A Next Generation Driller is INNOVATIVE

Learn more at www.deepwater.com
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<th>Your Hosts</th>
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| **Ocean, Offshore and Arctic Engineering**  
  **Division of The American Society of Mechanical Engineers** |
| **ASME International Petroleum Technology Institute** |

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### OMAE 2009 Program at a Glance

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<td>Molokai</td>
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<td>Refreshment Break 15:30–16:00</td>
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<td>08:00</td>
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<tr>
<td>Welcome Reception</td>
<td>18:00–19:30</td>
<td>Sheraton Waikiki Hotel Pool Deck</td>
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### Daily Schedule

**Monday, June 1**

- **07:00–08:00** Short Courses
- **08:00–08:15** Welcome Reception
- **08:15–08:30** Opening Ceremonies and Plenary Session
- **08:30–10:00** Concurrent Sessions 08:30–10:00
- **10:00–10:15** Refreshment Break
- **10:15–11:30** Concurrent Sessions 10:15–11:30
- **11:30–12:00** Refreshment Break
- **12:00–13:30** Awards Lunch
- **13:30–14:00** Concurrent Sessions 13:30–14:00
- **14:00–15:00** Refreshment Break
- **15:00–16:00** Concurrent Sessions 15:00–16:00
- **16:00–17:00** Sponsored Technical Visit
- **17:00–18:00** Optional Field Investigations
- **18:00–19:30** Sheraton Waikiki Hotel Pool Deck

**Tuesday, June 2**

- **07:00–08:00** Short Courses
- **08:00–08:15** Welcome Reception
- **08:15–08:30** Opening Ceremonies and Plenary Session
- **08:30–10:00** Concurrent Sessions 08:30–10:00
- **10:00–10:15** Refreshment Break
- **10:15–11:30** Concurrent Sessions 10:15–11:30
- **11:30–12:00** Refreshment Break
- **12:00–13:30** Awards Lunch
- **13:30–14:00** Concurrent Sessions 13:30–14:00
- **14:00–15:00** Refreshment Break
- **15:00–16:00** Concurrent Sessions 15:00–16:00
- **16:00–17:00** Sponsored Technical Visit
- **17:00–18:00** Optional Field Investigations
- **18:00–19:30** Sheraton Waikiki Hotel Pool Deck
Sheraton Waikiki

Sheraton Waikiki
2255 Kalakaua Avenue
Honolulu, HI 96815-2579
Phone: 808-922-4422

Royal Hawaiian

Royal Hawaiian Hotel
2259 Kalakaua Avenue
Honolulu, HI 96815
Phone: (808) 923-7311
Map of Waikiki

Hotels/Resorts
1. Sheraton Moana Surfrider
2. Sheraton Princess Kaiulani
3. Sheraton Waikiki
4. The Royal Hawaiian

Shopping
71. International Marketplace
72. Kalakaua Center

Points of Interest
101. Duke Kahanamoku Statue
102. Honolulu Zoo
103. Waikiki Aquarium

Beaches & Parks
121. Kapiolani Park & Bandstand

Presented to the 28th International Conference On Ocean Offshore And Arctic Engineering
May 31–June 5, 2009

On behalf of the people of Hawai‘i, we send our personal greetings of aloha to everyone participating in the 28th International Conference on Ocean, Offshore and Arctic Engineering at the Sheraton Waikīkī Hotel.

Organized by the American Society of Mechanical Engineers, the Ocean, Offshore and Arctic Engineering Division of the International Petroleum Technology Institute and the University of Hawai‘i, this conference serves as a forum for researchers, engineers, managers, technicians and students from around the world to meet and discuss advances in technology. In addition, participants will be able to exchange ideas and experiences while promoting technological progress and its application in the industry, promoting international cooperation in ocean, offshore and arctic engineering.

We welcome the attendees who are visiting from out of state, and hope they will take the time to familiarize themselves with the Hawai‘i Clean Energy Initiative, which seeks to generate 70 percent or more of the state’s power through clean energy by 2030.

We are pleased Minority Leader Rep. Cynthia Thielen of the Hawai‘i House of Representatives, a long-time clean energy advocate, will be featured as a speaker on renewable energies in Hawai‘i. We also wish to welcome this year’s other keynote lecturers including, Robert Ryan, vice president of Global Exploration, Chevron, and John Murray, director of technology development with FloaTEC LLC, Houston. Our best wishes for a successful conference.

Aloha,

—Linda Lingle
Governor, State of Hawai‘i

Lieutenant Governor, State of Hawai‘i
Welcome from Conference Chairs

Aloha!
On behalf of the OMAE 2009 Organizing Committee, it is a pleasure to welcome you to Honolulu, Hawaii for OMAE 2009, the 28th International Conference on Ocean, Offshore and Arctic Engineering. This is the first conference with the new name, which reflects the expanded focus of the OOAE Division and the conference.

OMAE 2009 is dedicated to the memory of Professor Subrata Chakrabarti, an internationally known offshore engineer, who passed away suddenly in January. Subrata was the Offshore Technology Symposium coordinator, and he was also the Technical Program Chair for OMAE 2009. He was involved in the development of the OMAE series of conferences from the beginning, and his absence will be sorely felt.

OMAE 2009 has set a new record for the number of submitted papers (725), despite an extremely challenging economic environment. The conference showcases the exciting and challenging developments occurring in the industry. Program highlights include a special symposium honoring the important accomplishments of Professor Chiang C. Mei in the fields of wave mechanics and hydrodynamics and a joint forum of 'Offshore Technology', 'Structures, Safety and Reliability' and 'Ocean Engineering' Symposia on Shallow Water Waves and Hydrodynamics. We believe the OMAE 2009 program will be one of the best ever. Coupled with our normal Symposia, we will also have special symposia on:

- Ocean Renewable Energy
- Offshore Measurement and Data Interpretation
- Offshore Geotechnics
- Petroleum Technology

We want to acknowledge and thank our distinguished keynote speakers: Robert Ryan, Vice President–Global Exploration for Chevron; Hawaii Rep. Cynthia Thielen, an environmental attorney who has a special passion for ocean renewable energy; and John Murray, Director of Technology Development with FloaTEC, LLC.

A conference such as this cannot happen without a group of dedicated individuals giving their time and talents to the conference. In addition to the regular symposia coordinators, the coordinators of the special symposia deserve many thanks for their efforts to organize new areas for OMAE. We also want to express our appreciation to Dan Valentine, who stepped into the Technical Program Chair position on very short notice, following Subrata's passing. We also want to thank Ian Holliday and Carolina Lopez of Sea to Sky Meeting Management Inc., who have done a great job with the organization. Thanks also go to Angeline Mendez from ASME for the tremendous job she has done handling the on-line paper submission and review process.

Honolulu is one of the top destinations in the world. We hope that you and your family will be able to spend some time pre or post conference enjoying the island of Oahu. Whether you’re learning to surf in legendary Waikiki, hiking through the rich rainforests of Waimea Valley, or watching the brilliant pastels of dusk fade off of Sunset Beach, you’ll find variety at every turn on Oahu.

Mahalo nui loa,
—R. Cengiz Ertekin and H. Ronald Riggs,
University of Hawaii
OMAE 2009 Conference Co-Chairmen
Welcome to the 28th International Conference on Ocean, Offshore and Arctic Engineering (OMAE 2009). This is the 28th conference in the OMAE series guided by and influenced significantly by our friend and colleague, Subrata K. Chakrabarti. It was a shock for me to learn that he had passed away so suddenly; all involved with this conference express sincere condolence to his family, friends and colleagues (the sentiments echoed by all of us are eloquently expressed in the dedication included in this program). It is a great honor for me to have been asked to continue his work on this conference. I and our community will miss his leadership and friendship greatly. Although this series of conferences was formally organized by ASME and the OOAE Division of the International Petroleum Technology Institute (IPTI), it was Subrata’s skill and dedication to this division of ASME that made this series of conferences the success that it has been and is today.

Welcome from Technical Program Chair

The papers presented at OMAE 2009 are divided into thirteen symposia. They are:

- SYMP-1: Offshore Technology
- SYMP-2: Structures, Safety and Reliability
- SYMP-3: Materials Technology
- SYMP-4: Pipeline and Riser Technology
- SYMP-5: Ocean Space Utilization
- SYMP-6: Ocean Engineering
- SYMP-7: Polar and Arctic Sciences and Technology
- SYMP-8: CFD and VIV
- SYMP-9: C.C. Mei Symposium on Wave Mechanics and Hydrodynamics
- SYMP-10: Ocean Renewable Energy
- SYMP-11: Offshore Measurement and Data Interpretation
- SYMP-12: Offshore Geotechnics
- SYMP-13: Petroleum Technology

The first eight symposia are the traditional symposia organized by the eight technical committees of the OOAEE Division. The other symposia are specialty symposia organized and encouraged by members of the technical committees to focus on topics of current interest. The 9th symposium was organized to recognize the contributions of Professor C. C. Mei. Symposia 10, 11, 12 and 13 offer papers in the areas of renewable energy, measurements and data interpretation, geotechnical and petroleum technologies as they relate to ocean, offshore and polar operations of industry, government and academia.

The first symposium, Symposium 1: Offshore Technology was always Subrata Chakrabarti’s project. It was typically the largest of the symposia at OMAE. His exemplary work on this symposium provided the experience and guidance for others to continue to develop the other symposia. Symposium 1 in conjunction with the OMAE series of conferences is Subrata’s legacy. The Executive Committee has a most difficult yet honorable task of finding a successor to carry on this important annual symposium in offshore engineering. We are all grateful for the inspiration and encouragement provided to all of us by Subrata.

Please enjoy the papers and presentations of OMAE 2009.

—Daniel T. Valentine, Clarkson University, Potsdam, New York OMAE 2009 Technical Program Chair
Welcome from OOAE Division

Ocean, Offshore and Arctic Engineering (OOAE) Division of the American Society of Mechanical Engineers (ASME) is focused on both scientific and technical interests related to the better understanding of environmental loading, hydrodynamic behavior, materials selection, structural strength, offshore geotechnics, safety and in-service performance of ships, floating units and subsea equipment, mainly associated with the oil & gas industry. More recently, challenges imposed by climate change have motivated a new initiative on ocean renewable energies from waves, tides and currents and, also, on innovative solutions for offshore wind energy.

The OMAE Conference is widely recognized as the main international event that brings together academia, industry and regulatory institutions to exchange experiences on relevant subjects in the interest of the ocean engineering activities. The international approach, characterized by the diversity of both technical interests and regional themes, has gained the recognition as providing an outstanding environment to learn from each other. The conference provides a forum for better interaction between field experience and research activities. The quality of the papers has motivated the ISI Web of Knowledge to consider the OMAE Conference as one that deserves special attention from the scientific community.

In addition to the eight traditional symposia, Offshore Technology, Structures, Safety & Reliability, Materials, Pipeline & Riser, Ocean Space Utilization, Ocean Engineering, Polar & Arctic Sciences and Technology, CFD & VIV, there will be five special symposia: Wave Mechanics & Hydrodynamics (in honor of Prof. Chiang C. Mei), Offshore Renewable Energy, Offshore Measurement & Data Interpretation, Offshore Geotechnics and Petroleum Technology. Three short courses taught by world-renowned experts will be offered in Ice Engineering, Wave Energy and Vortex-Induced Vibrations.

Special thanks to the Conference Chairs, R. Cengiz Ertekin and H. Ronald Riggs, and to the Technical Program Chair, Daniel Valentine, who put together a very interesting program for this one week event. Thanks also to the International Advisory Committee, the local organizers, the symposium coordinators, the session organizers, the authors of the papers and the distinguished audience.

OMAE 2009 will be dedicated to our dear friend Subrata Chakrabarti. He contributed continuously for more than two decades to the OOAE Division and during this period, coordinated the Offshore Technology Symposia of the OMAE conferences.

On behalf of the OOAE Division of ASME, I would like to welcome you to OMAE 2009, which will be held in a beautiful location, in which the most challenging aspects related to ocean, offshore and arctic engineering will be presented, discussed and experiences exchanged in a truly international atmosphere.

I am looking forward to sharing with you a fruitful and wonderful stay in Honolulu.

—Segen F. Estefen
Division Chair, Ocean, Offshore and Arctic Engineering (OOAE) Division of ASME
Professor of Ocean Structures,
COPPE / Federal University of Rio de Janeiro
Conference Highlights

Special Symposia

C.C. Mei Symposium on Wave Mechanics and Hydrodynamics
This symposium honors the significant accomplishments of Professor Chiang C. Mei in the fields of wave mechanics and hydrodynamics. Professor Mei has been one of the leaders in these fields. His former and current students and colleagues will join us to celebrate his extraordinary accomplishments of the last 45 years.

Ocean Renewable Energy Symposium
This is the third year that a specialty symposium is being organized to specifically focus on ocean renewable energy developments and challenges. There is a growing worldwide demand to increase the supply of renewable energy and the world’s oceans offer the resources to meet these goals. However, to exploit the potentials offered by ocean energy resources, various regulatory and technology challenges must be addressed by the engineering and scientific communities. The objective of this Symposium is to provide a forum for the presentation of relevant information and views on regulatory and technology issues to enhance the exploitation of ocean renewable energy resource.

Offshore Measurement and Data Interpretation Symposium
This symposium is now entering its third year. The focus is metocean and structural response measurement, in the complex and hostile environment of the real ocean. Interpretation of these data furthers the understanding of metocean processes and how they should be characterised for engineering applications.

Offshore Geotechnics Symposium
Recent scientific and engineering developments in geotechnical engineering with a focus on offshore applications. Topics include, but are not limited to: shallow and pile foundations, suction caissons, drag and plate anchors, centrifuge modeling, geohazards, site investigations, seabed mechanics, fluid-soil-structure interaction, geotechnics of pipelines, trenching, geoaoustics for seafloor characterization, in situ testing and sampling.

Petroleum Technology Symposium
Petroleum Technology Symposium consists of different sub-disciplines within the area of petroleum and mechanical engineering. Some of the topics to be included are: Flow Assurance, Multiphase flow and measurement issues at the well/manifolds and in flowlines, Description and Optimization of Well Performance, Well Completion, Inflow Performance, Systems (Nodal) Analysis, Artificial Lift Design and Analysis, Power requirements for ESPs and long offsets for production, Production Optimization, Drilling Optimization, Drilling Technology, Deepwater HTHP (high temperature high pressure) wells, HIPPS (high integrity pressure protection system).

Joint Forum of ‘Offshore Technology’ and ‘Structures, Safety and Reliability’ and ‘Ocean Engineering’ Symposia on Shallow Water Waves and Hydrodynamics
Partial List of Topics included are Low frequency wave content of near-shore waves (infra-gravity waves), Near-shore wave propagation and effects of the shoreline, Low-frequency drift forces in long- and short-crested waves, Low-frequency response of moored vessels, Mooring behavior in shallow water, Effects of seabed bathymetry, Methods for shallow water model testing, Extreme wave propagation in shallow water, Extreme wave statistics in shallow water, Shallow-water wave modeling and associated loads.
Invited Plenary Lectures
Monday, June 1: 09:00

The Challenge of Offshore Energy Resources
Robert Ryan is Vice President–Global Exploration and responsible for Chevron’s worldwide exploration portfolio. He has 30 years of experience in oil and gas exploration and production, much of it associated with the offshore. He began his career with Texaco in 1979 as a geologist in the offshore division in New Orleans, and has held a variety of technical and management positions since then. In 1990, through the President’s Commission on Executive Exchange in The White House, Ryan was appointed to the Office of the Assistant Secretary for Conservation and Renewable Energy in the U.S. Department of Energy in Washington, D.C., where he assisted with utility policy issues related to renewable energy and energy efficiency. He assumed his current position in 2003.

Mr. Ryan has BS and MS degrees in geology from Tulane University. He is vice chairman of the Board of Advisors of the Energy & Geoscience Institute at the University of Utah, chairman of the Corporate Advisory Board of the American Association of Petroleum Geologists and a member of the Scientific Advisory Board of CASP (Cambridge Arctic Shelf Program) at the Department of Earth Sciences at Cambridge University, UK.

Ocean Renewable Energies in Hawaii and the Pacific
Representative Cynthia Thielen, Assistant Republican Leader in the Hawaii House of Representatives, has served in the Legislature for 18 years. Her background as an Environmental and Land Use attorney enabled her to become a leading force for renewable energy. Noted internationally as the advocate for wave energy systems, Representative Thielen has successfully encouraged wave energy companies to bring their technology to Hawaii. In recognition of her work on behalf of the environment, Representative Thielen received the Legislative Lifetime Achievement Award from the Sierra Club in 2008.

Offshore Frontiers—Challenges and Solutions
John Murray has over 25 years experience working on offshore structure designs for open water and ice-covered regions. He started his career with the National Research Council Canada in 1985, where he was head of the Ocean Engineering Program, responsible for the Council’s national offshore development program. In 1997, he joined Spars International Inc. in Houston. For the past 11 years, Mr. Murray has worked primarily in concept development for deepwater floaters and riser designs, both as a Principal Engineer with Technip Offshore and since 2006 as Director of Technology Development with FloaTEC, LLC.

Mr. Murray holds a PhD in Ocean Engineering, has published over 100 technical papers in journals and conference proceedings, and holds a number of patents. He is a registered professional engineer in Canada and the State of Texas.
The course gives an introduction to ice engineering, enabling the attendees to understand why ice engineering is so different from other disciplines and why it is so important. The course will provide attendees with an understanding of the problems and special challenges of designing structures and systems in ice covered waters.

Vortex-Induced Vibrations—taught by Dr. Robert D. Blevins
Sunday, May 31

Course Overview:
The learning objectives of this course include:
1. Provide state-of-the-art design and analysis tools for the prediction and prevention of vortex-induced vibration and subsequent structural failures.
2. Present a review of vibration theory and applied fluid mechanics
3. Address vortex-induced vibration fluid theory
4. Present vortex-induced vibration experimental results and the lessons learned from these experiments
5. Discuss successful experimental, experimental and numerical approaches to prediction of vortex-induced vibration
6. Discuss analysis, test techniques, and strategies for successful design
7. Case studies of common component failures due to flow-induced vibration

Wave Energy—taught by Professor Antonio Falcão & Dr. Teresa Pontes
Sunday, May 31

The course will provide an introduction to the wave energy as a usable resource, to the principles of wave energy conversion and to the technologies available to achieve it. Other topics include an overview of the worldwide situation, technical and non-technical barriers to development, national and regional policies as well as economic aspects and market development.
Sponsors and Exhibitors

Corporate Sponsors

Maritime Research Institute Netherlands—MARIN
www.marin.nl
Sponsor of the On-Site Program Printing
MARIN (Maritime Research Institute Netherlands) is a research institute in the field of hydrodynamical and nautical aspects of ships and offshore structures. It focuses on model testing, simulations, bridge training and full scale measurements in this field. It has 6 main testing facilities (Offshore Basin, Seakeeping and Manoeuvring Basin, Shallow Water Basin, Deep Water Towing Tank, High Speed Basin, Depressurised Towing Tank) and 2 main bridge simulators. As independent institute, MARIN organizes a large number of Joint Industry Projects (JIPs) in this field.

C-FER Technologies
www.cfertech.com
Sponsor of the Morning Refreshment Breaks
C-FER Technologies provides research and development, performs full-scale testing and provides engineering consulting to the upstream oil and gas, and pipeline transmission industries.

Areas of specialization include large-scale structural/mechanical testing, pipeline risk assessments, offshore structure design and advanced finite element analyses, composite material behavior, composite structural assessments (compressed natural gas transport, composite reinforced linepipe), and issues related to downhole completions and production. Testing typically involves the failure of full-scale components under combined loading.

U.S. Department of the Interior Minerals Management Service — MMS
Outreach Program Supporter
Minerals Management Service (MMS) manages energy and mineral resources on 1.7 billion acres of the U.S. Outer Continental Shelf (OCS). Approximately 43 million leased OCS acres accounts for about 15 percent of domestic natural gas production and about 27 percent of domestic oil production. MMS regulatory oversight ensures these offshore operations are conducted in a safe and responsible manner. In April, President Obama announced the Offshore Renewable Energy Framework establishing a new MMS program for granting leases, easements, and rights-of-way for orderly, safe and environmentally responsible development of renewable energy resources on the OCS. For more information, go to www.mms.gov.

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www.memagazine.org
Elsevier
www.elsevier.com

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www.eagle.org
Energo Engineering
www.energoeng.com
MMI Engineering, Inc.
www.mmiengineering.com
Makai Ocean Engineering—Outreach Program Supporter
www.makai.com
Exhibition

Please visit the Exhibition located in the Lanai Room to discover new products and services from some of the industry’s leading organizations. Coffee & Tea will be served in the Exhibition during Refreshment Breaks.

TerraSond Limited—Terrestrial and Sea Floor Mapping
www.terrasond.com
TerraSond specializes in providing land, hydrographic, and marine geophysical surveys. We have a staff of over 80 employees including hydrographers, land surveyors, marine geophysicists, geologists, oceanographers, cartographers, GIS and CADD specialists, IT professionals and professional mariners. Equipment we have in-house includes single beam, multibeam, and side scan sonar systems, land survey equipment, GPS survey equipment, geophysical and oceanographic equipment, and over ten survey vessels.

Our clients range from oil and gas, pipeline, power and telecom, renewable energy, mining, survey and engineering, shipping, dredging and construction industries, to state and federal agency's including port authorities, the National Oceanographic and Atmospheric Administration (NOAA), and the U.S. Army Corps of Engineers (USACE).

Hawaii Department of Business, Economic Development & Tourism (DBEDT)
www.hawaii.gov/dbedt
The core mission of the State of Hawaii Department of Business, Economic Development & Tourism (DBEDT) is to attract new business, stimulate private investment, encourage the expansion and retention of existing companies, bring about structural changes to Hawaii's economy, and facilitate an increase in productivity.

DBEDT's goal for ocean science and technology is to develop new and larger markets for Hawaii's ocean science, technology, and consulting businesses and organizations; to attract companies, investors, and technical personnel; and to position Hawaii as a recognized leader in the ocean science and technology industry.

ACUSIM Software, Inc.
www.acusim.com
ACUSIM Software is a leading provider of powerful Computational Fluid Dynamics (CFD) solutions. Acu-SolveTM is a robust, fast and accurate, general-purpose finite element-based flow solver that can be used standalone or integrated seamlessly with CAE design and analysis applications. For years, ACUSIM has been providing high quality validated solutions in an easy to use framework to the offshore oil and energy industry with customers including Chevron, Technip, Bechtel, BP and many others. We strive to continuously provide our customers with the highest quality CFD products and best customer service and support along with full training and engineering services and consulting offering. Visit www.acusim.com for more information.

U.S. Department of the Interior Minerals Management Service – MMS
Outreach Program Supporter
Please see MMS overview on previous page.

LEMMA
LEMMA is a software technology company, specialized in scientific software development. We have developed and industrialized the CFD tool ANANAS®. It is commercialized in EUROPE and USA. Some of our customers belong to Oil & Gas industries: TOTAL, TECHNIP (Houston, Paris), SAIPEM, DORIS, SBM, SEAL.

ANANAS® is very accurate (third order in space) and have the latest state of the art turbulent models (LES-VMS and hybrid LES-VMS) and of the free surface model (conservative LEVEL-SET, VOF [order 2]).

Our own high performance computing center, which consists in a 200 processors cluster, enables us to perform parallel calculation with ANANAS® CFD software on millions nodes meshes for transient flows. It provide us to realise study for Oil & Gas industries, automotive, or aerospace fields (plane, spacecraft, launchers)...

ASME International Petroleum Technology Institute
www.asme-ipti.org
IPTI was founded to provide mechanical engineers working in the areas of Petroleum, Natural Gas, Petrochemicals, Coal, Oil Shale, and others with the opportunity to participate in technical workshops and conferences while fostering the continued growth of engineering education and promotion of mechanical engineering as a career choice. IPTI is comprised of three ASME technical communities the Petroleum Division (PD), the Pipeline Systems Division (PSD) and Ocean, Offshore and Arctic Engineering (OOAE).
Important Conference Information

Registration
The OMAE 2009 Registration Desk will be located in the lobby of the Sheraton Waikiki Hotel and is open during the following hours:
- Sunday, May 31: 13:00–20:00
- Monday, June 1 & Tuesday, June 2: 7:00–16:00
- Wednesday, June 3 & Thursday, June 4: 8:00–16:00

Name Badges
In addition to being a means of identification to colleagues, you are required to wear your name badge for admission to conference sessions and events. Room monitors will check name badges before allowing anyone into the session or event. Replacement badges are available at the registration desk at a cost of $25 per badge. Each name badge has a band identifying the type of registration, and they are as follows:

**Full Conference:** Delegates who have paid the Author/member or non-member registration fee qualify for this badge. Delegates wearing this badge are entitled to admission to all conference sessions, the Exhibition, daily refreshment breaks, the Welcome Reception, two lunches and the Final Banquet. Full Conference delegates will also receive a conference bag, final program and CD of proceedings.

**Daily Registration:** Delegates who have paid the one-day registration fee qualify for the badge representing the day they have selected to attend. Delegates wearing this badge are entitled to admission to all conference sessions, the Exhibition, refreshment breaks, and food and beverage served on the specified day, excluding the Final Banquet. Daily conference delegates will also receive a conference bag, final program and CD of proceedings.

**Student Registration:** Delegates who have paid the student registration fee qualify for this badge. Delegates wearing this badge are entitled to admission to all conference sessions, the exhibition, daily refreshment breaks, the Welcome Reception and two lunches. Admission to the Final Banquet may be purchased at an additional fee. Student delegates will also receive a conference bag, final program and CD of proceedings.

**Accompanying Person:** Guests who have paid the accompanying persons fees qualify for this badge and are entitled to admission to the Welcome Reception, the Final Banquet, High Tea (Sunday afternoon) and the Little Circle Tour (Monday afternoon).

**Exhibitors:** Exhibitors have access to the exhibition and to daily refreshment breaks served by the conference. Access to conference sessions, the Welcome Reception, lunches and Final Banquet are not included in the exhibitor pass.

Certificate of Attendance
All conference delegates of OMAE 2009 will receive a certificate of attendance with their name badge upon registration at the conference.

Dietary Requirements
Delegates who advised the conference secretariat of their special dietary needs will receive tickets listing their dietary requirement for the lunches on Tuesday, June 2 and Thursday, June 4. Please submit this ticket to your server at each lunch. Special dietary tickets are not required at the Welcome Reception or Final Banquet. If you have not advised the conference secretariat of your special dietary needs, please advise the staff at the registration desk before 16:00 on Monday, June 1.

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

Messages
Hand written messages can be posted on the message board located at the Registration Desk in the lobby of the Sheraton Waikiki Hotel.

First Aid or Medical Emergency
For first aid assistance or in case of a medical emergency, please dial 0 on one of the Sheraton Waikiki Hotel house phones and explain the nature of the emergency.

Lost and Found
Should you lose or misplace an item, please dial 0 on one of the Sheraton Waikiki Hotel house phones for assistance.

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

Smoking
Smoking is not permitted within the hotel. Please check with the hotel staff for the location of the nearest designated smoking area.
Visit us at booth #2
Contact ACUSIM at 1-650-988-9700 or info@acusim.com

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Dining Options

Dining Options Available at the Sheraton Waikiki

RumFire—Waikiki’s Newest Hot Spot
Located in the heart of Waikiki, RumFire promises to be Oahu’s hippest place to see and be seen. Set against the alluring backdrop of Diamond Head, the oceanfront hideaway offers the largest selection of vintage rum in the United States, an exotic blend of tapas-style cuisine and fire pits adorning the 7,000 square-foot interior.
Location: Ground floor, Sheraton Waikiki
Lunch: 11:00 am–5:00 pm
Dinner: 5:00 pm–11:00 pm
Phone: Toll free (808) 922-4422
www.rumfirewaikiki.com

Twist at Hanohano
Watch all of Waikiki beneath your feet as a glass elevator zips you 30 stories up to Waikiki’s loftiest dining establishment. In the Twist at Hanohano, while romantically surrounded by starlit skies and twinkling city lights, you are not only at the highest vantage point on Waikiki Beach; you are also at the height of dining excellence. Hanohano is Hawaiian for “glorious, distinctive or in an elevated position”, and the experience of dining in the Hanohano Room encompasses all three definitions.
Breakfast: 6:00 am–11:00 am
Dinner: 5:30 pm–9:30 pm
Phone: Toll free (808) 922-4422

Nearby Dining Options
The Ocean House Restaurant
Enjoy oceanfront dining in a casually elegant, open-air atmosphere. Excellent Pacific Rim cuisine featuring only the freshest island seafood. Chef specialties include Crab Stuffed Mahi Mahi, Kahuku Moi steamed with garlic scampi black bean sauce, and Pulehu Prime Rib.
Location: Outrigger Reef–lobby level
Phone: 808-923-2277
Reservation Recommended

A hard hat, a flashlight and sound, professional judgement will always form the bedrock of effective classification services.

Setting the Standard for Service.

www.eagle.org

www.omae2009.com | 17
Dining Options

Pikake Terrace
Relaxed outdoor dining in a poolside garden setting. This casual restaurant is reasonably priced. Join us for a hearty buffet morning or night that features made-to-order omelets to prime rib. Our a la carte menu also offers a wide selection of salads, sandwiches and other entrees. Nightly Island entertainment is featured for your dining pleasure. You are also invited to join us at the pool or the bar for a cocktail or nightcap.

Breakfast: 6:00 am–11:00 am  
Dinner: 5:30 pm–9:30 pm  
Location: Sheraton Princess-Kaiulani

The Surf Lanai Restaurant
The Surf Lanai Restaurant is an upscale outdoor beachside café and will be positioned alongside the pool to provide al fresco breakfast and lunch service. The menu features mainland classic dishes with tropical accents presented in a refreshing manner utilizing heirloom ingredients and artisanal baked goods. The relaxed elegance is a trademark Royal Hawaiian experience and the Surf Room Lanai distinguishes itself by serving up island style with barefoot elegance.

Breakfast: 6:30 am–11:00 am  
Lunch: 11:30 am–2:00 pm  
Reservations: (866) 716-8110  
Location: The Royal Hawaiian

Azure
Located at The Royal Hawaiian—a world-class restaurant perched along the Waikiki beachfront under the canopy of hotel’s dramatic architecture. Whether it is ahi, opah, onaga, uku, or moi that whets your appetite—locally caught fish are selected each morning at daybreak from the Hawaii fish auction and then prepared with your pleasure in mind. Choose between a classic preparation of high heat aromatic herb roasting or an innovative Hawaiian regional cuisine preparation served with bright tropical flavors. Expert servers and sommeliers provide intuitive recommendations for perfect wine pairing to accent the delicate flavors of the ocean.

Dinner: 6:00 pm–10:00 pm (last seating 9:45 pm)  
Reservations: (866) 716-8110  
Location: The Royal Hawaiian

Paradiso Seafood & Grille
Serving upscale American cuisine, from a selection of steaks, seafood & pasta dishes.  
Phone: (808) 926-2000  
Location: Royal Hawaiian Center, Bldg B, Ground Level, B108A

Maui Tacos
Maui Tacos features fresh Maui Mex, fish, steak and chicken tacos with a help-yourself salsa bar.  
Phone: (808) 931-6111  
Location: Royal Hawaiian Center, Bldg B, Second Level, Pa’ina Lanai

Restaurant Suntory
Authentic Japanese dishes, from shabu-shabu to sushi, teppanyaki and elegant kaiseki dinners.  
Phone: (808) 922-5511  
Location: Royal Hawaiian Center, Bldg B, Third Level, B307

Paradise Café
Creating a variety of heart-healthy sandwiches, salads, soups and baked goods in order to provide our health-conscious customers more choices.  
Phone: (808) 921-0202  
Location: Royal Hawaiian Center, Bldg B, Level 2, Pa’ina Lanai Food Court

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Creating a variety of heart-healthy sandwiches, salads, soups and baked goods in order to provide our health-conscious customers more choices.  
Phone: (808) 921-0202  
Location: Royal Hawaiian Center, Bldg B, Level 2, Pa’ina Lanai Food Court

Shore Bird Restaurant & Beach Bar

Breakfast buffet: 7:00 am–11:00 am  
Lunch: 11:00 am–5:00 pm  
Dinner: 4:30 pm–10:00 pm  
Pupu: 11:00 am–1:00 am  
Live entertainment: 4:30 pm–8:00 pm and 9:00 pm–1:00 am (nightly Karaoke)  
Reservations: 808-922-2887  
Location: Outrigger Reef on the Beach, lobby level
Sheraton Waikiki Services & Facilities

The Sheraton Waikiki Hotel services and facilities available throughout the hotel include room service, nightly poolside entertainment, laundry facilities, twenty gift and specialty shops, one swimming pool, fitness center, Xerox business center, parking (self and valet), video check-out, voicemail message center, "Stay At One, Dine At All" program and travel services.

Xerox Business Center
The Xerox Business Center at the Sheraton Waikiki Hotel offers a wide range of document services. We offer end-to-end copying and printing, design and layout services, and the collation and completion of document packages. We are equipped with high-speed internet access, computers, cell phones and office equipment rentals, packaging and shipping services, and auxiliary and fax services.

Location: First floor of the Manor Wing Suites 3208 and 3210
Hours: 7am to 3pm Monday through Friday. Closed during the weekend.
Phone: (808) 931-8198 Fax:(808) 931-8199

Fitness Center
The new Sheraton Fitness Center, powered by Core Fitness, is located on the 4th floor of the Sheraton Waikiki. Currently the Fitness Center is free of charge and is open 24 hours per day, accessible by guest keycard.

Pool & Beach
The Main pool is 8 feet deep and the shallow end is 4 feet deep. The pool water temperature is cool in the morning and warmer in the afternoon. The surrounding trees provide shade for a small section of the pool area. Lounge chairs located on the grassy area of the pool are also available for relaxation or sunbathing. Towels are provided to hotel guests, free of charge. The main pool is open 9 am–5 pm daily.

Beyond the Sheraton Waikiki’s main pool lies an intimate stretch of sandy beach. During low tide, guests and families may sunbathe on the sand and enjoy the gentle saltwater waves. High tide however, brings waves over the beach area fronting the hotel and guests are recommended to walk over to adjacent beach areas a few steps away.

Beverage service is available at the main pool; however, alcohol is NOT allowed on Waikiki Beach.

General Seasonal Surf Conditions
The summer months bring bigger surf to Waikiki. The water is usually calm and the surf ranges from 1–3 ft. There are occasional 4–6 ft swells. Please check all surf conditions with the Waikiki Beach Lifeguards should you have any questions.

Lifeguard on Duty
Pool attendants are available from 9 am–5 pm.

Water Sport Rentals
Maui Beach Services: Surf boards, boogie boards, snorkels, fins, canoe rides/lessons available for a fee. Call (808) 927-5274 for more info.

Additional Hotel Activities:
Children’s Center, Hospitality Room, Exercise Facility, 3 Restaurants & 2 Cocktail Lounges, 20 Gift Shops, Nightclub, Historical Walking Tours at our sister hotels: The Royal Hawaiian and Moana Surfrider are also available.

Room Service
Room Service is about relaxing in your room and being able to dine in comfort during your stay. Breakfast is available 6:00am–11:00am. Evening Dining is available 5:00pm–10:00pm. Please call Room Service direct at (808) 931-8229 with any questions or special orders.

