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June 26–July 1, Rhodes (Rodos), Greece

**The Twenty-sixth (2016) International
*Ocean and Polar
Engineering Conference***
(*Offshore and Polar Engineering Conference*)

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2nd Materials Reliability & Refinery

4th High Manganese Steel

5th Tsunami & Safety

5th Asset Integrity

7th Arctic Science & Technology

6th Arctic Materials

7th Renewable Energy & Environment

8th Sloshing Dynamics & Design

8th Frontier Energy Tech

10th Strain-Based Design

14th High-Performance Materials

ISOPE-2016

Rhodes, Greece, June 26–July 1

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TECHNICAL PROGRAM

The Twenty-sixth (2016) International Ocean and Polar Engineering Conference

Rhodes, Greece, June 26–July 2, 2016

The number at end of the session title indicates the tentative number of the proceedings volume. Only the changes on titles or authors the ISOPE-2016 Technical Program Committee (TPC) received in writing before June 22, 2016 are reflected in this program. Final corrections will be updated in the Conference Proceedings of peer-reviewed papers and the Final Program. Conference proceedings (ISBN 978-1-880653-88-3; ISSN 1098-6189) will be available as a set of 4 volumes (4,917 pp.) from ISOPE during and after the Conference. Proceedings papers are indexed by Engineering Index and Compendex, Scopus, Web of Science and others.

SUNDAY

SUNDAY, June 26 Conference Reception

17:00

Outdoor Pool Garden

MONDAY 08:30

1. OPENING GENERAL SESSION:

OCEAN AND ENERGY INDUSTRY REVIEW- 2016

Monday June 27 08:30 Jupiter

Chair: Ivar Langen, Univ of Stavanger, Norway

Co-Chair: HyunWoo Jin, ExxonMobil Research & Eng, USA

Conference Opening Address

Demos Angelides, ISOPE President, Aristotle Univ of Thessaloniki, Greece

Edvard Grieg Export Pipelines and Trans Adriatic Pipeline Projects Lessons Learnt [Oral presentation]

Svein Erik Falkeid, Statoil ASA, Norway

State-of-the-Art and Status of Offshore Wind Energy in Europe [Oral presentation]

Van Wingerde, Arnoldus, IWES Fraunhofer, Germany

MONDAY 10:30

2. HYDRODYNAMICS I:

Comparative Study -Water Entry of Wedge 1 (V. 1)

Monday June 27 10:30 Athena

Chair: Sa Young Hong, KRISO, Korea

Co-chair: Wei Qiu, Memorial Univ of Newfoundland, Canada

Numerical Prediction of Forces and Pressures on Wedge and Ship Sections Based on a CIP Method

Peng Wen, Wei Qiu, Memorial Univ of Newfoundland, Canada

Comparative Study on Pressure Sensors for 2D Wedge Drop
Kyong-Hwan Kim, Young-Myung Choi, Sa Young Hong, Korea
Resch. Inst. of Ships & Ocean Eng., Korea

Lagrangian Approach to the Wedge Entry Problem Using SPH Numerical Methods
Hee-Je Chae, Bum-Sang Yoon, Univ of Ulsan; Jong-Chun Park,
Pusan National Univ, Korea

Numerical Simulation of Water Entry of 2D Wedges
Zihua Ma, Ling Qian, Pedro Martinez Ferrer, Derek Causon, Clive
Mingham, Manchester Metropolitan Univ, UK

Comparative Study on Water Impact Problems
Liang Yang, Hao Yang, Shiqiang Yan, Qingwei Ma, Maria Bihnam,
City Univ London, UK

3. SLOSHING I:
Numerical Simulation (V. 3)

Monday June 27 10:30 Salon A

Chair: Y H Kim, Seoul National Univ, Korea
Co-Chair: L Diebold, Bureau Veritas, France

Comparative Studies of 3-D Tank Sloshing Based on VOF Method and IMPS Methods
Jianhua Wang, Decheng Wan, Gang Chen, Shanghai Jiao Tong Univ;
Wenhua Huang, Huzhou Univ, China

Accurate Prediction of Sloshing Waves in Tanks by an Adaptive Two-Fluid Incompressible Front-Tracking Approach
A Hay, S Etienne, D Pelletier, Ecole Polytechnique de Montreal,
Canada; Laurent Brosset, GTT, France

Numerical Simulation of Highly Nonlinear Sloshing in a Tank Due to Forced Motion
Yves-Marie Scolan, ENSTA-Bretagne; Laurent Brosset, GTT, France

Real-time Simulation of Impact Waves in Ship Tanks with Lattice Boltzmann Single-phase Models
Christian F Janssen, Micha Ueberrueck, Thomas Rung, Hamburg
Univ of Technology; Philipp Behruzi, Airbus DS GmbH, Germany

