[4]
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. Politecnico di Torino, Torino, Italy; 3. Sintef Industry, Trondheim, Norway; 4. EMPIG, Trondheim, Norway

Ocean Space Utilization

05-04-01 Underwater Development and Technology

Thursday June 9 | Room **Y3** | **10:30–12:00**

Sea Trials Summarization on Fundamental Formation Control of Multiple Cruising AUVs – 2nd Report: 3 Cruising AUVs with 1 ASV Trial, and Hovering AUVs' AUV-AUV Positioning and Communication OMAE2022-78370
Toshifumi Fujiwara[1] Kangsoo Kim[1] Masahiko Sasano[1] Takumi Sato[1] Shogo Inaba[1]
Akihiro Okamoto[1] Motonobu Imasato[1] Hiroyuki Osawa[2]
1. National Maritime Research Institute, Tokyo, Japan; 2. Japan Agency for Marine-Earth Science and Technology, Kanagawa, Japan

Navigational Simulation of Cruising AUVs OMAE2022-78745
Toshifumi Fujiwara, Jun Umeda, Takumi Sato, Kangsoo Kim, Masahiko Sasano
National Maritime Research Institute, Tokyo, Japan

Experimental Investigation of Roughness Effect on Flow Field around Cylinder in Steady Flow OMAE2022-79452
Masahiro Suzuki[1] Tomoki Ikoma[1] Chang-Kyu Rheem[2] Yasuhiro Aida[1]
1. CST, Nihon University, Funabashi, Japan; 2. Institute of Industrial Science The University of Tokyo, Meguro, Japan

Ocean Engineering

06-11-01 Ocean Engineering Technology I

Thursday June 9 | Room **Y4** | **10:30–12:00**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Sotaro Masanobu, National Maritime Research Institute, Japan; Arun Kamath, Norwegian University of Science & Technology, Norway; Celso K. Morooka, Unicamp/petro Eng Dept, Brazil; Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil; Daniel De Oliveira Costa, Universidade Federal do Rio de Janeiro, Brazil

A Comparison of Design Wave Methods for Flexible Fish Farms OMAE2022-79186
Leiv Aspelund[1] Christoffer Skjulstad[1] Markus Bjørkli Jansen[2] Tim Fristedt[1]
1. Multiconsult Norway ASA, Tromsø, Norway; 2. Norwegian University of Science and Technology, Trondheim, Norway

Analysis of Fluid Induced Transverse Forces on Multi-strand Twisted Ropes OMAE2022-79854
Stephan Schacht, Sascha Kosleck
University of Rostock, Rostock, Germany

Dynamic Property of a Floating Multi-body System for Dual Barge Float-over Operation with a Mechanical TLS (Topside Lifting System) OMAE2022-78400
Shujie Zhao[1] Zhen Gao[2] Dejiang Li[3] Xun Meng[1]
1. Ocean University of China, Qingdao, China (Mainland); 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. Yantai CIMC Ocean Engineering Co., ltd, Yantai, China (Mainland)

Digital Twin of a Maneuvering Ship: Real-time Estimation of Drift and Resistance Coefficients Based on Ship Motion and Rudder and Propeller Commands OMAE2022-78714
Humberto Akira Uehara Sasaki, Pedro Cardozo De Mello, Eduardo Aoun Tannuri
Universidade de São Paulo / Numerical Offshore Tank (TPN-USP), São Paulo, SP, Brazil

Development of a Response Assessment Tool for a Floating Dock System OMAE2022-78997
Jianan Zhang[1] Lin Li[1] Muk Chen Ong[1] Omar El Beshbichi[1] Aleksander Kniat[2]
1. University of Stavanger, Stavanger, Norway; 2. Gdańsk University of Technology, Gdańsk, Poland

Ocean Engineering

06-14-02 Underwater Vehicles and Design Technology II

Thursday June 9 | Room **Y12** | **10:30–12:00**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Emerson Andrade, Federal University of Rio de Janeiro, Brazil; Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil; Muk Chen Ong, University of Stavanger, Norway; Mohammad Mobasheramini, Federal University of Rio de Janeiro, Brazil

Numerical Analysis on Model- and Full-scale Unsteady Propeller Force for Underwater Vehicle OMAE2022-79760
Kenshiro Takahashi, Jun Arai, Takayuki Mori
Naval Systems Research Center, Acquisition, Technology & Logistics Agency, Meguro-ku, Japan

Influence of Sail Design Parameters on Unsteady Propeller Thrust for Underwater Vehicles OMAE2022-79762
Kenshiro Takahashi, Jun Arai, Takayuki Mori
Naval Systems Research Center, Acquisition, Technology & Logistics Agency, Meguro-ku, Japan

Artificial Underwater Dataset: Generating Custom Images Using Deep Learning Models OMAE2022-79891
Ioannis Polymenis, Maryam Haroutunian, Rose Norman, David Trodden
Newcastle University, Newcastle upon Tyene, United Kingdom

Design of a Prototype Renewably-powered Offshore AUV Servicing Platform OMAE2022-80349
Maha Haji[1] Jimmy Tran[2] Luke Woodcock[2] Olivier De Weck[2]
1. Cornell University, Ithaca, NY, USA; 2. Massachusetts Institute of Technology, Cambridge, MA, USA

Optimization of a Flexible Flapping-Foil Thruster Based on a Coupled BEM-FEM Model OMAE2022-79677
Dimitra Anevlavi, Evangelos Filippas, Angeliki Karperaki, Kostas Belibassakis
National Technical University of Athens, Athens, Greece

CFD and VIV

08-01-02 Propulsion, VIM, and CFD Spectra

Thursday June 9 | Room **Y6** | **10:30–12:00**

Session Organizer: Stephen Cosgrove, Altair, USA

Session Co-Organizer: Owen Oakley, Retired, USA

Large-Eddy Simulation of Vortex Flow Field of the Cylinder with Variable Cross Section OMAE2022-79795
Tao He, Liwei Liu, Chaobang Yao, Dakui Feng, Xianzhou Wang
Huazhong University of Science and Technology, WuHan, China (Mainland)

Numerical Simulation of Bimodal Wave Spectrum Based on Viscous CFD Method OMAE2022-79828
Jingyao Chen[1] Liwei Liu[1] Xianzhou Wang[1] Jianxin Li[1] Xi Yao[2]
1. Huazhong University of Science and Technology, Wuhan, China (Mainland); 2. Wuhan Tongxing Naval and Marine Engineering Design Co. Ltd, Wuhan, China (Mainland)

Numerical Simulations of Static Rudder Tests Based on Two Propeller Modeling Methods OMAE2022-78547
Chen Chang-Zhe, Liu Jin-Zhou, Zou Lu, Zou Zao-Jian
School of Naval Architecture, Ocean and Civil Engineering, Shanghai Jiao Tong University, Shanghai, China (Mainland)

Research on the Influence of Waterjet Propulsion on the Attitude of Planing Ship OMAE2022-79788
Jun Yang, Liwei Liu, Dakui Feng, Tao He, Chaobang Yao
Huazhong University of Science and Technology, Wuhan, China (Mainland)

Ocean Renewable Energy

09-01-09 FWT Moorings and Arrays II

Thursday June 9 | Room **Y7** | **10:30–12:00**

Session Organizer: Guodong Liang, University of Agder, Norway

Session Co-Organizer: Krish Thiagarajan, University of Massachusetts Amherst, USA

Suspended Power Cable Configurations for Floating Offshore Wind Turbines in Deep Water Powering an FPSO OMAE2022-80071
Anja Schnepf[1, 3] Carlos Lopez-Pavon[2] Aymeric Devulder[2] Øyvind Johnsen[3] Muk Chen Ong[1]
1. University of Stavanger, Stavanger, Norway; 2. Coremarine Solutions SL, Leioa, Spain; 3. CoreMarine AS, Oslo, Norway

Mooring System Design for Floating Offshore Wind Turbine Working in Intermediate Water OMAE2022-80593
Zhenju Chuang, Zhen He, Chunzheng Li, Aobo Zhang
Dalian Maritime University, Dalian, China (Mainland)

Preliminary Investigation of a Shared Mooring Arrangement for a Floating Offshore Wind Turbine Farm in Deep Water OMAE2022-81245
Yutao Wang[1] Hugh Wolgamot[2] Phil Watson[2] Christophe Gaudin[2] Wenhua Zhao[2] Ian Milne[2]
1. University of Western Australia, Scarborough, WA, Australia; 2. University of Western Australia, Crawley, WA, Australia

Ocean Renewable Energy

09-03-02 Current and Tidal Energy II

Thursday June 9 | Room **Y8** | **10:30–12:00**

Session Organizer: Marc Cahay, Technip Energies, France

Session Co-Organizer: Madjid Karimirad, Queen's University Belfast, United Kingdom

Fatigue Life Evaluation of a Tidal Turbine Blade: from Simulations Using BEMT/FEM and CFD/FEM Couplings to Full-scale Test OMAE2022-79114
Stephane Paboeuf[1] Meryem Guisser[1] Sebastien Loubeyre[1] Peter Davies[2] Mael Arhant[2] Nicolas Dumergue[2] Erwann Nicolas[3]
1. Bureau Veritas, Saint-Herblain, France; 2. IFREMER, Plouzane, France; 3. Sabella, Quimper, France