Naillabo Sheraton Waikiki Salon
Look your best with a French or hot oil manicure and top it off with beautiful nail art. Open daily from 9:00 a.m. to 11:00 p.m. Contact us at 808-926-6363 or info@naillabo.net.
An Experimental Study on Damping Effect of RPUF under Compressive Load - OMAE2009-79737
Tak Kee Lee1 Chae Whan Rim1 Myung Hyun Kim1 Min Sung Chun1 Yoon-Pyo Kil1 Yonguk Suh1
1. Korea Institute of Machinery & Materials, Korea; 2. Pusan National University, Korea; 3. Samusung Heavy Industry Co., Ltd., Korea

Structures, Safety and Reliability Symposium

2-1 Reliability of Marine Structures I

Monday June 1
Koko Crater | 14:00–15:30

Session Chair: Bernt Leira, NTNU, Norway
Session Co-Chair: Lyuben Ivanov, American Bureau of Shipping, USA

Reliability-based design and optimization of self-twisting composite marine rotors - OMAE2009-80067
Michael R. Motley1 Yin Lu (Julie) Young2 Jack W. Baker2
1. Princeton University, USA; 2. Stanford University, USA

Reliability Analysis of Compliant Offshore Tower Under Earthquake Loads - OMAE2009-79347
Syed Hasan, Nazrul Islam, Khalid Moin
Jamia Millia Islamia, India

M.Reza Emami Azadi
Azarbaijan T.M. University, Iran

Experimental Study and Modeling of Thermal Protection in Liferafts Using a Thermal Manikin and Human Subjects - OMAE2009-79838
Lawrence Mak1 Andrew Kuczora2 Michel B. DuCharme2 Brian Farnworth1 James Boone4
1. National Research Council Canada Institute for Ocean Technology, Canada; 2. Stanford University, USA

Estimation of Roll Damping for Transportation Barges - OMAE2009-79024
Sharad Dhavalikar, Amresh Negi
Indian Institute of Shipping, India

Multi Vessel Interaction in shallow water - OMAE2009-79161
Hans Fabricius Hansen, Stefan Carstensen, Jens Kirkegaard, Erik D. Christensen
DHI, Denmark

Hydrodynamic Interactions and Relative Motions Analysis for Installation of an Extendable Draft Platform - OMAE2009-79503
Bonjun Koo, Jang W. Kim
Techniq, USA

VIM and Wave-Frequency Fatigue Damage Analysis for SCRS Connected to Monocolumn Platforms - OMAE2009-79807
L.V.S Sagri1 Marcos Quejia de Siqueira2 Gilberto Bruno Ellwanger1 Thiago Angelo Goncalves de Lacerda1 Elizabeth F. H. Siquest1 Edison C. P. Lima1
1. COPPE/UFRI, Brazil; 2. Federal University of Rio de Janeiro, Brazil; 3. CENPES - Petrobras, Brazil

A Comparative Study on the Impact Damage of Membrane Type LNGC Insulation System - OMAE2009-79287
Jae Myung Lee1 Min Sung Chun1 Hisashi Ito1 Yonguk Suh1 Wha Soo Kim1 Byeong Jae Noh1 Jung Ho Yoon2 Min Soon Kim1 Hang Sub Urm2 Myung Hyun Kim1 Dae Suk Han1

Comparative Wet Drop Experiments of Mark III and KC-1 for Membrane Type LNG Carriers - OMAE2009-79289
Byeong Jae Noh1 Wha Soo Kim1 Sun Hong Kwon1 Jung Young Chung1
1. Hyundai Heavy Industry Co., Ltd., Korea; 2. Pusan National University, Korea

A Comparative Study on the Impact Damage of Membrane Type LNGC Insulation System - OMAE2009-79287
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1. Hyundai Heavy Industry Co., Ltd., Korea; 2. Pusan National University, Korea

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Jae Myung Lee1 Min Sung Chun1 Hisashi Ito1 Yonguk Suh1 Wha Soo Kim1 Byeong Jae Noh1 Jung Ho Yoon2 Min Soon Kim1 Hang Sub Urm2 Myung Hyun Kim1 Dae Suk Han1
Materials Technology Symposium

3-1 Performance of Risers and Umbilicals

Monday June 1  |  Puna  |  14:00–15:30
Session Chair: Stig Wästberg, Det Norske Veritas (DNV), Norway
Session Co-Chair: Koji Gotoh, Kyushu University, Japan
Reliability of Fracture Mechanics Approach to Fatigue - OMAE2009-80090
Jaime Buitrago1 Mario L. Macia1 Wan Kan1 Barron Bichon1
Jonathan Moody1 Stephen J. Hudak, Jr.1
1. ExxonMobil Upstream Research Company, USA; 2. ExxonMobil Development Company, USA; 3. Southwest Research Institute, USA

Assessment of Design S-N curve for Umbilical Tubes - OMAE2009-79201
Inge Lotsberg1 Stein Fredheim2
1. DNV, Norway; 2. DNV, Oman

Pipeline and Riser Technology Symposium

4-1 Design and Analysis I

Monday June 1  |  Regency III  |  14:00–15:30
Session Chair: Vincent Olunloyo, University of Lagos, Nigeria
Session Co-Chair: Olav Aamlid, DNV, Norway
Design of the Greater Plutonio Riser Tower - OMAE2009-79015
Francis Dija1 Daniel de la Cruz1 Charles-Alexandre Zimmermann1
Jean-Luc Legras1 Grégore de Roux1
1. BP Angola BU, United Kingdom; 2. Aercy, France

Thermo-Mechanical Design of Canapu PIP System - OMAE2009-79713
Rafael Solano1 Fabio Azevedo1 Malcolm Carr2 Leanne Tindal2 Anderson Dolinski1 Carlos Valer1
1. Petrobras, Brazil; 2. Atkins Boreas, United Kingdom; 3. Technip, Brazil

Ocean Engineering Symposium

6-2 Wave Mechanics and Wave Effects - I

Monday June 1  |  Molokai  |  14:00–15:30
Session Chair: Tai-Wen Hsu, Department of Hydraulics & Ocean Engineering National Cheng Kung University, Taiwan
Session Co-Chair: Christian Schmittner, MARIN, Netherlands
Numerical Simulation of Surface Waves Generated by a Subaerial Landslide at Lituya Bay, Alaska - OMAE2009-79595
Debashis Basu, Steve Green, Kaushik Das, Ron Janetzke, John Stamatakos
Southwest Research Institute, USA

Asymmetry in Directional Spreading Function of Sea Waves Due to Refraction - OMAE2009-79632
Changhoon Lee1 Jae-Sang Jung1 Merrick C. Haller4
1. Sejong University, Korea; 2. Hyundai Development Company, Korea; 3. Oregon State University, USA
Numerical Non-Reflecting Irregular Wave Flume Based on VOF Method - OMAE2009-79206
Bing Ren1 Xuelin Li1 Peng Han2 Yongxue Wang1
1. State Key Laboratory of Coastal and Offshore Engineering, Dalian University of Technology, China; 2. Dalian University of Technology, China

Transformation of Mono- and Multi-Chromatic Water Waves Propagating From a Quasi-Deepwater to a Shallow Water Region - OMAE2009-80104
M. Hasanat Zaman, Dr. Emile Baddour
National Research Council Canada, Institute for Ocean Technology, Canada

6-26 Computational Mechanics
Monday June 1  Kohala   | 14:00–15:30
Session Chair: Hans Cozijn, Maritime Research Institute Netherlands MARIN, Netherlands
Session Co-Chair: Alexia Aubault, Marine Innovation & Technology, USA

Higher Order Boundary Element Method Applied to the Hydrofoil Beneath the Free Surface - OMAE2009-79965
Hassan Ghassemi, A. Kohansal, Abdollah Ardestir
Amirkabir University of Technology, Iran

The Improvement of k-ε Model In the Turbulent Wave Boundary Layer - OMAE2009-79815
Yuliang Zhu1 Jing Ma1 Peipei Dong2
1. College of Ocean, Hohai University, China; 2. Hohai University, China

Effects of Fluid Motions in Liquid Tanks on Vessel Motions Using a Simple Panel Method - OMAE2009-80071
Yusong Cao1 Fuwei Zhang2
1. Keppel Offshore & Marine USA, Inc, USA; 2. MARINTEK USA, INC., USA

CFD and VIV Symposium
8-1 Keynotes Talks by Dr. Robert D. Blevins & Prof. Kenneth E. Jansen
Monday June 1  Regency I   | 14:00–15:30
Session Chair: Owen H. Oakley, Jr., Chevron Energy Technology Co., USA

Vortex-induced Vibration with Application to Risers and Pipelines - OMAE2009-80264
Bob Blevins
Consultant, USA

CFD, Hardware, and Scalability: Barriers, Challenges and Opportunities - OMAE2009-80265
Ken Jansen
Rensselaer Polytechnic Institute, USA

C.C. Mei Symposium on Wave Mechanics and Hydrodynamics
9-1 Opening Session
Monday June 1  Regency II   | 14:00–15:30
Session Chair: Philip Liu, Cornell University, USA
Session Co-Chair: Arthur Mynett, UNESCO-IHE Institute for Water Education, Netherlands

Wave-Power Extraction by a Compact Array of Buoys - OMAE2009-80254
Chiang C. Mei
Massachusetts Institute of Technology, USA

On Tsunamis - OMAE2009-80070
Theodore Wu
California Institute of Technology, USA

The Kinematics and Dynamics of Deep-Water Breaking Waves - OMAE2009-80246
W. Kendall Melville
University of California San Diego, USA

Strong bottom currents induced by run-up of very long internal waves on a shelf slope - OMAE2009-80257
John Grue
University of Oslo, Norway

Ocean Renewable Energy Symposium
10-1 Ocean Renewable Energy - (Opening Session)
Monday June 1  Akaka  | 14:00–15:30
Session Chair: Charles Smith, US Minerals Management Service, USA
Session Co-Chair: Teresa Pontes, INETI / LNEG, Portugal

Regulatory Issues in Ocean Renewable Energy Projects within Hawaii’s State Conservation District - OMAE2009-80263
Laura Thielen
State of Hawaii, Dept. of Land & Natural Resources, USA

Ocean Energy in the United States - An Overview - OMAE2009-80236
Peter Browne
Devine Tarbell & Associates, Inc., USA

Petroleum Technology Symposium
13-3 Flow Assurance I
Monday June 1  Hilo  | 14:00–15:30
Session Chair: Faruk Civan, The University of Oklahoma, USA
Session Co-Chair: Cem Sarica, The University of Tulsa, USA

Challenges in Hydrate Plug Prevention in Pipelines Seen Over the Lifetime of a Field - OMAE2009-79446
Casper Hadsbjerg, Kristian Krejbjerg
Calsep, Inc., USA

Transient Wax Gel Formation Model for Shut-In Subsea Pipelines - OMAE2009-80046
Chiedozie Ekweribe1 Faruk Civan2
1. Chevron North America E&P, USA; 2. The University of Oklahoma, USA

Near-wall turbulent transport knowledge for suitable flow assurance strategies - OMAE2009-79996
Hossein Zeinali, Peter Toma, Ergun Kuru
University of Alberta, Canada
Friction Pressure Correlations for Oilfield Polymeric Solutions in Eccentric Annulus - OMAE2009-80044
Chieneye Ogugbue, Subhass N. Shah
University of Oklahoma, USA

Dispersion Characterization Rig (DCR) - OMAE2009-80197
Yordanka Gomez-Markovic1 Luis Gomez2 Ram Mohan3 Ovadia Shohami1 Gene Kouba1 Carlos Avila3
1. SPT Group, USA; 2. The University of Tulsa, USA; 3. Chevron, USA

Monday, 16:00–18:00

Offshore Technology Symposium

1-2 Floating Systems II

Monday June 1

Session Chair: Basim Mehta, Cuneiform Offshore Consulting, LLC, USA
Session Co-Chair: Antonio C. Fernandes, UFRJ, COPPE, PENO, Brazil

Time Domain Methodology for Vortex-Induced Motion Analysis in Monocolumn Platform - OMAE2009-79806
Thiago Angelo Gonçalves de Lacerda1 Gilberto Bruno Ellenwang1 Marcos Queijo de Siqueira1 Elizabeth F. N. Siqueira2
1. Federal University of Rio de Janeiro, Brazil; 2. CENPES - Petrobras, Brazil

Vortex-Induced Motion of a Monocolumn Platform: New Analysis and Comparative Study - OMAE2009-79378
Rodolfo T. Gonçalves1 André L. C. Fujarra1 Guilherme F. Rosetti1 Kazuo Nishimoto1 Marcos Cueva2 Elizabeth F. N. Siqueira2
1. University of São Paulo, Brazil; 2. Oceânica Offshore, Brazil; 3. CENPES - Petrobras, Brazil

A Phenomenological Model for Vortex-Induced Motions of the Monocolumn Platform and Comparison with Experiments - OMAE2009-79431
Guilherme Rosetti1 Rodolfo T. Gonçalves1 André L. C. Fujarra1 Kazuo Nishimoto1 Marcos D.A.S. Ferreira1
1. University of São Paulo, Brazil; 2. Oceânica Offshore, Brazil; 3. CENPES - Petrobras, Brazil

Mitigation of Vortex-Induced Motions of a Monocolumn Platform - OMAE2009-79380
André L. C. Fujarra1 Rodolfo T. Gonçalves1 Fernando Faria1 Marcos Cueva2 Kazuo Nishimoto1 Elizabeth F. N. Siqueira2
1. University of São Paulo, Brazil; 2. Oceânica Offshore, Brazil; 3. CENPES - Petrobras, Brazil

1-25 Forum on Offshore LNG Facilities/Carriers II

Monday June 1

Session Chair: Pål G. Bergan, Det Norske Veritas, Norway
Session Co-Chair: Myung Hyun Kim, Pusan National University, Korea

Experimental Study on the Structural Behavior of Secondary Barrier of MARK-III LNG CCS - OMAE2009-79126
Sangmin Han1 Chae Whan Rim2 Hyunkyoo Cho1 Yongsuk Suh1 Jaewon Lee1 Tak Kee Lee1
1. Samsung Heavy Ind. Co., Ltd. Geojje Shipyard, Korea; 2. Korea Institute of Machinery & Materials, Korea

A New Double Barrier Tank for Transportation and Storage of LNG - OMAE2009-79165
Pål G. Bergan1 Kåre Bakken2 Arne Sele3 Ari Sipila1 Massimiliano Russo1 Gabriele Notaro1
1. Det Norske Veritas, Norway; 2. Aker Solutions, Norway; 3. Wadan Yards Technology, Finland

Motion Behaviour of a New Offshore LNG Transfer System at Harsh Operational Conditions - OMAE2009-79391
Gunther Grausi1 Daniel Testa1 Florian Sprenger2 Sven Hoog3 Roland Huhn3
1. Technische Universität Berlin, Germany; 2. IMPO, Engineering, Germany

Whole ship and Fatigue Analyses for Development of Ice Class LNGC - OMAE2009-79527
Jae Hyung Park, Min Jung Jun, Je Hyouk Woo Daewoo Shipbuilding & Marine Engineering Co., Ltd., Korea

Strength Assessment of Membrane LNG Tank Structure Based on Direct Calculation of Structural Response - OMAE2009-79956
Zoran Mravak1 Jerome de Lauzon1 Yun-Suk Chung2 Louis Diebold1 Eric Baudin2
1. Bureau Veritas, France; 2. Bureau Veritas, Korea

Structures, Safety and Reliability Symposium

2-3 Reliability of Marine Structures II

Monday June 1

Session Chair: Bernt Leira, NTNU, Norway
Session Co-Chair: Lyuben Ivanov, American Bureau of Shipping, USA

Reliability Analysis of Defect-Containing Structures Using Partial Safety Factors - OMAE2009-80165
Liwai Wei TWI Ltd, United Kingdom

Estimation of System Reliability by Monte Carlo Simulation - OMAE2009-79623
Arvid Naess1 Bernt Leira1 Ole Xandart Batsevych2
1. NTNU, Norway; 2. GeSOS, NTNU, Norway

Reliability-based Assessment on Stiffened Panel of Deep-water Platforms - OMAE2009-79892
Yong He1 Longkun Xu1 Qian Ye1 Yihai Jiang2 Weiliang Jin1
1. Zhejiang University, China; 2. Ningbo Architectural Design & Research Institute, China

2-4 Risk Analysis and Safety Management II

Monday June 1

Session Chair: Rolf Skjong, Det Norske Veritas, Norway
Session Co-Chair: Haibo Chen, Scandpower Risk Management China Inc., China

On the Risk Indicators for Major Hazards on Offshore Installations - OMAE2009-79010
Jan-Erik Vinnem University of Stavanger, Norway

Analysis of barriers in marine operations on offshore oil installations - OMAE2009-79341
jon Espen Skogdal1 Stein Haugen2 Frode Heldal1 Birger Holo2
1. The University of Stavanger, Norway; 2. Safetec Nordic AS, Norway

Risk Assessment and Management using Accident Precursors Modeling in Offshore Process Operation - OMAE2009-80084
Maryam Kalantarnia, Faisal Khan, Kelly Hawboldt Memorial University of Newfoundland, Canada
Multiple Criteria Decision Making (MCDM) Process in Selecting Location for Floating Storage and Regasification Unit (FSRU): A Case Study of Bali Island Project - OMAE2009-79566
Ketut Buda Artana
Institut Teknologi Sepuluh Nopember Surabaya, Indonesia

Materials Technology Symposium

3-4 Fracture Control and Strain Capacity of Pipelines (I)

Monday June 1
Puna | 16:00–18:00

Session Chair: Jaime Buitrago, ExxonMobil Upstream Research, USA
Session Co-Chair: Hugo A. Ernst, Tenaris Group, Argentina

ECA of Pipeline with Girth Weld Strength Mis-Matching Subjected to Large Strain - OMAE2009-79376
Zhengmao Yao, Jens P. Tronskar, Shashi Kumar
Det Norske Veritas, Singapore

Simulations of Ductile Tearing at Large Strains of Biaxially Loaded Pipes - OMAE2009-79631
Jacob Dybdaw¹ Rikard Tornqvist² Erling Østby² Christian Thaulow²
1. Det Norske Veritas (DNV), Norway; 2. SINTEF Materials and kemi, Norway

The Application of Strain-Based Design to Pipelines and the Requirements on Pipe Materials - OMAE2009-79658
Hongyuan Chen¹ Lingkang Ji¹ Qingren Xiong¹ Wenjiang Xie¹² Weive Li¹²
1. China National Petroleum Corporation, China; 2. Tubular Goods Research Center of, China

Ultra Heavy Wall Linepipe X65: Material Performances for Severe Applications - OMAE2009-79747
Luigi F. Di Vito¹ Gianluca Mannucci¹ Giuseppe Mortali¹ Mariano Armengol²
Paolo Novelli³ Alfonso Izquierdo³ Gilles Richard³ Hector Quintanilla³
1. Centro Sviluppo Materiali S.p.A., Italy; 2. TenarisDalmine, Italy; 3. Tenaris Tamsa, Mexico

Pipeline and Riser Technology Symposium

4-2 Design and Analysis II

Monday June 1
Regency III | 16:00–18:00

Session Chair: Ola Aamlid, DNV, Norway
Session Co-Chair: Vincent Ounluyo, University of Lagos, Nigeria

Finite Element Analysis Of Strain Concentration In Field Joint Of Concrete Coated Pipelines - OMAE2009-79647
Niknad Nourpanah, Farid Taheri
Dalhousie University, Canada

Investigation of Impact of New Design Code on Riser System Design - OMAE2009-79279
Chenteh Alan Yu, Paul Stanton, Yongming Cheng
Technip, USA

Numerical Study on the Interaction of In-line and Cross-flow VIV - OMAE2009-79813
Shizhen Tang, Weiping Huang
Ocean University of China, China

Use of a Stem Device for VIV Mitigation on a Dry Tree Semi-Submersible - OMAE2009-80010
Apurva Gupta¹ John Murray¹ Li Bin¹ Harish Mukundan¹ Anis Hussain¹

4-18 Inspection and Repair

Monday June 1
Kona | 16:00–18:00

Session Chair: Rafael Solano, Petrobras, Brazil
Session Co-Chair: Paul Jukes, J P Kenny, Inc., USA

An Investigation Into the Behavior of Composite Repaired Pipelines Under Combined Internal Pressure and Bending - OMAE2009-79177
Ahmed Shouman, Farid Taheri
Dalhousie University, Canada

The Effects On Process Performance Of Reducing The Pressure From 36 To 1Bar In Hyperbaric MIG Welding - OMAE2009-79291
Hans Fostervoll¹ Neil Woodward² Odd M. Akselsen¹
1. SINTEF Materials and Chemistry, Norway; 2. Isotek Electronics LTD, United Kingdom

Development of an Acoustic-Based Riser Monitoring System - OMAE2009-79913
Wei Dai¹ Yong Bai²
1. Harbin Engineering University, China; 2. OPR (Offshore Pipeline & Risers), Malaysia

Ocean Space Utilization Symposium

5-9 Ocean Management II

Monday June 1
Iao | 16:00–18:00

Session Chair: Hiroaki Eto, Nihon University, Japan
Session Co-Chair: Paul Jukes, J P Kenny, Inc., USA

New Positioning of the Ocean Space as a Marine Resource -- Emotional Values Inherent in the Ocean Space -- OMAE2009-79819
Tomoe OIKAWA, Takeo Kondo, Kazukiyo Yamamoto, Shinji Ogawa
Nihon University, Japan

Positioning of Sea/River Routes as Effective Means of Access for Disaster Relief in Waterfront Metropolitan City - - OMAE2009-79820
Takahiro Koga, Takeo Kondo, Kazukiyo Yamamoto, Kazuya Egami, Takashi Hashikawa, Ryousuke Orimo
Nihon University, Japan

Psychological Effects Resulting from Sailing Access Dinghies - - OMAE2009-79826
Takahiro Kondo, Takeo Kondo, Kazukiyo Yamamoto, Rumi Matsushita, Takako Kobayashi
Nihon University, Japan

A Study on the Retention of Port Distribution Functions at the Time of Earthquake - Business Continuity Management - - OMAE2009-80230
Takujiro Miyamoto¹ Koichi Masuda¹ Takeo Kondo¹ Yoichi Arai²
1. Ministry of Land, Infrastructure, Transport & Tourism, Japan; 2. NPO Recycle Solution, Japan

Ocean Engineering Symposium

6-3 Wave Mechanics and Wave Effects - II

Monday June 1
Molokai | 16:00–18:00

Session Chair: Jang W. Kim, Technip, USA
Session Co-Chair: Daniel Valentine, Clarkson University, USA
Far-Field Effects of Large Tsunamis Produced by the Makran Subduction Zone - OMAE2009-79362
Mohammad Heidarzadeh
Dept. of Civil Eng., Univ. of Tehran- Dept. of Geology and Oceanography, Univ. of Bordeaux 1, Iran

Crest-Height Distributions in Nonlinear Random Wave - OMAE2009-79249
Cullin Li, Dingyong Yu, Yangyang Gao, Junxian Yang
1. Ocean University of China, China; 2. Shandong Academy of Sciences Institute of Oceanographic Instrumentation, China

Adaptive Stretching of Dynamic Pressure Distribution in Long- and Short-Crested Sea States - OMAE2009-79485
Gunther Clauss, Sascha Kosleck, Florian Sprenger, Florin Boeck
Technische Universität Berlin, Germany

A Modified Linear Lagrangian Model For Irregular Long-Crested Waves - OMAE2009-79752
Sébastien Fouques, Carl Trygve Stansberg
Norwegian Marine Technology Research Institute, Norway

6-15 Aquacultural Engineering
Monday June 1  Kohala | 16:00–18:00
Session Chair: Hans-Joachim Winkel, University of Rostock, Germany
Session Co-Chair: Jon Mikkelsen, University of British Columbia, Canada

Dynamic Behavior of a Submersible Fish Cage System - OMAE2009-79328
Chun W. Lee, Gun H. Lee, Moe Y. Choe, Dae H. Song, Seyed Abbas Hosseini
Pukyong National University, Korea

Flow Around the Free Bottom Of Fish Cages In a Uniform Flow With And Without Fouling - OMAE2009-79355
Lars Gansel, Thomas A. McClamans, Dag Myhrhaug
1. NTNU, Norway; 2. SINTEF Fisheries and Aquaculture, Norway; 3. Norwegian University of Science and Technology, Norway

Assessment of Fatigue Damage of Floating Fish Cages due to Wave Induced Response - OMAE2009-79674
Paul E. Thomassen, Bernt J. Leira
1. NTNU, Norway; 2. Norwegian University of Science and Technology, Norway

Hydraulic Characteristics of Artificial Reefs using the Oyster Shell - OMAE2009-79656
ByungKyu Sohn, Jeong-Woo Lee, Seung-Hwan Won
National Fisheries Research & Development Institute, Korea

Numerical Investigation of the Flow Through and Around a Net Cage - OMAE2009-79960
Kyujin Shim, Pascal Kleber, Arne Fredheim
SINTEF Fisheries and Aquaculture, Norway

CFD and VIV Symposium
8-2 Cylinder VIV - I
Monday June 1  Regency I | 16:00–18:00
Session Chair: Hayden Marcollo, AMOG Consulting
Session Co-Chair: Owen H. Oakley, Jr., Chevron Energy Technology Co., USA

Motion response of a rotating cylinder in currents - OMAE2009-79611
Shan Huang, Anders Kloven
University of Strathclyde, United Kingdom

Hydrodynamic coefficients for Vortex Induced Vibrations of slender beams - OMAE2009-79797
Prashant Soni, Carl Martin Larsen, Jie Wu
1. Det Norske Veritas, Norway; 2. NTNU, Norway; 3. MARINTEK, Norway

Numerical simulations of cylinder VIV focusing on high harmonics - OMAE2009-80002
Yannis Constantinides, Owen Oakley
1. Chevron Energy Technology Company, USA; 2. Chevron, USA

Vortex Pattern Comparison for Periodic and Harmonic Combined Cross-Flow & In-Line Forced Oscillations - OMAE2009-80089
Prashant Soni, Carl Martin Larsen
1. Det Norske Veritas, Norway; 2. NTNU, Norway

C.C. Mei Symposium on Wave Mechanics and Hydrodynamics
9-2 Opening session II
Monday June 1  Regency II | 16:00–18:00
Session Chair: W. Kendall Melville, University of California San Diego, USA
Session Co-Chair: John Niedzwecki, Zachry Department of Civil Engineering, Texas A&M University, USA

Improved Boundary Conditions for Numerical Circulation Models - OMAE2009-79227
Ole S. Madsen, Peifeng Ma
1. Massachusetts Institute of Technology, USA; 2. SMART Centre, Singapore

From Wave Mechanics to Environmental Hydroinformatics: On the Role of Mathematics and Computer-Based Modelling - OMAE2009-80166
Arthur Mynett
UNESCO-IHE Institute for Water Education, Netherlands

Wave Run-up and Overtopping Simulations Using Lagrangian Blocks - OMAE2009-79395
Lai Wai Tan, Vincent H. Chu
McGill University, Canada

Hunting for Rogue Waves in a Three-Dimensional Nonlinear Wavefield -- A Direct Simulation-Based Approach - OMAE2009-80019
Wenting Xiao, Yuming Liu, Dick Yue
Massachusetts Institute of Technology, USA

Ocean Renewable Energy Symposium
10-2 Regulatory and Policy Issues
Monday June 1  Akaka | 16:00–18:00
Session Chair: William Daughdrill, Ecology & Environment, Inc., USA
Session Co-Chair: Erin Trager, U.S. Minerals Management Service, USA

Erin Trager
U.S. Minerals Management Service, USA
Assessing the Role of Environmental and Regulatory Issues on Offshore Renewable Energy Projects in the United States - OMAE2009-79097
William Daughdrill
Ecology & Environment, Inc., USA

Offshore Alternative Energy Development on the West Coast: A New Regional Collaboration Effort - OMAE2009-80247
Maurice Hill
U.S. Minerals Management Service, USA

The Development of an International WEC Test Centre in the South West of England - OMAE2009-79920
George Smith1 Deborah Greaves1 Nick Harrington1 Colin Cornish1 Jean Taylor1
1. University of Exeter, United Kingdom; 2. University of Plymouth, United Kingdom; 3. South West Regional Development Agency, United Kingdom; 4. University of Exeter, Cornwall Campus, United Kingdom

An Integrated Risk Framework for Large Scale Deployments of Renewable Energy - OMAE2009-80228
Bonnie Ram
Energetics Inc, USA

Petroleum Technology Symposium

13-2 Drilling Engineering and Operations I

Monday June 1

Session Chair: MP Sharma, Univ of Wyoming, USA

Dual Gradient Drilling will Control Shallow Hazards in Deepwater Environments - OMAE2009-79790
Brandee Elieff, Jerome Schubert
Texas A&M University, USA

Modeling Of Flow In a Near-Wellbore Network – OMAE2009-79808
Leslie Thompson1 Kristian Brekke2
1. University of Tulsa, USA; 2. Ziebel USA, USA

Casing Point Selection for Drilling Operations at Shallow Depths – OMAE2009-79836
Amir Saman Paknejad1 Jerome J. Schubert1 Mahmood Amani2
1. Texas A&M University, USA; 2. Texas A&M University at Qatar, Qatar

Applications of Abrasive Fluid-jets for Completion and Stimulation of Oil & Gas Wells - OMAE2009-79953
Anuj Gupta
Texas A&M University at Qatar, Qatar

Experimental Evaluation of Separation Methods for a Riser Dilution Approach to Dual Density Drilling - OMAE2009-80113
John Shelton1 John Rogers Smith1 Anuj Gupta1
1. Newpark Drilling Fluids, USA; 2. Louisiana State University, USA; 3. Texas A&M University at Qatar, Qatar

Analysis of Postbuckled Drillstring Vibration in Rotary Drilling of Extended-Reach Oil Wells - OMAE2009-79086
Vadim S. Tikhonov, Alexander I. Safronov
Aquatic Co, Russia

Tuesday, 9:00–10:30

Offshore Technology Symposium

1-3 Floating Systems III

Tuesday June 2

Session Chair: Bernt J. Leira, Norwegian University of Science and Technology, Norway
Session Co-Chair: Dominique Roddier, Principle Power, USA

Study of Local Vibration Control for the Offshore Platform Based on the Mega-Frame Theory - OMAE2009-79186
Dong Zhao, Hui Tan, Dongmei Cai, Shaoli Cai
University of Jinan, China

Hydroelastic response of a circular plate in waves using Scaled Boundary FEM - OMAE2009-79271
Hao Song1 Longbin Tao2
1. Griffith University, Australia; 2. Newcastle University, United Kingdom

Frequency And Time Domain Analyses Of Vessel Motions During Tropical Cyclones - OMAE2009-80098
James R. Whelan1 Yuriy Drobyshevski1 Jason McConochie2
1. Intecsea, Australia; 2. Woodside, Australia

Development of a Multi-Body Vessel Dynamics Simulation Tool - OMAE2009-80111
Jeffrey M. Falzarano, Xiaoqun Yu, Chandan Lakhota
Texas A&M University, USA

1-4 Floating Systems IV

Tuesday June 2

Session Chair: Jim Brekke, Transocean Offshore Deepwater Drilling, Inc., USA
Session Co-Chair: Jan Van Kessel, Delft University of Technology, Netherlands

Linearization of Quadratic Drag to Estimate CALM Buoy Pitch Motion in Frequency-Domain and Experimental Validation - OMAE2009-80212
Amir Salem1 Sam Ryu1 Arun Duggal1 Raja Datla2
1. SOFEC Inc, USA; 2. Stevens Institute of Technology, USA

Experimental Investigation of Sloshing Dynamics Coupled with Barge Responses - OMAE2009-79404
T Nasar, Sannasiraj Sannasi A, Sundar Vallam
Indian Institute of Technology Madras, India

Nonlinear Coupled Hydrostatics of Floating Conical Platforms - OMAE2009-80018
Oddgeir Dalane, Finn Faye Knudsen, Sveinung Laset
Norwegian University of Science and Technology (NTNU), Norway

A Comparison Between CFD, Potential Theory and Model Tests for Oscillating Aircushion Supported Structures - OMAE2009-79766
Jan Van Kessel1 Fahd Fathi2
1. Delft University of Technology, Netherlands; 2. SBM Offshore | Gustomsc, Netherlands

Structures, Safety and Reliability Symposium

2-5 Fracture and Fatigue Reliability I

Tuesday June 2

Session Chair: Arvid Naess, NTNU, Norway
Session Co-Chair: Marc A. Maes, University of Calgary, Canada
Fatigue Analysis of an FPSO under operational sea states with multimodal spectra - OMAE2009-79382
Zakoua Guédé¹ Michel Olgati¹ Helene Pineau¹ Michel François¹ Valerie Quiniou¹
1. IFREMER, France; 2. Actimar, France; 3. Bureau Veritas - Marine Division, France; 4. TOTAL S.A., France

Fatigue Strength Assessment of Ship Structures Based on the Crack Propagation Theory - OMAE2009-79724
Song Niu, Guoqing Feng, Huilong Ren, Jian Zhang
Harbin Engineering University, China

Virtual prototype based virtual test technique for fatigue life of ship structure - OMAE2009-79846
Huilong Ren, Liu Xiaobo, Guoqing Feng, Chenfeng Li
Harbin Engineering University, China

Fatigue Yield of Ship Structures - OMAE2009-80222
Kalman Zima, Branko Blagojevic
Faculty of Mechanical Engineering and Naval Architecture, University Zagreb, Croatia

2-6 Risk Analysis and Safety Management III
Tuesday June 2 | Nihau | 9:00–10:30

Session Chair: Marc A. Maes, University of Calgary, Canada
Session Co-Chair: Haibo Chen, Scandpower Risk Management China Inc., China

Standardised Risk Models for Formal Safety Assessment of Maritime Transportation - OMAE2009-79062
Erik Vanem¹ Romana Puša² Rolf Skjong¹
1. Det Norske Veritas, Norway; 2. Universities of Glasgow and Strathclyde, United Kingdom

Shipboard Fire Safety: Fire Simulation Techniques - OMAE2009-79911
Bhargab Dutta, Apurba Kar
Indian Register of Shipping, India

Safety Assessment of Ship Launching Based on Airbags with the Nonlinear Rigidity of Airbags being Considered - OMAE2009-79149
Ren Huilong, Li Chenfeng, Feng Guoqing, Liu Xiaobo, Zhang Jian
Harbin Engineering University, China

Cost Benefit analysis of Inert Gas Systems for Chemical and Product Tankers - OMAE2009-79919
Rolf Skjong¹ Martyn Thomas²
1. Det Norske Veritas, Norway; 2. Det Norske Veritas, United Kingdom

Materials Technology Symposium
3-5 Fracture Control and Strain Capacity of Pipelines (II)
Tuesday June 2 | Puna | 9:00–10:30

Session Chair: Jaime Buitrago, ExxonMobil UPstream Research, USA
Session Co-Chair: Mario L. Macia, ExxonMobil Upstream Research Company

Large Scale Tests of Strain Capacity of Pipe Sections With Circumferential Defects Subjected to Installation-Induced Plastic Strain History - OMAE2009-80146
Bard Nyhus¹ Erling Østby² Z.L. Zhang³ Erlend Olså Per A., P.A. Rastadsand³ Pål A. Eikrem³
1. SINTEF, Norway; 2. SINTEF Materials and kemi, Norway; 3. Dept. of Structural Engineering, Norwegian University of Science and technology (NTNU), Norway; 4. SINTEF Materials and Chemistry, Norway; 5. StatoilHydro, Norway