Modeling of Impact Waves in LNG Ship Tanks
Philipp Behruzi, Diana Gaulke, Dennis Haake, Airbus Defence &
Space, Germany; Laurent Brosset, GTT, France

Sloshing of LNG and Liquid Hydrogen in Rectangular Tank
Helvines Corazon Aquino, Akira Sou, Kobe Univ, Japan

4. RENEWABLE ENERGY I:
Offshore Wind 1: Foundations (V. 1)

Monday June 27 10:30 Salon B

Chair: S Herion, Karlsruhe Institute of Technology, Germany

Offshore Support Structures with Suction Buckets: Parameter Fitting of a Simplified Foundation Model
Andreas Ehrmann, Nikolai Penner, Cristian G Gebhardt, Raimund
Rolfes, Leibniz Univ Hannover, Germany

Finite Element Frequency Analysis of Offshore Wind Turbine Structure under Soil and Structure Interaction
Hsuan-Teh Hu, Chi Yang, Ding-Sheng Yeh, National Cheng Kung
Univ; Shyne-Ruey Liaw, Chu-Kuan Lin, Yu-Ming Liu, CECI
Engineering Consultants, Taiwan China

Soil Structure Interaction of Foundations for Offshore Wind Turbines
Hauke Zachert, Arcadis Deutschland; Torsten Wichtmann, Theodoros
Triantafylidis, Karlsruhe Inst of Tech, Germany

Numerical Study on Lateral Response of Piles Supporting Gravity Base Foundations for Offshore Wind Turbine

Yun Wook Choo, Ji-Hoon Seo, Kongju National Univ; Seong-Hwan Kim, Jeong-Min Koo, Dong Myeong Eng Consultants & Architecture, Korea; Young-Ho Kim, Univ of Western Australia, Australia

Structural Ice-resistant Performance Evaluation of Offshore Wind Turbine Foundation

Dayong Zhang, Dalian Univ of Technology; Guojun Wang, Dalian Ocean Univ; Qianjin Yue, Chunjuan Lou, Dalian Univ of Technology, China

New Findings from Long-term Cyclic Laboratory Tests and Their Consequences for Offshore Wind Power Plant Foundations

Torsten Wichtmann, Theodoros Triantafyllidis, Karlsruhe Inst of Technology, Germany

Prediction of Long-term Deformations of Offshore Wind Power Plant Foundations Using Engineer-Oriented Models Based on HCA

Theodoros Triantafyllidis, Torsten Wichtmann, Stylianos Chrisopoulos, Hauke Zachert, Karlsruhe Inst of Technology, Germany

5. MECHANICS & ANALYSIS I:

Strength & Design I (V. 4)

Monday June 27 10:30 Nafsika A

Chair: Nikolaos I Xiros, Univ of New Orleans, USA

The Time-dependent Hydroelastic Response of Vertical Elastic Plate in Two Dimensions

Zhe Gao, Zhaochen Sun, Shuxiu Liang, Dalian Univ of Technology, China

Estimation of the Fatigue Limit on the Basis of Infrared and Potential Drop Methods

Nahuel Micone, Wim De Waele, Gent Univ, Belgium

Study on Ultimate Strength of Semi-submersible Drilling Platform

Yanchang Zhang, Pu Wang, Marine Design & Research Inst. of China; Kun Liu, Jiangsu Univ of Sci & Tech; Xiaoping Li, Marine Design & Research Inst. of China, China

Elastic Buckling and Ultimate Strength of Steel Sandwich Panels Subjected to Longitudinal or Transverse Compression

Daisuke Yanagihara, Ehime Univ, Japan

Experimental and Numerical Study of Damaged Box Girders under Longitudinal Bending Moment

Yasuhira Yamada, Tomoki Takami, Takumi Ozawa, National Maritime Research Inst, Japan

6. SBD I:

Pipeline Strain Capacity (V. 4)

Monday June 27 10:30 Nafsika B

Chair: Giuliano Malatesta, Centro Sviluppo Materiali, Italy

Co-Chair: Claudio Ruggieri, Univ of São Paulo; Brazil

Strain Capacity of Girth Welded Joints in HSAW Pipes [Oral presentation]

Koen Van Minnebruggen, Stijn Hertelé, Wim De Waele, Ghent Univ, Belgium

Justification of Weld Overmatch for Strain Based Design Applications

Clement Soret, Yazid Madi, Jacques Besson, Mines ParisTech; Vincent Gaffard, TOTAL, France

Work-hardening Behavior of X65 ERW Line Pipe for Reel-lay installation

Kensuke Nagai, Yasuhiro Shinohara, Masakazu Ozaki, Nippon Steel & Sumitomo Metal, Japan

Ensuring the Strain Capacity in Threaded-End Single Edge Notched Tension (SENT) Specimens

Andreea Crintea, Philippa Moore, TWI Ltd., UK

The Use of Probabilistic Fracture Assessment Procedures in Design of Pipelines Subjected to Large Strains