Flow-induced Vibration Marine Current Energy Harvesting Using a Centrally-pivoted Cylinder OMAE2022-80245
Brad Stappenbelt
University of Wollongong, Wollongong, NSW, Australia

Hydrodynamic Performance of a Vertical-axis Tidal Current Turbine in Surge Motion Using a 2-D Vortex Panel Model OMAE2022-80276
Federica Perassi, Antonio Jarquin Laguna, Carlos Simao Ferreira
Delft University of Technology, Delft, Netherlands

Petroleum Technology

11-03-01 Well Control and Managed Pressure Drilling I

Thursday June 9 | Room **Y11** | **10:30–12:00**

Session Organizer: Ergun Kuru, University of Alberta, Canada

Session Co-Organizers: Yuanhang Chen, Louisiana State University, USA; Kjell Kåre Fjelde, University of Stavanger, Norway

Pressure Build-up in Closed Wells during Kick Migration and Fluid Compressibility Effects OMAE2022-79700
Mesfin Belayneh Agonafir[1] Johnny Petersen[2] Kjell Kåre Fjelde[1]
1. University of Stavanger, Stavanger, Norway; 2. Retired, Bergen, Norway

Data Assimilation-based Real-time Estimation of Downhole Gas Influx Rate and Void Fraction Distribution in a Drilling Riser OMAE2022-79176
Chen Wei, Yuanhang Chen
Louisiana State University, Baton Rouge, LA, USA

Dynamics of Gas Kick Migration in the Annulus While Drilling/Circulating OMAE2022-79570
Chinemerem Obi[1] Kaushik Manikonda[1] Luis Abril[1] Rashid Hasan[1] Mohammad Azizur Rahman[2]
1. Texas A&M University, College Station, TX, USA; 2. Texas A&M University at Qatar, College Station, TX, USA

Safety Evaluation Technique of Annular Pressure in Offshore High-temperature High-pressure Gas Wells OMAE2022-80748
Yanjun Li[1] Shujie Liu[1] Deli Gao[1] Zhi Zhang[2] **Yang Long**[1]
1. China University of Petroleum Beijing, Beijing, China (Mainland); 2. Southwest Petroleum University, Chengdu, China (Mainland)

Petroleum Technology

11-04-02 Data Science and Machine Learning Applications in Drilling II

Thursday June 9 | Room **Y10** | **10:30–12:00**

Session Organizer: Ergun Kuru, University of Alberta, Canada

Session Co-Organizer: Evren Ozbayoglu, University of Tulsa, USA

Unsupervised Machine Learning: a Well Planning Tool for the Future OMAE2022-78423
Peter Batruny[1] **Tim Robinson**[2]
1. PETRONAS, Kuala Lumpur, Malaysia; 2. Exebenus, Stavanger, Norway

A Deep Learning Model for Rate of Penetration Prediction and Drilling Performance Optimization Using Genetic Algorithm OMAE2022-79623
Oney Erge[1] Evren Ozbayoglu[2] Murat Ozbayoglu[3]
1. N/A, Houston, TX, USA; 2. University of Tulsa, Tulsa, OK, USA; 3. TOBB University of Economics and Technology, Ankara, Turkey

Global Optimization Workflow for Offshore Drilling Rate of Penetration with Dynamic Drilling Log Data OMAE2022-79747
Jie Cao[1] Hui Ren[2] Dan Sui[1]
1. University of Stavanger, Stavanger, Norway; 2. Xi'an Shiyou University, Xi'an, China (Mainland)

Optimizing Models for Predicting Torque on Bit Using Data from the Volve Field in Norway OMAE2022-79543
Patrick Höhn[1] Ahmed Bashara[2] Carlos Paz[2] Joachim Oppelt[1]
1. Clausthal University of Technology, Celle, Germany; 2. Clausthal University of Technology, Clausthal-Zellerfeld, Germany

CONCURRENT SESSIONS
13:30 – 15:00

Structures, Safety and Reliability

02-04-01 Fatigue and Fracture Reliability I

Thursday June 9 | Room **Hall E** | **13:30–15:00**

Session Organizer: Bernt Leira, Norwegian University of Science & Technology, Norway

Session Co-Organizer: Gaute Storhaug, DNV, Norway

The Influence of Edge Treatment on Fatigue Behavior of Thermal Cut Edges OMAE2022-78431
Jan-Hendrik Grimm[1] Hubertus Von Selle[1] Moritz Braun[1] R. U. Franz von Bock und Polach[1]
Sören Ehlers[1] Jonas Hensel[2] Juliana Diniz E Castro[3] Ann-Christin Hesse[3] Klaus Dilger[3]
1. Institute for Ship Structural Design and Analysis, Hamburg University of Technology, Hamburg, Germany; 2. University of Technology Chemnitz, Chemnitz, Germany; 3. Institute of Joining and Welding, University of Braunschweig, Braunschweig, Germany

Research on Fatigue Load Analysis and Fatigue Strength Assessment of Stern Shaft Bracket of Large Ship OMAE2022-80212
Chen Xianyin[1] Wang Gaoxiang[2] Zhu Qingchun[1]
1. Marine Design and Research Institute of China, Shanghai, China (Mainland); 2. China Construction Steel Structure Corp, LTD, Shenzhen, China (Mainland)

Fatigue Assessment of Pump Tower in LNG Membrane Tanks OMAE2022-81275
Gaute Storhaug, Hui Sun, Yuelong Zang, Olav Rognebakke
DNV, Oslo, Norway

Mooring Fatigue Damage Prediction Based on Importance Sampling OMAE2022-81441
Siril Okkenhaug[1] **Daniel Merino Hoyos**[2] Eivind Tørset Magnussen[1] Michael Macke[1]
1. DNV, Høvik, Norway; 2. COWI AS, Oslo, Norway

Structures, Safety and Reliability

02-09-03 Extreme Loading and Responses III

Thursday June 9 | Room **Hall F** | **13:30–15:00**

Session Organizer: Spyros Hirdaris, Aalto University, Finland

Session Co-Organizer: Martin Storheim, Entail AS, Norway

Short-Term Analysis of Ship Capsizing Probability in Random Seas OMAE2022-80098
Lin He[1] Wei Chai[1] Bernt Leira[2] Chana Sinsabvarodom[2] Peiyuan Feng[3]
1. Wuhan University of Technology, Wuhan, China (Mainland); 2. Norwegian University of Science and Technology, Trondheim, Norway; 3. Marine Design and Research Institute of China, Shanghai, China (Mainland)

Efficient Long-term Extreme Response Analysis of Floating Bridges Using Multiple Timescale Spectral Analysis OMAE2022-80114
Aksel Fenerci[1] Margaux Geuzaine[2] Vincent Denoël[2] Ole Øiseth[3]
1. Norwegian University of Science and Technology, Ålesund, Norway; 2. University of Liege, Liege, Belgium; 3. Norwegian University of Science and Technology, Trondheim, Norway

The Influence of Added Mass in Ship-Ice-Wave Interactions: a Potential Flow Hydromechanics Model OMAE2022-80393
Zongyu Jiang, Fang Li, Tommi Mikkola, Pentti Kujala, Spyros Hirdaris
Aalto University, Espoo, Finland

Ocean Engineering

06-11-02 Ocean Engineering Technology II

Thursday June 9 | Room **Y4** | **13:30–15:00**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Sotaro Masanobu, National Maritime Research Institute, Japan; Arun Kamath, Norwegian University of Science & Technology, Norway; Celso K. Morooka, Unicamp/petro Eng Dept, Brazil; Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil; Daniel De Oliveira Costa, Universidade Federal do Rio de Janeiro, Brazil

Experimental Studies of Additive Manufacturing for Subsea Enclosures OMAE2022-79026
Sascha Krohmann[1] **Louis Leon Rautmann**[2] Lars Glatzer[2] Sascha Kosleck[2]
1. Universität Rostock / MSF/ Lehrstuhl Meerestechnik, Rostock, Germany;
2. University of Rostock, Ocean Engineering, Rostock, Germany

Influence of Extreme Environmental and Deep-sea Temperature Conditions on Silicone Oil Used for Insulating Underwater Electrical Switching Systems OMAE2022-79049
Yvonne Haba[1] Saravanakumar Arumugam[1] Sascha Krohmann[1] Gerhard Körner[2] Ranko Richert[3] Sascha Kosleck[1]
1. University of Rostock, Ocean Engineering, Rostock, Germany; 2. FormLED GmbH, Karlsruhe, Germany; 3. Arizona State University, School of Molecular Sciences, Tempe, AZ, USA

Simulation Tool for Evaluation of Investment in Sustainable Technology OMAE2022-79261
Joannes Gullaksen
JG Maritime Engineering Ltd, Bucksburn, United Kingdom

A Bayesian Networks Approach for Safety Barriers Analysis: a Case Study on Cryogenic Hydrogen Leakage OMAE2022-79725
Manuel Lenti, **Lorenzo Balestra**, Ingrid Schjølberg
Norwegian University of Science and Technology, Trondheim, Norway