Fracture Mechanics Evaluation of Pipes Subjected to Combined Load Conditions - OMAE2009-80025
Sebastian Carvatto, Richard E. Bravo, Hugo A. Ernst
Tenaris Group, Argentina

Bends for critical Line pipe projects: Advantages of the offline full Quenching and Tempering - OMAE2009-79800
Aldo Mannucci¹ Mariano Armengol¹ Ettore Anelli claudio Tommassi¹ Fabio Zana¹ Laura Alleva¹ Giorgio Porcu¹
1. TenarisDalmine, Italy; 2. Tenaris, Italy; 3. Centro Sviluppo Materiali (CSM), Italy; 4. Centro Sviluppo Materiali S.p.A, Italy

Full-Scale Validation of a Flaw Assessment Methodology for Reeled Pipe - OMAE2009-80210
G. Graham Chell, Yi-der Lee, Stephen J. Hudak, Jr.
Southwest Research Institute, USA

Pipeline and Riser Technology Symposium
4-3 Design and Analysis III
Tuesday June 2 | Regency III | 9:00–10:30

Session Chair: Vincent Ounloyo, University of Lagos, Nigeria
Session Co-Chair: Olav Aamlid, DNV, Norway

An Experimental Study of the Interaction Between Pipe Structure and Internal Flow - OMAE2009-79312
Marcio Yamamoto¹ Motoko Mural¹ Katsuya Maeda¹ Shotaro Uto¹
1. Yokohama National University, Japan; 2. National Maritime Research Institute, Japan

The Influence of Internal Pressure on Pipeline Natural Frequency - OMAE2009-79666
Andre Massa² Nelson Galgoul¹ Nestor Guevara² Antonio C. Fernandes² Fabio M. Coelho² Severino Silva Neto²
1. SUPORTE, Brazil; 2. UFRR, COPPE, PENO, Brazil; 3. COPPE, Brazil; 4. COPPE UFRR, Brazil

Pipe-In-Pipe for Gas Production in Deep Water Offshore Brazil - OMAE2009-79700
Fabio Azevedo, Rafael Solano, Vitor Lacerda
Petrobras, Brazil

FEA-Based Study of Pipeline Protection from Anchors - OMAE2009-80130
Leqin Wang, Hong Kiat Chia, Jian Wu Wei, Qiang Chen
WorleyParsons, Singapore

4-5 Mechanical Behavior I
Tuesday June 2 | Kona | 9:00–10:30

Session Chair: Philippe Darcius, Tenaris Tamsa, Mexico
Session Co-Chair: Ruxin Song, Technip USA, Inc., USA

Compressive Strain Limit of Aged API-X100 Linepipe - OMAE2009-79057
Woo Yeon Cho¹ Dong-Han Seo² Jang-Yong Yoo²
1. RIST, Korea; 2. POSCO, Korea

On the reliable modeling of the collapse and post-collapse behavior of pipelines - OMAE2009-79764
Rita Toscano, Eduardo Dvorkin
SIM&Tec S.A., Argentina
The Influence of the UOE Forming Process on Material Properties and Collapse of Deepwater Linepipe - OMAE2009-80179
Chris Timms1 Luciano Mantovano2 Rita Toscano1 Hugo A. Ernst1 Duane DeGeer1 Doug Swaneke1 Marcos de Souza1 Luis C. Chad1
1. C-FER Technologies, Canada; 2. Tenaris Group, Argentina; 3. SIM&TEC S.A., Argentina; 4. Tenaris Confab, Brazil

Improved Prediction of External Pressure Collapse of Seamless Pipe - OMAE2009-79463
Josef Navarro, Philip Cooper
INTECSEA (UK) Ltd, United Kingdom

Ocean Space Utilization Symposium
5-1 Deep water mining systems
Tuesday June 2 Regency I 9:00–10:30
Session Chair: Tetsuo Yamazaki, Osaka Prefecture University, Japan
Session Co-Chair: Charles Morgan, Planning Solutions, Inc., USA
Quantitative Environmental Assessment for Deep-sea Mining – Status and Approaches - OMAE2009-79156
Tetsuo Yamazaki
Osaka Prefecture University, Japan

Yasuhiro Konishi, Norizoh Saitoh, Takashi Ogi
Osaka Prefecture University, Japan

Method for In-Situ Determination of Concentration of Components in Hydrothermal Environments - OMAE2009-79306
Rei Arai, Natsumi Iwasa, Naoki Nakatani, Tetsuo Yamazaki
Osaka Prefecture University, Japan

The Status of Marine Mining Worldwide - OMAE2009-80048
Charles Morgan
Planning Solutions, Inc., USA

Ocean Engineering Symposium
6-7 Advanced Ship-Hydromechanics/Marine Technology - I
Tuesday June 2 Regency II 9:00–10:30
Session Chair: Ronald W. Yeung, University of California, Berkeley, USA
Session Co-Chair: Janou Hennig, MARIN, Netherlands
Numerical Study of Large Amplitude Ship Motion With Forward Speed in Severe Seas - OMAE2009-79277
Do-Chun Hong1 Hong Gun Sung2 Sa-Young Hong3
1. Chungnam National University, Korea; 2. MOERI/KORDI, Maritime & Ocean Engineering Research Institute (formerly KRISO) of KORDI (Korea Ocea, Korea; 3. Moeri, KORDI, Korea

Systematic Investigation of Loads and Motions of a Bulk Carrier in Extreme Seas - OMAE2009-79389
Gunther Claus, Andre Kaufeldt, Marco Klein
Technische Universität Berlin, Germany

Real time estimation of ship motions in short crested seas - OMAE2009-79366
Peter Naaijen1 Radboud van Dijk2 Rene Huijsmans1 Abdel-Ali El Mouhandiz1
1. Delft University of Technology, Netherlands; 2. MARIN, Netherlands

Measurement and Modeling of the Motions of a High-Speed Catamaran in Waves - OMAE2009-79810
Thomas Fu1 Anne Fullerton1 Eric Terrill1 William Faller2 Genevieve Lada2 David Hess2 Lisa Minnick2
1. Naval Surface Warfare Center, Carderock Division, USA; 2. NSWCCD, USA; 3. SIO-UCSD, USA; 4. Applied Simulations Technologies, USA

CFD and VIV Symposium
8-3 Cylinder VIV - arrays, wakes
Tuesday June 2 Regency I 9:00–10:30
Session Chair: Brad Campbell, ExxonMobil Upstream Research Company, USA
Session Co-Chair: Samuel Holmes, Red Wing Engineering, Inc., USA
Drag coefficients of a long flexible circular cylinder with wake interference - OMAE2009-79099
Francisco J. Huera-Huarte
California Institute of Technology, USA

Numerical Modeling of Vortex-Induced Vibrations of Two Flexible Risers - OMAE2009-79801
Marlow Springer1 Rajeev Jaiman1 Steve Cosgrove1 Yiannis Constantinides2
1. ACUSIM Software, Inc., USA; 2. Chevron Energy Technology Company, USA

A Numerical Investigation of the Hysteresis Effect on Vortex Induced Vibration on An Elastically Mounted Rigid Cylinder - OMAE2009-79725
Juan Wanderley1 Sergio H. Sphaier1 Carlos Levi1
1. Laboratório de Tecnologia Oceânica/UFRI, Brazil; 2. Universidade Federal do Rio de Janeiro, Brazil; 3. Laboratório de Tecnologia Oceânica, Brazil

An Experimental Evaluation of Vortex-Induced Vibration of a Riser Bundle with Gaps - OMAE2009-79757
John Kim Vandiver1 Yongmining Cheng1 Vivek Jaiswal1 Aditi Sheshadri1 Chenteh Alan Yu2
1. MIT, USA; 2. Technip, USA

C.C. Mei Symposium on Wave Mechanics and Hydrodynamics
9-3 Waves in stratified fluids
Tuesday June 2 Regency II 9:00–10:30
Session Chair: John Grue, University of Oslo, Norway
Session Co-Chair: Frederic Dias, Ecole Normale Superieure de Cachan, France
Wave Radiation and Shear Instability in Rotating Stratified Flow - OMAE2009-79416
Camilo E. Pinilla, Vincent H. Chu
McGill University, Canada

Numerical Simulation of Debris flows - OMAE2009-79197
Ko-Fei Liu1 Ming-Chun Huang2
1. National Taiwan University, Taiwan; 2. Ching-Yun University, Taiwan

Experimental Investigation on the Density-Stratified Fluid in a Submarine Trench - OMAE2009-80059
Hwung Hwung-Hweng1 Hsu Wen Yang1 Liu Chi-Min2 Yang Ray-Yeng3
1. National Cheng Kung University, Taiwan; 2. Chienkuo Technology University, Taiwan; 3. Tainan Hydraulics Laboratory, Research Center of Ocean Environment and Technology, National Cheng Kung University, Taiwan
Resonant Generation of Internal Waves on Two Muddy Sea Beds By a Progressive Surface Wave - OMAE2009-80060
Yang Ray-Yeng1 Hwung Hwung-Hweng1 Igor V. Shugan2
1. Tainan Hydraulics Laboratory, Research Center of Ocean Environment and Technology, National Cheng Kuo, Taiwan; 2. National Cheng Kung University, Taiwan; 3. Tainan Hydraulics Laboratory, Taiwan

Analytical Cubic Solution to Weakly Nonlinear Interactions Between Surface and Interfacial Waves - OMAE2009-80120
Navid Tahvildari1 Mirmosadegh Jamali2
1. Texas A&M University, USA; 2. Sharif University of Technology, Iran

Ocean Renewable Energy Symposium
10-3 Standards, Protocols and Environmental Issues
Tuesday June 2 Akaka | 9:00–10:30
Session Chair: Bonnie Ram, Energetics Inc, USA
Session Co-Chair: Erin Trager, U.S. Minerals Management Service, USA

Development Of Invertebrate Assemblages And Fish On Offshore Wave Power - OMAE2009-79239
Olivia Langhamer1 Dan Wilhelmsson2 Jens Engström1
1. University of Exeter, United Kingdom; 2. DNV (UK), United Kingdom

Key Materials and Systems for the Use of Renewable Energy in the Form of Methane - OMAE2009-79776
Koji Hashimoto1 Naokazu Kumagai2 Koichi Izumiya2 Zenta Kato1
1. Tohoku Institute of Technology, Japan; 2. Daiki Ataka Engineering Co. Ltd., Japan

Offshore Geotechnics Symposium
12-1 Centrifuge Modeling for Offshore Geotechnics
Tuesday June 2 Ewa | 9:00–10:30
Session Chair: Dave White, Centre for Offshore Foundation Systems, Australia
Session Co-Chair: Christoph Gaudin, Centre for Offshore Foundation Systems, Australia

Alexia Aubault1 Christian Carmelli2 Dominique Roddier2
1. Marine Innovation & Technology, USA; 2. Principle Power, USA

Offshore Technology Symposium
1-24 Floating Systems V
Tuesday June 2 Waianae | 11:00–12:30
Session Chair: Christian Cermelli, Marine Innovation & Technology, USA
Session Co-Chair: Bernt J. Leira, Norwegian University of Science and Technology, Norway

Validation of a new hydroelastic code for flexible floating structures moored in waves - OMAE2009-79989
Jan Van Kessel
Delft University of Technology, Netherlands
2-7 Fracture and Fatigue Reliability II

Tuesday June 2  Koko Crater  | 11:00–12:30
Session Chair: Bernt Leira, NTNU, Norway
Session Co-Chair: Marc A. Maes, University of Calgary, Canada

Simulation of Behavior of Fatigue Cracks: a complete industrial process on a typical connection in a FPSO - OMAE2009-79142
Michelle Serror, Nicolas Marchal
Bureau Veritas, France

Fatigue And Fracture Reliability Of Articulated Tower Joint Under Random Loading - OMAE2009-79360
Mohd Moonis Zaheer, Nazral Islam
Jamia Millia Islamia, India

New Standard for Assessment of Structural Integrity for Existing Load-bearing Structures-Norsok N-006 - OMAE2009-79379
Gunnar Solland1 Inge Loslbsberg1 Lars G. Bjørheim1 Gerhard Ersdal1 Vidar Andre Gjerstad1 Philip Smedley1

2-8 Risk Analysis and Safety Management IV

Tuesday June 2  Nihau  | 11:00–12:30
Session Chair: Rolf Skjong, Det Norske Veritas, Norway
Session Co-Chair: Marc A. Maes, University of Calgary, Canada

Verification of DP Safety Barriers for Offshore Well Intervention Vessels - OMAE2009-79095
Haibo Chen1 Bjørn Abrahamsen2
1. Det Norske Veritas, Norway; 2. DNV, Norway

Risk based Multi-objective Simulation of Ship Main Engine Systems - OMAE2009-79258
Lahar Baliwangi1 Ketut Buda Artana1 Kenji Ishida1
1. Institut Teknologi Sepuluh Nopember Surabaya, Indonesia; 2. Kobe University, Japan

Condition Evaluation of Safety Critical Shut-Down Valves - OMAE2009-79968
Erlend Meland
StatoilHydro/Norwegian University of Science and Technology, Norway

FPSO Risk Assessment and Acceptance Criteria With Application to FPSO Mooring Systems - OMAE2009-80242
Michael H. Faber1 Daniel Straub2 Roberto Montes-Iturriaga2 Ernesto Heredia-Zavoni2
1. ETH Zurich, Switzerland; 2. Matrisk, Switzerland; 3. Instituto Mexicano del Petróleos, Mexico

Materials Technology Symposium

3-9 Fatigue Performance

Tuesday June 2  Puna  | 11:00–12:30
Session Chair: Xin Wang, Carleton University, Canada
Session Co-Chair: Hugo A. Ernst, Tenaris Group, Argentina

Fatigue Capacity of Stiffener to web frame Connections - OMAE2009-79061
Torbjørn Lindemark1 Inge Loslbsberg1 Joong-Kyu Kang1 Narve Oma1 Kwang-Seok Kim2
1. DNV, Norway; 2. DSME, Korea; 3. StatoilHydro, Norway

Effect of Weld Toe Burr Grinding on Fatigue Strength of Transverse Welded Specimens Made from DH36 Steel - OMAE2009-79331
Helena Polezheyeva1 Joong-Kyu Kang1 Joo-Ho Heo1 Kwang-Seok Kim2
1. Lloyds Register EMEA, United Kingdom; 2. DSME, Korea

Environmental Effect on Fatigue Life of FPSO Hull Structures - OMAE2009-80239
Xiaozhi Wang1 Bocki Kim1 Yanning Zhang1 Ping Liao1
1. American Bureau of Shipping, USA; 2. USA

Crack Growth in Pipes Under Service Contortions - OMAE2009-80178
Oddvin Oja-saeter1 Richard L.P. Verly2 Per Egel Kvaale1 Tor Gunnar Eggem1
1. SINTEF, Norway; 2. StatoilHydro, Norway; 3. Technip, Norway

Calibration of Flaw Extension Model Under Ratcheting Fatigue - OMAE2009-80177
Jaime Buitrago1 Paulo Gioielli1 Wan Kani1 Michael Weir1 G. Graham Chell1 Stephen J. Hudak, Jr.1
1. ExxonMobil Upstream Research Company, USA; 2. ExxonMobil Development Company, USA; 3. Southwest Research Institute, USA

Pipeline and Riser Technology Symposium

4-4 Design and Analysis IV

Tuesday June 2  Regency III  | 11:00–12:30
Session Chair: Olav Aamlid, DNV, Norway
Session Co-Chair: Vincent Olunloyo, University of Lagos, Nigeria

Time Trace Window Based Approach for SCR Strength Analysis in Ultra Deepwater of Gulf of Mexico - OMAE2009-79529
Jack Chen1 Peimin Gao1 Huaqong Zhu1 Paul Jukes1
1. J P Kenny, Inc., USA; 2. SBM Atlanticia, Inc., USA

PDEG-B Overall Design and Installation Challenges - OMAE2009-79636
Peter Tanscheit1 Rafael Solano1 Vinicius Braga1 Marcelo Xavier1 D R T Sirkkandarajah1
1. Subsea7, Brazil; 2. Petrobras, Brazil; 3. Subsea7, United Kingdom

Quantitative Risk Assessment (QRA) Based Leak Detection Criteria (LDC) Design for a Subsea Oil Export Pipeline - OMAE2009-79250
Mohd Faizal Badaruddin1 Yong Bai2 Fangyuan Zhang2
1. Petrosas, Malaysia; 2. OPR (Offshore Pipeline & Risers), Malaysia

VIV Response of a Flexible Cylinder under Locally Strong Sheared Flow - OMAE2009-79999
Yoo-Chul Kim, Chang-Kyu Rheem, Furumihoko Suzuki
IIS, The University of Tokyo, Japan

4-6 Mechanical Behavior II

Tuesday June 2  Kona  | 11:00–12:30
Session Chair: Ruxin Song, Technip USA, Inc., USA
Session Co-Chair: Philippe Darcis, Tenaris Tamsa, Mexico

FEA of A Laminate Internal Buckle Arrestor for Deep Water Pipe-in-Pipe Flowlines - OMAE2009-79520
Haoyu Wang, Jason Sun, Dr. Paul Jukes
J P Kenny, Inc, USA

The Effect of Lüders Bands on Localization and Propagation of Curvature of Steel Tubes Under Pure Bending - OMAE2009-79755
Stelios Kyriakides, Julian Hallai, Ali Ok
University of Texas at Austin, USA
**Ocean Space Utilization Symposium**

**5-3 Deep water inspection**

**Tuesday June 2**

Session Chair: Tomoya Inoue, JAMSTEC, Japan
Session Co-Chair: Tetsuo Yamazaki, Osaka Prefecture University, Japan

Research on Stability of Crawler System for Deep Sea ROV - OMAE2009-79532
Tomoya Inoue1 Takashi Matsuo1 Hiroshi Yoshida1 Junichiro Tahara1
1. JAMSTEC, Japan

Conceptual Design and Key Technology Development of a Long-Range Underwater Vehicle Traveling Over Thousands Kilometers - OMAE2009-79852
Hiroshi Yoshida1 Takao Sawa1 Tadahiro Hyakudome1 Shojiro Ishibashi1 Junichiro Tahara1
Hiroshi Ochiai1 Takuya Shimura1 Yoshitaka Watanabe1
1. Japan Agency for Marine-earth Science and Technology, Japan

An Underwater Vehicle for the Tracking Marine Organism “PICASSO” - OMAE2009-80072
Shojiro Ishibashi1 Hiroshi Yoshida1 Dhugal J. Lindsay1 Hirohisa Yamamoto1
Tadahiro Hyakudome1 Takao Sawa1 Hikaru Okuno1 Takayuki Uemura1
1. JAMSTEC, Japan
2. Japan Agency for Marine-earth Science and Technology, Japan

**Ocean Engineering Symposium**

**6-8 Advanced Ship-Hyedmecanics/Marine Technology - II**

**Tuesday June 2**

Session Chair: Jeffrey M. Falzarano, Texas A&M University, USA
Session Co-Chair: Sascha Koseleck, Technical University Berlin, Germany

Numerical Studies of the Effect of Sloshing on Ship Motions - OMAE2009-79335
Seok Kyu Cho1 Hang S. Choi1 Hong Gun Sung1 Sa-Young Hong1 Il R. Park1
1. Maritime & Ocean Engineering Research Institute(MOERI)/Seoul National University, Korea; 2. Seoul National University, Korea; 3. MOERI/KORDI, Maritime & Ocean Engineering Research Institute (formerly KRISO) of KORDI (Korean Ocean, Korea; 4. MOERI/KORDI, Korea; 5. MOERI/KORDI, Korea

Spacing Effect on Hydrodynamics of Two Adjacent Offshore Caissons - OMAE2009-79226
Longbin Tao1 Hao Song2 Subrata Chakraborti1
1. Newcastle University, United Kingdom; 2. Griffith University, Australia; 3. Univ. of Illinois at Chicago, USA

Drift forces on a floating body of simple geometry due to second order interactions between pairs of harmonics with different frequencies - OMAE2009-80225
João Pessoa1 Nuno Fonseca2 Carlos Guedes Soares3
1. Instituto Superior Técnica, Technical University of Lisbon, Portugal; 2. Instituto Superior Técnica, Portugal; 3. Technical University of Lisbon, Portugal

**CFD and VIV Symposium**

**8-4 Semi-submersibles & Structures - CFD Modeling**

**Tuesday June 2**

Session Chair: Samuel Holmes, Red Wing Engineering, Inc., USA
Session Co-Chair: Brad Campbell, ExxonMobil Upstream Research Company, USA

CFD Simulations of a Semi-Submersible With Absorbing Boundary Conditions - OMAE2009-79342
Peter Wellens1 Roel Luppes1 Arthur Veldman1 Mart Borssboom1
1. Technical University Delft, Netherlands; 2. University of Groningen, Netherlands; 3. Deltarens, Netherlands

Guilherme Vaz1 Olaf Waals1 Harald Ottens1 Fahd Fathi1 Tim Le Sueur1 Kwong Kiu1
1. MARIN, Netherlands; 2. Heerema Marine Contractors, Netherlands; 3. SBM Offshore; 4. IntecSea, Australia

**C.C. Mei Symposium on Wave Mechanics and Hydrodynamics**

**9-4 Ship hydrodynamics**

**Tuesday June 2**

Session Chair: Ronald W. Yeung, University of California, Berkeley, USA
Session Co-Chair: Mamoun Naciri, Single Buoy Moorings, Monaco

On Modeling Roll Hydrodynamics of Three-Dimensional Slender Ships - OMAE2009-80260
Ronald W. Yeung
University of California, Berkeley, USA

Nonlinear Ship Motion Computations Using A Time-Domain Body-Exact Slender-Body Approach - OMAE2009-79178
Piotr Bandyk, Robert E. Beck
University of Michigan, USA

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**Tuesday, 11:00–12:30**

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Investigation of the Horizontal Drifting Effects on Ships With Forward Speed - OMAE2009-79481
Sheguang Zhang, Kenneth M. Weems, Woei-Min Lin
SAIC, USA

Ship Motion Instabilities in Coastal Regions - OMAE2009-79753
Ray-Qing Lin1 Wei-Jia Kuang2
1. David Taylor Model Basin, NSWCCD, USA; 2. NASA, USA

The Dynamic Response of a Moored Vessel in Shallow Water Using Boussinesq Equations - OMAE2009-79282
Byeong W. Park1 Rae H. Yuck2 Seok Kye Choi1 Hang S. Choi1
1. Seoul National University, Korea; 2. Samsung Heavy Industries, Daegu, Korea, Korea; 3. Maritime & Ocean Engineering Research Institute(MOEIRI)/Seoul National University, Korea

Ocean Renewable Energy Symposium

10-4 Wave Energy I

Tuesday June 2 Akaka  |  11:00–12:30
Session Chair: Teresa Pontes, INETI / LNEG, Portugal
Session Co-Chair: Mirko Previsic, re vision consulting, LLC, USA

Impulsive Loads on Interconnected Floating Bodies - OMAE2009-80094
Luca Martinelli1 Piero Ruol1 Barbara Zanuttigh1
1. Università di Bologna, Italy; 2. Università di Padova, Italy

Effect of Floaters’ Geometry on the Performance Characteristics of Tightly Moored Wave Energy Converters - OMAE2009-80133
Spyros Mavrokos, George Katsanos, Michalis Apostolidis
National Technical University of Athens, School of Naval Architecture and Marine Engineering, Greece

Hydrodynamics of Multiple Floating Point-Absorber Wave Energy Systems with Inter-Body and Bottom Slack-Mooring Connections - OMAE2009-80245
António F. Falcão1 Pedro Vicente1 Luís M. C. Gato1 Paulo Justino1
1. IDMEC - Instituto Superior Técnico, Portugal; 2. Instituto Superior Técnica, Portugal; 3. INETI, Portugal

Numerical Investigation of 2-D Optimal Profile of Backward-Bent Duct Type Wave Energy Converter - OMAE2009-79719
Masami Suzuki1 Toshikaru Kobuki1 Shuichi Nagata1 Toshiaki Setoguchi1
1. The University of Tokyo, Japan; 2. The Pacific Society, Japan; 3. Saga University, Japan

Offshore Geotechnics Symposium

12-2 Suction Caisssons

Tuesday June 2 Ewa  |  11:00–12:30
Session Chair: Sangchul Bang, South Dakota School of Mines and Technology, USA

Modelling the Installation of Stiffened Caisssons into Overconsolidated Clay - OMAE2009-79125
Zachary Westgate1 Laith Tapper1 Barry Lehane1 Christophe Gaudin4
1. Centre for Offshore Foundation Systems, Australia; 2. Arup, Australia; 3. University of Western Australia, Australia; 4. Centre for Offshore Foundation System, Australia

Field Trial and Numerical Back-Analysis of Suction Caisson Extraction in Hong Kong - OMAE2009-79313
Leon Lorenti1 Dora Y.N. Shum2 Barry Lehane1
1. Arup Pty. Ltd., Australia; 2. Ove Arup & Partners Hong Kong Ltd, China

Construction Techniques and Theoretical Researches of Modern Pneumatic Caisson - OMAE2009-79967
Bao-Hua Qin1 Yao-Liang Li1 Xiang-Lian Zhou2 Jian-Hua Wang3
1. Shanghai Foundation Engineering Company, China; 2. Department of Civil Engineering, Shanghai Jiao Tong University, China

Indian Ocean Engineering Society

Session Chair: Sangchul Bang, South Dakota School of Mines and Technology, USA
Tuesday June 2 Akaka  |  11:00–12:30

Utilization of Gas-Liquid Cylindrical Cyclone (GLCC(c)) Compact Separator for Solids Removal: Part I – Minimum Required Liquid Injection Rate - OMAE2009-80192
Rosnaei Arismendi1 Luis Gomez1 Shoubo Wang2 Ram Mohan1 Ovadia Shoham1 Ken Oglesby2
1. The University of Tulsa, USA; 2. Impact Technologies, USA

Petroleum Technology Symposium

13-6 Subsea Processing I

Tuesday June 2 Hilo  |  11:00–12:30
Session Chair: Mike Stratton, Multiphase Solutions, Inc., USA

Design and Experimental Study of Hydrocyclone in Series and in Bridge of Downhole Oil/Water Separation System - OMAE2009-79194
Yong Zhang, Minhua Jiang, Lixin Zhao, Feng Li
Daqing Petroleum Institute, China

Tuesday, 14:00–15:30

Offshore Technology Symposium

1-6 FPSO Systems I

Tuesday June 2 Waianae  |  14:00–15:30
Session Chair: Takeshi Kinoshita, University of Tokyo, Japan
Session Co-Chair: Mamoun Naciri, Single Buoy Moorings, Monaco

The Statistics of the Second Order Response of an FPSO in Spreading Seas - OMAE2009-79339
Yahui Zhang, Robin S. Langley
University of Cambridge, United Kingdom

Dynamic Effect of a Stabilizing Tank on a FPSO - OMAE2009-79480
Rodrigo Silva1 Antonio C. Fernandes2 Fábio Menezes1 Severino Silva Neto1
1. Petrobras, Brazil; 2. UFRJ, COPPE, PENO, Brazil; 3. COPPE UFRJ, Brazil

Concept Design of Two Permanently Coupled Floaters for Production and Storage of Oil and LNG - OMAE2009-79133
Erik ter Brake, Narve Oma, Wenche Rettedal
StatoilHydro, Norway
Structures, Safety and Reliability Symposium

2-9 Reliability Based Maintenance and Inspection Planning I

Tuesday June 2  
Koko Crater | 14:00–15:30

Session Chair: Elzbieta Bitner-Gregersen, Det Norske Veritas AS, Norway  
Session Co-Chair: Michael H. Faber, ETH Zurich, Switzerland

Hierarchical modeling of pipeline defect growth subject to ILI uncertainty - OMAE2009-79470
Marc A. Maes¹ Michael H. Faber² Markus R. Dann³
¹. University of Calgary, Canada; ². ETH Zurich, Switzerland

A Robust and Efficient Computational Method for Fatigue Reliability Update Using Inspected Data - OMAE2009-80034
Justin Y-T. Wu¹ Christopher M. Serratella² Albert P. Ku³

Real and Virtual Convergence With Augmented Reality for Supporting Offshore Structure Management - OMAE2009-79497
Kyung H. Lee, Jung M. Lee, Young S. Han, Jae J. Lee, Byung H. Lee, Sang K. Kim
INHA University, Korea

2-10 Risk Analysis and Safety Management V

Tuesday June 2  
Nihau | 14:00–15:30

Session Chair: Rolf Skjong, Det Norske Veritas, Norway  
Session Co-Chair: Haibo Chen, Scandpower Risk Management China Inc., China

Helicopter Landing Ship (HLS): Undercarriage Strength and the Role of the Human Factor - OMAE2009-79034
Ephraim Suhir
University of California, USA

New Evaluation on Ship Strength From the Viewpoint of Stranded Casualties in Coastal Areas Under Rough Weather - OMAE2009-79048
Kenji Sasa¹ Atilla Incecek²
¹. Hiroshima National College of Maritime Tech., Japan; ². University of Glasgow, United Kingdom

Application of Bayesian Networks in the Analysis of Human Contribution in Collision Accidents - OMAE2009-79387
Marcelo R. Martins, Marcos C. Maturana
University of Sao Paulo, Brazil

Materials Technology Symposium

3-10 Fracture Toughness

Tuesday June 2  
Puna | 14:00–15:30

Session Chair: Xin Wang, Carleton University, Canada  
Session Co-Chair: Stig Wästberg, Det Norske Veritas (DNV), Norway

Fracture Toughness Testing Using SENT Specimens in a Sour Environment - OMAE2009-79305
Zhengmiao Yang, Da Qin Xu, Jens P. Tronskar
Det Norske Veritas, Singapore

A Comparison Between BS7448-CTOD And ASTM E1290-CTOD In Linepipes - OMAE2009-79526
Yoichi Kayamori¹ Takehiro Inoue¹ Tetsuya Tagawa²
¹. Nippon Steel Corporation, Japan; ². Nagoya University, Japan

Techniques for Fracture Toughness Testing of Offshore Pipelines - OMAE2009-80135
Andrea Fontzi¹ Giorgio Melì¹ Luigi F. Di Vito¹ Gianluca Mannucci² Philippe Darcis³ Gilles Richard³ Hector Quintanilla³ Mariano Armengol³
¹. Centro Sviluppo Materiali S.p.A., Italy; ². TenarisTamsa, Mexico; ³. TenarisDalmine, Italy

CTOD Fracture Toughness Tests and Numerical Simulation for Welded Joints of Q370QE - OMAE2009-79658
Qiming Yu¹ Weiguo Wu² Jin Gan³
¹. School of Transportation, Wuhan University of Technology, China; ². Wuhan University of Technology, China

Pipeline and Riser Technology Symposium

4-7 Mechanical Behavior III

Tuesday June 2  
Kona | 14:00–15:30

Session Chair: Stelios Kyriakides, University of Texas at Austin, USA  
Session Co-Chair: Rita Toscano, SIM&TEC S.A., Argentina

Extra High Pressure High Temperature (XHPHT) Flowlines – Design Considerations and Challenges - OMAE2009-79337
Paul Jakes¹ Jason Sun¹ Gary Harrison¹ Ayman Eltaher¹
¹. J P Kenny, Inc., USA; ². BP, USA

Bending Capacity Analyses of Corroded Pipelines - OMAE2009-79501
Weijie Yu¹ Pedro Vargas² Dale G. Kari³
¹. University of Michigan, USA; ². Chevron Energy Technology Company, USA

Study on the Residual Strength Assessment Method on Corroded Submarine Pipeline Based on Reference Stress Method - OMAE2009-79677
Li Hui, pan Xiaobing, Huilong Ren, Guoqing Feng
Harbin Engineering University, China

Pipeline Design Methodology with respect to Internal Corrosion - OMAE2009-79369
Lars Laberg Brekstad¹ Morten Hval¹ Vidar Henrik Halvorsen¹ Ole Magnus Holden¹
¹. Reinseteren AS, Norway; ². StatoilHydro, Norway

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Ocean Engineering Symposium

6-20 Advanced Ship-Hydromechanics/Marine Technology - III
Tuesday June 2  Kohala | 14:00–15:30
Session Chair: Janou Hennig, MARIN, Netherlands
Session Co-Chair: Jeffrey M. Falzarano, Texas A&M University, USA
Wave Devouring Propulsion System – From Concept to Trans-Pacific Voyage - OMAE2009-79223
Yutaka Terao
Tokai University, Japan

Gunther Clausn, Sascha Kosleck, Daniel Testa
Technische Universität Berlin, Germany

The Effect of Wave Directionality on Low Frequency Motions and Mooring Forces - OMAE2009-79412
Olaf Waals
MARIN, Netherlands

AGaPaS: Autonomous Galileo-Supported Rescue Vessel for Persons Overboard - OMAE2009-79384
Gunther Clausn, Andre Kaufeldt, Nils Otten
Technische Universität Berlin, Germany

CFD and VIV Symposium

8-5 Spars - model testing, VIV suppression; Lifeboat Modeling
Tuesday June 2  Regency I | 14:00–15:30
Session Chair: Yiannis Constantinides, Chevron Energy Technology Co., USA
Session Co-Chair: Guilherme Vaz, MARIN, Netherlands
Model Test Study on Vortex-Induced Motions of a Floating Cylinder - OMAE2009-79134
Ying Wang, Jianmin Yang, Tao Peng, Xin Li
State Key Laboratory of Ocean Engineering, Shanghai Jiao Tong University, China

Simulation of Flow and Motion of Lifeboats - OMAE2009-79608
Milovan Peric1 Ould El Moctar1 Hans J. Moorch1 Tobias J. Zorn1 Eberhard Schreck1 1. CD-adapco, Germany; 2. Germanischer Lloyd, Germany; 3. CFD Marin AS, Norway

Direct Adaptive Rejection of Vortex-Induced Disturbances for a Powered SPAR Platform - OMAE2009-79492
Tannen S VanZwieten1 James VanZwieten Jr.2 Mark J Balas3 Frederick R. Driscoll2 1. NASA Marshall Space Flight Center, USA; 2. Florida Atlantic University, USA; 3. University of Wyoming, USA

Influence of Reynolds Number on Vortex Induced Motions (VIM): Multiple Scale Model Tests Comparisons - OMAE2009-79991
Dominique Roddier1 Tim Finningan1 Stergios Liapis1 1. Principle Power, USA; 2. Chevron Energy Technology Company, USA; 3. Shell Oil Company, USA

Ocean Space Utilization Symposium

5-4 Ocean Environment
Tuesday June 2  Iao | 14:00–15:30
Session Chair: Shigeru Tabeta, The University of Tokyo, Japan
Session Co-Chair: Franz-Josef Kahlen, University of Cape Town, South Africa
Estimation of Small-Scale Vertical Diffusivity for CO2 Injected in the Deep Ocean - OMAE2009-79973
Shinichiro Hirabayashi, Toru Sato
University of Tokyo, Japan

Numerical Simulation of Diffusion of CO2 Released by 30 Ships in Mesoscale Deep Ocean - OMAE2009-79688
Toru Sato, Taiki Iida, Semin Jeong, Shinichiro Hirabayashi
University of Tokyo, Japan

Cheol Huh, Seong-Gil Kang, Sup Hong, Joon-Su Choi, Il-Sung Moon, Choon-Ju Lee, Mang-Ik Cho, Jong-Hwa Baek
Korea Ocean Research & Development Institute, Korea