Ocean Engineering

06-14-03 Underwater Vehicles and Design Technology III

Thursday June 9 | Room **Y12** | **13:30–15:00**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Emerson Andrade, Federal University of Rio de Janeiro, Brazil; Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil; Muk Chen Ong, University of Stavanger, Norway; Mohammad Mobasheramini, Federal University of Rio de Janeiro, Brazil

Relevance of VPMM: A Survey, Conundrum and Conclusions OMAE2022-80537
Lakshmi Miller, Taylor Njaka, Stefano Brizzolara
Virginia State and Polytechnical University, Blacksburg, VA, USA

Experimental Study of the Drag and Wave-induced Surge Forces on an Underwater Vehicle Operating near the Surface OMAE2022-81058
Kristia Suriben[1] Kathryn Yeager[2] **Joseph Klamo**[1] Young Kwon[1]
1. Naval Postgraduate School, Monterey, CA, USA; 2. Yale University, New Haven, CT, USA

Propulsive Performance of Morphing and Heaving Foil OMAE2022-81308
Pragalbh Dev Singh, **Ishan Neogi**, Vardhan Niral Shah, Vaibhav Joshi
Birla Institute of Technology & Science Pilani, K K Birla Goa Campus, Sancoale, GA, India

Man-portable Hybrid Unmanned Underwater Vehicle with High-bandwidth Wireless Communication OMAE2022-81477
Alexandre Immas, Chong Hang Fong, Rebecca Sung, James Liao, Mohammad-Reza Alam
University of California, Berkeley, Berkeley, CA, USA

Ocean Engineering

06-16-02 Wave Mechanics, Modeling and Wave Effects II

Thursday June 9 | Room **Y9** | **13:30–15:00**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Alessandro Iafrati, CNR, Italy; Hans Bihs, Norwegian University of Science & Technology, Norway; Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil; João Victor Padilha, Universidade Federal do Rio de Janeiro, Brazil; Guang Yin, University of Stavanger, Norway

Development of an Online Ship Simulator to Represent the Dynamic Ship Responses in Regular Waves Using an Inertial Measurement Unit OMAE2022-79278
Luis Angel Zorrilla Gomez[1] Beatriz Karol Miranda Sandoval[1] Miguel Hinostroza[2] Saida Milagros Ramos Quiñonez[1] Nain Maximo Ramos Alvarez[1]
1. Universidad Nacional de Ingenieria, Lima, Peru; 2. Instituto Superior Tecnico, Universidade de Lisboa, Lisbon, Portugal

A Semianalytical Framework for the Prediction of Weakly Nonlinear Broadband Surface Waves with Large Directional Spreading OMAE2022-79462
Yan Li
Norwegian University of Science and Technology, Trondheim, Norway

Evaluation of Nonlinear Fourier-based Maximum Wave Height Predictors under the Nonlinear Schrödinger Equation OMAE2022-79838
Yu-Chen Lee, Sander Wahls, Markus Brühl
Delft Center for Systems and Control, Mechanical, Maritime and Materials Engineering, Delft University of Technology, Delft, Netherlands

The Dual Effect of Rain and Wind on Waves in a Small Lake OMAE2022-79865
Claire Bergin[1] Vikram Pakrashi[2] Frederic Dias[2]
1. University College Dublin, Naas, Ireland; 2. University College Dublin, Dublin, Ireland

CFD and VIV

08-02-01 Maneuvering

Thursday June 9 | Room **Y6** | **13:30–15:00**

Session Organizer: Owen Oakley, Retired, USA

Session Co-Organizers: Owen Oakley, Retired, USA

URANS Predictions of Drift Loads on a Semi Submersible in Steep Waves OMAE2022-79001
Frederick Jaouen, Arjen Koop, Tim Bunnik
MARIN, Wageningen, Netherlands

NuMerical Investigation on Scale Effect of 5415M Maneuverability OMAE2022-79450
Donglei Zhang, Qing Wang, Kai Dong, Xianzhou Wang
Huazhong University of Science and Technology, Wuhan, China (Mainland)

CFD Prediction and Validation for the Maneuverability of a Damaged Ship OMAE2022-79453
Kai Dong[1] Liwei Liu[1] Xianzhou Wang[1] Rui Luo[2]
1. School of Naval Architecture & Ocean Engineering, Huazhong University of Science and Technology, Wuhan, China (Mainland); 2. China Ship Design and Development Center, Wuhan, China (Mainland)

Study on Hydrodynamic Performance of a Conceptional Sea-Train OMAE2022-79779
Yan Qin[1] Chaobang Yao[1] Yi Zheng[2] Jianghao Huang[1]
1. Huazhong University of Science and Technology, Wuhan, China (Mainland); 2. China Marine Development and Research Cente, Wuhan, China (Mainland)

Ocean Renewable Energy

09-01-14 Fatigue and Structural Analysis

Thursday June 9 | Room **Y7** | **13:30–15:00**

Session Organizer: Amir R. Nejad, Norwegian University of Science & Technology, Norway

Session Co-Organizer: Krish Thiagarajan, University of Massachusetts Amherst, USA

Probabilistic Assessment of the Effect of Bolt Pre-Load Loss over Time in Offshore Wind Turbine Bolted Ring-Flanges Using a Gaussian Process Surrogate Model OMAE2022-79265
Jack Jorgensen[1] Melinda Hodkiewicz[2] Edward Cripps[2] Ghulam Mubashar Hassan[2]
1. University of Western Australia, Bassendean, WA, Australia; 2. University of Western Australia, Crawley, WA, Australia

A Review of End-of-Life Decision Making for Offshore Wind Turbines OMAE2022-78352
David Boyd[1] Madjid Karimirad[1] Vinayagamoothy Sivakumar[1] Soroosh Jalilvand[2] Cian Desmond[2]
1. Queen's University Belfast, Belfast, United Kingdom; 2. Gavin & Doherty Geosolutions, Dublin, Ireland

Fatigue Analysis of Wind Turbine Blade Coating considering Uncertainty Due to Voids Subjected to Impact Fatigue OMAE2022-79302
Nikesh Kuthe, Suhail Ahmad, Puneet Mahajan
Indian Institute of Technology Delhi, Delhi, DL, India

Sustainable Reuse of Decommissioned Jacket Platforms for Offshore Wind Energy Accounting for Accumulated Fatigue Damage OMAE2022-79598
Taemin Heo[1] Ding Peng Liu[1] Lance Manuel[1] Jose Correia[2] Paulo Mendes[2]
1. The University of Texas at Austin, Austin, TX, USA; 2. University of Porto, Porto, Portugal

Petroleum Technology

11-03-02 Well Control and Managed Pressure Drilling II

Thursday June 9 | Room **Y11** | **13:30–15:00**

Session Organizer: Ergun Kuru, University of Alberta, Canada

Session Co-Organizers: Yuanhang Chen, Louisiana State University, USA; Kjell Kåre Fjelde, University of Stavanger, Norway

Experimental Investigation of Methane Absorption for Offshore Gas Influx Management OMAE2022-78721
Shahriar Mahmud, Yuanhang Chen
Louisiana State University, Baton Rouge, LA, USA

Feasibility of Riser Emergency Disconnections during Drilling MPD Operations with Surface Back Pressure OMAE2022-80858
Luan Richa, Germain Venero, Roberto Carvalho
Wood, Rio de Janeiro, RJ, Brazil

Mitigation of Barite Sagging for Proper Well Control: Lab Investigation and Field Application OMAE2022-81450
Abdullah Al-Yami, **Vikrant Wagle**
Saudi ARAMCO, Dhahran, Saudi Arabia

A Validated Computation Fluid Dynamics Model Investigating Cuttings Transport with Herschel Bulkley Drilling Fluids OMAE2022-79540
Mohamed Shafik Khaled[1] Muhammad Khan[2] Mohammad Azizur Rahman[2] Abu Rashid Hasan[3]
1. University of Texas at Austin, Bryan, TX, USA; 2. Texas A&M University at Qatar, Doha, Qatar; 3. Texas A&M University, College Station, TX, USA

Petroleum Technology

11-04-03 Data Science and Machine Learning Applications in Drilling III

Thursday June 9 | Room **Y10** | **13:30–15:00**

Session Organizer: Ergun Kuru, University of Alberta, Canada

Session Co-Organizer: Evren Ozbayoglu, University of Tulsa, USA

Picking the Optimum Directional Drilling Technology (RSS vs PDM): a Machine Learning-Based Model OMAE2022-80569
Muhammad Nour[1] Mohamed S. Farahat[2] Omar Mahmoud[3]
1. QPC, Qeft, Egypt; 2. Suez University, Suez, Egypt; 3. Future University in Egypt, Suez, Egypt

The Influence of Directional Well Azimuth on Bit Performance: a Statistical Approach OMAE2022-80570
Muhammad Nour[1] Mohamed S. Farahat[2] Omar Mahmoud[3]
1. QPC, Qeft, Egypt; 2. Suez University, Suez, Egypt; 3. Future University in Egypt, Suez, Egypt

New Approach to Predict the Filtrate Invasion of Nanoparticle-Based Drilling Mud Using Artificial Neural Network OMAE2022-81524
Moamen Gasser, Ahmed Naguib, Omar Mahmoud
Future University in Egypt, Cairo, Egypt

CONCURRENT SESSIONS
15:30 – 17:30

Structures, Safety and Reliability

02-04-02 Fatigue and Fracture Reliability II

Thursday June 9 | Room **Hall E** | **15:30–17:30**

Session Organizer: Gaute Storhaug, DNV, Norway

Session Co-Organizer: Bernt Leira, Norwegian University of Science & Technology, Norway

Numerical Study on Weld Magnification Method for a Semi-Circular Surface Crack under an Arbitrary Stress Distribution OMAE2022-78529
Phyo Myat Kyaw[1] Naoki Osawa[2] Satoyuki Tanaka[3] Ramy Gadallah[4]
1. Osaka University, Minoo, Japan; 2. Osaka University, Suita, Japan; 3. Hiroshima University, Higashihiroshima, Japan; 4. Osaka Prefecture University, Naka-ku, Japan

Irreversible Cohesive Zone Model Based Low-cycle Fatigue Analysis for a Subsea Pipeline OMAE2022-78707
Zhihao Song, Nian-Zhong Chen
Tianjin University, Tianjin, China (Mainland)

Theoretical and Experimental Analysis on Low-cycle Fatigue Crack Initiation for High Strength Steel Stiffened Plates OMAE2022-79688
Jiankang Lei[1] Jingxia Yue[1] Zhiting Xu[2] Xuan Fang[1] Hongrui Liu[1]
1. Wuhan Univeristy of Technology, Wuhan, China (Mainland); 2. Marine Design and Research Institute of China, Shanghai, China (Mainland)

New Findings on the Impact of the Idealization of Corrosion on the Brittle Failure of Steel OMAE2022-82014
Michael Biglu, Rüdiger Ulrich Franz von Bock und Polach, Sören Ehlers
Hamburg University of Technology, Hamburg, Germany

Structures, Safety and Reliability

02-05-01 Reliability of Marine Structures

Thursday June 9 | Room **Hall F** | **15:30–17:30**

Session Organizer: Sören Ehlers, Hamburg University of Technology, Germany

Session Co-Organizer: Martin Storheim, Entail AS, Norway

Degradation and Testing of Marine Heavy Duty Protective Coatings OMAE2022-87377
Ole Knudsen[1] Catalina Hagen[1] Anders W.B. Skilbred[2] Andreas Løken[2] Daniel Höche[3] Bahman Daneshian[3]
1. SINTEF, Trondheim, Norway; 2. Jotun, Sandefjord, Norway; 3. Helmholtz-Zentrum Hereon, Geesthacht, Germany

Long Term Performance of Protective Coatings – a Case Study of a Glass Flake Polyester Coating after 35 Years under Offshore Conditions OMAE2022-87376
Anders W. Skilbred, Andreas Løken, Lasse Isaksen
Jotun AS, Sandefjord, Norway

Coating Degradation in Marine Atmospheric: Analysis of Real-time Data Acquired from On-site Sensors OMAE2022-87375
Bahman Daneshian[1] Daniel Höche[2] Ole Øystein Knudsen[3] Anders Werner Bredvei Skilbred[4]
1. Hereon, Geesthacht, Germany; 2. Institute of Surface Science Helmholtz-Zentrum Hereon, Geesthacht, Germany; 3. SINTEF Materials and Chemistry, Department of Applied Mechanics and Corrosion, Trondheim, Norway; 4. Jotun Performance Coatings, Sandefjord, Norway

Ocean Space Utilization

05-03-01 Deepsea Mining and Ocean Resources

Thursday June 9 | Room **Y3** | **15:30–17:30**

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

Simulation of a Vertical Riser System Composed of Two Pipes for Deep Sea Mining OMAE2022-78330
Marcio Yamamoto, Joji Yamamoto, Sotaro Masanobu
National Maritime Research Institute, Mitaka, Japan

Study on Large Particle Slurry Transport in Jumper for Subsea Mining OMAE2022-79597
Sotaro Masanobu[1] Marcio Yamamoto[2] Satoru Takano[2] Yuichi Murai[3]
1. National Maritime Research Institute, Tokyo, Japan; 2. National Maritime Research Institute, Mitaka, Japan; 3. Hokkaido University, Sapporo, Japan

Flow Assurance for Gas-Liquid-Solid Three-phase Flow at High Void Fraction of Gas Phase for Methane Hydrate Transport OMAE2022-79601
Satoru Takano, Sotaro Masanobu, Shigeo Kanada, Masao Ono
National Maritime Research Institute, Mitaka, Japan

Assessment of Power Requirements for Alternative Vertical Transportation System for Deepsea Mining OMAE2022-80149
Lucas Sevillano, Sigbjørn Sangesland
Norwegian University of Science and Technology, Trondheim, Norway

Preliminary Experiments for Construction of an Evaluation Model for Methane Hydrate Transportation OMAE2022-80247
Joji Yamamoto[1] Yasuharu Nakajima[2] Marcio Yamamoto[1] Satoru Takano[1] Masao Ono[1] Shigeo Kanada[1] Kazuhisa Otsubo[1]
1. National Matitime Research Institute, Mitaka, Japan; 2. National Institute of Maritime, Mitaka, Japan

Ocean Engineering

06-11-03 Ocean Engineering Technology III

Thursday June 9 | Room **Y4** | **15:30–17:30**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Sotaro Masanobu, National Maritime Research Institute, Japan; Arun Kamath, Norwegian University of Science & Technology, Norway; Celso K. Morooka, Unicamp/petro Eng Dept, Brazil; Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil; Daniel De Oliveira Costa, Universidade Federal do Rio de Janeiro, Brazil

Roll Stability Evaluation of the Floating Multi-body System at TML (Twin Marine Lifter) Operation OMAE2022-79871
Xun Meng, Xingqi Deng, Shujie Zhao, Dejiang Li, Qiang Fu
Ocean University of China, Qingdao, China (Mainland)

Underwater Vehicle Manipulator System (UVMS) with BlueROV2 and SeaArm-2 Manipulator OMAE2022-79913
Martin Skaldebø[1] Ingrid Schjølberg[1] Bent Haugaløkken[2]
1. Norwegian University of Science and Technology, Trondheim, Norway; 2. SINTEF, Trondheim, Norway

Human-Machine Engineering Virtual Simulation for the Wheelhouse on Large Ships OMAE2022-80032
Chuntong Li[1] Naikun Wei[2] Xiaomeng Luo[3] Jianjun Lv[3] Xuelian Yang[4] Deyu Wang[2]
1. Shanghai Jiao Tong University, Shanghai, Albania; 2. Shanghai Jiao Tong University, Shanghai, China (Mainland); 3. Shipbuilding Technology Research Institute, Shanghai, China (Mainland); 4. Shanghai Waigaoqiao Shipbuilding Co., Ltd., Shanghai, China (Mainland)

Comparison of Cutter Suction Dredger Slurry Concentration Soft Measurement Method Based on the Mechanism and Data Dual-Driven Model OMAE2022-80359
Wang Bin, Shidong Fan, Ting Xiong, Hanhua Zhu
Wuhan University of Technology, Wuhan, China (Mainland)

Numerical Simulation of Hybrid Synthetic Mooring Lines Based on a Finite Difference Dynamic Model OMAE2022-81238
Xinyi Li, **Liwei Yu**, Shuqing Wang
Ocean University of China, Qingdao, China (Mainland)

Ocean Engineering

06-16-03 Wave Mechanics, Modeling and Wave Effects III

Thursday June 9 | Room **Y12** | **15:30–17:30**

Session Organizer: Solomon Yim, Oregon State University, USA

Session Co-Organizers: Alessandro Iafrati, CNR, Italy; Hans Bihs, Norwegian University of Science & Technology, Norway; Antonio Carlos Fernandes, Universidade Federal do Rio de Janeiro, Brazil; João Victor Padilha, Universidade Federal do Rio de Janeiro, Brazil; Guang Yin, University of Stavanger, Norway

Generation of Controlled Irregular Wave Crest Statistics in a Numerical Wavetank Using HOS-NWT Solver OMAE2022-79880
Maxime Canard, Guillaume Ducrozet, Benjamin Bouscasse
LHEEA, Nantes, France

Interaction Effects of Weakly Nonlinear Surface Waves and a Vertically Sheared Current on Loads on a Vertical Cylinder OMAE2022-80038
Zirui Xin[1] Xin Li[1] Yan Li[2]
1. State Key Laboratory of Ocean Engineering, School of Naval Architecture, Ocean and Civil Engineering, Shanghai Jiao Tong University, Shanghai, China (Mainland); 2. Department of Energy and Process Engineering, Norwegian University of Science and Technology; Department of Mathematics, University of Bergen, Trondheim, Norway

The Impact of the Spectral Tail on the Kurtosis of Random Seas OMAE2022-80594
Dylan Barratt, Ton Van Den Bremer, **Thomas Adcock**
University of Oxford, Oxford, United Kingdom