Purification of the Sea Pollution by a Bio-Micromachine - OMAE2009-79240
Matsunori Nara, Keiji Voda
University of Toyko, Japan
C.C. Mei Symposium on Wave Mechanics and Hydrodynamics

9-5  Sediment and seafloor dynamics

Tuesday June 2  Regency II | 14:00–15:30
Session Chair: Vincent H. Chu, McGill University, Canada
Session Co-Chair: Zhenhua Huang, Nanyang Technological University, Singapore

How does sedimentary layering affect the generation of tsunamis? - OMAE2009-79767
Denys Dutykh1 Frederic Dias2
1. University of Savoie, France; 2. Ecole Normale Superieure de Cachan, France

Modeling of the Oscillatory Boundary Layer Flow and Sediment Transport under Steep Nonlinear Shoaling Waves - OMAE2009-80029
Jeffrey Harris, Stephan Grilli
Department of Ocean Engineering, USA

An Experimental Study of Wave-induced Setup over a Horizontal Reef with an Idealized Ridge - OMAE2009-79224
Yao Yu1 Edmond Lo2 Zhenhua Huang3 Stephen Monismith4
1. School of Civil & Environmental Engineering, Singapore; 2. Nanyang Technological University, Singapore; 3. Stanford University, USA

Physical Model for Small Scale Sandwave Migration in the North Gulf of South China Sea - OMAE2009-79285
Mian Lin, Yong Li, Wenbin Jiang
Institute of Mechanics, Chinese Academy of Sciences, China

Landslide tsunamis propagating along a semi-plane beach - OMAE2009-79789
Paolo Sammarco1 Emiliano Renzi2 Matthieu Lecouvez3
1. Università di Roma Tor Vergata - dip ing civile, Italy; 2. MIT - Depr Civil Eng, USA; 3. ENPC, France

Ocean Renewable Energy Symposium

10-5  Wave Energy II

Tuesday June 2  Akaka | 14:00–15:30
Session Chair: Wei Qiu, Memorial University of Newfoundland, Canada
Session Co-Chair: António F. Falcão, IDMEC - Instituto Superior Técnico, Portugal

Tracking a Wave Power Buoy Using a Network Camera:
System Analysis and First Results - OMAE2009-79121
Simon Tyberg1 Halvar Gravråkmo2 Prof.Mats Leijon3
1. Uppsala University, Sweden; 2. Uppsala Universitet, Ångstromlaboratoriet, Sweden

Wave Power Statistics for Sea States - OMAE2009-79132
Dag Myrhaug, Bernt J. Leira, Håvard Holm
Norwegian University of Science and Technology, Norway

Optimum Power Capture of a New Wave Energy Converter in Irregular Waves - OMAE2009-79421
MT Rahmati1 George Aggidis1 Robert Chaplin2 Clive G. Mingham3
1. Lancaster University, Department of Engineering, United Kingdom; 2. Lancaster University, Department of Engineering, Renewable Energy and Turbomachines Group, United Kingdom; 3. Manchester Metropolitan University, United Kingdom

Small Buoys for Wave Energy Harvesting : Experimental and Numerical Modeling Studies - OMAE2009-80024
Annette Grilli1 Steven Bastien1 Stephan Grilli1 Ray Sepe Jr2 Malcolm Spauding2
1. Department of Ocean Engineering, USA; 2. Electro Standards Laboratories, USA

Offshore Geotechnics Symposium

12-5  Drag and Plate Anchors

Tuesday June 2  Ewa | 14:00–15:30
Session Chair: Ana Ivanovic, University of Aberdeen, United Kingdom

Undrained Load Capacity of Torpedo Anchors in Cohesive Soils - OMAE2009-79465
Cristiano Santos de Aquari1 José Renato M. de Sousa1 Gilberto Bruno Ellwanger1 Elisabeth de Campos Porto1 Cipriano José de Medeiros Júnior2 Diego Foppa2
1. Federal University of Rio de Janeiro, Brazil; 2. Petrobras, Brazil

Assessment of Trawl Board and Anchor Penetration in Different Soils for Use in Selection of a Burial Depth to Protect Submarine Cables or Pipelines - OMAE2009-79170
Sébastien Rességuière1 Robert Bendzovski2 Harald Wathne3 Maria Vigsnes1 Pål Johannes Strem1 Jan Holme1
1. Det Norske Veritas, Norway; 2. DNV (now with StatoilHydro), Norway

Stability of A Trial Quay Wall of Large Diameter Cylinders - OMAE2009-79016
Jian-Min Zhang, Jianhong Zhang, Gang Wang, Yang Chen
Tsinghua University, China

On the Selection of the Width of a Caisson - OMAE2009-79046
Chi Tung1 Jaw G. Lin2
1. North Carolina State University, USA; 2. National Taiwan Ocean University, Taiwan

Petroleum Technology Symposium

13-11  Subsea Processing II

Tuesday June 2  Hilo | 14:00–15:30
Session Chair: Mike Stratton, Multiphasel Solutions, Inc., USA

Dong Xiang1 Ram Mohan1 Jack Marrelli2 Shoubo Wang1 Ovadia Shoham1
1. The University of Tulsa, USA; 2. Chevron Energy Technology Company, USA

A Modular Differential Dielectric Sensor (DDS) for Use in Multiphase Separation, Process Measurement and Control – Part II: Experimental Investigation - OMAE2009-80215
Dong Xiang1 Ram Mohan1 Jack Marrelli2 Shoubo Wang1 Ovadia Shoham1
1. The University of Tulsa, USA; 2. Chevron Energy Technology Company, USA

Utilization of Gas-Liquid Cylindrical Cyclone (GLCC(c)) Compact Separator for Solids Removal: Part II - Operational Envelope for Carry-Over - OMAE2009-80196
Serik Omarov1 Luis Gomez1 Shoubo Wang1 Ram Mohan1 Ovadia Shoham1 Ken Oglesby1
1. The University of Tulsa, USA; 2. Impact Technologies, USA

Tuesday, 16:00–18:00

Offshore Technology Symposium

1-7  FPSO Systems II

Tuesday June 2  Waianae | 16:00–18:00
Session Chair: Mamoun Naciri, Single Buoy Moorings, Monaco
Session Co-Chair: Takeshi Kinoshita, University of Tokyo, Japan
Wave Slamming on External Turrets of FPSOS - OMAE2009-79581
Bas Buchner1 Arjan Voogt1
1. MARIN, Netherlands; 2. MARIN USA, USA

Riser Top Loads on Turret Moored FPSO - OMAE2009-79683
Felipe Castro1 Carlos Maglutua1 Gilberto Bruno Ellwanger1
1. Petrobras, Brazil; 2. Federal University of Rio de Janeiro, Brazil

FPSO and TLWP Interacting at a Reduced Distance for Dry Tree Completion System - OMAE2009-79098
Edgard B. Malta1 Fabiano P. Rampazzo1 Roberto E. Cruz2 Allan C Oliveira2 Kazuo Nishimoto1
1. University of São Paulo, Brazil; 2. Petrobras R&D Center, Brazil

Dry Disconnectable Riser System for Low Keel Clearance Floaters - OMAE2009-79734
John Murray1 Harish Mukundan1 Apurva Gupta1 Guiborg Choi1
1. FloatEC, LLC, USA; 2. Keppel Offshore & Marine USA, USA

A State of Art FPSO with Dry Tree System - OMAE2009-80229
Chunquin Ji, IntecSea, USA

Structures, Safety and Reliability Symposium

2-11 Reliability Based Maintenance and Inspection Planning II
Tuesday June 2 Koko Crater | 16:00–18:00

Session Chair: Øistein Hagen, DNV, Norway
Session Co-Chair: Marc A. Maes, University of Calgary, Canada

Using Vibration Measurements to assess Structural Integrity - OMAE2009-79144
Jared L. Black
Black Consulting, Inc, USA

Crack Detection in Offshore Structures Using Dynamic Characteristics and Wavelet Transform - OMAE2009-79647
Zhaode Zhang1 Yonghe Xie1 Deyu Wang1
1. Zhejiang Ocean University, China; 2. Shanghai Jiao Tong University, China

Framework of Ubiquitous Sensor Network for the Crack Monitoring of Offshore Structures - OMAE2009-79124
Kyung H. Lee, Young S. Han, Si Y. Choi, Jung M. Lee, Kyung S. Kim, Chung H. Kim
Inha University, Korea

Parameter optimization of vibration control system in multiple DOF structures - OMAE2009-79906
Guixi Li, Rujian Ma, Xiaobing Luo
University of Jinan, China

Materials Technology Symposium

3-6 Advances in Fracture, Fatigue and Sealing Analysis
Tuesday June 2 Puna | 16:00–18:00

Session Chair: Xiaozhi Wang, American Bureau of Shipping, USA
Session Co-Chair: Hugo A. Ernst, Tenaris Group, Argentina

Constraint-Based Fracture Mechanics Analysis of Cylinders with Circumferential Cracks - OMAE2009-79448
Michael Bach, Xin Wang, Robert Bell
Carleton University, Canada

Applicability Evaluation of the Weight Function Based Strip Yield Model for an Embedded Crack Problems - OMAE2009-79562
Koji Gotoh, Yukinobu Nagata
Kyushu University, Japan

Fatigue of Tubular Joints: Hot Spot Stress Method Revisited - OMAE2009-79842
Pinghsia Dong
University of New Orleans, USA

Sealing Analysis of Metallic Interfaces Applied to Shutdown Ball Valves - OMAE2009-79151
Mauricio Brandao1 Theodoro Netto2
1. FMC Technologies / Federal University of Rio de Janeiro, Brazil; 2. Federal University of Rio de Janeiro, Brazil

Pipe and Riser Technology Symposium

4-8 Mechanical Behavior IV
Tuesday June 2

5-11 Reliability Based Maintenance and Inspection Planning II
Tuesday June 2

4-1 Fracture and Fatigue II
Tuesday June 2 Regency III | 16:00–18:00

Session Chair: Marcelo Igor Lourenço, COPPE - Federal University of Rio de Janeiro, Brazil
Session Co-Chair: Ison Pasqualino, COPPE - Federal University of Rio de Janeiro, Brazil

Low Cycle Fatigue of Internally Pressurized Corroded Pipes Under Cyclic Bending - OMAE2009-79174
Marcos Baeta1 Marcelo Igor Lourenço2 Theodoro Netto3
1. Instituto de Pesquisas da Marinha – IPqM, Brazil; 2. COPPE - Federal University of Rio de Janeiro, Brazil; 3. Federal University of Rio de Janeiro, Brazil

Long-term Fatigue and Extreme Design of Steel Risers - OMAE2009-79272
Michele A. Martins, André S. Dória, Eduardo S. Silveira
Federal University of Alagoas, Brazil
Fatigue Design of Flowline Systems with Slug Flow - OMAE2009-79308
Philip Cooper, Christopher Burnett, Ian Nash
INTECSEA (UK) Ltd, United Kingdom

Fatigue Life Prediction Due To Slug Flow In Extra Long Submarine Gas Pipelines Using Fourier Expansion Series - OMAE2009-79642
Euro Casanova, Orlando Pelliccioni, Armando Blanco
Universidad Simon Bolivar (Venezuela), Venezuela

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Ocean Space Utilization Symposium

5-5 Ocean Space Utilization for food production I

Tuesday June 2

Session Chair: Tsutomu Takagi, Kinki-daigaku University, Japan
Session Co-Chair: Daisuke Kitazawa, Institute of Industrial Science, The University of Tokyo, Japan

Experimental Investigation and Numerical Modeling of Hydrodynamic Characteristics of a Heaving Sea Cage - OMAE2009-79085
Sho Ito1 Tomoyuki Tsunoda1 Hiroshi Itakura1 Weiguang Bao1 Daisuke Kitazawa2 Takeshi Kinoshita1
1. University of Tokyo, Japan; 2. Institute of Industrial Science, The University of Tokyo, Japan

Numerical Analysis of Net Cage Dynamic Behavior Due to Concurrent Waves and Current - OMAE2009-80078
Katsuya Suzuki1 Shinsuke Torisawa1 Tsutomu Takagi2
1. Kinki University, Japan; 2. Kinki-daigaku University, Japan

Calculation of Wave Forces Acting on a Cylinder With a Porous Plate Fixed Inside - OMAE2009-79088
Weiguang Bao, Fenfang Zhao, Takeshi Kinoshita
The University of Tokyo, Japan

Theoretical and Experimental Study on a Porous Cylinder Floating in Waves - OMAE2009-79089
Fenfang Zhao, Takeshi Kinoshita, Weiguang Bao, Hiroshi Itakura
The University of Tokyo, Japan

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Ocean Engineering Symposium

6-12 Ocean Acoustics

Tuesday June 2

Session Chair: Eva Nosal, University of Hawaii, USA
Session Co-Chair: James Lewis, Scientific Solutions, Inc., USA

Yangyang Gao, Dingyong Yu, Cuilin Li
Ocean University of China, China

Passive Acoustic Monitoring of Surface Vessel Activity - OMAE2009-80074
Eva Nosal1 Miloslav Nosal1
1. University of Hawaii, USA; 2. University of Calgary, Canada

Numerical Experiments of Acoustic Path Travel Time Variations Due to Combined Surface Wave Affects - OMAE2009-80026
James Lewis, Scientific Solutions, Inc., USA

Deep-Ocean Low-Frequency Acoustic Noise Sources - OMAE2009-80205
Fred K. Duennebier, Eva Nosal, Roger Lukas
University of Hawaii, USA

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CFD and VIV Symposium

8-6 Ships - CFD models of roll and current forces

Tuesday June 2

Session Chair: Guilherme Vaz, MARIN, Netherlands
Session Co-Chair: Yiannis Constantinides, Chevron Energy Technology Co., USA

Analysis of the Roll Decay Motion for a Patrol Boat by URANS Simulations - OMAE2009-79425
Riccardo Broglia, Roberto Muscari, Andrea Di Mascio
INSEAN-Italian Ship Model Basin, Italy

Roll Response of Ship-Shaped Hulls in Waves - OMAE2009-80043
Yi-Hsiang Yu, Spyros A. Kinnas
University of Texas at Austin, USA

Prediction of Current Load using Computational Fluid Dynamics - OMAE2009-79307
Joo Sung Kim, Chunbeom Hong, Dong Yeon Lee, Sung Mok Ahn
Samsung Heavy Industries Co., LTD., Korea

Calculation Of Current Or Manoeuvring Forces Using A Viscous-Flow Solver - OMAE2009-79782
Serge Toxopeus, Guilherme Vaz
MARIN, Netherlands
Hydrodynamic Effects of Bilge Keels on the Hull Flow during Steady Turning - OMAE2009-79585
Charles Dai, Ronald Miller, Scott Percival
Naval Surface Warfare Center Carderock Division, USA

C.C. Mei Symposium on Wave Mechanics and Hydrodynamics

9-6 Ocean engineering

Tuesday June 2
Regency II | 16:00–18:00
Session Chair: Dick Yue, Massachusetts Institute of Technology, USA
Session Co-Chair: Edmond Lu, Nanyang Technological University, Singapore

Application of L-moments to Ocean Engineering Problems - OMAE2009-80181
John Niedzwiecki1 Amir H. Izadparast2
1. Zachry Department of Civil Engineering, Texas A&M University, USA; 2. Texas A&M University, USA

Mooring Analysis of a Weather vaning FPSO in Bi-Directional Sea-States - OMAE2009-80053
Gopi Chilamcharla1 Krish Thigajaran1 F Windsor2
1. The University of Western Australia, Australia; 2. Deepwater Technology Group, Singapore

A Numerical Analysis of the Response and Air Gap Demand for Semi-submersibles - OMAE2009-79163
Adi Kurniawan1 Zhenhua Huang1 Jing Li1 Chunrong Liu1 Xikun Wong1 Zhiyong Hao1 Soon Keat Tan1 Edwin Nah2
1. Nanyang Technological University, Singapore; 2. Deepwater Technology Group, Singapore

Some aspects of hydro-structure coupling for combined action of seakeeping and sloshing - OMAE2009-79574
Sime Malenica, François-Xavier Sireta, Fabien Bigot, Chao Wang, Xiao-Bo Chen
Bureau Veritas, France

The Mulberry Harbours – A Review Of An Early Example Of Offshore Engineering - OMAE2009-79983
Thomas Adcock, PH. Taylor
University of Oxford, United Kingdom

Ocean Renewable Energy Symposium

10-10 Wave Energy VII

Tuesday June 2
Akaka | 16:00–18:00
Session Chair: Ronald W. Yeung, University of California, Berkeley, USA
Session Co-Chair: Margot Gerritsen, Stanford University, USA

A Buoy-based WEC Device to Provide Low Power to Sensors - OMAE2009-80991
Ned Davis1 R.C. Ertekin2 Ron Riggs3
1. Trex Enterprises Corporation, USA; 2. University of Hawaii, USA; 3. University of Hawaii at Manoa, USA

Experimental Study of a Radial Turbine Using Floating Nozzle for Wave Energy Conversion - OMAE2009-80076
Toshio Konno1 Yoshihiro Nagata1 Manabu Takao2 Toshiaki Setoguchi1
1. TOYO Technology Inc., Japan; 2. Matsue College of Technology, Japan; 3. Saga University, Japan

Numerical simulation of wake effects in the lee of a farm of wave energy converters - OMAE2009-79714
Charlotte Beels, Peter Troch, Julien De Rouck, Tom Versluys, Griet De Backer
Ghent University, Belgium

Measurement of the Effect of Power Absorption in the Lee of a Wave Energy Converter - OMAE2009-79793
Ian Ashton1 Lars Johanning1 Brian Linfoot1
1. University of Exeter, United Kingdom; 2. Heriot-Watt University, Scotland

Offshore Geotechnics Symposium

12-8 Field Investigations

Tuesday June 2
Ewa | 16:00–18:00
Session Chair: Edward Clukey, BP America, USA
Effect of Drill-ship Motions on Core Sample Conditions during the Nankai Trough Seismogenic Zone Experiment - OMAE2009-79131
Yuichi Shimamoto, Kazuyasu Wada
Japan Agency for Marine-Earth Science and Technology, Japan

Tidal Flat Erosional Features of the Modern Yellow River Delta - OMAE2009-79209
Xiangmei Meng, Yonggang Jia, Hongxian Shan, Jingtai Song
Ocean University of China, China

The Study on Property Non-Uniformity of Superficial Sediment Property at the Yellow River Estuary, China - OMAE2009-79212
FangQiang Chang, Yonggang Jia, Hongxian Shan, Tao Liu
Ocean University of China, China

Influence of a Roller Clump On the Seabed - OMAE2009-80145
Ana Ivanovic, Richard D. Neilson, Chibisi Chima-Okereke, Jianfeng Zhu
University of Aberdeen, United Kingdom

Petroleum Technology Symposium

13-7 Multiphase Flow I

Tuesday June 2
Hilo | 16:00–18:00
Session Chair: Faruk Civan, The University of Oklahoma, USA
Accurate Well-bore Hydraulics Simulation Considering Non-isothermal and Liquid Slippage Phenomena for Multiphase Flow in Oil and Gas Wells - OMAE2009-80068
Guillermo G. Michel Villazon, Faruk Civan
University of Oklahoma, USA

A Robust Asymptotically Based Modeling Approach for Two-Phase Liquid-Liquid Flow in Pipes - OMAE2009-79072
M. M. Awad, S. D. Butt
Memorial University of Newfoundland, Canada

Modelling Downhole Separation Efficiency using a Stream Function Approach - OMAE2009-79763
Richard Marquez1 Mauricio Prado2
1. Universidade de Zulia, Venezuela; 2. The University of Tulsa, USA

Interrogation of Gas/Oil Flow in a Vertical using two Tomographic Techniques - OMAE2009-79840
L. A. Abdulkareem1’ B. J. Azopardi1’ S Thiele1’ A Hunt1’ MJ Da Silva1’
Sensitivity of Slug Flow Mechanistic Models on Slug Length - OMAE2009-80141
Cem Sarica¹ Hong-Quan (Holden) Zhang¹ Robert J. Wilkens²
1. The University of Tulsa, USA; 2. University of Dayton, USA

Wednesday, 9:00–10:30

Offshore Technology Symposium

1-11 Mooring and Thruster Systems I
Wednesday June 3
Waianae | 9:00–10:30
Session Chair: David Brown, BPP-TECH, United Kingdom
Session Co-Chair: Jim Lye, BPP-TECH, United Kingdom
Contribution of the Mooring System to the Low-Frequency Motions of a Semisubmersible in Combined Waves and Current - OMAE2009-79074
Amany M.A. Hassan¹ Atilla Inciçek¹ Martin J Downie¹ Carl Trygge Stansberg¹
1. Newcastle University, United Kingdom; 2. University of Glasgow, United Kingdom; 3. MARINTEK, Norway
Experimental and Numerical Study on Large Truncation of Deepwater Mooring Line - OMAE2009-79218
Yihua Su¹ Jianmin Yang¹ Longfei Xiao² Gang Chen¹
1. State Key Laboratory of Ocean Engineering, Shanghai Jiao Tong University, China; 2. Shanghai Jiao Tong University, China
Influence Of Nonlinear Mooring Stiffness On Hydrodynamic Performance Of Floating Bodies - OMAE2009-79697
Ren Huiling, Zhang Jian, Guoqing Feng, Li Hui, Chenfeng Li
Harbin Engineering University, China
The Analysis of Mooring Systems of a Drillship - OMAE2009-79320
Gang Ma, Liping Sun, Hongwei Wang
Harbin Engineering University, China

1-22 Offshore Developments I
Wednesday June 3
Kahuku | 9:00–10:30
Session Chair: Denby Morrison, Shell International E & P, USA
Similar Model Design and Modal Experimental Analysis of Offshore Platforms - OMAE2009-79058
Rujian Ma, Yantao An, Guixi Li
University of Jinan, China
Operational Modal Analysis of Existing Floating Structure - OMAE2009-79829
Keisuke Saito¹ Shigeyuki Naruta¹ Hiroaki Eto¹ Osamu Saijo¹ Kiyotaka Ohki¹
1. Nihon University, Japan; 2. Tennada Warehouse Company, Japan
Offshore Platform Turn Around Using the Critical Chain Project Management Method (CCPM) - OMAE2009-79484
Jose Finocchio Jr, Marcelo R. Martins
Universidade de Sao Paulo, Brazil
Analysis of the Tunnel Immersion for the Busan-Geoje Fixed Link Project through Scale Model Tests and Computer Simulations - OMAE2009-79385
Hans Cozijn¹ Jin Wook Heo¹

Structures, Safety and Reliability Symposium

2-12 Ultimate strength I
Wednesday June 3
Koko Crater | 9:00–10:30
Session Chair: Jeom Paik, Pusan National University, Korea
Session Co-Chair: Purnendu Das,
Assessment of the Total Ship's Hull Girder Bending Stresses When Unified Model of Sagging and Hogging Bending Moments is Used - OMAE2009-79984
Lyuben Ivanov
American Bureau of Shipping, USA
Ultimate Bearing Capacity of Hull Girder Considering the Effects of the Local Loads - OMAE2009-79669
Ren Huiling, Li Chenfeng, Feng Guoqing, Baoqiang Bai, Zhang Jian, Liu Xiaobo
Harbin Engineering University, China
Study on Ultimate Strength Analysis Method for SWATH Ships - OMAE2009-79828
Bin Liu, Weiguo Wu
Wuhan University of Technology, China
Ultimate Strength Analysis of Ship Hull Girder under Random Yield Strength and Initial Imperfections - OMAE2009-79887
Suhas Vhanmane¹ Baidurya Bhattacharya¹
1. Indian Register of Shipping, India; 2. Department of Civil Engineering, Indian Institute of Technology Kharagpur, India

Pipeline and Riser Technology Symposium

4-14 On-Bottom Behavior and Pipe-Soil Interaction I
Wednesday June 3
Kona | 9:00–10:30
Session Chair: William (Bill) Todd, Riser Analysos and Management LLC, USA
Session Co-Chair: Ibrahim Konuk, Norges teknisk-naturvitenskapelige universitet, Norway
Knut Tornes¹ Hammam Zeitoun¹ Gary Cumming² John Willcocks¹
1. J P Kenny, Australia; 2. J P Kenny Pty Ltd, Australia
Advanced Dynamic Stability Analysis - OMAE2009-79778
Hammam Zeitoun¹ Knut Tornes¹ John Li³ Simon Wong¹ Ralph Brevet¹ John Willcocks¹
1. J P Kenny, Australia; 2. Mustan Engineerging, Australia
The Effect of Soil Non-linearity on VIV Response of a Free Spanning Pipeline - OMAE2009-79663
Shangmao Ai, Liping Sun, Gang Ma
Harbin Engineering University, China
Design Challenges and Experience With Controlled Lateral Buckle Initiation Methods - OMAE2009-79434
Forbes Sinclair¹ David Bruton¹ Malcolm Carr¹ Tim Farrant¹
1. Atkins Boreas, United Kingdom; 2. BC United Kingdom
Wednesday, 9:00–10:30

4-22 Flexible Pipes I

Wednesday June 3

Session Chair: Murilo Vaz, COPPE/UF RJ, Brazil
Session Co-Chair: Zhimin Tan, Wellstream International Ltd, USA

Flexible Pipe Curved Collapse Resistance Calculation - OMAE2009-79117
Laurent Paumier1 Antoine Felix-Henry1 Daniel Averbuch2
1. Flexi France, France; 2. IFP, France

A Multi-Scale Approach to the Analysis of Ultra Deepwater Unbonded Flexible Risers - OMAE2009-80182
Ali Bahtui, Giulio Alfano, Hamid Bahai
Brunel University, United Kingdom

Bend Stiffener Design through Structural Optimization - OMAE2009-79505
Rafael Tanaka1 Lauro Silveira1 Joao Novaes1 Eduardo Barros1 Clóvis Martins1
1. Prysmian Cables and Systems, Brazil; 2. University of São Paulo, Brazil

Ocean Space Utilization Symposium

5-8 Ocean Space Utilization for food production II

Wednesday June 3

Session Chair: Tsutomu Takagi, Kinki-daigaku University, Japan
Session Co-Chair: Daisuke Kitazawa, Institute of Industrial Science, The University of Tokyo, Japan

Development of a fish behaviour model in coastal sea - OMAE2009-79334
Keiichiro Hakuta, Shigeru Tabeta
The University of Tokyo, Japan

A Good Practice of Coastal and Ocean Space Utilization for Redevelopment of Fishing Village in case of South Korea and Japan - OMAE2009-79628
Wonjo Jung1 Takeo Kondo1 Kazukiyo Yamamoto1 Hanseok Lee2
1. Nihon University, Japan; 2. Korea Maritime University, Korea

Results from Real Sea Experiment of Ocean Nutrient Enhancer TAKUMI - OMAE2009-79866
Kazuyuki Ouchi
The University of Tokyo, Japan

Ocean Engineering Symposium

6-4 Marine Vehicles and Structures - I

Wednesday June 3

Session Chair: Sander Calisal, UBC Okanagan, Canada
Session Co-Chair: Rene Huijsmans, Delft University of Technology, Netherlands

Fatigue Life Assessment of Offshore Patrol Vessel - OMAE2009-79005
Asokendu Samanta, P Kuninjevelan
Indian Register of Shipping, India

Experimental Investigation on Immersion of Tunnel Element - OMAE2009-79073
Zhijie Chen1 Yongue Wang2 Guoyu Wang1 Yong Hou2
1. State Key Laboratory of Coastal and Offshore Engineering, Dalian University of Technology, China; 2. Guangzhou Nanhua Project Mangement Co., Ltd, China

Statistical Investigation of the Nonlinear Behavior of Structures Operating Offshore - OMAE2009-79604
Juergen Reimers, Katrin Ellemann
Hamburg University of Technology, Germany

Numerical Analysis of Pneumatic Damping Effect on A Motion-constraint Floating Breakwater - OMAE2009-79286
Weoncheol Koo
University of Ulsan, Korea

6-27 Advanced Ship-Hydromechanics/Marine Technology - IV

Wednesday June 3

Session Chair: Nuno Fonseca, Instituto Superior Técnico, Portugal
Session Co-Chair: Sascha Kosleck, Technical University Berlin, Germany

Distribution of Wave Impact Forces From Breaking and Non-Breaking Waves - OMAE2009-79978
Anne Fullerton1 Thomas Fu2 Edward Ammeen3
1. NSWCCD, USA; 2. Naval Surface Warfare Center, Carderock Division, USA; 3. Naval Surface Warfare Center, USA

Flow Field Analysis Around the Ship FIN Stabilizer Including Free Surface - OMAE2009-79970
Hassan Ghassemi1 F. Hussein dadmarzi1 P. Ghadimi1 Babak Omamnai2
1. Amirkabir University of Technology, Iran; 2. Sharif University of Technology, Iran

Numerical prediction of thruster-thruster interaction - OMAE2009-79744
Rutger Bosland1 Rene Huijsmans2 J.M Dijk3
1. Allseas Engineering/ Delft University of Technology, Netherlands; 2. Delft University of Technology, Netherlands; 3. Allseas Engineering bv, Netherlands

Dynamic Control of Biologically Inspired Pulsatile Jet Propulsion Thrusters - OMAE2009-80019
Michael Krieg, Kamran Mohseni
University of Colorado, USA

CFD and VIV Symposium

8-7 Riser VIV - suppression

Wednesday June 3

Session Chair: Kjetil Skaugset, StatoilHydro, Norway
Session Co-Chair: Julien Szydlowski, IFP, France

Blade Henning Devices for VIV Suppression of Offshore Tubulars - OMAE2009-79014
Li Lee, Don W. Allen, Dean L Henning
Shell Global Solutions (US) Inc., USA

VIV and WIV suppression with parallel control plates on a pair of circular cylinders in tandem - OMAE2009-79081
Gustavo R.S. Assi, Peter W. Bearman
Imperial College, United Kingdom

Preliminary Instability-Analysis of Deepwater Riser with Fairings - OMAE2009-79116
Mahdi Khorasanchi1 Shan Huang2
1. Universities of Glasgow and Strathclyde, United Kingdom; 2. University of Strathclyde, United Kingdom
8-11 Fluid-structure Interaction (FSI)

Wednesday June 3  |  Iao  |  9:00–10:30

Session Chair: Didier Lucor, Université Pierre et Marie Curie, France
Session Co-Chair: Milovan Peric, CD-adapco, Germany

Prediction of VIV Response of a Flexible Pipe by Coupling a Viscous Flow Solver and a Beam Finite Element Solver - OMAE2009-79150
Juan Pontaza1, Raghu Menon2
1. Shell Global Solutions (US) Inc., USA; 2. Shell Global Solutions (Malaysia), Malaysia

Verification and Validation of CFD Solutions as Applied to Marine Hydrodynamics - OMAE2009-79419
Charlie Dalton1, Juan Pontaza2
1. University of Houston, USA; 2. Shell Global Solutions (US) Inc., USA

Time Domain VIV Analysis Of A Free Standing Hybrid Riser - OMAE2009-79510
Nico Liu, Yongming Cheng, Roger Burke, Kostas Lambropoulos
Technip, USA

Fully-Coupled Fluid-Structure Interaction for Offshore Applications - OMAE2009-79804
Rajeev Jainam1, Farzin Shakib1, Owen H. Oakley, Jr.2, Yiannis Constantinides3
1. ACUSIM Software, Inc., USA; 2. ACUSIM Software, Inc., Cambodia; 3. Chevron Energy Technology Co., USA

C.C. Mei Symposium on Wave Mechanics and Hydrodynamics

9-7 Wave hydrodynamics

Wednesday June 3  |  Regency II  |  9:00–10:30

Session Chair: Ole S. Madsen, Mass. Institute of Technology, USA
Session Co-Chair: Paolo Sammarco, Università di Roma tor Vergata - dip ing civile, Italy

Reflection of Water Waves in a Rectangular Channel - OMAE2009-79388
Jie Yu1, Louis Howard2
1. North Carolina State University, USA; 2. Massachusetts Institute of Technology, USA

Higher order resonant interaction of surface waves by undulatory bottom topography - OMAE2009-80069
Mohammad-Reza Alam, Yuming Liu, Dick Yue
Massachusetts Institute of Technology, USA

Wave Height Variation Across Surf Zone of Bar Type Profile - OMAE2009-80233
Tai-Wen Hsu, Kun-Hsien Lai
Department of Hydraulics & Ocean Engineering National Cheng Kung University, Taiwan

Numerical Simulation of Wind Effects On Breaking Solitary Waves by Navier-Stokes Equations - OMAE2009-79054
Zhihua Xie1, Xianyun Wen1, Andrew N. Ross2
1. Centre for Computational Fluid Dynamics, University of Leeds, United Kingdom; 2. School of Earth and Environment, University of Leeds, United Kingdom

Dynamic interactions between the vadose and phreatic zones during breaking solitary wave runup and drawdown over a fine sand beach - OMAE2009-80115
Heng Xiao, Yin-Lu Young, Jean H. Prevost
Princeton University, USA

Ocean Renewable Energy Symposium

10-7 Wave Energy IV

Wednesday June 3  |  Akaka  |  9:00–10:30

Session Chair: Erik D. Christensen, DHI, Denmark
Session Co-Chair: Wei Qiu, Memorial University of Newfoundland, Canada

An Investigation into the Non-Linear Effects Resulting from Air Cushions in the Orecon Oscillating Water Column (OWC) Device - OMAE2009-79115
Jim Lye1, David Brown1, Fraser Johnson2
1. BPP-TECH, United Kingdom; 2. Orecon Ltd, United Kingdom

Numerical Modeling and Ocean Testing of a Direct-Drive Wave Energy Device Utilizing a Permanent Magnet Linear Generator for Power Take-Off - OMAE2009-79146
David Elwood1, Al Schachter2, Joe Prudell3, Ean Amone, Annette vonJouanne1, Solomon Yim1, Ken Rhinefrank1, Ted Breken1
1. Devine Tarbell and Associates, USA; 2. Columbia Power Technologies, USA; 3. Oregon State University, USA

Experimental Investigation of the Validity of Linear Theory to Assess the Behaviour of a Heaving Point Absorber at the Belgian Continental Shelf - OMAE2009-79781
Griet De Backer, Marc Vantorre, Kim De Beule, Charlotte Beels, Julien De Rouck
Ghent University, Belgium

Design Synthesis of a Wave Energy Converter - OMAE2009-79450
Scott Beatty1, Clayton Hiles1, Ryan Nicoll2, Jim Adamson3, Brad Buckham1
1. University of Victoria, Canada; 2. Dynamic Systems Analysis, Canada; 3. SyncWave Systems, USA

Offshore Geotechnics Symposium

12-7 Pile Foundations I

Wednesday June 3  |  Ewa  |  9:00–10:30

Session Chair: Horst Brander, University of Hawaii, USA

Numerical Simulations Concerning the Tendency of Soil Plugging in Open-Ended Steel-Piles - OMAE2009-79040
Sascha Henke, Jürgen Grabe
Hamburg University of Technology, Institute of Geotechnics and Construction Management (B-5), Germany

Skin Friction of Taper-Shaped Piles in Sands - OMAE2009-79078
Suman Manandhar1, Noriyuki Yasufuku1, Kazutaka Shomura2
1. Kyushu University, Japan; 2. JR Kyushu Corporation, Japan

Experimental Investigation into Plugging of Open-Ended Piles - OMAE2009-79299
Jelke Dijkstra, Wout Broere
Delft University of Technology, Netherlands