On Rogue Waves Generated by Abrupt Depth Transitions OMAE2022-80596
Zhenhao Li[1] Tianning Tang[1] Yan Li[1] Samuel Draycott[2] Ton Van Den Bremer[1] Thomas Adcock[1]
1. University of Oxford, Oxford, United Kingdom; 2. University of Manchester, Manchester, United Kingdom

Observations on Horizontal Velocities under Waves in Shallow Water at a Wave Energy Site OMAE2022-81143
Arne Vogler[1] Diego Miguez[1] Ben Pepper[2]
1. MEECE ORE Catapult, Pembroke Dock, United Kingdom; 2. University of Strathclyde, Glasgow, United Kingdom

CFD and VIV

08-07-02 Internal Flows and FIV II

Thursday June 9 | Room **Y6** | **15:30–17:30**

Session Organizer: Owen Oakley, Retired, USA

Session Co-Organizer: Madhusuden Agrawal, BP, USA

Prediction and Benchmarking of a Nearly Horizontal Flowline Slug Flow OMAE2022-87489
Jose Mesa, Haijing Gao, Yiannis Constantinides
Chevron, Houston, TX, USA

Lazy Wave Riser Slug Induced Vibration – Modelling Validation OMAE2022-80271
Matthieu Minguez[1] Kevin Le Prin[1] Cristian Jara[1] Alain Liné[2] Alexandre Cinello[3] Thierry Rippol[3]
1. SEAL Engineering (TechnipFMC subsidiary), NIMES, France; 2. TBI Université de Toulouse, Toulouse, France; 3. Océanide, La Seyne sur Mer, France

Study on the Hydrodynamic Coefficients of a Submarine in the Density Stratified Flow OMAE2022-79791
Guohua Dong[1] Chaobang Yao[2] Dakui Feng[3] Guangli Zhou[4]
1. Huazhong University of Science and Technology, Hubei, China (Mainland); 2. Hubei Key Laboratory of Naval Architecture and Oceaning Engineering Hydrodynamics(HUST), Wuhan, China (Mainland); 3. Huazhong University of Science and Technology, Wuhan, China (Mainland); 4. China Marine Development and Research Center, Beijing, China (Mainland)

Numerically Analysing Liquid-cargo Sloshing Diminishment in Partitioned Rectangular Tanks OMAE2022-86100
Mitchell Borg[1] Claire Demarco Muscat-Fenech[1] Tahsin Tezdogan[2] Tonio Sant[1] Simon Mizzi[1] Yigit Kemal Demirel[2]
1. University of Malta, Msida, Malta; 2. University of Strathclyde, Glasgow, United Kingdom

Simulation of Wind Flow around the Terrain of a High-altitude Transmission Tower: a Case Study of Saurdal Accident OMAE2022-81503
Arvind Keprate[1] **Nikhil Bagalkot**[1] Mohammad Reza Shah Mohammadi[2] Agnes Marie Horn[3]
1. Oslo Met, Oslo, Norway; 2. DNV, Arnhem, Netherlands; 3. DNV, Snarøya, Norway

Ocean Renewable Energy

09-01-11 Design and Optimization

Thursday June 9 | Room **Y7** | **15:30–17:30**

Session Organizer: Wei Yu, Stuttgart Wind Energy, Institute of Aircraft Design, University of Stuttgart, Germany

Session Co-Organizer: Krish Thiagarajan, University of Massachusetts Amherst, USA

Conceptual Design of a Concrete Multi-Column Floating Platform Supporting a 10 MW Offshore Wind Turbine OMAE2022-78816
Muhammad Sohail Hasan[1] Wichuda Munbua[1] Edgard Borges Malta[2] Goncalves Rodolfo[3] Chikako Fujiyama[1] Koichi Maekawa[1]
1. Yokohama National University, Yokohama, Japan; 2. Technomar Engenharia Oceanica, Pinheiros, SP, Brazil; 3. The University of Tokyo, Meguro City, Japan

Optimization of Semi-submersible Hull Design for Floating Offshore Wind Turbines OMAE2022-86751
I-Jen Hsu[1] **Glib Ivanov**[1] Kai-tung Ma[1] Zheng-Zhang Huang[2] Hua-Tung Wu[2] Yun-Tzu Huang[3] Mike Chou[3] Yen-Hao Lin[4]
1. National Taiwan University, Taipei, Taiwan (Greater China); 2. SOIC, New Taipei City, Taiwan (Greater China); 3. CSBC, Kaohsiung, Taiwan (Greater China); 4. ABS, Taipei, Taiwan (Greater China)

Design Methodology Evolution: Transition from O&G FPU to FOWT OMAE2022-81555
Shaosong Zhang[1] Daewoong Son[2] Antoine Peiffer[2]
1. Principle Power Inc., Houston, TX, USA; 2. Principle Power Inc., Emeryville, CA, USA

LQR Optimal Control of Two-rotor Wind Turbine Mounted on Spar-type Floating Platform OMAE2022-78877
Omar El Beshbichi, Yihan Xing, Muk Chen Ong
UiT The Arctic University of Norway, Stavanger, Norway

Petroleum Technology

11-05-04 Well Cementing Theory and Practice IV

Thursday June 9 | Room **Y10** | **15:30–17:30**

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

Session Co-Organizer: Seyed Mohammad Taghavi, Laval University, Canada

Expanded Vermiculite Blended Foamed Cement Composite for Geothermal Wells Cementing and Its High Temperature Adaptability OMAE2022-81113
Wei Zhou, Chengwen Wang, Haoxin Lu
China University of Petroleum (East China), Qingdao, China (Mainland)

Practical Application of Pressure and Temperature Dependent Viscosity Calculations in Well Cementing Simulations OMAE2022-81120
Nicolas Flamant[1] Sviatoslav Pelipenko[2]
1. Schlumberger, Clamart, France; 2. Oxford Numerics Ltd, London, United Kingdom

Establishing New Guidelines for Stability Testing of Cementing Mix Fluids OMAE2022-81453
Abdullah Al-Yami, **Vikrant Wagle**
Saudi ARAMCO, Dhahran, Saudi Arabia

Long-term Mechanical Properties of Barrier Materials for Cementing Operations – Analysis of Morphology and Micro-structure OMAE2022-78634
Kamali Mohammadreza, Mahmoud Khalifeh, Arild Saasen, Paulo Henrique Silva Santos Moreira
University of Stavanger, Stavanger, Norway

Technical Tours

TOUR THE MARITIME LABORATORIES AT TECHNICAL UNIVERSITY HAMBURG

Fee: No charge
Date: Friday, June 10, 2022
Schedule: Depart at 9:00 am from the CCH, tour concludes with lunch (at own expense, cash only) at 1 pm at the University cafeteria, return to hotel on own.
Capacity: 60 people maximum

An exceptional opportunity to visit the maritime laboratories at the Technical University Hamburg. The tour will start at 9:00 am at CCH and take you via public transportation (at own expense) to the University campus in Hamburg. Once on campus you will have the opportunity to visit the many facilities including:

- Europe's largest wind tunnel for ship model testing
- The Strength laboratory
- Large scale, fatigue and ice-structure-interaction testing capabilities
- The complex single cylinder engine test stand for fuels and additives

The group will be split into smaller groups to allow for greater interaction with the scientific staff. The tour will conclude with lunch (at own expense, cash only) at the University cafeteria around 1 pm. Participants will then make their own way back to their hotel.

TOUR OF THE HAMBURG SHIP MODEL BASIN (HSVA)

Fee: €80 plus VAT
Date: Friday, June 10, 2022
Schedule: Depart at 9:30 am from the CCH, depart from HSVA at 1 pm, arrive at CCH at approximately 1:30 pm.
Capacity: 56 people maximum

HSVA is providing a unique opportunity to OMAE 2022 participants to view its facilities, which are usually open only to its customers. For a century, the private and independent Hamburg Ship Model Basin (HSVA) has been at the forefront of hydrodynamic research. Today, HSVA is a service and consulting company for customers from the maritime industry worldwide. HSVA offers advanced technologies and modern test facilities. Our engineers and scientists develop a detailed understanding of the intricate questions related to ship and offshore hydrodynamics, propeller and ship design in calm water, waves and ice.

During the tour, you will view live demonstrations of the main facilities and learn about the capabilities of smaller tanks and tunnels. In small groups, you can experience different measurement techniques and view the special equipment used at HSVA. Refreshments will be provided.

Short Course

Dynamics and Vibrations in Offshore Structures

Sunday, June 5th, 2022: 9:00 am – 5:00 pm

Course Description

An understanding of the principles of dynamics and vibrations is important for assuring system integrity and operational functionality in different engineering areas. However, practical problems regarding dynamics are in many cases handled without success, despite large expenditures of investment. It is essential in approaching dynamic analysis and design that one develops an "intuition" to solve the relevant problems at hand; both academic knowhow and professional experience play equally important roles in developing such intuition. To meet the objectives above, this course aims to address a wide range of topics in the field of offshore structures, starting from fundamentals and moving on to relevant and practical engineering challenges and solutions. Special emphasis is placed on engineering applications that utilize state-of-the-art knowledge, the finite element method, relevant codes, probabilistic methods, and recommended practices. The course is primarily intended for industry professionals, researchers, and graduate students in offshore, civil, and marine engineering who desire an introduction to principles of dynamic analysis and design as well as those who are eager to learn advanced and efficient techniques used to mitigate vibrations for offshore as well as land-based structures.