Study on Negative Skin Friction of Pile Groups Considering Coupled Effect of Surface Load and Soil Consolidation - OMAE2009-79679
Kong Gangqiang, Yang Qiang, Maotian Luan
Dalian University of Technology, China
Petroleum Technology Symposium

13-1 Description and Optimization of Well Performance I

Wednesday June 3  Hilo  |  9:00–10:30
Session Chair: Gabor Takacs, The Petroleum Institute, United Arab Emirates

State of the Art on Experimental Studies and Predictive Methods for Slug Liquid Holdup - OMAE2009-80195
Eduardo Pereyra1 Rosnayi Arismendi1 Luis Gomez2 Ram Mohan3 Ovadia Shoham3 Gene Koub3
1. The University of Tulsa, USA; 2. Chevron, USA

Modeling Two Phase Flow Inside an Electrical Submersible Pump Stage - OMAE2009-79727
Lissett Barrios, Mauricio Prado
The University of Tulsa, USA

Experimental Visualization of Two Phase Flow Inside an Electrical Submersible Pump Stage - OMAE2009-79726
Lissett Barrios, Mauricio Prado
The University of Tulsa, USA

Offshore Technology Symposium

1-12 Mooring and Thruster Systems II

Wednesday June 3  Waianae  |  11:00–12:30
Session Chair: Jim Lye, BPP-TECH, United Kingdom
Session Co-Chair: David Brown, BPP-TECH, United Kingdom

Progressive Mooring-line Failure of a Deepwater MODU in Hurricane Conditions - OMAE2009-79794
Zhi Zhang, Moo-Hyun Kim, E.G. Ward
Texas A&M University, College Station, USA

The Usage of Artificial Neural Network in Predicting the Maximum Mooring Forces of SPM - OMAE2009-79972
Said Mazaheri
Maritime Technology Group/TRI, Iran

Hydrodynamic and safety aspects of mooring line anchors in accidental free fall - OMAE2009-80168
Halvor Lie, Ivar Fylling, Erik Lehn
MARINTEK, Norway

Shallow water STL mooring and riser system - OMAE2009-79511
Qinzheng Yang1 Mathu Chezhian2 Geir Olav Hovde3
1. Advanced Production and Loading Inc, USA; 2. Advanced Production and Loading Inc, Norway

Fatigue Life Prediction of Mooring Chains Subjected to Tension and Out of Plane Bending - OMAE2009-79253
Tom Lassen1 Eirik Storvoll2 Arild Bech1
1. Agder University, Norway; 2. Advanced Production and Loading, Norway

Structures, Safety and Reliability Symposium

2-13 Ultimate strength II

Wednesday June 3  Koko Crater  |  11:00–12:30
Session Chair: Ge Wang, American Bureau of Shipping, USA
Session Co-Chair: Purnendu Das,

Effects of welding residual stresses on high tensile steel plate ultimate strength: Nonlinear finite element method investigations - OMAE2009-79297
Jeom Paik, Jung Min Sohn
Pusan National University, Korea

Plastic Buckling of Conical Shells - OMAE2009-79219
Jan Blachut, O. Ifayefunmi
The University of Liverpool, United Kingdom

On buckling collapse of a fusion-welded aluminum stiffened-plate structure: Experimental and numerical studies - OMAE2009-79300
Jeom Paik, Bong Ju Kim, Jung Min Sohn, Sung Hoon Kim, Jae Min Jeong, June Seok Park
Pusan National University, Korea

Shear Strength of Plate Girders in Ship Structures - OMAE2009-79962
Gang Dong1 Torger Moan1
1. Grenland Group Technology, Norway; 2. NTNU, Norway

2-15 Probabilistic Response Models I

Wednesday June 3  Hilo  |  11:00–12:30
Session Chair: Elzbieta Bitner-Gregersen, Det Norske Veritas AS, Norway
Session Co-Chair: Lance Manuel, University of Texas at Austin, USA

Numerical Simulations of the Rolling of a Ship in a Stochastic Sea – Evaluations by use of MCS and FORM - OMAE2009-79765
Ulrik D. Nielsen, Jørgen J. Jensen
Technical University of Denmark, Denmark

Pol D Spanos1 Vincenzo Nava1 Felice Arena2
1. Rice University, USA; 2. Mediterranea' University of Reggio Calabria, Italy; 3. Mediterranea' University, Italy
Ocean Space Utilization Symposium

5-2  VLFS and hydroelasticity I

Wednesday June 3  Molokai | 11:00–12:30
Session Chair: Chien Ming Wang, National University of Singapore
Session Co-Chair: Tomoki Ikoma, Nihon University, Japan
A Convergence Study on Mixed Mode Function — Boundary Element Mehtod for Aircraft-VLFS-Water Interaction System
Subject to Aircraft Landing Impacts - OMAE2009-79090
Jingzhe Jin1  JingTang Xing2
1. Norwegian Marine Technology Research Institute, Norway; 2. University of Southampton, United Kingdom

Flexural Gravity Wave Scattering Due To Variations In Bottom Topography - OMAE2009-79191
Trilochan Sahoo1  Debabrata Karmakar1  Joydip Bhattacharjee1
1. IIT, Kharagpur, India; 2. ISI, Kolkata, India

Study on Drifting Distance and Collision Force of Floating Vessels Run on Apron by Tsunami - OMAE2009-79314
Xujun Chen1  Torger Moan1  Xuefeng Tang3
1. Engineering Institute of Engineering Corps, PLA University of Science and Technology, China; 2. Centre for Ships and Ocean Structures, Norwegian University of Science and Technology, Norway; 3. PLA University of Science and Technology, China

Ocean Engineering Symposium

6-5  Marine Vehicles and Structures - II

Wednesday June 3  Puna | 11:00–12:30
Session Chair: Katrin Ellermann, Hamburg University of Technology, Germany
Session Co-Chair: Daniel A.G. Walker, BP, United Kingdom

Motion Prediction of the Ship With Sloshing Tanks - OMAE2009-80118
Quan-Ming Miao1  Kang Zou1  Ren-qing zhu2
1. China Ship Scientific Research Center, China; 2. Jiangsu University of Science and Technology, China

Time Domain Simulation of the Maneuvering of a Vessel In a Seaway - OMAE2009-79946
Elin Marita Hermundstad, Jan Roger Hoff
MARINTEK, Norway

Use of Cryogenic Buoyancy Systems for Controlled Removal of Heavy Objects from the Seabed - OMAE2009-79958
Rachel Nicholls-Lee, Stephen Turnock, Ming Yi Tan, Paul C. McDonald, R.A. Shenoi
University of Southampton, United Kingdom

Study on Snap Tension in Mooring Lines of Deepwater Platform - OMAE2009-79881
Zhang Su-xia1  You Gang Tang1  Liu Hai-xiao1
1. Tianjin University, China; 2. School of Civil Engineering, Tianjin University, China
6-14 Coastal Engineering – II

Wednesday June 3
Session Chair: Jang W. Kim, Technip, USA
Session Co-Chair: Jose Carlos Nieto Borge, Universidad de Alcalá, Spain

Simulation of Water Particle Kinematics in the Near Surface Zone - OMAE2009-79263
Gholamhossein Najafian1 Noor Irza Mohd Zaki1 Galeb Agel2
1. The University of Liverpool, United Kingdom; 2. Mott MacDonald, United Kingdom

Morphodynamic Simulation at the South Branch of Yangtze Estuary - OMAE2009-79418
Xiaoyan Zhou1 Ulrich Zanke1 Youin Yan1 Jinhai Zheng1
1. Technische Universität Darmstadt, Germany; 2. Hohai University, China

Study on the two patters of vertical velocity profile of tidal current and their law in estuary and coastal waters - OMAE2009-79685
Ni Zhi-hui1 song Zhiyao2 1. Hohai University, China; 2. Nanjing Normal University, China

Comparative Study of Wave Load Effects for Two Wave Energy Converter Concepts - OMAE2009-80243
Reza Taghipour, Arswendy Arswendy, Torgeir Moan
Norwegian University of Science and Technology, Norway

CFD and VIV Symposium

8-8 Riser VIV modeling – wake oscillators

Wednesday June 3
Session Chair: Carl Martin Larsen, NTNU, Norway
Session Co-Chair: Kjetil Skaugset, StatoilHydro, Norway

Vortex-Induced Vibrations on Flexible Cylindrical Structures Coupled with Non-Linear Oscillators - OMAE2009-79022
Guilherme Rosetti1 Kazuo Nishimoto1 Jaap de Wilde2
1. University of São Paulo, Brazil; 2. MARIN, Netherlands

Prediction of Vortex-induced Vibration of Flexible Riser Using an Improved Wake-Oscillator Model - OMAE2009-79336
Weimin Chen1 Liwu Zhang1 Min Li2
1. Institute of Mechanics, Chinese Academy of Sciences, China; 2. Beijing University of Aeronautics and Astronautics, China

Vortex-Induced Vibration of Catenary Riser: Reduced-Order Modeling and Lock-In Analysis Using Wake Oscillator - OMAE2009-79166
Narokorn Srinil1 Marian Wiercigroch1 Patrick O’Brien1 Rae Younger1
1. The University of Liverpool, United Kingdom; 2. University of Aberdeen, United Kingdom

Hydrodynamics Loads on Two Degree-of-Freedom Cylinder With Uncertain Natural Frequencies Subject to VIV - OMAE2009-79323
Didier Lucor
CNRS - Paris 6, France

8-12 CFD Modeling – Waves, Tsunamis, SPH

Wednesday June 3
Session Chair: Milovan Peric, CD-adapco, Germany
Session Co-Chair: Vivek Jaiswal, Massachusetts Institute of Technology, USA

Numerical Simulations of Tsunami Wave Generation by Submarine and Aerial Landslides Using RAAS and SPH Models - OMAE2009-79596
Kausik Das, Ron Janetzke, Debashis Basu, Steve Green, John Stamatakos
Southwest Research Institute, USA

Numerical Simulation of Dynamic Response of Structure Caused By Wave Impact Pressure Using An Eulerian Scheme With Lagrangian Particles - OMAE2009-79736
Hidemi Matsuda, Yasuaki Doi, Hiroshima University, Japan

Numerical Simulation of Interface Time Evolution by Oriented Lagrangian Particles and Level-Set Method - OMAE2009-79929
Sandro Ianniello1 Andrea Di Mascio2
1. INSEAN, Italy; 2. INSEAN-Italian Ship Model Basin, Italy

Boundary Layer and Wake Region Simulation for Low Reynolds Number Flows Around Bluff Bodies Using the Lattice Boltzmann Method - OMAE2009-79937
Masoud Hayatdavoodi, University of Hawaii at Manoa, USA

C.C. Mei Symposium on Wave Mechanics and Hydrodynamics

9-8 Ocean/offshore engineering

Wednesday June 3
Session Chair: Stephan Grilli, Department of Ocean Engineering, USA
Session Co-Chair: Tai-Wen Hsu, Department of Hydraulics & Ocean Engineering National Cheng Kung University, Taiwan

Measurement of Green Water on a 3D Structure - OMAE2009-79668
Kusalika Ariyarathne1 Kuang-An Chang2 Richard Mercier1
1. Zachry Department of Civil Engineering, USA; 2. Texas A&M University, USA

Experimental and theoretical study of three-dimensional effects on vertical wave-in-deck forces - OMAE2009-79560
Rolf Baarholm, MARINTEK, Norway

Simple Tool for Prediction of Green Water and Bow Flare Slamming on FPSO - OMAE2009-79489
Carl Trygve Stansberg, Kjetil Berget, MARINTEK, Norway

An Evaluation of Wave Impact Indicators - OMAE2009-79732
Zhigang Tian, Department of Naval Architecture and Marine Engineering, The University of Michigan - Ann Arbor, USA

A fast convergent modal-expansion of the wave potential with application to the hydrodynamic and hydroelastic analysis of floating bodies in general bathymetry - OMAE2009-79681
Kostas Belibassakis1 Prof. Gerassimos Athanassoulis2
1. Technological Educational Institute of Athens, Greece; 2. National Technical University of Athens, Greece

Ocean Renewable Energy Symposium

10-9 Wave Energy VI

Wednesday June 3
Session Chair: Yin Lu (Julie) Young, Princeton University, USA
Session Co-Chair: Michael R. Motley, Princeton University, USA
On the numerical modelling of the non linear behaviour of a wave energy converter - OMAE2009-79099
Auerien Babar1, Pauline Laporte1, Weywada1, Hakim Mouslim1, Alain H. Clement1
1. Ecole Centrale de Nantes, France; 2. Instut Supérieur Mécanique de Paris, France

A Joint Numerical and Experimental Study of a Surfing Point Absorbing Wave Energy Converter (WRASPA) - OMAE2009-79392
Majid A. Bhinder1, Clive G. Mingham1, Derek M. Causon1, Mohammad T. Rahmati1, George A. Aggidis2, Robert V. Chaplin3
1. Manchester Metropolitan University, United Kingdom; 2. Lancaster University, United Kingdom

A numerical investigation of a wave energy harness device-water interaction system subject to the wave maker excitation in a towing tank - OMAE2009-79603
JingTang Xing, Ye Ping Xiong, Ming Yi Tan, Huiyu An
University of Southampton, United Kingdom

Determining the service life of a steel wire under a working load in the Wave Energy Converter (WEC) - OMAE2009-79164
Andrej Savin, Olle Svensson, Erland Strömstedt, Cecilia Bostrom1, Mats Leijon2
Uppsala Universitet, Ångstromlaboratoriet, Sweden

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**Offshore Geotechnics Symposium**

12-12 Pile Foundations II

**Wednesday June 3 | Ewa  11:00–12:30**

**Session Chair:** Jürgen Grabe, Hamburg University of Technology, Institute of Geotechnics and Construction Management (B-S), Germany

**Set-Up of Large Diameter Driven Pipe Piles in Deepwater Normally Consolidated High Plasticity Clays** - OMAE2009-79012
Rathindra Dutt1, Clarence Ehlers2
1. Dutt & Associates, Inc., USA; 2. Chevron Energy Technology Company, USA

**CAPWAP and refined wave equation analyses for driveability predictions and capacity assessment of offshore pile installations** - OMAE2009-80163
Frank Rausche1, Matt Nagy1, Scott Webster1, Liqun Liang2
1. GRL Engineers, Inc., USA; 2. Pile Dynamics, Inc., USA

**Design Of Laterally Loaded Piles With Bulge** - OMAE2009-79087
Jürgen Grabe1, Jan Duerkopp2
1. Hamburg University of Technology, Institute of Geotechnics and Construction Management (B-S), Germany; 2. Hamburg University of Technology, Germany

**Clay-Concrete Pile Interface at Various Marine Environments** - OMAE2009-80033
Gokhan Baykal, Ayse Edincliler
Bogaziçi University, Turkey

**Wednesday, 14:00–15:30**

**Offshore Technology Symposium**

1-8 Semisubmersibles I

**Wednesday June 3 | Waianae  14:00–15:30**

**Session Chair:** Howard Wang, ExxonMobil Development Co., USA
**Session Co-Chair:** Longbin Tao, Newcastle University, United Kingdom

**CFD Simulation of Wave Run-up on a Semi-Submersible and Comparison with Experiment** - OMAE2009-79052
Bogdan Iwanowski1, Marc Lefranc, Rik Wemmenhove
FORCE Technology Norway AS, Norway

**Development Of A Inclining Test Procedure Applicable To Semi Floating Production Units Moored On Location** - OMAE2009-79184
Sergio Nogueira Consultant, Brazil

**Analysis on Low Frequency Heave, Roll and Pitch Motions of a Deepwater Semisubmersible** - OMAE2009-79215
Longfei Xiao1, Jianmin Yang1, Liqun Yang1, Haining Lu2
1. Shanghai Jiao Tong University, China; 2. State Key Laboratory of Ocean Engineering, Shanghai Jiao Tong University, China

1-23 Joint Forum on Shallow Water Waves and Hydrodynamics I

**Wednesday June 3 | Kahuku  14:00–15:30**

**Session Chair:** Bas Buchner, MARIN, Netherlands
**Session Co-Chair:** Xiao-Bo Chen, Bureau Veritas, France

**Slowly Varying Wave Drift Forces Analysed from Model Test Data on a Moored Ship in Shallow Water** - OMAE2009-79491
Carl Trygve Stansberg, Csaba Pákozdi
MARINTEK, Norway

**Experimental Study of the Local Wave Velocity Field During a Wave Impact Occurrence** - OMAE2009-79375
Chittiappa Muthanna, Carl Trygve Stansberg, Rolf J. Baarholm, Astrid Harendza, Mia Prsic
Norwegian Marine Technology Research Institute, MARINTEK, Norway

**Evaluation of a Model for Estimating Infragravity Waves in Shallow Water – Accuracy and Suitability for Long-Term Climatologies** - OMAE2009-79925
Matthijs, H.P. Bijl1, Kevin Ewans2, Ad J.H.M. Reniers2, Stephen Masterton2, Rene Hujsmans4

**On the Application of Advanced Wave Analysis in Shallow Water Model Testing (Wave Splitting)** - OMAE2009-79413
Olaf Waals
MARIN, Netherlands

**Structures, Safety and Reliability Symposium**

2-14 Ultimate strength II

**Wednesday June 3 | Koko Crater  14:00–15:30**

**Session Chair:** Jørgen Amdahl, Norwegian University of Science and Technology, Norway
**Session Co-Chair:** Jeom Paik, Pusan National University, Korea

**Comparing Dynamic and Static Push Over Analysis in Assessment the Ultimate Capacity of Fixed Offshore Platforms** - OMAE2009-79358
Mohammad Mehdi Memarpour1, Mehrdad Kimiaei1, Mohsen Ali Shayanfar1, Mohammead Mehdi Memarpour1, Mehrdad Kimiaei1, Mohsen Ali Shayanfar1
1. IUST, Iran; 2. UWA, Australia

**Study on the Standardized Nonlinear Finite Element Analysis of the Ultimate Strength of Ship Hull Girder** - OMAE2009-79845
Guoqing Feng, Huilong Ren, Baqiang Bai, Chenfeng Li, Liu XiaoBo
Harbin Engineering University, China
The Influence of Middle Frames on the Ultimate Strength of Pressure Cylinder Shell - OMAE2009-79855
Lin Wang, Li Feng
Jiangsu University of Science and Technology, China

Pipeline and Riser Technology Symposium

4-16 On-Bottom Behavior and Pipe-Soil Interaction III

Wednesday June 3
Kona | 14:00–15:30

Session Chair: J.J. Roger Cheng, University of Alberta, Canada
Session Co-Chair: Knut Tornes, J P Kenny, USA

Numerical Simulations of Dynamic Embedment During Pipe Laying on Soft Clay - OMAE2009-79199
Dong Wang, Dave White, Mark Randolph
Centre for Offshore Foundation Systems, Australia

Arctic Pipeline Design Challenges and Current Practices – Ice Scour - OMAE2009-79264
Ibrahim Konuk
Norges teknisk-naturvitenskapelige universitet, Norway

SCR-Seafloor Interaction Modeling with Winkler, Pasternak and Kerr Beam-on-Elastic-Foundation Theories - OMAE2009-79459
Persio L. Barros, Renato Pavanello, Euclides Mesquita Neto, Celso K. Morooka
University of Campinas, Brazil

Video Observations of Dynamic Embedment During Pipelaying - OMAE2009-79814
Zachary Westgate, Dave White, Mark Randolph
Centre for Offshore Foundation Systems, Australia

4-24 Flexible Pipes III

Wednesday June 3
Regency III | 14:00–15:30

Session Chair: Zhimin Tan, Wellstream International Ltd, USA
Session Co-Chair: Murilo Vaz, COPPE/UFRJ, Brazil

Validation of a 3-Dimensional Finite Element Analysis Model of a Deep Water Steel Tube Umbilical in Combined Tension and Cyclic Bending - OMAE2009-79168
Vincent Le Corre1 Ian Probyn2
1. IFP, France; 2. DUCO Ltd, United Kingdom

Characterization and Technical Comparison Between Steel Tube Umbilicals and Thermoplastic Hoses Umbilicals - OMAE2009-79701
André Athayde, Fernando Buscacio, William Albuquerque, Yonathan Rebon, Marco Dias
Petrobras, Brazil

Global Design and Analysis of Umbilicals in Offshore Applications - OMAE2009-79841
Weiyoung Qiu, Qiang Cao, Filippo Librino, Guillermo Hahn, Paul Stanton
Technip, USA

Polynomial Models Applied to the Analysis of Slender Marine Structures - OMAE2009-79926
Fernando JM Sousa1 L V S Sagrilo1 Edison C. P. Lima1
1. Universidade Federal do Rio de Janeiro, Brazil; 2. COPPE/UFRJ, Brazil; 3. Federal University of Rio de Janeiro, Brazil

Ocean Space Utilization Symposium

5-7 VLFS and hydroelasiticity II

Wednesday June 3
Molokai | 14:00–15:30

Session Chair: Hideyuki Suzuki, University of Tokyo, Japan
Session Co-Chair: Koichi Masuda, Nihon University, Japan

Hydroelastic Motion of Air Cushion Type Large Floating Structures With Several Air Cushions Using a Three-Dimensional Theory - OMAE2009-79292
Tomoki Ikioma1 Koichi Masuda1 Chang-Kyu Rheem1 Hisaaki Maeda1 Mayumi Togane1
1. Nihon University, Japan; 2. IIS, The University of Tokyo, Japan

Global Hydroelastic Analysis of Pontoon-Type VLFS - OMAE2009-79471
Linlin Jiao1 Marilena Greco1 Odd Faltinsen1
1. CeSOS & Department of Marine Technology, NTNU, Norway; 2. Department of Marine Technology & CeSOS, Norway; 3. CeSOS, Norwegian University of Science and Technology, Norway

Reducing Hydroelastic Response of Interconnected Floating Beams using a Semi-Rigid Connection - OMAE2009-79692
Chien Ming Wang, Muhammad Riyansyah, Choo Yoo Sang
National University of Singapore, Singapore

Ocean Engineering Symposium

6-6 Marine Vehicles and Structures - III

Wednesday June 3
Puna | 14:00–15:30

Session Chair: Sander Calisal, UBC Okanagan, Canada
Session Co-Chair: Andre Kauffeldt, Technische Universität Berlin, Germany

Nonlinear Time Domain Seismic Analysis for a Coupled Mooring Jacket-Yoke-FSO System - OMAE2009-79180
Partha Chakrabarti
Zentech, Inc., USA

Modeling the Random Environment of Offshore Structures - OMAE2009-79317
Katrin Ellermann
Hamburg University of Technology, Germany

Wave Scattering from Multiple Horizontal Plates as a Breakwater - OMAE2009-79276
Guoyu Wang1 Yongxue Wang2
1. Dalian University of Technology, China; 2. State Key Laboratory of Coastal and Offshore Engineering, Dalian University of Technology, China

Numerical Study of the Motions in Shallow Water Waves of Floating Bodies Elastically Linked to Bottom - OMAE2009-80126
Marcio M. Tsukamoto, Liang-Yee Cheng, Kazuo Nishimoto
University of São Paulo, Brazil

6-24 Coastal Engineering - III

Wednesday June 3
Kohala | 14:00–15:30

Session Chair: Nuno Fonseca, Instituto Superior Técnico, Portugal
Session Co-Chair: Jon Mikkelsen, University of British Columbia, Canada

Verifications Of Diffraction Modeling Capability In A Coastal Spectral Wave Model - OMAE2009-79904
Jinhai Zheng, Yu Tang
Hohai University, China
Observations of the Boundary Layer Characteristics at the Yangtze Estuary - OMAE2009-79697
Jialing Hao, Jinhai Zheng, Wei Zhang
Hohai University, China

Simulation of Water Wave Transformation Using Higher Order Mild-Slope Equation - OMAE2009-80227
Tai-Wen Hsu1 Ta-Yuan Lin1 Kuan-Yu Hsiao1 Shiao-Tin Cheb2
1. Department of Hydraulics & Ocean Engineering National Cheng Kung University, Taiwan; 2. National Cheng Kung University, Taiwan

Polar and Arctic Sciences and Technology

7-1 Ice 1: Numerical Ice Modeling I
Wednesday June 3

Session Chair: Walter Kuehnlein, sea2ice, Germany
Session Co-Chair: Oddgeir Dalane, Norwegian University of Science and Technology, Norway

Introduction into Polar and Arctic Sciences and Technology - OMAE2009-80270
Walter Kuehnlein
sea2ice, Germany

Modelling Techniques and Case Study of Explicit 3D FE-simulation of Ridge Loads against an Offshore Structure - OMAE2009-79113
Jaakko Heinonen
VTT Technical Research Centre of Finland, Finland

Ibrahim Konuk1 Arne Gurtner1 Shenkai Yu2
1. Norges teknisk-naturvitenskapelige universitet, Norway; 2. Geological Survey of Canada, Canada

Ibrahim Konuk1 Arne Gurtner1 Shenkai Yu2
1. Norges teknisk-naturvitenskapelige universitet, Norway; 2. Geological Survey of Canada, Canada

CFD and VIV Symposium

8-9 Riser VIV - data analysis & interpretation
Wednesday June 3

Session Chair: Vikas Jhingran, Shell Exploration and Production, USA
Session Co-Chair: Steve Leverette, SBMAtlantia, USA

VIV Force Identification Using Classical Optimal Control Algorithm - OMAE2009-79568
Jie Wu1 Philippe Maincon1 CARL M. Larsen2 Halvor Lie1
1. MARINTEK, Norway; 2. NTNU, Norway

Modelling of heave induced lateral motion - OMAE2009-79652
Cedric Le Gufff1 Melanie Bonnissel1 Julien Szydlowski1 Gilbert Damy4
1. Principia R.D., USA; 2. Principia R.D., France; 3. ITP, France; 4. IFREMER, France

VIV Hydrodynamic Data Extraction From Field Data - OMAE2009-79690
Filippos Chasparis1 Michael Triantafyllou1 Yahya Modarres1 Yiannis Constantintides3 Franz Hover1 Harish Mukundan1
1. Massachusetts Institute of Technology, USA; 2. Chevron Energy Technology Company, USA

Linear stability approach to explain lock-in transition and time sharing in vortex-induced vibrations of slender structures - OMAE2009-80132
Remi Violette1 Julien Szydlowski1 Emmanuel de Langre1
1. ITP, France; 2. LudHyx - Ecole Polytechnique, France

8-13 Sloshing & Free Surface Modeling
Wednesday June 3

Session Chair: Charles Dalton, University of Houston, USA
Session Co-Chair: Juan Pontaza, Shell Global Solutions (US) Inc., USA

Numerical Simulation of Sloshing in a Tank, CFD Calculations against Model Tests - OMAE2009-79051
Bogdan Iwanowski, Marc Lefranc, Rik Wemmenhove
FORCE Technology Norway AS, Norway

Assessment of Transient Sloshing Due to Encounter of an LNG Carrier With a Steep Wave - OMAE2009-79080
Sebastian Schreier1 Bernhard Godderidge2 Mathias Paschen1
Stephen Turnock1 Ming Yi Tan2 Nicholas Cowlan1
1. University of Rostock, Germany; 2. University of Southampton, United Kingdom; 3. BMT Seatech Ltd., United Kingdom

Progressive Wave Simulation Using Stabilized Edge-Based Finite Element Methods - OMAE2009-79641
Paulo de Tarsa Themistocles Esperança1 Alvargo Goutinho1 Renato N. Elias2
Milton A. Goncalves1 Marcos D.A.S. Ferreira1 Marcos A.D. Martins3
1. LabOcean/Ocean Engineering Dep./COPPE-UFRJ, Brazil; 2. Center for Parallel Computations, Federal University of Rio de Janeiro, Brazil; 3. Petrobras Research Center, Brazil

Validation of an SPH sloshing simulation by experiments - OMAE2009-79792
Czaba Pákozdi, Mateusz Graczyk
MARINTEK, Norway

C.C. Mei Symposium on Wave Mechanics and Hydrodynamics

9-9 Coastal hydrodynamics
Wednesday June 3

Session Chair: Chiou-On Ng, The University of Hong Kong, China
Session Co-Chair: Jie Yu, North Carolina State University, USA

Efficient non-hydrostatic modeling for free surface waves in deep and shallow water - OMAE2009-79894
Chin H. Wu1 Chih-Chieh Young2
1. University of Wisconsin-Madison, USA; 2. National Taiwan University, Taiwan

Higher-Order Modeling of Water Waves Generated by Submerged Moving Disturbances - OMAE2009-80063
Hongqiang Zhou1 Michelle H. Teng2
1. NOAA Center for Tsunami Research, Pacific Marine Environmental Laboratory, NOAA, USA; 2. Department of Civil and Environmental Engineering, University of Hawai’i, Manoa, USA

The Transformation Between the Eulerian and Lagrangian Solutions for Irrotational Standing Gravity Waves - OMAE2009-79927
Yang-Yih Chen1 Hung-Chu Hsu2
1. Dept. of Marine Environment and Eng., Taiwan; 2. Tainan Hydraulics Lab., Research Center of Ocean Environment and Technology, NCKU, Taiwan
**Ocean Renewable Energy Symposium**

**10-12 Wind Energy I**

**Wednesday June 3**

**Akaka** | 14:00–15:30

**Session Chair:** Walt Musial, National Renewable Energy Laboratory, USA

**Session Co-Chair:** Charles Smith, US Minerals Management Service, USA

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**Extreme Load Predictions for Floating Offshore Turbines** - OMAE2009-79160

Jørgen J. Jensen

Technical University of Denmark, Denmark

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**A Review of Hydrodynamic Effects on Bottom-Fixed Offshore Wind Turbines** - OMAE2009-79630

Karl Merz¹ Geir Moe¹ Øve T. Gudmestad²

1. NTNU, Norway; 2. UIS - University of Stavanger and NTNU - Norwegian University of Science and Technology, Norway

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**Transfer of Boussinesq waves to a Navier-Stokes solver. Application to wave loads on an offshore wind turbine foundation.** - OMAE2009-79629

Erik D. Christensen¹ Henrik Bredmose² Erik Asp Hansen³

1. DHI, Denmark; 2. Technical University of Denmark, Denmark; 3. DNV Danmark, Denmark

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**Modeling Nonlinear Irregular Waves in Reliability Studies for Offshore Wind Turbines** - OMAE2009-80149

Puneet Agarwal¹ Lance Manuel²

1. Stress Engineering Services, Inc., USA; 2. University of Texas at Austin, USA

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**Offshore Geotechnics Symposium**

**12-6 Shallow Foundations**

**Wednesday June 3**

**Ewa** | 14:00–15:30

**Session Chair:** Fraser Bransby, University of Dundee, United Kingdom

**Spudcan Penetration in Loose Sand over Uniform Clay** - OMAE2009-79214

Long Yu¹ Yuxia Hu¹ Jun Liu²

1. University of Western Australia, Australia; 2. Dalian University of Technology, China

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Jun Liu¹ Yuxia Hu²

1. Dalian University of Technology, China; 2. University of Western Australia, Australia

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**Push-Over Response of a Jack-Up on Sand of Different Relative Densities** - OMAE2009-79236

Britta Bienen¹ Mark Cassidy¹ Christophe Gaudin²

1. COPS, University of Western Australia, Australia; 2. Centre for Offshore Foundation System, Australia

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**Offshore Technology Symposium**

**1-9 Semisubmersibles II**

**Wednesday June 3**

**Waianae** | 16:00–18:00

**Session Chair:** Longpin Tao, Newcastle University, United Kingdom

**Session Co-Chair:** Howard Wang, ExxonMobil Development Co., USA

**FHS Semi; A Semisubmersible Design For Dry Tree Applications** - OMAE2009-79303

Alaa Mansour

INTECSA WorleyParsons Group, USA

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**Viscous Drift Forces and Responses on a Semisubmersible Platform in High Waves** - OMAE2009-79483

Petter Andreas Berthelsen¹ Rolf Baarholm² Csaba Pákodzi³ Carl Trygve Stansberg⁴ atman hussan⁵ Martin Downnie⁶ Atilla Incecik⁷

1. MARINTEK, Norway; 2. University of Newcastle, United Kingdom; 3. Department of Naval Arch and Marine Engineering, Scotland

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**Motion Comparisons between a conventional Deep Draft Semi-submersible and a Dry Tree Semi-submersible** - OMAE2009-80006

Anis Hussain¹ Edwin Nah¹ Rain Fu¹ Apurva Gupta²

1. Keppel Deepwater Technology Group, Singapore; 2. Keppel Offshore & Marine USA, USA

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**Innovative Harsh Environment Dry-Tree Support Semi-submersible for Ultra Deepwater Applications** - OMAE2009-80085

Nagan Srinivasan¹ Sundaravadivelu R² Selvakumar³ Rahul Kanotra³

1. Deepwater Structures Inc, USA; 2. Indian Institute of Technology Madras, India; 3. ITM, India

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**1-27 Joint Forum on Shallow Water Waves and Hydrodynamics II**

**Wednesday June 3**

**Kahuku** | 16:00–18:00

**Session Chair:** Bas Buchner, MARIN, Netherlands

**Session Co-Chair:** Xiao-Bo Chen, Bureau Veritas, France

**Motions and Mooring Loads of an LNG-carrier Moored at a Jetty in a Complex Bathymetry** - OMAE2009-79420

Hans Cozijn¹ Otto Weller¹ Bas Wijdeven² Johanne Mølmen³ Philippe Le Guellec² François Fontaliran⁴


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**Calculation of Low-Frequency Waves in Shallow Water and Comparison to Common Practice in Diffraction Methods** - OMAE2009-79401

Martijn De Jong¹ Mart Borsboom² Johan Dekker³

1. Delft University (Harbour, Coastal and Offshore Engineering Department), Netherlands; 2. MARIN, Netherlands

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**Experimental Variation of Focusing Wave Groups for the Investigation of their Predictability** - OMAE2009-80131

Christian Schmittner¹ Janou Hennig¹ Sascha Kosleck¹

1. Maritime Research Institute Netherlands MARIN, Netherlands; 2. Technical University Berlin, Germany

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**A Phase-Amplitude Iteration Scheme for the Optimization of Deterministic Wave Sequences** - OMAE2009-80128

Janou Hennig, Christian Schmittner

Technical University of Denmark, Denmark

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**Spudcan Penetration in Loose Sand over Uniform Clay** - OMAE2009-79222

Martijn De Jong¹ Mart Borsboom² Johan Dekker³

1. Dalian University of Technology, China; 2. University of Western Australia, Australia

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**Motion Comparisons between a conventional Deep Draft Semi-submersible and a Dry Tree Semi-submersible** - OMAE2009-80006

Anis Hussain¹ Edwin Nah¹ Rain Fu¹ Apurva Gupta²

1. Keppel Deepwater Technology Group, Singapore; 2. Keppel Offshore & Marine USA, USA

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**Calculation of Low-Frequency Waves in Shallow Water and Comparison to Common Practice in Diffraction Methods** - OMAE2009-79401

Martijn De Jong¹ Mart Borsboom² Johan Dekker³

1. Delft University (Harbour, Coastal and Offshore Engineering Department), Netherlands; 2. MARIN, Netherlands

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**Viscous Drift Forces and Responses on a Semisubmersible Platform in High Waves** - OMAE2009-79483

Petter Andreas Berthelsen¹ Rolf Baarholm² Csaba Pákodzi³ Carl Trygve Stansberg⁴ atman hussan⁵ Martin Downnie⁶ Atilla Incecik⁷

1. MARINTEK, Norway; 2. University of Newcastle, United Kingdom; 3. Department of Naval Arch and Marine Engineering, Scotland

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**A Truss Semisubmersible Optimized for the Post-Katrina Environment in Gulf of Mexico Correlated with Model Test** - OMAE2009-7917

Chan K. Yang¹ John Murray¹ Hanseong Lee¹ Myoung Choi¹ Cheng-Yo Chen¹ Yun Ding²

1. FlooTec, LLC, USA; 2. J. Ray McDermott Engineering, USA

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**Innovative Harsh Environment Dry-Tree Support Semi-submersible for Ultra Deepwater Applications** - OMAE2009-80085

Nagan Srinivasan¹ Sundaravadivelu R² Selvakumar³ Rahul Kanotra³

1. Deepwater Structures Inc, USA; 2. Indian Institute of Technology Madras, India; 3. ITM, India

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**Push-Over Response of a Jack-Up on Sand of Different Relative Densities** - OMAE2009-79236

Britta Bienen¹ Mark Cassidy¹ Christophe Gaudin²

1. COPS, University of Western Australia, Australia; 2. Centre for Offshore Foundation System, Australia

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**Calculation of Low-Frequency Waves in Shallow Water and Comparison to Common Practice in Diffraction Methods** - OMAE2009-79401

Martijn De Jong¹ Mart Borsboom² Johan Dekker³

1. Delft University (Harbour, Coastal and Offshore Engineering Department), Netherlands; 2. MARIN, Netherlands

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**Experimental Variation of Focusing Wave Groups for the Investigation of their Predictability** - OMAE2009-80131

Christian Schmittner¹ Janou Hennig¹ Sascha Kosleck¹

1. Maritime Research Institute Netherlands MARIN, Netherlands; 2. Technical University Berlin, Germany

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**A Phase-Amplitude Iteration Scheme for the Optimization of Deterministic Wave Sequences** - OMAE2009-80128

Janou Hennig, Christian Schmittner

Technical University of Denmark, Denmark

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**Spudcan Penetration in Loose Sand over Uniform Clay** - OMAE2009-79222

Martijn De Jong¹ Mart Borsboom² Johan Dekker³

1. Dalian University of Technology, China; 2. University of Western Australia, Australia
Wave Kinematics and Seakeeping Calculation With Varying Bathymetry - OMAE2009-79517
Guillaume de-hauteclocque, Yann Giorgiutti, Flavia Rezende, Xiao-Bo Chen
Bureau Veritas, France

Diffraction/Radiation of a 135,000M3 Storage Capacity LNG Carrier in Shallow Water: A Benchmark Study - OMAE2009-79645
Mamoun Naciri, Emmanuel Sergent
Single Busy Moorings, Monaco

Wave Drift Forces in Directional Seas in Shallow Water - OMAE2009-80110
Jo Pinkster
Pinkster Marine Hydrodynamics BV, Netherlands

Structures, Safety and Reliability Symposium

2-16 Collision and Crashworthiness

Wednesday June 3 | Puna | 16:00–18:00
Session Chair: Ge Wang, American Bureau of Shipping, USA
Session Co-Chair: Jørgen Amdahl, Norwegian University of Science and Technology, Norway

Residual Strength of a FPSO vessel after collision damages - OMAE2009-79076
Massimiliano Russo1 Narve Oma2 Francois Renaud1 Eivind Steen1 Jon Kippenes1
1. Det Norske Veritas, Norway; 2. StatoilHydro, Norway

Global Strength Assessment for Semi-Submersible Column After Supply Vessel Collision Accident - OMAE2009-79082
Zhiqiang Hu1 Jinmin Yang2 Longfei Xiao1 Xiaohei Yan1
1. Shanghai Jiao Tong University, China; 2. State Key Laboratory of Ocean Engineering, Shanghai Jiao Tong University, China

New Approach for Analyzing Collision of Ships - OMAE2009-79309
Bum S. Yoon, Sang R. Cho, Hiroshi Ishihkki
University of Ulsan, Korea

Dynamic Response Research of Ship/Jacket Platform Collision - OMAE2009-79657
Jin Gan1 Weiguo Wu1 Mengwei Zhu1 Jin Pan1 Huaxiang Sun1
1. Wuhan University of Technology, China; 2. Shenzhen Maritime Safety Administration of the People’s Republic of China, China

Investigation of Interaction Between Oil Spills and Hydrostatic Changes - OMAE2009-80122
Mohammad Taghi Tavakoli, Jørgen Amdahl, Bernt J. Leira
Norwegian University of Science and Technology, Norway

2-17 Probabilistic Response Models II

Wednesday June 3 | Koko Crater | 16:00–18:00
Session Chair: Lance Manuel, University of Texas at Austin, USA
Session Co-Chair: Arvid Naess, NTNU, Norway

Comparison Between a Fatigue Model for Voyage Planning and Measurements of a Container Vessel - OMAE2009-79235
Wengang Mao1 Jonas W. Ringsberg3 Igor Rychkil1 Gaute Storhaug1
1. Chalmers University and Technology, Sweden; 2. Det Norske Veritas, Norway

Procedure to Define Loads on Stools of FPSO’s - OMAE2009-79411
Rodrigo Silva1 Mario Santos2 Paulo Mauricio Videiro1
1. Petrobras, Brazil; 2. Exactum, Brazil

Elastomeric Fender Systems Subject to Random Excitation - OMAE2009-79639
James Ofoegbu1 John Niedzwiecki1
1. American Bureau of Shipping, USA; 2. Zachry Department of Civil Engineering, Texas A&M University, USA

Pipeline and Riser Technology Symposium

4-17 On-Bottom Behavior and Pipe-Soil Interaction IV

Wednesday June 3 | Kona | 16:00–18:00
Session Chair: Knut Torrø, J P Kenny, USA
Session Co-Chair: J. J. Roger Cheng, University of Alberta, Canada

Lateral Walking and Feed-In of Buckled Pipelines Due to Interactions of Seabed Features - OMAE2009-79901
Gary Cumming1 Alicja Druzynski1 Knut Torrø1 Andrew D. Rathbone1
1. J P Kenny Pty Ltd, Australia; 2. J P Kenny, Australia

Scour studies for a gas pipeline crossing in Negro River, Brazil - OMAE2009-80064
Valeria S. Rego, Alexandre S. Hansen, Eduardo M. Florence, Marcelo J. B. Teixeira Petrobras, Brazil

Non-linear Hysteretic Seabed Model for Catenary Pipeline Contact - OMAE2009-79259
Mark Randolph1 Peter Quiggin1
1. Centre for Offshore Foundation Systems (COFS), Australia; 2. Ocina Ltd., United Kingdom

4-25 Flexible Pipes IV

Wednesday June 3 | Regency III | 16:00–18:00
Session Chair: Antoine Felix-Henry, Flexi France
Session Co-Chair: Laurent Paumier, Flexi France

On the Coupled Extensional-Torsional Response of Flexible Pipes - OMAE2009-79468
Hector Merino Muñoz, José Renato Sousa, Ney Roitman, Carlos Magluta
Federal University of Rio de Janeiro, Brazil

The Impact of Flexbarrier Ingress on Flexlok Stress - OMAE2009-79624
Jing Lu1 Frank Ma2 Zhimin Tan1 Terry Sheldrake2
1. Wellstream International Limited, USA; 2. Wellstream International Limited, United Kingdom

Correlation Between Hydrolysis and the Ultimate Mechanical Properties of Polyamides in Offshore Conditions - OMAE2009-79976
Gilles Hochstetter, Patrick Dang
Arkema, France

Most Recent Developments for Monitoring and Controlling the Annulus Conditions of Marlim-Sul Flexible Risers - OMAE2009-80011
Jose Luiz Zagannelli Jr, Alexandre S. Rabelo, Antonio M Rego Motta, Antonio Romero, Joao Paulo Costa e Silva Nunes, Marcelo Brack Petrobras, Brazil
Ocean Engineering Symposium

5-10 New type of Floating platform

Wednesday June 3

Session Chair: Hideyuki Suzuki, University of Tokyo, Japan
Session Co-Chair: Yasunori Nihei, Osaka Prefecture University, Japan

Sailing Performance of a Very Large Mobile Offshore Structure for Wind Power Plant - OMAE2009-79196
Yuto Kohrogi1 Takuro Hiramatsu1 Ken Takagi1
1. Osaka University, Japan; 2. Tokyo University, Japan

Progressive Drifting of Floating Wind Turbines in a Wind Farm - OMAE2009-79634
Hideyuki Suzuki1 Masaru Kurimoto1 Yu Kitahara1 Yukinari Fukumoto1
1. University of Tokyo, Japan; 2. Mitsubishi Corporation, Japan; 3. The Tokyo Electric Power Co., Inc., Japan

On the Resonance-Motion-Free SWATH(RMFS) as an oceangoing large fast platform - OMAE2009-79103
Motoki Yoshida1 Hajime Kihara1 Hidetsugu Iwashita1 Hiroshi Itakura1 Weiguang Bao1 Takashi Kinoshita1
1. Kyushu University, Japan; 2. National Defence Academy, Japan; 3. Hiroshima University, Japan; 4. The University of Tokyo, Japan

Non-linear wave loads acting on obliquely slowly advancing platform - OMAE2009-79627
Yasunori Nihei1 Sota Sugimoto1 Takashi Tsuguro1 Weiguang Bao1 Takashi Kinoshita1
1. Osaka Prefecture University, Japan; 2. Japan/Osaka prefecture university, Japan; 3. The University of Tokyo, Japan

Ocean Engineering Symposium

6-11 Underwater Technology

Wednesday June 3

Session Chair: Jose Carlos Nieto Borge, Universidad de Alcalá, Spain
Session Co-Chair: Alistair Palmer, University of Southampton, United Kingdom

Amit Ray1 V. Seshadri1 S.N. Singh1
Indian Institute of Technology Delhi, India

Robust Tracking Control of Autonomous Underwater Vehicles in the Presence of Disturbance Inputs - OMAE2009-79486
Shashi Singh1 Ryan Smith1 Nikolaj Nordkvist1 Amit Sanyal1 Monique Chyba1
1. University of Hawaii, USA; 2. University of Southern California, USA

Discrete and Analytic Model Predictive Controls for Path Following of Underactuated Ships - OMAE2009-79997
Xiaofei Wang, Zaojian Zou, Tieshan Li, Weilin Luo
Shanghai Jiao Tong University, China

Cooperative Control of a Team of AUVs using Smoothed Particle Hydrodynamics with Restricted Communication - OMAE2009-79869
Stephen Huhn, Kamaran Mohseni
University of Colorado at Boulder, USA

Thruster Interactions on Autonomous Underwater Vehicles - OMAE2009-79785
Alistair Palmer1 Grant E. Hearm1 Peter Stevenson2
1. University of Southampton, United Kingdom; 2. National Oceanography Centre, Southampton, United Kingdom

Polar and Arctic Sciences and Technology

7-2 Ice 2: Numerical Ice Modeling II

Wednesday June 3

Session Chair: Charlotte Salthr, ILF Consulting Engineers, Germany
Session Co-Chair: Walter Kuehnlein, sea2ice, Germany

Numerical Simulation of Ice Action to a Lighthouse - OMAE2009-80164
Arne Günther1 Morten Bjerks1 Walter Kuehnlein1 Peter Jochmann1 Ibrahim Konuk1
1. StatoilHydro, Norway; 2. Reineertsen AS, Norway; 3. sea2ice, Germany; 4. Hamburgische Schiffbau-Versuchsanstalt GmbH, Germany; 5. Norwegian University of Science and Technology, Norway

Development and Validation of a Coupled Eulerian Lagrangian (CEL) Finite Element Ice Gouge Model - OMAE2009-79554
Basel Abdalla, Kenton Pike, Ayman Eltaher, Dr. Paul Jukes, Billy Duron J P Kenny, Inc., USA

Permafrost Thawing-Pipeline Interaction Advanced Finite Element Model - OMAE2009-79554
Dr. Jianfeng Xu, Basel Abdalla, Ayman Eltaher, Dr. Paul Jukes J P Kenny, Inc., USA

Decision Support for Offshore Operations in Remote Arctic Areas TOSC: An Optimization Toolbox Based on Bayesian Networks - OMAE2009-79791
Johannes Hulflmeier1 Bjorn Forsman1 Jim Sandkvist1 Johan Rasmussen2
1. SSPA Sweden AB, Sweden; 2. Rederi Transatlantic AB, Sweden

CFD and VIV Symposium

8-10 Riser VIV - modeling, Shear7

Wednesday June 3

Session Chair: Steve Leverette, SBM Atlantia, USA
Session Co-Chair: Vikas Jhingran, Shell Exploration and Production, USA

Benchmarking of SHEAR7v4.5: Comparisons to Full-Scale Drilling Riser VIV Data and Legacy Analyses - OMAE2009-79442
Michael Tognarelli1 Fengjie Yin1 Mike Campbell2 Vamsee Achanta2
1. BP America, Inc., USA; 2. 2H Offshore, Inc., USA

Dependence of Lift Coefficient Clv on Reynolds Number and Surface Roughness and its Possible Impact on SHEAR7 Prediction - OMAE2009-79610
Shan Huang1 Neil Kitney2
1. University of Strathclyde, United Kingdom; 2. BP Exploration, United Kingdom

Investigation of VIV Fatigue Prediction for A Top Tensioner Riser - OMAE2009-79508
Yongming Cheng, Lixin Xu, Kostas Lambroskos, Karl Murib Technip, USA

Partial Strake Coverage Vortex-Induced Vibration Benchmarking Using SHEAR7v4.5 - OMAE2009-80028
Hayden Marcollo1 John Kim Vandiver2
1. AMOG Consulting, Australia; 2. MIT, USA
8-14 Waves & Free Surface CFD Modeling

Wednesday June 3
Session Chair: Juan Pontaza, Shell Global Solutions (US) Inc., USA
Session Co-Chair: Charles Dalton, University of Houston, USA

Numerical Study of Green Water on a Freely Moving Object - OMAE2009-79213
Xiufeng Liang¹ Jianmin Yang¹ Chi Yang¹ Pierre Ferrant¹
1. State Key Laboratory of Ocean Engineering, Shanghai Jiao Tong University, China;
2. Department of Computational and Data Sciences, George Mason University, USA;
3. Laboratoire de mecanique des Fluides, Ecole centrale de Nantes, France

Studying the Impact of Unstructured Mesh Adaptation on Free Surface Flow Simulations - OMAE2009-79762
Damien Guégan¹ Frédéric Alauzet² Olivier Allain¹
1. Lemma, France; 2. LEMMA / INRIA, France

Free-Surface Viscous Flow Computations. Validation of URANS code FreSoCo - OMAE2009-79398
Guilherme Vaz¹ Frederick Jaouen¹ Martin Hoekstra²
1. MARIN, Netherlands; 2. , USA

CFD Modeling of Fully Nonlinear Water Wave Tank - OMAE2009-80012
Guangyu Wu, Owen H. Oakley, Jr.
Chevron Energy Technology Company, USA

C.C. Mei Symposium on Wave Mechanics and Hydrodynamics

9-10 Wave mechanics

Wednesday June 3
Session Chair: Kuang-An Chang, Texas A&M University, USA
Session Co-Chair: Mohammad-Reza Alam, Massachusetts Institute of Technology, USA

Unsteady Potential Flow Theory and Numerical Analysis of Forces on Cylinders Induced By Nearby Oscillating Disturbances - OMAE2009-80124
Daniel Valentine, Farshad Madhi
Clarkson University, USA

Wave Propagation Through a Viscous Fluid Contained in a Prestressed Viscoelastic Tube - OMAE2009-79158
Ye Ma, Chiu-On Ng
The University of Hong Kong, China

Investigation of Insect Hovering From the Perspective of a Force Element Theory - OMAE2009-79865
Chin-Chou Chu¹ Cheng-Ta Hsieh¹ Chien C. Chang² Chun-Fei Kung³
1. National Taiwan University, Taiwan; 2. Academia Sinica, Taiwan; 3. Institute of Applied Mechanics, National Taiwan University, Taiwan

Effective Medium Properties of Periodic Elastic Layers by Homogenization - OMAE2009-79860
Chien C. Chang¹ Ying-Hong Liu² Chih-Yu Kuo³
1. Academia Sinica, Taiwan; 2. Research Center for Applied Sciences, Taiwan

Sound and Electromagnetic wave scattering by a compact circular pore with a finite depth - OMAE2009-79890
Chih-Yu Kuo¹ Ruey-Lin Chen² Chien C. Chang³
1. Research Center for Applied Sciences, Taiwan; 2. Institute of Applied Mechanics, Taiwan; 3. Academia Sinica, Taiwan

Ocean Renewable Energy Symposium

10-14 Wind Energy III

Wednesday June 3
Session Chair: Dominique Roddier, Principle Power, USA
Session Co-Chair: Jason Jonkman, National Renewable Energy Laboratory, USA

On the Stochastic Response of a Spar Buoy-Supported Floating Offshore Wind Turbine - OMAE2009-80148
Lance Manuel, Abhinav Sultania
University of Texas at Austin, USA

WindFloat: a Floating Foundation for Offshore Wind Turbine Part I: Design basis and qualification process - OMAE2009-79229
Dominique Roddier¹ Christian Cermelli¹ Alla Weinstein¹
1. Principle Power, USA; 2. Marine Innovation & Technology, USA

Dynamic Response Characteristic of a Floating Wind Turbine Tower at Low Response Frequency - OMAE2009-79768
Lars Johanning
University of Exeter, United Kingdom

Experimental Study of a Straight-bladed Vertical Axis Wind Turbine with a Directed Guide Vane Row - OMAE2009-80801
Manabu Takao¹ Hiroyuki Takita¹ Yohei Saijo¹ Takao Maeda¹
Yasunari Kamada² Kazutaka Toshimitsu²
1. Matsue College of Technology, Japan; 2. Mie University, Japan; 3. Oita College of Technology, Japan

José G. Rangel-Ramírez, John D. Sørensen
Aalborg University, Denmark

Offshore Geotechnics Symposium

12-9 Pipeline Geotechnics

Wednesday June 3
Session Chair: Andrew Brennan, University of Dundee, United Kingdom

The Influence of Slope on the Stability of Pipelines Subjected to Horizontal and Vertical Loading on Clay Seabeds - OMAE2009-79050
Damian R. Morrow, Fraser Bransby
University of Dundee, United Kingdom

Consolidation of Lumpy Clay Backfill over Buried Pipelines - OMAE2009-79787
Mahmoud Ghaehremani¹ Andrew Brennan¹
1. Technip, United Kingdom; 2. University of Dundee, United Kingdom

Field Test on Quasi-Impermeable Seawalls Using Clayey Materials for Coastal Waste Disposal Sites - OMAE2009-79321
Kazuhiko Ueno¹ Koichi Yamada¹ Yoichi Watabe²
1. Penta-Ocean Construction Co., Ltd., Japan; 2. Port and Airport Research Institute, Japan

Numerical Simulation of Breakwaters for Land Reclamation - OMAE2009-79017
Jian-Min Zhang, Jianhong Zhang, Gang Wang, Yang Chen
Tsinghua University, China
Thursday, 9:00–10:30

Offshore Technology Symposium

1-17 Jacket Platforms I

Thursday June 4  
Kahuku  |  9:00–10:30

Session Chair: Bogdan Iwanowski, FORCE Technology Norway AS  
Session Co-Chair: Trinh Ngoc Thanh, National University of Singapore  

Wave-In-Deck Load on a Jacket Platform, CFD-derived Pressures and Non-Linear Structural Response - OMAE2009-79053
Bogdan Iwanowski, Rune Gladsø, Marc Lefranc  
FORCE Technology Norway AS, Norway  

Identification of Spudcan Fixity for a Jack-Up Rig - OMAE2009-79066
Trinh Ngoc Thanh, Koh Chan Ghee, Choo Yoo Sang  
National University of Singapore, Singapore  

Experimental Studies on Semi-active Vibration Control of Jacket Platforms with Magnetorheological Damper - OMAE2009-79847
Chunyan Ji  
Jiangsu University of Science and Technology, China  

Dynamic Response Of Articulated Tower Platforms To Random Sea Environment - OMAE2009-79357
Mohd Moonis Zaheer, Nazrul Islam  
Jamia Millia Islamia, India  

1-19 Hydrodynamics I

Thursday June 4  
Waianae  |  9:00–10:30

Session Chair: Shan Huang, Universities of Glasgow and Strathclyde, United Kingdom  
Session Co-Chair: Yannis Chatjigeorgiou, NTUA, Greece  

Oleg Gaidai, Jorgen Kroksstad  
Det Norske Veritas, Norway  

Probability Distributions for Wave Runup on Offshore Platform Columns - OMAE2009-79625
Amir H. Izadparast, John Niedzwiecki  
Zachry Department of Civil Engineering, Texas A&M University, USA  

Efficient Computations of Second-Order Low-Frequency Wave Load - OMAE2009-79522
Xiao-Bo Chen, Flavia Rezende  
Bureau Veritas, France  

Structures, Safety and Reliability Symposium

2-18 Probabilistic and Spectral Wave Models I

Thursday June 4  
Honolulu  |  9:00–10:30

Session Chair: Elzieta Bitner-Gregersen, Det Norske Veritas AS, Norway  
Session Co-Chair: Felice Arena, Mediterranean University, Italy  

Turkstra Models of Current Profiles - OMAE2009-79691
Steve Winterstein  
Sverre Haver  
Inar Nygaard  
1. Stanford Continuing Studies, USA; 2. StatkraftHydro, Norway  

Materials Technology Symposium

3-7 Hydrogen Embrittlement (I)

Thursday June 4  
Kona  |  9:00–10:30

Session Chair: Xiaozhi Wang, American Bureau of Shipping, USA  
Session Co-Chair: Koji Gotoh, Kyushu University, Japan  

Hydrogen Embrittlement of 8630M/625 Subsea Dissimilar Joints: Factors that Influence Performance - OMAE2009-80030
Viviane C.M. Beaugrand, Lee S. Smith, Mike F. Gittos  
TWI, United Kingdom  

Hydrogen Induced Stress Cracking (HISC) in Duplex Stainless Steels - DNV-RP-F112, Design of Stainless Steel Subsea Equipment Exposed to Cathodic Protection - OMAE2009-79655
Stig Wästberg  
Morten Solnordal  
Gustav Heiberg  
Rikard Tornqvist  
Pedro Vargas  
1. Det Norske Veritas (DNV), Norway; 2. Chevron Energy Technology Company, USA
**Ocean Engineering Symposium**

**6-12 Installation I**

**Thursday June 4**

**Regency III | 9:00–10:30**

**Session Chair:** Renato Silva, Petrobras, Brazil  
**Session Co-Chair:** Xavier Castello, COPPE/UFUFRJ, Brazil

1. **Greater Plutonio Riser Tower Installation - Studies**
   - Charles-Alexandre Zimmermann1  
   - Guilhem Layrisse1  
   - Daniel de la Cruz1  
   - Jeremy Gordonhat1
   - BP Angola BU, United Kingdom; 2. Aker Solutions, Norway; 3. Technip, France; 4. Technip, USA

2. **And Lessons Learnt**
   - OMAE2009-79028
   - Findlay Gray1  
   - Brett P. Howard1  
   - Alexandra Pieton2  
   - Ramon Gallart2
   - Technip, United Kingdom; 2. Technip, USA

3. **The Qualification and Continued Evolution of Reeled Steel Catenary Risers**
   - OMAE2009-79176
   - Sylvain Denniel1  
   - Tomasz Tkaczyk1  
   - Brett P. Howard1  
   - Erik Levold2  
   - Olav Aamlide3
   - Technip UK Ltd, United Kingdom; 2. Statoil AS, Norway; 3. Det Norske Veritas (DNV), Norway

4. **On the Influence of Mechanical and Geometrical Property Distribution of the Safe Reeling of Rigid Pipelines**
   - OMAE2009-79344
   - Sylvain Denniel1  
   - Tomasz Tkaczyk1  
   - Brett P. Howard1  
   - Erik Levold2  
   - Olav Aamlide3
   - Technip UK Ltd, United Kingdom; 2. Statoil AS, Norway; 3. Det Norske Veritas (DNV), Norway

   - OMAE2009-79348
   - Sylvain Denniel1  
   - Tomasz Tkaczyk1  
   - Brett P. Howard1  
   - Erik Levold2  
   - Olav Aamlide3
   - Technip UK Ltd, United Kingdom; 2. Statoil AS, Norway; 3. Det Norske Veritas (DNV), Norway

**Ocean Space Utilization Symposium**

**5-11 Water front new concepts and coastal protection**

**Thursday June 4**

**Molokai | 9:00–10:30**

**Session Chair:** Tomoki Ikoma, Nihon University, Japan  
**Session Co-Chair:** Koichi Masuda, Nihon University, Japan

1. **Application of a Series of Submerged Breakwaters to Coastal Protection**
   - OMAE2009-80231
   - Tai-Wen Hsu1  
   - Jen-Yi Chang2
   - 1. Department of Hydraulics & Ocean Engineering National Cheng Kung University, Taiwan; 2. National Cheng-Kung University, Taiwan

2. **An Application of Integrated Coastal Models on Protection of Sediment Deposition at Taichung Harbor**
   - OMAE2009-80232
   - Tai-Wen Hsu1  
   - Yu-Jie Jhu2
   - 1. Department of Hydraulics & Ocean Engineering National Cheng Kung University, Taiwan; 2. National Cheng-Kung University, Taiwan

3. **Dynamic Analysis of Small Scale Floating Structure by Ship Wave Force**
   - OMAE2009-79594
   - Hiroaki Eto1  
   - Shigenori Yuasa1  
   - Osamu Saijo1  
   - Kiyotaka Ohki1
   - 1. Nihon University, Japan; 2. Graduate school of Nihon University, Japan; 3. Terrada Warehouse Company, Japan

4. **Research to Realization of Submarine Hotel**
   - OMAE2009-79745
   - Noritaka Hamada1  
   - Osamu Saijo2  
   - Hiroaki Eto2  
   - Yutaka Koto2
   - Nihon University, Japan

**Pipeline and Riser Technology Symposium**

**6-9 Model Tests - I**

**Thursday June 4**

**Kohala | 9:00–10:30**

**Session Chair:** Eddie Shih, NOAA/NOS, USA  
**Session Co-Chair:** Antonio C. Fernandes, UFRJ, COPPE, PENO, Brazil

1. **Model Test and Full Scale Measurements of Whipping on Container Vessels in the North Atlantic**
   - OMAE2009-79127
   - Gaute Storhaug1  
   - Svein Erling Heggelund1  
   - Jan Mathisen2
   - Det Norske Veritas, Norway

2. **Experimental Validation of An Absorbing Wavemaker Controller**
   - OMAE2009-79179
   - Mario L. Carneiro1  
   - Pedro C. Mello1  
   - Eduardo A. Tannuri1  
   - Alexandre N. Simos1
   - University of São Paulo, Brazil

3. **Wave-Vessel Interactions in Beam Seas**
   - OMAE2009-79605
   - Eirini Spentza1  
   - Chris Swan1
   - Imperial College London, United Kingdom

4. **On the Application of Selected Wave Group Spectra for the Experimental Investigation of Low Frequency Motions of a Moored Structure**
   - OMAE2009-80127
   - Janou Hennig1  
   - Antonio Carlos Fernandezes1  
   - Hans Cozijn1  
   - Marcio Maia1  
   - Domingues Jr.1
   - 1. Maritime Research Institute Netherlands MARIN, Netherlands; 2. Laboceano, Brazil; 3. Petrobras AS, Brazil

5. **6-17 Marine Environmental Engineering - I**

**Thursday June 4**

**Puna | 9:00–10:30**

**Session Chair:** Jung L. Lee, Sungkyunkwan University, Korea  
**Session Co-Chair:** Franz Josef Kahlen, University of Cape Town, South Africa

1. **Study on Flow Characteristics and Operating Parameters of Axial Rotating Hydrocyclone**
   - OMAE2009-79114
   - Yan Xu1  
   - Zunce Wang1  
   - Fengxia Lv1  
   - Shuang Zhang2
   - Daqing Petroleum Institute, China

2. **Laboratory Investigation of Clay Mineral Fines As Dispersant for Combating Oil Spill**
   - OMAE2009-79438
   - Samuel Devadoss R, Sannasiraj Sannasi A, Dr. Murali K
   - Indian Institute of Technology Madras, India

3. **Experimental Study on Dynamic Hydrocyclone for Thin Oil Dewatering**
   - OMAE2009-79104
   - Fengxia Lv1  
   - Zunce Wang1  
   - Sen Li1  
   - Shuang Zhang2
   - Daqing Petroleum Institute, China

4. **Experimental Study of Downhole Gas Liquid Separators**
   - OMAE2009-79155
   - Zunce Wang1  
   - Sen Li1  
   - Fengxia Lv1  
   - Jinglong Zhang2
   - Daqing Petroleum Institute, China

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Polar and Arctic Sciences and Technology

7-3 Ice 3: Experimental Ice Modeling I

Thursday June 4 | Hilo | 9:00–10:30
Session Chair: Ibrahim Konuk, Norges teknisk-naturvitenskapelige universitet, Norway
Session Co-Chair: Walter Kuehne, sea2ice, Germany

Shoulder Ice Barrier Ice Tank Testing Part I: Qualitative Description of a Shoulder Ice Barrier – Ice Interface During Model Tests - OMAE2009-79139
Ada H. V. Repetto-Llamazares1 Arne Gürtnert2 Ove T. Gudmestad1 Knut V. Hayland1
1. NTNU - Norwegian University of Science and Technology, Norway; 2. StatoilHydro, Norway; 3. UIS - University of Stavanger and NTNU - Norwegian University of Science and Technology, Norway

Shoulder Ice Barrier Ice Tank Testing Part II: Estimation of Breaking Length and Block Size Using Image Analysis - OMAE2009-79140
Ada H. V. Repetto-Llamazares1 Ove T. Gudmestad1 Arne Gürtnert1 Knut V. Hayland1
1. NTNU - Norwegian University of Science and Technology, Norway; 2. StatoilHydro, Norway; 3. UIS - University of Stavanger and NTNU - Norwegian University of Science and Technology, Norway

Methods to Reduce Lateral Noise Propagation from Seismic Exploration Vessels - OMAE2009-79673
Ray R. Ayers1 Warren T. Jones2 David Hannay3
1. Stress Engineering Services, USA; 2. Consultant, USA; 3. JASCOResearch Ltd., Canada

Ocean Renewable Energy Symposium

10-17 Current Energy I

Thursday June 4 | Akaka | 9:00–10:30
Session Chair: Qing Yu, American Bureau of Shipping, USA
Session Co-Chair: Jason Jonkman, National Renewable Energy Laboratory, USA

Offshore Hydrokinetic Energy Conversion for Onshore Power Generation - OMAE2009-79770
Jack Jones1 Yi Chao2
1. JPL/Caltech, USA; 2. Jet Propulsion Laboratory, USA

A Design Study of Marine Current Turbine-Generator Combinations - OMAE2009-79350
Staffan Lundin1 Mårten Grabbe1 Katana Yuen1 Prof Mats Leijon1
1. Uppsala University, Sweden; 2. Uppsala Universitet, AngstromLaboratoriet, Sweden

Jin-Hak Yi1 Kwang-Soo Lee1 Jin-Soon Park1 Woo-Sun Park1
Korea Ocean Research and Development Institute, Korea

Offshore Measurement and Data Interpretation

11-2 Ocean Waves

Thursday June 4 | Regency II | 9:00–10:30
Session Chair: Jang W. Kim, Technip, USA
Session Co-Chair: Liam Harrington-Missin, Fugro GEOS Ltd., United Kingdom

Wave measurements at Eastern Green Canyon during Hurricane Ike - OMAE2009-79802
Oriol Rijken1 Adam Bangs2
1. SBM Atlantia, USA; 2. BHP Billiton Petroleum, USA

Climatologically Modeled Wave Field Analyses in the Western South Atlantic - OMAE2009-79457
Eric Ribeiro1 Marcelo Andrioni1 Renato Parkinson1 Guisela Santiago Grossman1 Mathenson1 José Henrique Gomes de Mattos Alves1 Luis Manoel Paiva Nunes1
1. Petrobras, Brazil; 2. Metocean Engineers Pty Ltd. (MetOcean), Australia
The Use of Streamed Digital Video Data and Binocular Stereoscopic Image System (BISIS) Processing Methods to Analyze Ocean Wave Field Kinematics - OMAE2009-79853
Keith R. MacHutchon1 Wehan Wessels1 Chiz H. Wu2 Paul C. Liu3

Dense Ocean Floor Network for Earthquakes and Tsunamis Around the Nankai Trough Mega Thrust Earthquake Seismogenic Zone in Southwestern Japan(Part2) - Real Time Monitoring Of the Seismogenic Zone - OMAE2009-79959
Yoshiyuki Kaneda, Katsuyoshi Kawaguchi, Eiichiro Araki, Hiroyuki Matsumoto, Takeshi Nakamura, Shinichiro Kamiya, Keisuke Ariyoshi, Takane Hori
Japan Agency for Marine-Earth Science and Technology (JAMSTEC), Japan

Real-time Estimation of Directional Wave Spectra Using Non-Stationary Ship Motion Data - OMAE2009-79295
Toshibo Iseki
Tokyo University of Marine Science and Technology, Japan

Offshore Geotechnics Symposium

12-3 Fluid-Soil-Structure Interaction I

Thursday June 4 | Ewa 9:00–10:30
Session Chair: Shamim Rahman, North Carolina State University, USA
Calculation Study of Wave-Induced Shallow Stratum Seabed Slides in the Subaqueous Yellow River Delta - OMAE2009-79069
Guohui Xu, Xin wang, Congcong Wei, Zibu Fu, Qingpeng Zhao
Ocean University of China, China
Numerical Evaluation for Dynamic Response of Seabed under Random Wave Loading - OMAE2009-80073
Wang Zhongtao, Maotian Luan, Liu Shujie
Dalian University of Technology, China
Wave-Induced Liquefaction Around Breakwater Heads - OMAE2009-79019
Jianhua Ou1 Dong-Sheng Jeng1 Andrew Chan2 Pui-Lee Vun3
1. University of Dundee, United Kingdom; 2. University of Birmingham, United Kingdom; 3. HR Wallingford, United Kingdom
Liquefaction Triggering Response under Wave-Induced Cyclic Loading - OMAE2009-80123
H. Tolga Bilge1 Borna Unutmaz1 A. Anil Yunatci2 Ipek Yunatci3 K. Onder Cetin1
1. Middle East Technical University, Turkey; 2. Kocaeli University, Turkey; 3. Mescioglu Engineering, Turkey

Thursday, 11:00–12:30

Structures, Safety and Reliability Symposium

2-20 Probabilistic and Spectral Wave Models II

Thursday June 4 | Honolulu 11:00–12:30
Session Chair: Steve Winterstein, Stanford Continuing Studies, USA
Session Co-Chair: Øistein Hagen, DNV, Norway
An Idealization of Wave Scatter Diagram for Spectral Fatigue Analysis - OMAE2009-79721
Min Han Oh, Ki Myung Lee, Young Sik Jang
HMRI, Hyundai Heavy Industries Co., Ltd, Korea
Return Period of a Sea Storm With At Least Two Waves Higher Than a Fixed Threshold - OMAE2009-80031
Felice Arena, Giuseppe Barbaro, Alessandra Romolo
Mediterranea University, Italy
Uncertainties of Wind Sea and Swell Prediction From the Torsethaugen Spectrum - OMAE2009-80261
Elzbieta Bitner-Gregersen, Alessandro Toffoli
Det Norske Veritas AS, Norway