Instructors: Junbo Jia & Bernt Leira

Dr. Junbo Jia has been an engineering expert at Aker Solutions, Norway since 2006. He holds a Ph.D. degree in Ocean Engineering from Chalmers University of Technology. He has been extensively involved in many engineering projects for offshore and energy industries. He currently serves as secretary general of International Seismic Safety Organization (ISSO), committee member of ISO TC67/SC7, member of Eurocode 3, and committee members of several other international scientific organizations. He has been invited as speakers, course lecturers, and permanent members of PhD examination committees by various organizations and research institutes. Dr. Jia is the sole author of three comprehensive scientific monographs by Springer. Two of the books receive the "Best Offshore Engineering Books of All Time" and "Best Earthquake Engineering Books of All Time" award by BOOKAUTHORITY. He is also the editor of a book volume (with J.K. Paik) by CRC press. He has received several scientific awards such as the Vice Admiral E.L. Cochrane award by SNAME (2008) and the 2014 Best Paper Award by Journal of Ships and Offshore Structures (Taylor & Francis).

Bernt J. Leira is a Professor at the Department of Marine Technology, Norwegian University of Science and Technology. His Doctoral Thesis is on structural reliability formulations involving multiple stochastic processes. He has previously been working in SINTEF, Division of Structural Engineering for a period of 20 years related to design analysis of a variety of structures. Examples are fixed offshore platforms (e.g. jackets, jack-ups, gravity platforms), long-span bridges (e.g. suspension bridges, floating bridges, submerged tubular bridges), floating production systems and marine risers (rigid risers, non-bonded flexible risers, titanium risers). He has been project manager for a number of industry projects. He has been involved in teaching at University level for a period of 30 years, and has held an industry Professorship from 1994 to 1999, and a full Professorship since 1999. Main areas of teaching are reliability methods, probabilistic load modelling, dynamic response analysis and design methods for marine structures. He has published more than 300 papers in scientific journals, conferences and books. Relevant ISO and other standardization work comprises Dynamic Risers and Floating Production Systems.

Outreach for Engineers

14TH ANNUAL OUTREACH FOR ENGINEERS SPECIALTY FORUM

This is the fourteenth 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 41st 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.

SCHEDULE: SUNDAY, JUNE 5

Time (including Q&A)	Topic	Presenter
9:00 – 9:30	Introduction	Jon Mikkelsen (University of British Columbia)
9:30 – 11:00	Digitalization by World Practitioners	Denby Morrison (Shell)
11:00 – 11:15	Refreshment break	
11:15 – 12:00	Hydrodynamic Modeling of Large Offshore Wind Mono-pile	Csaba Pâkozdi (SINTEF Ocean)
12:00 – 13:00	Networking Lunch	
13:00 – 13:45	Floating Wind Lifecycle	Alexia Aubault (Ocergy)
13:45 – 14:30	Sustainable and Marketable Solutions for the Energy Industry	Walter Kuehnlein (terra.blue)
14:30 – 14:45	Refreshment break	
14:45 – 15:30	Digital Twins and Autonomous Vessels	Allan Magee (Technology Center for Offshore and Marine)
15:30 – 16:00	Closing remarks	Jon Mikkelsen and all

Thank you to this year's co-sponsors of the Outreach Forum

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Yiannis Constantinides, *Facilities Engineering Advisor, Chevron*

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The Conference Organizing Committee would like to express their gratitude to all the OMAE 2022 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*
Symposium Co-Coordinator: Owen H. Oakley, Jr, *Retired*

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: Honoring Symposium for Professor Günther F. Clauss on Hydrodynamics and Ocean Engineering
Symposium Coordinator: Marco Klein, *Hamburg University of Technology*

Topic Organizers

SYMP 1: Offshore Technology
01-01 **Offshore Platforms I:** Anil Sablok, *Technip Energies, USA*
01-02 **Offshore Platforms II:** Anil Sablok, *Technip Energies, USA*
02-01 **Station Keeping I:** Allan Magee, *National University of Singapore, Singapore*
03-01 **Hydrodynamics:** Longbin Tao, *University of Strathclyde, United Kingdom*
05-01 **FLNG Technology I:** Marc Cahay, *Technip Energies, France*
06-01 **CFD Modeling Practice and Verification I:** Jerry Huang, *ExxonMobil, USA*
07-01 **Wave Loading and Motions in Extreme Seas:** Nuno Fonseca, *Marintek, Norway*
08-01 **Digitalization, AI, Neural Networks, ML I:** Rajiv Aggarwal, *Consultant, USA*
08-02 **Digitalization, AI, Neural Networks, ML II:** Rajiv Aggarwal, *Consultant, USA*
09-01 **Adapting/Mitigating Climate Change:** Denby Morrison, *Shell, USA*

SYMP 2: Structures, Safety and Reliability
01-01 **Abnormal Waves:** Elzbieta Maria Bitner-Gregersen, *DNV/Ocean Wave Research, Norway*
01-02 **Extreme Waves:** Carlos Guedes Soares, *IST, University of Lisbon, Portugal*
01-03 **Extreme Sea States:** Alexander Babanin, *University of Melbourne, Australia*
02-01 **Probabilistic and Spectral Wave Models:** Carlos Guedes Soares, *IST, University of Lisbon, Portugal*
03-01 **Probabilistic Response Models:** Lance Manuel, *University of Texas at Austin, USA*
04-01 **Fatigue and Fracture Reliability I:** Bernt Leira, *Norwegian University of Science & Technology, Norway*
04-02 **Fatigue and Fracture Reliability II:** Gaute Storhaug, *DNV, Norway*
05-01 **Reliability of Marine Structures:** S√∂ren Ehlers, *Hamburg University of Technology, Germany*
06-01 **Reliability of Mooring and Riser Systems I:** Luis Sagrilo, *Coppe/Federal University of Rio de Janeiro, Brazil*
06-02 **Reliability of Mooring and Riser Systems II:** Ying Min Low, *National University of Singapore, Singapore*
07-01 **Reliability of Renewable Energy Systems:** Zhen Gao, *Norwegian University of Science & Technology, Norway*
09-01 **Extreme Loading and Responses I:** Carlos Guedes Soares, *IST, University of Lisbon, Portugal*
09-02 **Extreme Loading and Responses II:** Spyros Hirdaris, *Aalto University, Finland*
09-03 **Extreme Loading and Responses III:** Spyros Hirdaris, *Aalto University, Finland*
10-01 **Collision and Crashworthiness I:** S√∂ren Ehlers, *Hamburg University of Technology, Germany*
10-02 **Collision and Crashworthiness II:** Zhiqiang Hu, *Newcastle University, United Kingdom*

11-01 **Ultimate Strength I:** Carlos Guedes Soares, *IST, University of Lisbon, Portugal*
11-02 **Ultimate Strength II:** Carlos Guedes Soares, *IST, University of Lisbon, Portugal*
12-01 **Structural Analysis and Optimization I:** Jonas Ringsberg, *Chalmers University of Technology, Sweden*
12-02 **Structural Analysis and Optimization II:** Jonas Ringsberg, *Chalmers University of Technology, Sweden*
13-01 **Risk Analysis and Management:** Marcelo Ramos Martins, *USP, Brazil*
14-01 **Risk Based Maintenance:** Marcelo Ramos Martins, *USP, Brazil*
16-01 **Data-driven Models for Marine Structures I:** YeongAe Heo, *Case Western Reserve University, USA*
16-02 **Data-driven Models for Marine Structures II:** YeongAe Heo, *Case Western Reserve University, USA*

SYMP 3: Materials Technology

01-01 **Fracture Assessment and Control:** Mamdouh Salama, *MMS4AIM LLC, USA*
02-01 **Fatigue Performance and Testing:** Mamdouh Salama, *MMS4AIM LLC, USA*
03-01 **Integrity Assessment and Life Extension:** Mamdouh Salama, *MMS4AIM LLC, USA*
04-01 **Environmental Effect on Materials Performance:** Mamdouh Salama, *MMS4AIM LLC, USA*
05-01 **Performance and Reliability of Non-Metallics:** Mamdouh Salama, *MMS4AIM LLC, USA*
06-01 **Advances in Materials and Manufacturing Technology:** Mamdouh Salama, *MMS4AIM LLC, USA*

SYMP 4: Pipeline, Risers, and Subsea Systems

01-01 **Flexible Pipes and Umbilicals I:** Zhimin Tan, *Baker Hughes, USA*
01-02 **Flexible Pipes and Umbilicals II:** Zhimin Tan, *Baker Hughes, USA*
01-03 **Flexible Pipes and Umbilicals III:** Zhimin Tan, *Baker Hughes, USA*
01-04 **Flexible Pipes and Umbilicals IV:** Zhimin Tan, *Baker Hughes, USA*
01-05 **Flexible Pipes and Umbilicals V:** Zhimin Tan, *Baker Hughes, USA*
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 **Rigid Pipelines I:** Theodoro Netto, *Fundacao Coppetec, Brazil*
03-02 **Rigid Pipelines II:** Theodoro Netto, *Fundacao Coppetec, Brazil*
04-01 **Flow Assurance and Subsea Equipment:** Theodoro Netto, *Fundacao Coppetec, Brazil*