1-18 Jacket Platforms II

Thursday June 4 | Kahuku 11:00–12:30
Session Chair: Trinh Ngoc Thanh, National University of Singapore
Session Co-Chair: Bogdan Iwanowski, FORCE Technology Norway AS, Norway
Nonlinear Analysis of Offshore Platforms Subjected to Earthquake Loading Considering the Effects of Joint Flexibility - OMAE2009-79851
Saghar Samadani, Ali Akbar Aghakouchak, Jalal Mirzadeh Niasar
Tarbiat Modares University, Iran
2-21 Structural Analysis and Optimisation II

Thursday June 4  | Koko Crater  | 11:00–12:30
Session Chair: Jeom Paik, Pusan National University, Korea
Session Co-Chair: Bernt Leira, NTNU, Norway

The Transient Response Of Imperfect Thin-walled Stiffened Cylindrical Shell Exposed To Side-on Underwater Explosion - OMAE2009-79018
Ching Yu Hsu, Chang-Yung Jen
ROC Naval Academy, Taiwan
Computational method to assess the residual stresses of thick plate joined by two-pole tandem EGW in marine vessels - OMAE2009-79135
Jang Hyun Lee1, Se Yun Hwang1, Yong Sik Yang1, 2. INHA University, Korea; 2. Dept. of Naval Architecture & Ocean Engineering, INHA University Nam-Gu, Korea
Comparison of Design Criteria for Externally Pressurized Vessels - OMAE2009-79390
Franz-Josef Kahlen, Richard Curry
University of Cape Town, South Africa
Membrane and Bending Strain in Cylindrical Shell Vibrations - OMAE2009-79871
Basem Alzahabi, Henry Kowalski
Kettering University, USA

Pipeline and Riser Technology Symposium

4-13 Installation II

Thursday June 4  | Regency III  | 11:00–12:30
Session Chair: Xavier Castello, COPPE/UFRJ, Brazil
Session Co-Chair: Renato Silva, Petrobras, Brazil

From Installation to Operation - A Full-Scale Finite Element Modeling of Deep-Water Pipe-in-Pipe System - OMAE2009-79519
Jason Sun, Dr. Paul Jukes
J P Kenny, Inc, USA

Offshore Pipelay Operations From a Control Perspective - OMAE2009-79371
Guillik A. Jensen, Morten Breivik, Thor I. Fossen
Norwegian University of Science and Technology, Norway

Mathematical Models for Model-Based Control in Offshore Pipelay Operations - OMAE2009-79372
Guillik A. Jensen, Thor I. Fossen
Norwegian University of Science and Technology, Norway

Model Test of a Steel Catenary Riser in a Towing Tank - OMAE2009-79499
Celso Morooka1, Raphael I. Tsukada1, Sergio da Silva1, Franciss Franciss1, Cynthia G. C. Matt1, 2. Instituto de Pesquisas Tecnologicas, Brazil; 3. Petrobras - Petroleo Brasiliera, Burkina Faso; 4. Research Center/Petrobras, Brazil

4-19 Steel Risers I

Thursday June 4  | Kona  | 11:00–12:30
Session Chair: Howard Wang, ExxonMobil Development Co., USA
Session Co-Chair: Roger Chang, ERC, USA

Advances in Deepwater Steel Catenary Riser Technology State-of-the-Art: Part II – Analysis - OMAE2009-79405
Ruxin Song, Paul Stanton
Technip, USA

The Evolution of Free Standing Risers - OMAE2009-79487
Elizabeth Tellier, Ricky Thethi
2H Offshore Inc, USA

Design Guideline and Acceptance Criteria for the Sagbend Compression of Steel Catenary Riser - OMAE2009-79735
Wei Ye1, Michelle Zhang1, 2. Ocean Dynamics LLC, USA; 2. Chevron Energy Technology Company, USA

Feasibility of Using Stress Joint in An Existing Flexible Joint Receptacle for a Deepwater SCR - OMAE2009-80213
Basim Mekha1, Alok Kumar2, Mike Stark3, Paul Barnett3, 1. Cuneiform Offshore Consulting, LLC, USA; 2. none, USA; 3. EPCO, Inc, USA

Ocean Engineering Symposium

6-10 Model Tests - II

Thursday June 4  | Kohala  | 11:00–12:30
Session Chair: Sergio H. Sphaier, Universidade Federal do Rio de Janeiro, Brazil
Session Co-Chair: Hans Cozijn, Maritime Research Institute Netherlands MARIN, Netherlands

An Experimental Investigation of Wave Impacts on the Deck of a Gravity Based Structure - OMAE2009-79613
Jannicke Roos1, Chris Swan1, Sverre Haver1, Ove T. Gudmestad1, 1. Imperial College London, United Kingdom; 2. StatOilHydra, Norway; 3. US - University of Stavanger and NTNU - Norwegian University of Science and Technology, Norway

Effect of Spatial Variation of a Wave Field on the Resulting Ripple Characteristics and Comparison to Present Ripple Predictors - OMAE2009-79509
Blake J. Landry1, Yovanni A. Cataño-Lopera1, Matthew J. Hancock1, Chiang C. Mei1, Marcelo H. Garcia1, 1. University of Illinois at Urbana-Champaign, USA; 2. Center For Biomedical Engineering, Harvard Medical School, USA; 3. Massachusetts Institute of Technology, USA

Hydrodynamic Properties of a Suction Can Oscillating near the Free Surface - OMAE2009-80140
Chris Plummer1, Gregor Macfarlane1, Yuriy Drobyshhevski1, 1. Australian Maritime College, Australia; 2. INTECSEA Pty Ltd, Australia

Experimental Study On Hydrodynamic Behavior Of Jacket Spar Platform - OMAE2009-79243
Sajini U S, Sundaravadivelu R, Dr. Anantha Subramanian V, Indian Institute of Technology Madras, India

6-23 Marine Environmental Engineering - II

Thursday June 4  | Puna  | 11:00–12:30
Session Chair: Said Mazaheri, Maritime Technology Group/TRI, Iran
Session Co-Chair: Franz-Josef Kahlen, University of Cape Town, South Africa

The Influence of Waves on the Oil Spill Behavior - OMAE2009-80105
Jung L. Lee1, D.Y. Lee2, Inho Kim1, 1. Sungkyunkwan University, Korea; 2. KORDI, Korea; 3. Kangwon University, Korea

Spectrophotometric Determination of Nutrients Using Principal Component Regression - OMAE2009-79304
Rei Ara1, Taichi Nishiyama, Naoki Nakatani, Taketoshi Okuno
Osaka Prefecture University, Japan
Polar and Arctic Sciences and Technology

7-4 Ice 4: Experimental Ice Modeling II

Thursday June 4 | Hilo | 11:00–12:30
Session Chair: Franz-Josef Kahlen, University of Cape Town, South Africa
Session Co-Chair: Walter Kuehnelein, sea2ice, Germany

Factorial Design of Experiments and Interpretation of Results: An Application to Ice Loads on a Conical Structure - OMAE2009-79316
Jenny Trumars, Sveinung Løset
Norwegian University of Science and Technology, Norway

Calculation of Arrival Intensity of Ridges Accounting for the Relative Angle between Ridge Direction and Ice Drift Direction - OMAE2009-79318
Jenny Trumars, Sveinung Løset
Norwegian University of Science and Technology, Norway

Model Tests on a Spar in Level Ice and Ice Ridge Conditions - OMAE2009-79733
John Murray1, Stephane Le Guennec2, Don Spencer1, Chan K. Yang1, Wooseuk Yang1
1. University of Tennessee, Knoxville, USA; 2. National Renewable Energy Laboratory, USA

A Moored Arctic Floater In First-Year Sea Ice Ridges - OMAE2009-79945
Oddgeir Dalane1, Vegard Aksnes1, Sveinung Løset1, Jan Vidar Aarsnes2
1. Norwegian University of Science and Technology (NTNU), Norway; 2. Sevan Marine ASA, Norway

CFD and VIV Symposium

8-16 Pipelines - VIV & internal flows

Thursday June 4 | Regency I | 11:00–12:30
Session Chair: Prashant Soni, Det Norske Veritas, Norway
Session Co-Chair: Raghu Menon, Shell Global Solutions, Malaysia

Characterization of measured VIV for free spanning pipeline models - OMAE2009-79561
Ida M. Aglen1, Carl Martin Larsen2, Finn G. Nielsen1
1. CeSOS, NTNU, Norway; 2. NTNU, Norway; 3. StatoilHydro, Norway

Nonlinear Effects on Interfacial Wave Growth into Slug Flow - OMAE2009-79397
Bryce Campbell, Kelli Hendrickson, Yueming Liu
Massachusetts Institute of Technology, USA

Numerical simulation of Pipeline VIV for steady and unsteady flow - OMAE2009-80062
Pratik Bhattacharjee1, Kenny K., Nielsen1, Graham Stewart1
1. Lloyd’s Register QOS, Denmark; 2. Lloyd’s Register, United Kingdom

Friction Factor Estimation for Turbulent Flows in Corrugated Pipes with Rough Walls - OMAE2009-79854
Maxim Pisarevoc1, Bas van der Linden1, Aris Tijsseling2, Emmanuel Orv1, Jacques Dam1

Ocean Renewable Energy Symposium

10-18 Current Energy II

Thursday June 4 | Akaka | 11:00–12:30
Session Chair: Maurice Hill, U.S. Minerals Management Service, USA
Session Co-Chair: Halvor Lie, MARINTEK, Norway

Using CFD to Determine Heave Added Mass and Damping of a Suction Pile - OMAE2009-79373
Richard Zoontjes1, Harm Siegersma2, Harald Ottens1
1. Heerema Marine Contractors, Netherlands; 2. Delft University of Technology, Netherlands

Sea Water Pump Station Basin Mathematical Hydraulic Model Test (CFD Analysis) - OMAE2009-79245
Sadegh Barzegar1, Alireza Elhami Amiri1, Mehdil Assadi Niazi1, Pooyan Rahbar1
1. Iran Marine Industries Co. (SABRA), Iran; 2. Sharif University, Iran

Study on Flow Field Character Around Bypass Crossover Sub in Fracturing Process of Horizontal Wells - OMAE2009-79247
Zunce Wang, Yan Xu, Sen Li, Fengxia Lv, Wei Li
Daqing Petroleum Institute, China

A New Improved Ocean Thermal Energy Conversion System with Suitable Floating Vessel Design - OMAE2009-80092
Nagan Srinivasan
Deepwater Structures Inc, USA

Study on Separation Performance of the Compound Hydrocyclone under Self-vibration Condition - OMAE2009-79157
Sen Li, Zunce Wang, Fengxia Lv, Yan Xu, Binglong Zhang
Daqing Petroleum Institute, China

Predictions of Ecological Effects of Artificial Upwelling in Semi-Enclosed Bay and Enclosed Lake - OMAE2009-79687
Toru Sato1, Kentaro Mizumakai1, Chum-ju Lim1, Shigeru Tabeta1, Daisuke Kitazawa1
1. University of Tokyo, Japan; 2. Modec Inc., Japan; 3. The University of Tokyo, Japan; 4. Institute of Industrial Science, The University of Tokyo, Japan

A Moored Arctic Floater In First-Year Sea Ice Ridges - OMAE2009-79945
Oddgeir Dalane1, Vegard Aksnes1, Sveinung Løset1, Jan Vidar Aarsnes2
1. Norwegian University of Science and Technology (NTNU), Norway; 2. Sevan Marine ASA, Norway
Offshore Measurement and Data Interpretation

11-3 Vessels and Structures
Thursday June 4
Regency II | 11:00–12:30
Session Chair: Keith R. MacHutchon, Coastal Marine Technology, South Africa
Session Co-Chair: Eric Ribeiro, Petrobras, Brazil

Fault Detection for Shipboard Monitoring and Decision Support Systems - OMAE2009-79367
Zoran Lajic¹ Ulrik D. Nielsen²
¹. Technical University of Denmark - Department of Mechanical Engineering, Denmark; ². Technical University of Denmark, Denmark

Field Measurements of Vortex induced Motions of a Deep Draft Semi Submersible - OMAE2009-79803
Oriol Rijken, Steve Leverette
SBM Atlantia, USA

Steel Catenary Riser Response Characterization With On-Line Monitoring Devices - OMAE2009-79437
Metin Karayaka¹ Wolfgang Ruf² Shreenaath Natarajan²
¹. Chevron Energy Technology Company, USA; ². 2H Offshore, USA

Offshore Geotechnics Symposium

12-11 Fluid-Soil-Structure Interaction II
Thursday June 4
Ewa | 11:00–12:30
Session Chair: Kouki Zen, Kyushu University, Japan
Session Co-Chair: Dong-Sheng Jeng, University of Dundee, United Kingdom

Breaking Wave-Induced Dynamic Response of Rubble Mound and Seabed under a Caisson Breakwater - OMAE2009-79143
Mehmet Ulker¹ Shamim Rahman¹ Murthy Guddati¹
¹. NCSU, USA; ². North Carolina State University, USA

Xiaowei Tang¹ Ying Jie² Maotian Luan²
¹. Dalian University of Technology, Christmas Island; ². Dalian University of Technology, China

A Study on Judgement for Cancellation of Ferries due to Ship Motions and Coastal Wave Data - OMAE2009-79128
Daisuke Terada, Kenji Sasa
Hiroshima National College of Maritime Technology, Japan

Structures, Safety and Reliability Symposium

2-22 Extreme and Freak Waves I
Thursday June 4
Honolulu | 14:00–15:30
Session Chair: Steve Winterstein, Stanford Continuing Studies, USA
Session Co-Chair: Arvid Naess, NTNU, Norway

The Equivalent Power Storm Model for Long-Term Predictions of Extreme Wave Events - OMAE2009-79597
Francesco Fedele¹ Felice Arena²
¹. Georgia Institute of Technology, USA; ². Mediterranea University, Italy

1-13 Ship & Ship Tank Dynamics I
Thursday June 4
Kahuku | 14:00–15:30
Session Chair: Jeffrey M. Falzarano, Texas A&M University, USA
Session Co-Chair: Alexandre N. Simos, University of São Paulo, Brazil

A Generalized Mathematical Procedure For Analysis of Ship Motion Stability - OMAE2009-79041
Ibiba E. Douglas, Rivers State University of Science and Technology, Nigeria

Wave-Induced Motions of Gas Cat: A Novel Catamaran for Gas Processing and Offloading - OMAE2009-79094
Giles Thomas¹ Alexander Ford¹ Landon Kibby¹ Jonathan Binns¹ Ian Finnie¹ Neil Kavanagh¹
¹. Australian Maritime College, University of Tasmania, Australia; ². WA ERA, Australia; ³. Woodside, Australia

Wave-Induced Motions of Gas Cat: A Novel Catamaran for Gas Processing and Offloading - OMAE2009-79128
Daisuke Terada, Kenji Sasa
Hiroshima National College of Maritime Technology, Japan

A Generalized Computational Scheme For Ship Hydrodynamics Analysis - OMAE2009-79042
Ibiba E. Douglas
Rivers State University of Science and Technology, Nigeria

1-5 Spars & TLP
Thursday June 4
Waianae | 14:00–15:30
Session Chair: Krish Thiagarajan, The University of Western Australia, Australia
Session Co-Chair: Neil Williams, SBM Atlantia, USA

Model Studies on Spar Platform With SMW Wind Turbine - OMAE2009-79270
Sundaravadivelu R, T Seebai, CP Vendiyan
Indian Institute of Technology Madras, India

TLP Model Lines Truncation Using the Magnetic Base Concept - OMAE2009-79475
Antonio C. Fernandes¹ Cesar Salhua¹ José Carlos Almeida¹
¹. UFRJ, COPPE, PENO, Brazil; ². Petrobras, Brazil

Three-Column TLP Concept for Marginal Field Development - OMAE2009-80170
Neil Williams, Homayoun Heidari, Sean Large
SBM Atlantia, USA

Novel TLP Concept for Ultra Deepwater Field Development - OMAE2009-80191
Anil Sablok
Technip, USA
Estimation of Long Term Extreme Waves from Storm Statistics and Initial Distribution Approach - OMAE2009-80038
Øistein Hagen
DNV, Norway

Extreme Weather Warning Criteria - OMAE2009-80040
Øistein Hagen1, Gunnar Solland2
1. DNV, Norway; 2. Det Norske Veritas, Norway

Long-Term Statistical Analysis of Typhoon Wave Heights with Poisson-Maximum Entropy Distribution - OMAE2009-79278
Sheng Dong1, Wei Liu1, Li-zhen Zhang2, Carlos Guedes Soares3
1. Department of Ocean Engineering, College of Engineering, Ocean University of China, China; 2. College of Mathematical Sciences, Ocean University of China, China; 3. Technical University of Lisbon, Portugal

2-23 Structural Analysis and Optimisation III
Thursday June 4 Koko Crater | 14:00–15:30
Session Chair: Ge Wang, American Bureau of Shipping, USA
Session Co-Chair: Jørgen Amdahl, Norwegian University of Science and Technology, Norway

Reconstruction and Reinforcement of Pile Driving Barges - OMAE2009-79433
Guozhi Wang, Zhouyi Liu
Jiangsu University of Science and Technology, China

Behaviour of an Innovative Universal Structural Connection under Monotonic and Cyclic Shear Loading - OMAE2009-80047
Seyed Vahid Khonsari1, George L. England2, Alireza Mohammadi3
1. Department of Ocean Engineering, College of Engineering, Ocean University of China, China; 2. College of Mathematical Sciences, Ocean University of China, China; 3. Imperial College of Science, Technology and Medicine, United Kingdom

Structural Safety Assessment of Existing Ice-Resistant Jacket Platforms in Ice Zone - OMAE2009-79849
Dayong Zhang, Qianjin Yue, Yuan Liu, Xiaofei Che
Offshore Engineering Plan Approval Centre of China Classification Society, China

The 20 Hurricane Test - New Knowledge on Deepwater Polyester Mooring Integrity - OMAE2009-79021
Ray R. Ayers, Salikt B. Aksu
Stress Engineering Services, Inc., USA

Materials Technology Symposium
3-11 Advances on Elastomers and Composites
Thursday June 4 Regency III | 14:00–15:30
Session Chair: Xiaozhi Wang, American Bureau of Shipping, USA
Session Co-Chair: Xin Wang, Carleton University, Canada

O&G Contractor Perspective on Performance Risks for Deepwater Polymeric & Elastomeric Applications - OMAE2009-79032
Garry P Mahoney, Gianbattista Curti, Franck Valliet, Sebastien Blasiou
SAIPEM SA, Salbos Division, France

A Novel Vacuum Insulated Dual-Wall Composite Pipe for Cold Environments Applications - OMAE2009-79760
Mark Ruhl, Kivindver Juss, Pierre Mertiny
University of Alberta, Canada

Darryn McCormick, Franz-Josef Kahlen
University of Cape Town, South Africa

Ocean Engineering Symposium
6-18 Model Tests - III
Thursday June 4 Kohala | 14:00–15:30
Session Chair: Rene Huijsmans, Delft University of Technology, Netherlands
Session Co-Chair: Daniel Valentine, Clarkson University, USA

Reference Load for a Conventional 138K CBM LNG Carrier in a Comparative Approach - OMAE2009-79192
Min Cheol Ryu1, Jung Hyung Jung1, Soo Sung Jeon1, Yoonsik Hwang1
1. Saipem SA, Salbos Division, France; 2. CNR, Norway; 3. Saipem Canada, Canada

Measurements in Circular Wave Tank with Active Generators - OMAE2009-80013
Joao Alcino Martins
University of Sao Paulo, Brazil

Deepwater SCR Installation With the HLV Thialf - OMAE2009-79966
roger Wever, pascal hendriks
Heerema Marine Contractors, Netherlands

1 New Top Connection System For Steel Catenary Risers - OMAE2009-79980
Claudio Marco Silva Dantas1, José Renato M. de Sousa2, Fernando JM Souza2, Marcos Queija de Siqueira1, Isaias Q. Masetti1
1. Federal University of Rio de Janeiro - COPPE - PEC - LACEO, Brazil; 2. University of São Paulo, Brazil

Methodology For Disconnect Analysis Of CWO Risers In Random Seas - OMAE2009-79130
Guttorm Grytøy1, Dr. Anne M. Rustad1, Nils Sodal1, Per Christian Bunaes2
1. Det Norske Veritas, Norway; 2. DNV, Norway

Global Analysis of Ultra-Deepwater Drilling Risers - OMAE2009-79912
Wei Dai1, Feng Gao1, Yong Bai2
1. Harbin Engineering University, China; 2. OPR (Offshore Pipeline & Risers), Malaysia

14:00–15:30
Koko Crater  | 14:00–15:30
Regency III  | 14:00–15:30
Kona  | 14:00–15:30
14:00–15:30
Kona  | 14:00–15:30
14:00–15:30
Puna  | 14:00–15:30
14:00–15:30
Puna  | 14:00–15:30
Kona  | 14:00–15:30
Kona  | 14:00–15:30

Hydrodynamic Characteristics of the Surface-Piercing Propeller for the Planing Craft - OMAE2009-79963
Hassan Ghassemi, Roya Shademani, Abdollah Ardestchi
Amirkabir University of Technology, Iran

Low Steeping Waves Simulation in a Vertical Excited Container Using 3 Transformation - OMAE2009-80248
Eswaran M, U. K. Saha
Indian Institute of Technology Guwahati, India

A Methodology for Calculating the Hydrodynamic Forces for Structural Analysis Using the High-order Method. - OMAE2009-79436
Fábio Menezes, Rodrigo Silva
 Petrobras, Brazil

Polar and Arctic Sciences and Technology

7-5 Ice S: Experimental Ice Modeling III and Analysis of Full Scale Data
Thursday June 4
Hilo | 14:00–15:30
Session Chair: Oddgeir Dalane, Norwegian University of Science and Technology, Norway
Session Co-Chair: Walter Kuehnlein, sea2ice, Germany

Main Factors of Ice Sheet- Conical Structure Interaction Process Based on Field Monitoring - OMAE2009-79848
Ning Xu1 Yan Qu2 Qianjin Yue1 Xiangjun Bi1 A.C. Palmer1
1. Dalian University of Technology, China; 2. Research center of CNOOC, China; 3. National University of Singapore, Singapore, Singapore

Model Test of Ice-Structure Interaction - OMAE2009-79780
Fengwei Guo1 Qianjin Yue1 Xiangjun Bi1 Yuan Liu1
1. Dalian University of Technology, China; 2. Offshore Engineering Plan Approval Centre of China Classification Society, China

Local Design Pressures for Structures in Ice: Analysis of Full-Scale Data - OMAE2009-79386
Rocky S. Taylor1 Ian J. Jordaan1 Chuanki Li1 Denise Soudom1
1. C-CORE and Memorial University of Newfoundland, Canada; 2. Memorial University of Newfoundland, Canada; 3. Canadian Hydraulics Centre - National Research Council of Canada, Canada

Estimation of Local Ice Pressure Using Up-Crossing Rate - OMAE2009-79396
Chuanki Li1 Ian J. Jordaan1 Rocky S. Taylor1
1. Memorial University of Newfoundland, Canada; 2. C-CORE and Memorial University of Newfoundland, Canada

CFD and VIV Symposium

8-17 Riser VIV - fatigue, benchmarking, & internal flow
Thursday June 4
Regency I | 14:00–15:30
Session Chair: Harish Mukundan, FloaTEC, LLC, USA
Session Co-Chair: Didier Lucor, Université Pierre et Marie Curie, France

Vertical Riser VIV Simulation in Uniform Current - OMAE2009-79349
Kevin Huang, Hamn-Ching Chen, Chia-rong Chen
TX A&M, USA

Experimental Investigation of Vortex-Induced Vibration Responses of Tension Riser Transporting Fluid - OMAE2009-79563
Yongbo Zhang, Fanshun Meng, Haiyan Guo
Ocean University of China, China

An Approach to Include Observed VIV Likelihood in Drilling Riser Fatigue Analyses - OMAE2009-79443
Michael Tognarelli1 Rene Gabbai1 Mike Campbell2
1. BP America, Inc., USA; 2. 2H Offshore, Inc., USA

Ocean Renewable Energy Symposium

10-19 Wave/Current/Wind
Thursday June 4
Akaka | 14:00–15:30
Session Chair: Ye Li, University of British Columbia, Canada
Session Co-Chair: Sander Calisal, The University of British Columbia, Canada

Joint Assessment of Offshore Wind and Wave Energy Resources in the Portuguese Pilot Zone - OMAE2009-80244
Teresa Pontes1 Paulo Costa1 Miguel Bruck1 Anabela Carvalho2
1. INETI / LNEG, Portugal; 2. Instituto de Meteorologia, Portugal

Design of a Mooring System With Synthetic Ropes for the FLOW Wave Energy Converter - OMAE2009-80223
Nuno Fonseca1 Ricardo Pascoal2 Tiago Morais3 Renato Dias3
1. Instituto Superior Técnica, Portugal; 2. Instituto Superior Técnico, Technical University of Lisbon, Portugal; 3. Mantle Energia, Portugal
Hydrodynamic and Experimental Analysis on a Novel Hybrid Offshore Renewable Structure - OMAE2009-80249
Kurt Delpeche
United Kingdom

Offshore Measurement and Data Interpretation

11-1 Ocean Currents
Thursday June 4
Regency II | 14:00–15:30
Session Chair: Zoran Lajic, Technical University of Denmark - Department of Mechanical Engineering, Denmark
Session Co-Chair: Ana Luiza Xavier, Petrobras, Brazil

Synergistic use of Satellite and In-Situ Current Data to Improve the Characterisation of Seasonal Trends - OMAE2009-79172
Liam Harrington-Missin, Gus Jeans, Mark J. Calverley
Fugro GEOS Ltd., United Kingdom

Directional Extreme Current Profiles Based on Complex Empirical Orthogonal Functions (C-EOF) for Offshore Design - OMAE2009-79647
Jose A. M. Lima, Eric Ribeiro, Wellington Ceccopieri, Guiresa Santiago Grossman Matheson
Petrobras, Brazil

Real-time current and wave monitoring using acoustic and Iridium satellite links - OMAE2009-79660
Eddie Shih, James Spenke, David Trombley, John cassidy, Tom Mero
NOAA/NOS, USA

Offshore Geotechnics Symposium

12-4 Seabed Processes and Mechanics I
Thursday June 4
Ewa | 14:00–15:30
Session Chair: Jing-wen Chen, Civil Eng. Dept., National Cheng Kung University, Taiwan
Session Co-Chair: Dong-Sheng Jeng, University of Dundee, United Kingdom

Dynamic Triaxial Experimental Study on Wave-Induced Strength Weakening of the Subaqueous Yellow River Delta Silty Soil Under Wave Actions - OMAE2009-79070
Guohui Xu, Huixin Liu, Xin Wang, Congcong Wei, Minsheng Zhang
Ocean University of China, China

Shaking Table Test on Seismic Behavior of Caisson Type Quay-Wall in Application of Ground Solidification Technique - OMAE2009-79112
Kiyonobu Kasama1 Kouki Zen1 Guangqi Chen1 Kentaro Hayashi2
1. Kyushu University, Japan; 2. Penta-Ocean Construction, Japan

Laboratory Study on the Relationships Between Suspended Sediment Concentration and Electrical Conductivity - OMAE2009-79211
Qian Dai1 Hongxian Shang1 Yonggang Jia1 Xiangmei Meng1 Honglei Li1 Wentlin Cui2
1. Ocean University of China, China; 2. North China Sea Environmental Monitoring Center, China

Shaking Table Test on the Improvement Dimension of Permeable Grouting Method for Liquefaction Countermeasure - OMAE2009-79635
Masakazu Kobayahshi1 Kouki Zen1 Guangqi Chen1 Kiyonobu Kasama1 Kentaro Hayashi2
1. Kyushu University, Japan; 2. Penta-Ocean Construction, Japan

Thursday, 16:00–18:00

Offshore Technology Symposium

1-14 Ship & Ship Tank Dynamics II
Thursday June 4
Kahuku | 16:00–18:00
Session Chair: Alexandre N. Simos, University of São Paulo, Brazil
Session Co-Chair: Jeffrey M. Falzarano, Texas A&M University, USA

Current Wake Effects on DP System of a Shuttle Tanker - OMAE2009-79353
César Illuminati1 Eduardo A. Tannuri1 Vinicius L. F. Matos2 Alexandre N. Simos1
1. University of São Paulo, Brazil; 2. Petrobras - E&P, Brazil

Dp Pipe-Laying and Crane Barge: Procedure for Defining Operational Window and Capability Plots Using Dynamic Simulations - OMAE2009-79584
Eduardo A. Tannuri1 João L.B. Silva1 Anderson T. Oshiro1 Arthur C. Saad2
1. University of São Paulo, Brazil; 2. Petroleo Brasileiro - Petrobras SA, Brazil

Time Domain Analysis for DP Simulations - OMAE2009-79587
Jarit-Jan W. Serraris
MARIN, Maritime Research Institute Netherlands, Netherlands

Downtime Analysis for Offloading Operation: DP X Non-DP Shuttle Tanker - OMAE2009-79637
Marcos Cueva1 Vinicius L. F. Matos2 Eduardo A. Tannuri1 Sylvio Correa1 Carlos Mastrangelo1

Modal Identification applied to Dynamic Positioning - OMAE2009-79147
Alexandre A. Santiago1 Ramon R. Costa1 Antonio C. Fernandes1
1. UFRJ, COPPE, PENO, Brazil; 2. UFRJ, COPPE, PEE, Brazil

Structures, Safety and Reliability Symposium

2-24 Extreme and Freak Waves II
Thursday June 4
Honolulu | 16:00–18:00
Session Chair: Francesco Fedele, Georgia Institute of Technology
Session Co-Chair: Øistein Hagen, DNV, Norway

Bias And Uncertainty In The Estimation Of Extreme Wave Heights And Crests - OMAE2009-79466
Richard Gibson1 Colin Grant2 George Forristall3 Rory Smyth4 Peter Owrid1 Øistein Hagen1 Ian Leggett5
1. BP, Norway; 2. BP Exploration, United Kingdom; 3. Forristall Ocean Engineering, Inc.; 4. OceanMetrix Ltd, United Kingdom; 5. PhysE, United Kingdom; 6. DNV, Norway; 7. Shell Exploration and Production Europe, United Kingdom

Beyond Waves & Spectra: Euler Characteristics of Oceanic Sea States - OMAE2009-79598
Francesco Fedele1 Guillermo Gallego1 Pracanna Sampath1 Prof. Anthony Yezzi1 Dr. Alvise Benetazzo2 George Forristall1 Prof. Aziz Tayfun3 Mauro Bastianini4 Mauro Sclavo5 Luigi Cavalieri6
1. Georgia Institute of Technology, USA; 2. PROTECNO srl, Italy; 3. Forristall Ocean Engineering, Inc., USA; 4. OceanMetrix Ltd, United Kingdom; 5. PhysE, United Kingdom; 6. DNV, Norway; 7. Shell Exploration and Production Europe, United Kingdom

Statistics of Nonlinear Waves Simulated in a Wave Basin - OMAE2009-79672
Zhivelina Cherneva1 M. Aziz Tayfun2 Carlos Guedes Soares1
1. Instituto Superior Tecnico, Portugal; 2. Kuwait University, Kuwait; 3. Technical University of Lisbon, Portugal

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Steepness of High Ocean Waves in Quasi-Determinism Theory - OMAE2009-79876
Ewa Antão1 Felice Arena2 Carlos Guedes Soares3 Alessandra Romolo2
1. Technical University of Lisbon, Portugal; 2. Mediterranea University, Italy

2-25 Structural Analysis and Optimisation IV
Thursday June 4  | Koko Crater  | 16:00–18:00
Session Chair: Jørgen Amdahl, Norwegian University of Science and Technology, Norway
Session Co-Chair: Ge Wang, American Bureau of Shipping, USA

Vibration Load Identification of Offshore Platforms Based on Neural Network - OMAE2009-79102
Rujian Ma1 Guizi Li1 Jinshan Lin2
1. University of Jinan, China; 2. Welfang University, China

Experimental Observations and Numerical Simulations of Wave Impact Forces on Recurred Parapets Mounted Above a Vertical Wall - OMAE2009-79183
David Newborn1 Nels Sultan1 Pierre Beynet2 Tim Maddux2 Sungwon Shin1 Dan Cox1
1. Oregon State University, USA; 2. PND Engineers, Inc, USA; 3. BP p.l.c., USA

Dynamic Response Analysis of Harbor Caisson Structure under Various Boundary Conditions - OMAE2009-79294
Jeong-Tae Kim1 So-Young Lee1 Dong-Soo Hong1 Jin-Hak Yi1 Yoon-Koo Kang1
1. Pukyoung National University, Korea; 2. Korea Ocean Research Institute, Korea; 3. Samsung C&T Co., Korea

Study on the Wave Loads and Strength Assessment Method on Semi-Submersible Platform - OMAE2009-79678
Li Hui, Huilong Ren, Guoqing Feng, Wei Tao
Harbin Engineering University, China

The structural design developments of Riser I-tube support in FPSO - OMAE2009-79876
S.H. Park, J.T. Kim, M.K. Lee
Daewoo Shipbuilding & Marine Engineering CO., LTD., Korea

Materials Technology Symposium

3-13 Duplex Stainless Steels and Advanced Welding
Thursday June 4  | Regency III  | 16:00–18:00
Session Chair: Stig Wästberg, Det Norske Veritas (DNV), Norway
Session Co-Chair: Hugo A. Ernst, Tenaris Group, Argentina

Stress Based Design Guidelines for Hydrogen Induced Stress Cracking (HISC) Avoidance in Duplex Materials - OMAE2009-79504
Pedro Vargas1 Stig Wästberg2 Paul Woollin1
1. Chevron Energy Technology Company, USA; 2. Det Norske Veritas (DNV), Norway; 3. TWI Ltd, United Kingdom

Effect of Different Cooling rate on HAZ Microstructure of 2205 Duplex Stainless Steels - OMAE2009-80190
Qingren Xiong1 Yaorong Feng1 Wenzhen Zhao1 Chunyoung Huo2 Chuan Liu2 Lingkang Ji1 Paul Woollin1
1. Tubular Goods Research Center of CNPC, China; 2. China National Petroleum Corporation, China; 3. Tubular Goods Research Center of CNPC, China; 4. Xi’an Jiaotong University, China; 5. China National Petroleum Corporation, China

Microstructure and Galvanic Corrosion of Dissimilar Weldment Between Duplex Stainless Steel UNS and X80 Steel - OMAE2009-80203
Xiaoyan Wang, Lei Zhang, Xianren Kuang, Minmu Lu
University Science and Technology Beijing, China

Residual Stress Measurement on a Narrow Gap Dissimilar Metal Weld Pipe - OMAE2009-79918
Xavier Ficquet1 Philippe Gilles2 Pierre Joly1 Laurie Chadwick3
1. Veget Ltd, United Kingdom; 2. AREVA NP S.A.S, France; 3. VEGET, United Kingdom

Advanced Hybrid Joining Technology - OMAE2009-79769
Vladimir M. Shkolnikov1 Bruce G. I. Dance1 Gabriel J. Hostetter1 David K. McNamara1 Joseph R. Pickens1 Stanford P. Turchek Jr1
1. CTC, USA; 2. The Welding Institute, Ltd, United Kingdom