SYMP 5: Ocean Space Utilization

02-02 **Aquaculture and Related Technology II:** Muk Chen Ong, *University of Stavanger, Norway*
03-01 **Deepsea Mining and Ocean Resources:** Marcio Yamamoto, *National Maritime Research Institute, Japan*
05-01 **Floating System for Renewable Energy I:** Shigeru Tabeta, *The University of Tokyo, Japan*

SYMP 6: Ocean Engineering

01-01 **Computational Mechanics and Design Applications:** Solomon Yim, *Oregon State University, USA*
02-01 **Coastal Engineering I:** Solomon Yim, *Oregon State University, USA*
02-02 **Coastal Engineering II:** Solomon Yim, *Oregon State University, USA*
03-01 **Fluid-structure, Multi-body and Wave-body Interaction I:** Solomon Yim, *Oregon State University, USA*
03-02 **Fluid-structure, Multi-body and Wave-body Interaction II:** Solomon Yim, *Oregon State University, USA*
03-03 **Fluid-structure, Multi-body and Wave-body Interaction III:** Solomon Yim, *Oregon State University, USA*
04-01 **Marine Engineering and Technology I:** Solomon Yim, *Oregon State University, USA*
04-02 **Marine Engineering and Technology II:** Solomon Yim, *Oregon State University, USA*
05-01 **Marine Hydrodynamics I:** Solomon Yim, *Oregon State University, USA*
05-02 **Marine Hydrodynamics II:** Solomon Yim, *Oregon State University, USA*
05-03 **Marine Hydrodynamics III:** Solomon Yim, *Oregon State University, USA*
05-04 **Marine Hydrodynamics IV:** Solomon Yim, *Oregon State University, USA*
07-01 **Metocean, Measurement and Data Interpretation I:** Solomon Yim, *Oregon State University, USA*
07-02 **Metocean, Measurement and Data Interpretation II:** Solomon Yim, *Oregon State University, USA*
08-01 **Model Tests:** Solomon Yim, *Oregon State University, USA*
11-01 **Ocean Engineering Technology I:** Solomon Yim, *Oregon State University, USA*
11-02 **Ocean Engineering Technology II:** Solomon Yim, *Oregon State University, USA*
11-03 **Ocean Engineering Technology III:** Solomon Yim, *Oregon State University, USA*
12-01 **Ship Hydromechanics I:** Solomon Yim, *Oregon State University, USA*
12-02 **Ship Hydromechanics II:** Solomon Yim, *Oregon State University, USA*
13-01 **Towed and Undersea Cables and Pipes, Mooring, and Buoy Technology:** Solomon Yim, *Oregon State University, USA*
14-01 **Underwater Vehicles and Design Technology I:** Solomon Yim, *Oregon State University, USA*
14-02 **Underwater Vehicles and Design Technology II:** Solomon Yim, *Oregon State University, USA*
14-03 **Underwater Vehicles and Design Technology III:** Solomon Yim, *Oregon State University, USA*
15-01 **Unsteady Hydrodynamics, Vibrations, Acoustics and Propulsion:** Solomon Yim, *Oregon State University, USA*
16-01 **Wave Mechanics, Modeling and Wave Effects I:** Solomon Yim, *Oregon State University, USA*
16-02 **Wave Mechanics, Modeling and Wave Effects II:** Solomon Yim, *Oregon State University, USA*
16-03 **Wave Mechanics, Modeling and Wave Effects III:** Solomon Yim, *Oregon State University, USA*

SYMP 7: Polar and Arctic Sciences and Technology

01-01 **Structures in Ice:** Sören Ehlers, *Hamburg University of Technology, Germany*
02-01 **Arctic Sea Transportation:** Marc Cahay, *Technip Energies, France*
03-01 **Vessels in Ice – Loads:** Gesa Ziemer, *DLR, Germany*
04-01 **Vessels in Ice – Simulations:** Angelo Mario Böhm, *TUHH, Germany*
05-01 **Ice Model Tests:** Brendon Nickerson, *Stellenbosch University, South Africa*
06-01 **Numerical Ice Modeling:** T. C. Hammer, *Tu Delft, Netherlands*
07-01 **Marine Propulsion System Under Ice Impact:** Daniela Myland, *HSVA, Germany*
09-01 **Scenario-based Risk Management for Ice-covered Waters: LRF- CEPOLAR Activities:** Pentti Kujala, *Aalto University, Finland*

SYMP 8: CFD, VIV & FSI

01-01 **Waves and Loads:** Stephen Cosgrove, *Altair, USA*
01-02 **Propulsion, VIM, and CFD Spectra:** Stephen Cosgrove, *Altair, USA*
02-01 **Maneuvering:** Owen Oakley, *Retired, USA*
03-01 **Waves, Motions, Impact:** Tim Bunnik, *MARIN, Netherlands*
04-01 **FSI:** Guilherme Vaz, *blueOASIS, Portugal*
04-02 **Ship Design:** Guilherme Vaz, *blueOASIS, Portugal*
04-03 **Offshore Wind:** Guilherme Vaz, *blueOASIS, Portugal*
04-04 **Advanced Analytics:** Guilherme Vaz, *blueOASIS, Portugal*
05-01 **Free Surface Flows I:** Hans Bihs, *Norwegian University of Science & Technology, Norway*
05-02 **Free Surface Flows II:** Hans Bihs, *Norwegian University of Science & Technology, Norway*
06-01 **VIV in Time-Varying Flows:** Shixiao Fu, *SJTU, China (Mainland)*
06-02 **VIV of Flexible Risers and Cables:** Jie Wu, *SINTEF, Norway*
07-01 **Internal Flows and FIV I:** Owen Oakley, *Retired, USA*
07-02 **Internal Flows and FIV II:** Owen Oakley, *Retired, USA*

SYMP 9: Ocean Renewable Energy

01-01 **Installation, Marine Operations and Maintenance I:** P. R. Thies, *Exeter, United Kingdom*
01-02 **Installation, Marine Operations and Maintenance II:** P. R. Thies, *Exeter, United Kingdom*
01-03 **Installation, Marine Operations and Maintenance III:** Amir R. Nejad, *Norwegian University of Science & Technology, Norway*
01-04 **FWT Structural Dynamics I:** Zhengshun Cheng, *Shanghai Jiao Tong University, China (Mainland)*
01-05 **FWT Structural Dynamics II:** Zhengshun Cheng, *Shanghai Jiao Tong University, China (Mainland)*
01-06 **Wind Turbine Aerodynamicsl:** D. Todd Griffith, *University of Texas at Dallas, USA*
01-07 **Wind Turbine Aerodynamics II:** Tonio Sant, *Department of Mechanical Engineering, University of Malta, Malta*
01-08 **FWT Moorings and Arrays I:** Zhen Gao, *Norwegian University of Science & Technology, Norway*
01-09 **FWT Moorings and Arrays II:** Guodong Liang, *University of Agder, Norway*
01-10 **FWT Hydrodynamics:** Enzo Marino, *Department of Civil and Environmental Engineering, University of Florence, Italy*
01-11 **Design and Optimization:** Wei Yu, *Stuttgart Wind Energy, Institute of Aircraft Design, University of Stuttgart, Germany*
01-12 **Experimental Methods:** Seung-yoon HAN, *Ecole Centrale Nantes, France*
01-13 **Novel and Hybrid Offshore Wind Concepts:** Amir R. Nejad, *Norwegian University of Science & Technology, Norway*
01-14 **Fatigue and Structural Analysis:** Amir R. Nejad, *Norwegian University of Science & Technology, Norway*
02-01 **Wave Environmental Modeling:** Masoud Hayatdavoodi, *University of Dundee, United Kingdom*
02-02 **Techno-economic Modeling of WEC:** Masoud Hayatdavoodi, *University of Dundee, United Kingdom*
02-03 **WEC Performance Analysis:** Masoud Hayatdavoodi, *University of Dundee, United Kingdom*
02-04 **WEC Numerical Modeling:** Masoud Hayatdavoodi, *University of Dundee, United Kingdom*
02-05 **WEC Controls and PTO I:** Masoud Hayatdavoodi, *University of Dundee, United Kingdom*
02-06 **WEC Controls and PTO II:** Masoud Hayatdavoodi, *University of Dundee, United Kingdom*
03-01 **Current and Tidal Energy I:** Marc Cahay, *Technip Energies, France*
03-02 **Current and Tidal Energy II:** Marc Cahay, *Technip Energies, France*
04-01 **Hybrids and Floating Solar Energy:** Madjid Karimirad, *Queen's University Belfast, United Kingdom*
05-01 **Energy Storage and Hydrogen:** Tonio Sant, *Department of Mechanical Engineering, University of Malta, Malta*

SYMP 10: Offshore Geotechnics

01-01 **Seabed Properties and Processes:** Christian Windt, *Technical University of Braunschweig, Ireland*
01-02 **Seabed Properties and Processes II:** Christian Windt, *Technical University of Braunschweig, Ireland*
02-01 **Piles:** Benjamin Cerfontaine, *University of Southampton, United Kingdom*
03-01 **Anchors and Pipelines I:** Katherine Kwa, *University of Southampton, United Kingdom*
03-02 **Anchors and Pipelines II:** Hyungchui Jang, *Technip, USA*
04-01 **Bucket, Gravity Foundations and Caissons:** Giuseppe Abbiati, *Aarhus University, Denmark*

SYMP 11: Petroleum Technology

01-01 **Well Drilling Technology I:** Ergun Kuru, *University of Alberta, Canada*
01-02 **Well Drilling Technology II:** Ergun Kuru, *University of Alberta, Canada*
02-01 **Well Drilling Fluids and Hydraulics I:** Ergun Kuru, *University of Alberta, Canada*
02-02 **Well Drilling Fluids and Hydraulics II:** Ergun Kuru, *University of Alberta, Canada*
02-03 **Well Drilling Fluids and Hydraulics III:** Ergun Kuru, *University of Alberta, Canada*
03-01 **Well Control and Managed Pressure Drilling I:** Ergun Kuru, *University of Alberta, Canada*
03-02 **Well Control and Managed Pressure Drilling II:** Ergun Kuru, *University of Alberta, Canada*
04-01 **Data Science and Machine Learning Applications in Drilling I:** Ergun Kuru, *University of Alberta, Canada*
04-02 **Data Science and Machine Learning Applications in Drilling II:** Ergun Kuru, *University of Alberta, Canada*
04-03 **Data Science and Machine Learning Applications in Drilling III:** Ergun Kuru, *University of Alberta, Canada*
05-01 **Well Cementing Theory and Practice I:** Ergun Kuru, *University of Alberta, Canada*
05-02 **Well Cementing Theory and Practice II:** Ergun Kuru, *University of Alberta, Canada*
05-03 **Well Cementing Theory and Practice III:** Ian Frigaard, *University of British Columbia, Canada*
05-04 **Well Cementing Theory and Practice IV:** Ian Frigaard, *University of British Columbia, Canada*
06-01 **Integrity of Well Barriers:** Ergun Kuru, *University of Alberta, Canada*
07-01 **Permanent Well Abandonment:** Ergun Kuru, *University of Alberta, Canada*
08-01 **Production Systems and Subsea Operations:** Ergun Kuru, *University of Alberta, Canada*
10-01 **Development of Unconventional Reservoirs I:** Ergun Kuru, *University of Alberta, Canada*
10-02 **Development of Unconventional Reservoirs II:** Hadi Belhaj, *Khalifa University, U.A.E.*
10-03 **Development of Unconventional Reservoirs III:** Ergun Kuru, *University of Alberta, Canada*
10-04 **Development of Unconventional Reservoirs IV:** Ergun Kuru, *University of Alberta, Canada*
11-01 **Advances in Carbon Capture Utilization and Storage:** Ergun Kuru, *University of Alberta, Canada*
12-01 **Sustainability and Green Transition in Petroleum Industry I:** Ergun Kuru, *University of Alberta, Canada*
12-02 **Sustainability and Green Transition in Petroleum Industry II:** Ergun Kuru, *University of Alberta, Canada*

13-01 **Digitalization of Subsurface, Well Systems, Subsea Systems and Operations:** Ergun Kuru, *University of Alberta, Canada*

SYMP 12: Honoring Symposium for Professor Günther F. Clauss on Hydrodynamics and Ocean Engineering

01-01 **Hydrodynamics, Seakeeping and Global Performance:** Marco Klein, *Hamburg University of Technology, Germany*

01-02 **Hydrodynamics, Seakeeping and Global Performance:** Marco Klein, *Hamburg University of Technology, Germany*

02-01 **Extreme Waves and their Impact on Ships and Structures:** Marco Klein, *Hamburg University of Technology, Germany*

03-01 **Deterministic Wave and Motion Prediction:** Marco Klein, *Hamburg University of Technology, Germany*

Event Organizer

Sea to Sky Meeting and Association Management Inc.
President: Ian Holliday
Project Director: Ian Holliday
Project Managers: Brittany Minskip, Eunji Na
Registration Manager: Helena Yang

Co-sponsoring Organizations

Association/Institution	Country
American Society of Mechanical Engineers International	USA
American Concrete Institute	USA
American Society of Civil Engineers, Coasts, Oceans, Ports, and Rivers Institute	USA
Associazione Italiana di Ingegneria Offshore e Marina	Italy
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
Conseil de Liaison des Assoc. de Recherche sur les Ouvrages en Mer	France
Energy Polymer Group	
Engineering Committee on Oceanic Research	
European Safety and Reliability Association	Portugal
German Association for Marine Technology	Germany
Institute of Materials	
Institution of Engineers of Ireland	Ireland
Institution of Mechanical Engineers	UK
Instituto Brasileiro de Petróleo	Brazil
Japan Society of Mechanical Engineers	Japan
Japan Society of Naval Architects of and Ocean Engineers	Japan
Korean Institute of Metals	Korea
Marine Technology Society	USA
National Association of Corrosion Engineers	USA
Norwegian Society of Chartered Engineers	Norway
Office of Science and Technology, Australia	Australia
Portuguese Engineering Association	Portugal
The Petroleum Society of CIM (Canadian Institute of Mining)	Canada
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

Virgil Lunardini
Co-chair
1984 & 1985

1990
Houston, USA

Mamdouh Salama
Chair, 1990–1991

1991
Stavanger, Norway

Bjorn Lian
Co-chair

1992
Calgary, Canada

M. Idris Mansor
Chair

R. Brawn
Co-chair

1993
Glasgow, U.K.

Geoff Booth
Chair

1994
Houston, USA

James N. Brekke
Chair

1995
Copenhagen, Denmark

Christian Aage
Chair

1996
Florence, Italy

Daniela Mercati
Chair

1997
Yokohama, Japan

Hisaaki Maeda
Chair

Koichiro Yoshida
Co-chair

1998
Lisbon, Portugal

Carlos Guedes Soares
Chair

1999
St. John's, Canada

Stephen Jones
Chair

2000
New Orleans, USA

Terry Jones (1934–2005)
Chair

2001
Rio de Janeiro, Brazil

Segen Farid Estefen
Chair

2002
Oslo, Norway

Arvid Naess
Chair

2003
Cancun, Mexico

Oscar Valle Molina
Chair

2004
Vancouver, Canada

Sander Calisal
Chair

Jon Mikkelsen
Co-chair

2005
Halkidiki, Greece

Spyros A. Mavrakos
Chair

Michael M. Bernitsas
Co-chair

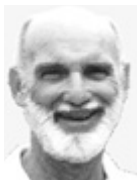
PAST AND FUTURE CONFERENCES

2006 Hamburg, Germany

Walter L. Kuehnlein
Chair

2007 San Diego, USA

John Halkyard
Chair



Richard Seymour
Co-chair

Barbara Fletcher
Co-chair

2008 Estoril, Portugal

Carlos Guedes Soares
Chair

2009 Honolulu, USA

R. Cengiz Ertekin
Chair

H. Ronald Riggs
Co-chair

2010 Shanghai, China

Gang Chen
Chair

Jianmin Yang
Co-chair

2011 Rotterdam, Netherlands

Bas Buchner
Chair

2012 Rio de Janeiro, Brazil

Segen F. Estefen
Chair

Antonio C. Fernandes
Co-chair

2013 Nantes, France

Pierre Ferrant
Chair

2014 San Francisco, USA

Ronald W. Yeung
Chair

Dominique Roddier
Co-chair

2015 St. John's, Canada

Wei Qiu
Chair

Charles Smith
Co-chair

2016 Busan, South Korea

Jeom Kee Paik
Chair

2017 Trondheim, Norway

Bernt J. Leira
Chair

Atle Minsaas
Co-chair

2018 Madrid, Spain

Antonio Souto-Iglesias
Chair

Raúl Guanche
Chair

Francisco Huera-Huarte
Chair

2019 Glasgow, U.K.

Atilla Incecik
Chair

2020 Ft. Lauderdale, USA (Virtual)

Manhar Dhanak
Chair

Ronald W. Yeung
Co-Chair

2021 (Virtual)

Dr. Franz von Bock und Polach
Chair

Denby Morrison
Co-Chair

FUTURE CONFERENCES

2023 Melbourne, Australia

Alexander Babanin
Chair

Hayden Marcollo
Co-Chair

2024 Singapore

Allan Magee
Chair

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03-04-01	Environmental Effect on Materials Performance	Tuesday June 7	Hall D
03-05-01	Performance and Reliability of Non-metallics	Tuesday June 7	Hall D
03-06-01	Advances in Materials and Manufacturing Technology	Tuesday June 7	Hall D

04 Pipeline, Risers, and Subsea Systems

05 Ocean Space Utilization

06 Ocean Engineering