3-15 Strain Based Design of Pipelines I
Thursday June 4  | Iao  | 16:00–18:00
Session Chair: Jaime Buitrago, ExxonMobil Upstream Research, USA
Session Co-Chair: Paulo Gioielli, ExxonMobil Upstream Research, USA

Experience With SENT specimen - OMAE2009-80267
Bard Nyhus
SINTEF, Norway

Engineering Critical Assessment of Girth Welds-from Stress to Strain - OMAE2009-80268
Roberto Bruschi
Saipem, Italy

3-16 Strain Based Design of Pipelines II
Thursday June 4  | Molokai  | 16:00–18:00
Session Chair: Jaime Buitrago, ExxonMobil Upstream Research, USA
Session Co-Chair: Paulo Gioielli, ExxonMobil Upstream Research, USA

Advances in Capacity Predictions - OMAE2009-80269
Paulo Gioielli
ExxonMobil Upstream Research, USA

Pipeline and Riser Technology Symposium

4-21 Steel Risers III
Thursday June 4  | Kona  | 16:00–18:00
Session Chair: Howard Wang, ExxonMobil Development Co., USA
Session Co-Chair: Basim Mekha, Cuneiform Offshore Consulting, LLC, USA

Ultra Heavy Wall Linepipe X65 for the most stringent applications: Metallurgical Design & Industrial Development - OMAE2009-79153
Alfonso Izquierdo1 Hector Quintanilla1 Mariano Armengol1 Paolo Novelli2 Giorgio Porcu3 Gianluca Mannucci3 Gilles Richard1 Luigi Di Vito1 Ettore Anelli2 Aldo Mannucci1 Enrique Garcia1 1. TenarisTamsa, Mexico; 2. TenarisDalmine, Italy; 3. Centro Sviluppo Materiali S.p.A, Italy

Fatigue Performance of SMLS SCR Girth Welds — Comparison of Prefabrication-type WPS - OMAE2009-79811
Philippe Darcis1 Israel Marín-García1 Luigi F. Di Vito1 Gilles Richard1 Eduardo Ruiz2 Marcos de Souza3 Elsa Marques3 Diego Dell’Erba1 Mariano Armengol1 Hector Quintanilla1
1. Tenaris Tamsa, Mexico; 2. Centro Sviluppo Materiali S.p.A., Italy; 3. TenarisTamsa, Mexico; 4. TenarisConop, Brazil; 5. TenarisDalmine, Italy

Recent Developments in Drilling Riser Disconnect and Recall Analysis for Deepwater Applications - OMAE2009-79427
Donogh W. Lang1 James Real1 Michael Lane1
1. MCS, Ireland; 2. National University of Ireland, Galway, Ireland
Ocean Engineering Symposium

6-28 Model Tests - IV
Thursday June 4  |  Kohala  |  16:00–18:00
Session Chair: Dominique Roddier, Principle Power, USA
Session Co-Chair: Eddie Shih, NOAA/NOS, USA

On the Transient and Progressive Flooding Stages of Damaged RO-RO Vessels - OMAE2009-79750
Chadi Khaddaj-Mallat, Jean-Marc Rousset, Pierre Ferrant
Laboratoire de mecanique des Fluides, Ecole centrale de Nantes, France

Mario Felli
INSEAN, Italy

Experimental Assessment of Hydrodynamic Coefficients of Disks Oscillating Under a Free Surface - OMAE2009-79671
Hemlata Wadhwa, Krish Thiagarajan
The University of Western Australia, Australia

Polar and Arctic Sciences and Technology

7-6 Ice 6: Operations and Structures in Ice
Thursday June 4  |  Hilo  |  16:00–18:00
Session Chair: Johannes Hüffmeier, SSPA Sweden AB, Sweden
Session Co-Chair: Walter Kuehnlein, sea2ice, Germany

Disconnectable Mooring System for Ice Class Floaters - OMAE2009-80065
Apurva Gupta1 Asbjorn Mortensen1 John Murray1 Kok Seng Foo2 Toh Tung Wong2
1. Keppel Offshore & Marine USA, USA; 2. KOMtech Pte Ltd, Singapore; 3. FloatECS, LLC, USA; 4. Offshore Technology Development Pte Ltd, Singapore

Specifications for a Subsurface Ice Intelligence System - OMAE2009-79606
Kenneth Eik, Sveinung Løset, Norwegian University of Science and Technology, Norway

MABEL – Recovery Operation of the first long-term heavy Benthic Laboratory in the Deep Sea of Antarctica - OMAE2009-80251
Hans W. Gerber1 Gunther Claus2
1. TFH Berlin - University of Applied Sciences, Germany; 2. Technische Universität Berlin, Germany

Closing of the Polar and Arctic Sciences and Technology Symposium - OMAE2009-80271
Walter Kuehnlein, sea2ice, Germany

Ocean Renewable Energy Symposium

10-16 Wind Energy V
Thursday June 4  |  Akaka  |  16:00–18:00
Session Chair: Lance Manuel, University of Texas at Austin, USA
Session Co-Chair: Robert Sheppard, Energo Engineering, USA

Offshore Wind Turbine and Substructure Modelling for a Float Over Installation Design - OMAE2009-79118
jean marc Cholley, Marc Cahay
Technip, France

Experimental Validation for Motion of a SPAR-type Floating Offshore Wind Turbine Using 1/22.5 Scale Model - OMAE2009-79695
Tomohiko Utsunomiya1 Tomoki Sato1 Hidekazu Matsukuma1 Kiyokazu Yago2
1. Kyudo University, Japan; 2. National Maritime Research Institute, Japan

Experimental Study on Water Flow Characteristics of Conical Floating Structure - OMAE2009-80050
Erica Bush, Lance Manuel
University of Texas at Austin, USA

Offshore Geotechnics Symposium

12-10 Seabed Processes and Mechanics II
Thursday June 4  |  Ewa  |  16:00–18:00
Session Chair: Dong-Sheng Jeng, University of Dundee, United Kingdom
Session Co-Chair: Shamim Rahman, North Carolina State University, USA

The Effectiveness of Dynamic Compaction under Various Water Levels - OMAE2009-79812
Jing-wen Chen1 Fu-Cheng Chen1
1. Civil Eng. Dept., National Cheng Kung University, Taiwan; 2. CTCI Corporation, Taiwan

Characterization of the Solid-Liquid Transition of Fine-Grained Sediments - OMAE2009-79738
Nathalie Boukpeti, Dave White, Mark Randolph, Han Eng Low
Centre for Offshore Foundation Systems, Australia

Stability Analysis of Jetties in Soft Soils Based on Strength Reduction Method - OMAE2009-79049
Qianjun Xu1 Limin Zhang2
1. Tsinghua University, China; 2. Hong Kong University of Science and Technology, China

CFD and VIV Symposium

8-21 Panel on CFD & VIV Benchmarking
Thursday, June 4  |  Regency 1  |  16:00–18:00
Session Chair: Owen H. Oakley, Jr., Chevron Energy Technology Co.
Session Co-Chair: Hayden Marcello, AMOG Consulting

The Effect of Hydrodynamic Action on Sediment Consolidation Process in the Yellow River Estuary - OMAE2009-79207
Xiujuan Yang, Yonggang Jia, Hongxian Shan
Ocean University of China, China
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...come discover our science!
Conference Social Events and Tours

Welcome Reception
Sunday, May 31, 2009, 18:00–19:30
Join your colleagues for a drink and a chance to see old and new friends at the Welcome Reception. The reception will take place beside the Pacific Ocean at the pool deck of the Sheraton Waikiki Hotel. Upon arrival at the reception you will be greeted with a traditional flower Lei placed around your neck, a sign of welcome and respect. Admission to the Welcome Reception is included for all attendees registered for the Full Conference and Accompanying Persons. Guest tickets are available for purchase at a cost of $45.

Final Banquet
Wednesday, June 3, 2009
Cocktail hour: 18:45
Dinner Service and Show: 19:30
The Final Banquet will be a grand celebration of Hawaiian culture and cuisine. The Banquet will be held outdoors on the Ocean Lawn of the Royal Hawaiian Hotel, next door to the Sheraton Waikiki Hotel. The Ocean Lawn overlooks Waikiki Beach and the sparkling blue waters of the Pacific, with a terrific view of Diamond Head. Enjoy entertainment throughout the evening with a Polynesian Review featuring Hawaiian music, Hula Dancers, and other entertainment from the Islands. Dinner will be a sumptuous buffet featuring island cuisine. Admission to the Final Banquet is included for all paying attendees except for student and one day registrants. Guest tickets are available for purchase at a cost of $160.

Luncheons
Awards Luncheon
Tuesday, June 2, 12:30–14:00
Location: Molokai Room

Technical Session Organizers Luncheon
Thursday, June 4, 12:30–14:00
Location: Molokai Room

Lunches will be provided on Tuesday and Thursday at 12:30 in the Molokai Room. Tuesday’s lunch will feature this year’s award presentations and Thursday’s lunch is an opportunity for Technical Session Organizers to get together. Both luncheons are open to all delegates where lunch is included in their fee.

Technical Tours
NSST Tour: The Navy’s Navigation, Seamanship and Shiphandling Trainer
Friday, June 5, 08:00–12:00
Meeting Point: Please meet in the lobby of the Sheraton Waikiki Hotel at 8:00
Fee: $35
NSST (The Navy’s Navigation, Seamanship and Shiphandling Trainer) on Ford Island opened on March 14, 2007. The trainer is operated by Afloat Training Group Middle Pacific and features a state-of-the-art bridge simulator to train Navy ship crews using virtual technology. The NSST bridge design replicates the environment found on a bridge on a U.S. Navy ship. This system will eventually be used in all Navy fleet concentration centers. Passport numbers are required for foreign nationals.

White Boat Harbor Tour
Friday, June 5, 14:00–17:45
Meeting Point: Please meet in the lobby of the Sheraton Waikiki Hotel at 13:45
Fee: $30
Enjoy a special historical cruise around Ford Island and Pearl Harbor in a covered boat with commentary by the US Navy Executive Officer. The boat leaves the Arizona Memorial Visitors Center pier and circles Ford Island, pointing out important historical sites and stops briefly at the memorial where a park ranger is available to offer more information.
Note: There is a “no bags allowed” policy (including purses, camera bags, fanny or back packs, etc.) on the boat. You may bring your camera, but not the camera bag.
Dress Code: Everyone must be dressed appropriately for a Memorial. No slippers, no short-shorts or rude t-shirts. Flat shoes and pants are recommended for women as a safety precaution. Visitors will be on a pier and getting in and out of boats.

Accompanying Persons Program
The Accompanying Persons program includes admission to the Welcome Reception, Final Banquet and the following:

High Tea at Moana Surfrider
Sunday, May 31, 15:00
Meeting Point: Please meet by the OMAE 2009 Registration Desk in the lobby of the Sheraton Waikiki Hotel at 14:45.
Indulging in afternoon tea at the Banyan Veranda was a Waikiki tradition in the early 1900s. The Moana...
Surfrider continues this gracious tradition today by offering guests a variety of fine teas, accompanied by an elegant selection of finger sandwiches and sweet pastries complete with white-gloved service. Often referred to as the “First Lady of Waikiki”, the Moana Surfrider is a legendary landmark on the Oahu oceanfront.

**Deluxe Little Circle Tour**

**Meeting Point:** Please meet by the OMAE 2009 Registration Desk in the lobby of the Sheraton Waikiki Hotel at 9:50.

This half-day tour covers Oahu's diverse Southeastern coast and Koolau Mountains. See tranquil coves, rugged cliffs and a tropical forest. Stops include the slopes of Diamond Head Crater, Hanauma Bay, windy Pali Lookout, Nuuanu Valley and Makapuu Beach. So much variety is packed into this conveniently scheduled four hour tour. Be sure to bring your camera! There are no food or beverages included in this tour. It is recommended that causal clothing and comfortable footwear is worn.

**Optional Sightseeing Tours**

**Polynesian Cultural Center Day Tour**

**Meeting Point:** Please meet in the lobby of the Sheraton Waikiki Hotel at 9:50.

**Fee:** Adult $110.00; Child $86.00 (Hawaiian Luau dinner included)

Hawaii's Polynesian Cultural Center, located one hour's scenic drive from Waikiki, is one of Hawaii's top attractions and a must see for visitors. The Center features the people and islands of Hawaii, Samoa, Aotearoa (Maori New Zealand), Fiji, the Marquesas, Tahiti, and Tonga; as well as a Rapa Nui exhibit and an 1850s-era Christian mission complex, all in a beautiful 42-acre setting that has been Hawaii's top paid-admission visitor attraction since 1977. In addition, the Polynesian Cultural Center also provides information on several other Polynesian island groups, including the Cook Islands, Niue, the Tuamotu archipelago, Tuvalu, Wallis and Futuna.

The Centre recreates seven native villages giving visitors the rare chance to participate in the daily adventures of Hawaiian and other South Pacific cultures. Add Hawaii's most authentic luau and the world's largest Polynesian night show and you'll see why every trip to Hawaii should include a visit to the Polynesian Cultural Center. Visit as many of the villages as you wish, enjoying presentations of music, dance or ancient crafts. Attend a mid afternoon canoe pageant where dancers perform on floating stages on the lagoon. You may also choose to enjoy an exciting Imax film and ride a “canoe” on the lagoon as it winds its way between the villages and the natives call out greetings in their native tongue.

Polynesian Cultural Center Day Tour with Alii Luau Package includes:
- Admission to 7 Villages
- Long Canoe Pageant
- Tram Tour of La‘ie
- IMAX
- Flower Lei Greeting at Luau
- Alii Luau Buffet
- “Horizons” Night Show
- Preferred Seating
- Transportation to and from hotel

**Pearl Harbor Tour**

**Meeting Point:** Please meet by the OMAE 2009 Registration Desk in the lobby of the Sheraton Waikiki Hotel at 8:45.

**Fee:** $25.00 per person

Relive the dramatic events of Pearl Harbor as you visit the National Park Visitor's Center historical exhibits and film documentary. Board the Navy shuttle boat for a short ride to the Arizona Memorial where you will see the sunken remains of the USS Arizona and the names of 1,177 sailors and marines who lost their lives aboard the battleship on December 7, 1941.

There are no food or beverages included in this tour. They can be purchased at the Visitor's Centre. Causal dress and comfortable footwear is advised. No purses, handbags, waist packs, backpacks, camera bags, diaper bags, luggage or other items that offer concealment are allowed in the visitor center or on the memorial. Strollers with pockets and compartments must be empty before being allowed in the visitor center. Personal cameras are allowed.

**North Shore, Dole Pineapple and Half Island Tour**

**Meeting Point:** Please meet by the OMAE 2009 Registration Desk in the lobby of the Sheraton Waikiki Hotel at 8:15.

**Fee:** $57.00 per person

Discover Oahu’s North Shore! You’ll be amazed to see how diverse this little island actually is. The island’s North Shore is quite different than bustling Waikiki. Here you’ll see unique red-sand fields, tropical plantations, green mountains, world-class surfing beaches and lush rainforests; you’ll never encounter a boring moment.

This tour takes you to the Dole Pineapple Plantation, where you can try delicious pineapple ice cream and see how pineapples grow. Then you’ll be heading north to see the quaint little town of Haleiwa and the surfing beaches in this region as well as turtle beach, where huge sea turtles often times sun themselves right in the sand. Have your camera ready!

On Oahu’s windward coast, there are scenic lookout points and you’ll also visit famous Hollywood film locations including Jurassic Park, Lost and Fantasy Island. Also near Kaneohe is the beautiful Kaaawa Valley, overlooking some of the most stunning views of the island.

This North Shore of Oahu tour is one of the most popular tours in Hawaii. It will take you on a journey of discovery to a land so beautiful even ancient mariners were hard-pressed to find words to describe it. Discover it yourself!
Overview

The worldwide demand for energy has placed increasing pressure on industry to find new sources for energy, both traditional hydrocarbon reserves and new alternate forms of energy. Although industry is pursuing all of these alternatives, there is an acute manpower shortage of technical personnel to fill the needs of this growing industry. Exciting career opportunities for engineering students and early professionals can be found throughout the world.

To provide senior engineering students and early professionals an introduction to an exciting profession, the ASME Ocean, Offshore and Arctic Engineering Division (OOAE) of the International Petroleum Technology Institute (IPTI) is hosting the 3rd Annual specialty forum “Outreach for Engineers” at the 2009 International Conference on Ocean, Offshore and Arctic Engineering (OMAE) in Honolulu, HI. The specialty forum is designed as an introduction for new graduates and early professionals who may not be familiar with the industry.

Highlights of the Forum will include presentations of the various technologies required (e.g. from geosciences to mechanical/structural engineering and project management), types of job opportunities and career paths, as well as site tours. There will be opportunities to discuss your situation with engineers, managers and human resources professionals from some of the leading companies in the industry.

Additionally, Outreach for Engineers Specialty Forum delegates will be provided with the opportunity to participate at the 28th International Conference on Ocean, Offshore and Arctic Engineering (OMAE) as conference delegates.
# ASME-IPTI Training Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Course Name</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept. 14, 2009</td>
<td>8:00 am–5:00 pm</td>
<td>Fundamentals of Deepwater Project Development</td>
<td>Rio de Janeiro, Brazil</td>
</tr>
<tr>
<td>Sept. 23, 2009</td>
<td>11:00 am–2:00 pm</td>
<td>Engineering Ethics in Action Workshop</td>
<td>Houston, TX</td>
</tr>
<tr>
<td>Sept. 24, 2009</td>
<td>7:30 am–10:30 am</td>
<td>Engineering Ethics in Action Workshop</td>
<td>Houston, TX</td>
</tr>
<tr>
<td>Oct. 26, 2009</td>
<td>8:00 am–5:00 pm</td>
<td>Fundamentals of Deepwater Riser Engineering</td>
<td>Houston, TX</td>
</tr>
<tr>
<td>Oct. 27, 2009</td>
<td>8:00 am–5:30 pm</td>
<td>Subsea Pipeline Design Overview</td>
<td>Houston, TX</td>
</tr>
<tr>
<td>Oct. 26-27, 2009</td>
<td>8:00 am–5:00 pm</td>
<td>Subsea Pipeline Design Overview</td>
<td>Houston, TX</td>
</tr>
<tr>
<td>Nov. 17–19, 2009</td>
<td>TBA</td>
<td>Pipeline Integrity Management Lecture Series and Workshop</td>
<td>Banff, Canada</td>
</tr>
<tr>
<td>December 1, 2009</td>
<td>8:00 am–5:00 pm</td>
<td>Fundamentals of Deepwater Project Development</td>
<td>Galveston, TX</td>
</tr>
<tr>
<td>March 22, 2010</td>
<td>8:00 am–5:00 pm</td>
<td>Deepwater Project Development Course</td>
<td>Amsterdam, The Netherlands</td>
</tr>
</tbody>
</table>

**Investing in Ocean Energy**

Concept Development | Siting | Hurricane Risk Assessment | Design Certification

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Concept Development | Siting | Hurricane Risk Assessment | Design Certification
Listing of Committees

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H. Ronald Riggs, University of Hawaii—Conference Co-Chair
Daniel Valentine, Clarkson University—Technical Program Chair
Subrata Chakrabarti, Offshore Structure Analysis, Inc.—Technical Program Chair
Ian Holliday, Sea to Sky Meeting Management Inc.—Conference Organizer
Carolina Lopez, Sea to Sky Meeting Management Inc.—Conference Organizer

OMAE 2009 Volunteers
The Local Organizing Committee would like to express its gratitude to the following University of Hawaii students for volunteering at OMAE 2009.
Patrick Anderson
Yefei Bai
Richard Carter
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Blue Eisen
Liang Ge
Masoud Hayatdavoodi
Abdulla Mohamed
Miguel Quintero
Krystian Raczkowski
Krishnakumar Rajagopalan
Volker Roeber
Tim Roy
Laxman Sharma
Justin Stopa
Jacob Tyler
Yongyan Wu
Kelu Zhang

Technical Program Committee
SYMP 1: Offshore Technology
Symposium Coordinator: Ron Riggs, University of Hawaii at Manoa
Symposium Co-Coordinator: Subrata Chakrabarti, University of Illinois at Chicago

SYMP 2: Structures, Safety and Reliability
Symposium Coordinator: Carlos Guedes Soares, Technical University of Lisbon

SYMP 3: Materials Technology
Symposium Coordinator: Mamdouh Salama, ConocoPhillips
Symposium Co-Coordinator: Jaime Buitrago, ExxonMobil Upstream Research

SYMP 4: Pipeline and Riser Technology
Symposium Coordinator: Segen F. Estefen, COPPE/UFRJ

SYMP 5: Ocean Space Utilization
Symposium Coordinator: Takeshi Kinoshita, University of Tokyo
Symposium Co-Coordinator: Hideyuki Suzuki, University of Tokyo

SYMP 6: Ocean Engineering
Symposium Coordinator: R.C. Ertekin, University of Hawaii
Symposium Co-Coordinator: Daniel Valentine, Clarkson University

SYMP 7: Polar and Arctic Sciences and Technology
Symposium Coordinator: Walter Kuehnlein, sea2ice

SYMP 8: CFD and VIV
Symposium Coordinator: Owen H. Oakley, Jr., Chevron Energy Technology Co.

SYMP 9: C.C. Mei Symposium on Wave Mechanics and Hydrodynamics
Symposium Coordinator: Philip Liu, Cornell University
Symposium Co-Coordinator: Daniel Valentine, Clarkson University

SYMP 10: Ocean Renewable Energy
Symposium Coordinator: Charles Smith, US Minerals Management Service
Symposium Co-Coordinator: R.C. Ertekin, University of Hawaii
Symposium Co-Coordinator: Teresa Pontes, INETI / LNEG

SYMP 11: Offshore Measurement and Data Interpretation
Symposium Coordinator: Richard Seymour, University of California, San Diego
Symposium Co-Coordinator: Gus Jeans, Fugro GEOS Ltd.

SYMP 12: Offshore Geotechnics
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<tr>
<td>4-11 Fracture and Fatigue II</td>
<td>Tuesday June 2</td>
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<tr>
<td>4-12 Installation I</td>
<td>Thursday June 4</td>
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<td>4-13 Installation II</td>
<td>Thursday June 4</td>
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<tr>
<td>4-14 On-Bottom Behavior and Pipe-Soil Interaction I</td>
<td>Wednesday June 3</td>
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<tr>
<td>4-15 On-Bottom Behavior and Pipe-Soil Interaction II</td>
<td>Wednesday June 3</td>
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<td>4-16 On-Bottom Behavior and Pipe-Soil Interaction III</td>
<td>Wednesday June 3</td>
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<tr>
<td>4-17 On-Bottom Behavior and Pipe-Soil Interaction IV</td>
<td>Wednesday June 3</td>
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<tr>
<td>4-18 Inspection and Repair</td>
<td>Monday June 1</td>
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<tr>
<td>4-19 Steel Risers I</td>
<td>Thursday June 4</td>
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<tr>
<td>4-20 Steel Risers II</td>
<td>Thursday June 4</td>
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<tr>
<td>4-21 Steel Risers III</td>
<td>Thursday June 4</td>
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<tr>
<td>4-22 Flexible Pipes I</td>
<td>Wednesday June 3</td>
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<td>4-23 Flexible Pipes II</td>
<td>Wednesday June 3</td>
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<td>4-24 Flexible Pipes III</td>
<td>Wednesday June 3</td>
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<td>4-25 Flexible Pipes IV</td>
<td>Wednesday June 3</td>
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<tr>
<td><strong>Ocean Renewable Energy Symposium</strong></td>
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<tr>
<td>10-1 Ocean Renewable Energy -(Opening Session)</td>
<td>Monday June 1</td>
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<tr>
<td>10-2 Regulatory and Policy Issues</td>
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<tr>
<td>10-3 Standards, Protocols and Environmental Issues</td>
<td>Tuesday June 2</td>
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<td>10-4 Wave Energy I</td>
<td>Tuesday June 2</td>
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<td>10-5 Wave Energy II</td>
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<td>10-7 Wave Energy IV</td>
<td>Wednesday June 3</td>
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<td>10-8 Wave Energy V</td>
<td>Wednesday June 3</td>
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<td>10-9 Wave Energy VI</td>
<td>Wednesday June 3</td>
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<td>10-10 Wave Energy VII</td>
<td>Tuesday June 2</td>
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<td>10-12 Wind Energy I</td>
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<td>10-14 Wind Energy III</td>
<td>Wednesday June 3</td>
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<tr>
<td>10-16 Wind Energy V</td>
<td>Thursday June 4</td>
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<tr>
<td>10-17 Current Energy I</td>
<td>Thursday June 4</td>
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<tr>
<td>10-18 Current Energy II</td>
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<tr>
<td>10-19 Wave/Current/Wind</td>
<td>Thursday June 4</td>
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<tr>
<td><strong>Ocean Engineering Symposium</strong></td>
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<tr>
<td>6-2 Wave Mechanics and Wave Effects - I</td>
<td>Monday June 1</td>
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<tr>
<td>6-3 Marine Vehicles and Wave Effects - II</td>
<td>Monday June 1</td>
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<tr>
<td>6-4 Marine Vehicles and Structures - I</td>
<td>Wednesday June 3</td>
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<td>6-5 Marine Vehicles and Structures - II</td>
<td>Wednesday June 3</td>
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<tr>
<td>6-6 Marine Vehicles and Structures - III</td>
<td>Wednesday June 3</td>
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<tr>
<td>6-7 Advanced Ship-Hydromechanics/ Marine Technology - I</td>
<td>Tuesday June 2</td>
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<tr>
<td>6-8 Advanced Ship-Hydromechanics/ Marine Technology - II</td>
<td>Tuesday June 2</td>
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6-9 Model Tests - I Thursday June 4
6-10 Model Tests - II Thursday June 4
6-11 Underwater Technology Wednesday June 3
6-12 Ocean Acoustics Tuesday June 2
6-13 Coastal Engineering - I Tuesday June 2
6-14 Coastal Engineering - II Wednesday June 3
6-15 Aquacultural Engineering Monday June 1
6-16 Marine Environmental Engineering - I Thursday June 4
6-17 Marine Environmental Engineering - II Thursday June 4
6-18 Model Tests - III Thursday June 4
6-19 Marine Vehicles and Structures - IV Thursday June 4
6-20 Advanced Ship-Hydromechanics/ Marine Technology - III Tuesday June 2
6-21 Marine Environmental Engineering - II Thursday June 4
6-24 Coastal Engineering - III Wednesday June 3
6-26 Computational Mechanics Monday June 1
6-27 Advanced Ship-Hydromechanics/ Marine Technology - IV Wednesday June 3
6-28 Model Tests - IV Thursday June 4

Polar and Arctic Sciences and Technology
7-1 Ice 1: Numerical Ice Modeling I Wednesday June 3
7-2 Ice 2: Numerical Ice Modeling II Wednesday June 3
7-3 Ice 3: Experimental Ice Modeling I Thursday June 4
7-4 Ice 4: Experimental Ice Modeling II Thursday June 4
7-5 Ice 5: Experimental Ice Modeling III and Analysis of Full Scale Data Thursday June 4
7-6 Ice 6: Operations and Structures in Ice Thursday June 4

CFD and VIV Symposium
8-1 Keynotes Talks by Dr. Robert D. Blevins & Prof. Kenneth E. Jansen Monday June 1
8-2 Cylinder VIV - I Monday June 1
8-3 Cylinder VIV - arrays, wakes Tuesday June 2
8-4 Semi-submersibles & Structures - CFD Modeling Tuesday June 2
8-5 Spars - model testing, VIV suppression; Lifeboat Modeling Tuesday June 2
8-6 Ships - CFD models of roll and current forces Tuesday June 2
8-7 Risers VIV - suppression Wednesday June 3
8-8 Risers VIV modeling - wake oscillators Wednesday June 3
8-9 Risers VIV - data analysis & interpretation Wednesday June 3
8-10 Risers VIV - modeling, Shear7 Wednesday June 3
8-11 Fluid-structure Interaction (FSI) Wednesday June 3
8-12 CFD Modeling - Waves, Tsunamis, SPH Wednesday June 3
8-13 Sloshing & Free Surface Modeling Wednesday June 3
8-14 Waves & Free Surface CFD Modeling Wednesday June 3
8-15 Pipelines - VIV, in-line motions, analysis Thursday June 4
8-16 Pipelines - VIV & internal flows Thursday June 4
8-17 Risers VIV - fatigue, benchmarking, & internal flow Thursday June 4
8-18 VIV - Data Interpretation Thursday June 4
8-19 CFD Applications - buoy & can motions, pumps, downhole hardware Thursday June 4
8-20 Cylinder VIV - II Thursday June 4

C.C. Mei Symposium on Wave Mechanics and Hydrodynamics
9-1 Opening session Monday June 1
9-2 Opening session II Monday June 1
9-3 Waves in stratified fluids Tuesday June 2
9-4 Ship hydrodynamics Tuesday June 2
9-5 Sediment and seafloor dynamics Tuesday June 2
9-6 Ocean engineering Tuesday June 2
9-7 Wave hydrodynamics Wednesday June 3
9-8 Ocean/offshore engineering Wednesday June 3
9-9 Coastal hydrodynamics Wednesday June 3
9-10 Wave mechanics Wednesday June 3

Ocean Renewable Energy Symposium
10-1 Ocean Renewable Energy -(Opening Session) Monday June 1
10-2 Regulatory and Policy Issues Monday June 1
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10-4 Wave Energy I Tuesday June 2
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10-6 Wave Energy III Tuesday June 2
10-7 Wave Energy IV Tuesday June 2
10-8 Wave Energy V Tuesday June 2
10-9 Wave Energy VI Tuesday June 2
10-10 Wave Energy VII Tuesday June 2
10-11 Wave Energy VIII Tuesday June 2
10-12 Wind Energy I Wednesday June 3
10-13 Wind Energy II Wednesday June 3
10-14 Wind Energy III Wednesday June 3
10-15 Wind Energy IV Wednesday June 3
10-16 Wind Energy V Wednesday June 3
10-17 Current Energy I Thursday June 4
10-18 Current Energy II Thursday June 4
10-19 Wave/Current/Wind Thursday June 4

Offshore Measurement and Data Interpretation
11-1 Ocean Currents Thursday June 4
11-2 Ocean Waves Thursday June 4
11-3 Vessels and Structures Thursday June 4

Offshore Geotechnics Symposium
12-1 Centrifuge Modeling for Offshore Geotechnics Tuesday June 2
12-2 Suction Caissans Tuesday June 2
12-3 Fluid-Soil-Structure Interaction I Thursday June 4
12-4 Seabed Processes and Mechanics I Thursday June 4
12-5 Drag and Plate Anchors Tuesday June 2
12-6 Shallow Foundations Wednesday June 3
12-7 Pile Foundations I Wednesday June 3
12-8 Field Investigations Tuesday June 2
12-9 PipeLine Geotechnics Wednesday June 3
12-10 Seabed Processes and Mechanics II Thursday June 4
12-11 Fluid-Soil-Structure Interaction II Thursday June 4
12-12 Pile Foundations II Wednesday June 3
Subrata Kumar Chakrabarti
In this occasion of remembrance of our friend Subrata, first we extend our sincerest condolences to his wife Prakriti, daughter Sumita, son Prabal and granddaughter Sajni. Like his family, his friends and colleagues in the OMAE community are deeply shaken by this great loss. He was kind, considerate, friendly, but his hallmark was a great smile, and his greatest virtue was his humility. He possessed a keen love to teach and to share his shining intellect, and we are so blessed to have had the opportunity to serve with such a cordial human. He inspired us by setting a great example how to serve our profession by loving and working with people of different origins, religions, and cultures. He loved his native Bengali culture, music, and the works of the Bengali poet and Nobel Laureate Rabindranath Tagore.

Subrata received his B.S. degree in 1963 from Jadavpur University (India) and his M.S. and Ph.D. degrees in 1965 and 1968 from the University of Colorado. He had a 20-yr career at Chicago Bridge & Iron (CBI) in Plainfield (Illinois) as Director of Marine Research, followed by a career in consulting and a member of the College of Engineering faculty at the University of Illinois in Chicago. He lectured at many universities, has written 7 books on offshore engineering, numerical modeling in fluid-structure interaction, hydrodynamics and vibrations, and authored over 125 refereed and over 75 conference papers. He gave an enormous amount of his time and energy to our profession by organizing international conference series such as the OMAE Offshore Symposia.

His participation on numerous editorial boards included service as:
• Associate Editor, Ocean Engineering, Elsevier, since 2006.
• Technical Editor, JOMAE/ASME, 1986–96.
• Editorial Board Member, Topics in Engineering, CML Publications, 1987.
• Editorial Board Member, Applied Ocean Research, 1982–91.
• Editorial Board Member, Marine Structures Journal, 1988–91.
• Publication Committee Member, WPCOE, ASCE, 1978–1984.

He was “Fellow” of the American Society of Civil Engineers, American Society of Mechanical Engineers, and American Association for the Advancement of Science, and a member of the National Academy of Engineering. His awards included:
• James Croes Medal, ASCE, 1974
• Freeman Scholar, ASCE, 1979
• Outstanding New Citizen, Chicago, 1981
• Ralph James Award, ASME, 1984
• OMAE Achievement Awards, 1988, 90, 91
• OMAE Distinguished Services Award, 1998
• ASME Life-time Achievement Award, 2005

We take comfort in his works and our memories as we will miss Subrata. In the words of Subrata’s admired Tagore: “Death is not extinguishing the light; it is only putting out the lamp because the dawn has come.”

—Zeki Demirbilek,
Denby Morrison and
Cengiz Ertekin
MARIN advises the international maritime industry on ship behaviour and offshore structures at sea. We provide hydrodynamic advice, verified by model tests, computer simulations, simulator training and full-scale measurements. The MARIN Offshore department is involved in the development of all kinds of innovative offshore structures operating at large water depths (even up to 3000 m) under extreme conditions like hurricanes. Our Offshore Basin is over 10 m deep (besides a 30 m deep pit for TLPs) and has the latest current and wave generation technology. Further we develop and apply our own simulation software. MARIN’s test facilities and simulation programs are considered state-of-the-art by our customers (oil companies, offshore contractors, engineering offices, shipyards and port authorities). But most important is the knowledge and motivation of MARIN’s 280 employees. At our Wageningen and Houston offices we are always looking for enthusiastic:

PhD/MSc students

For (PhD/MSc) students we regularly have interesting internships in the broad field of Offshore hydrodynamics. You can co-operate with our specialists in this fields for a period of 6 to 12 months. For more information about our department, see www.marin.nl. Our Offshore department consists of 25 enthusiastic and committed colleagues (2 located at our Houston office) who carry out the projects in close and informal co-operation with our clients. Our employees have their background in Naval Architecture, Civil Engineering, Mechanical Engineering, Mathematics or Applied Physics.

- Have you acquired an MSc or PhD in a technical field, or working on it as a student?
- Are you prepared to keep developing yourself in a technically challenging environment?
- Would you like to solve and report complex problems in order to help our customers with clear and sound advice?
- Are you talented combining theoretical insight with practical organisational skills?
- Could you share our fascination for waves, currents and the behaviour of offshore structures?

MARIN can offer you a challenging internship in the field of offshore hydrodynamics with a possibility to become one of our future colleagues, either in the Wageningen or Houston offices. For further information please contact Bas Buchner (Manager Offshore, b.buchner@marin.nl) or Arjan Voogt (Manager MARIN USA Inc, a.j.voogt@marin.nl).