Christian Agrell, Erling Østby, DNV GL; Erik Levold, Mons Hauge, Statoil ASA; Steinar Lindberg Bjerke, DNV GL, Norway

**7. COASTAL I:
Lagrangian Particle Methods (V. 3)**

Monday June 27 10:30 Nefeli B

Chair: Eva Loukogeorgaki, Aristotle Univ of Thessaloniki, Greece

MPM Modelling of Seepage Flow through Embankments

Xuanyu Zhao, Dongfang Liang, Univ of Cambridge, UK

Numerical Study on Solitary Wave Behaviors upon Vertical Sea Walls with an Improved MPS Method

Lizhu Wang, Qin Jiang, Changkuan Zhang, Hohai Univ, China

Wave Load Simulation on Submerged Offshore Structures Using a Lagrangian Approach

André Baeten, Augsburg Univ of Applied Sciences, Germany

A Comparison of Wave Breaking with RANS and SPH Numerical Models

Diogo R C B Neves, LNEC; Antonio A Pires-Silva, Instituto Superior Tecnico, UTL; Conceição J E M Fortes, LNEC; Jorge J G Matos, Instituto Superior Tecnico, UTL, Portugal

**8. SUBSEA, PIPELINES, RISERS I:
Subsea Umbilicals I (V. 2)**

Monday June 27 10:30 Nefeli A

Chair: WC Kan, ExxonMobil Production Co., USA

Submarine Power Cable Design Validation through Model Testing

Howard H Wang, C Blake Hebert, ExxonMobil Production, USA; Gianluca Barbato, Prysmian Group, Italy; Lauro Silveira, Marco Vinicius dos Santos Paiva, Kongsberg Oil & Gas Technologies; Tiago B Coser, Facundo S Lopez, Telmo R Strohaecker, Fabiano Bertoni, LAMEF - UFRGS, Brazil

Failures of Offshore Mooring Steel Wire Ropes

Arne Kvitrud, Sigmund Andreassen, Marita Halsne, Petroleum Safety Authority, Norway

Validation of Power Cable Local Stress Analysis

Marco Vinicius dos Santos Paiva and Lauro Silveira, Kongsberg Oil & Gas Technologies, Brazil; Howard Wang, C Blake Hebert, ExxonMobil Production USA; Tiago B Coser, LAMEF; Facundo S Lopez, Simeros; Telmo R Strohaecker, LAMEF; Fabiano Bertoni, Simeros, Brazil; Luigi Colla, Prysmian Group, Italy

Submarine Power Cable Bending Stiffness Testing Methodology

Tiago Brun Coser, Telmo Roberto Strohaecker, LAMEF – UFRGS; Facundo Sebastian Lopez, Fabiano Bertoni, Simeros, Brazil; Howard Wang, C Blake Hebert, ExxonMobil Production, USA; Lauro Silveira, Marco Vinicius dos Santos Paiva, Kongsberg Oil & Gas Technologies, Brazil; Paolo Maioli, Prysmian Group, Italy

Umbilical VIV Fatigue with Mode Amplitude and Mode Number Dependent Structural Damping

Adrian Eassom, Hayden Marcollo, Andrew E Potts, Nicholas Boustead, AMOG Consulting, Australia; Andrew Kilner, AMOG Consulting, USA

Validation of Umbilical Fatigue Analysis by Full-scale Testing
Mayuresh M Dhaigude, DNV GL; Knut-I Ekeberg, Ultra Deep, USA; Nils Sødahl, DNV GL, Norway

Innovative solutions for Dynamic Umbilical Abandonment and Protection [Proceedings only]
Jiayou Mao, Qingdong Yuan, Limei Feng, CNOOC, China

9. FRONTIER ENERGY I: Gas Hydrates, Minerals, EOR I (V. 1)

Monday June 27 10:30 Executive A

Chair: Hong Xiao, Changsha Research Inst. of Mining & Metallurgy, China

Co-chair Zhengquan Lu, China Geological Survey, China

A New Method for Characterizing Particle Crushing of Cobalt Crust Based on Fractal Theory

Manhong Li, Xiaoyan Li, Hongping Tang, Hao Zheng, Jianpin Peng, Jun Li, Hong Xiao, Changsha Research Inst. of Mining & Metallurgy, China

Experimental Study on Optimum Transport Velocity for Deep-sea Mining Pipeline Transportation

Hong Xiao, Yuwei Liu, Dasheng Tang, Xiaoyan Li, Changsha Research Inst. of Mining & Metallurgy, China

Methane-Water Bubbly Flows through Perforated-Annulus Passage at High Pressures

Tsutomu Shimizu, Yoshitaka Yamamoto, Norio Tenma, National Inst of AIST, Japan

Thermodynamic Characters of N₂/CO₂ Hydrates in Marine Sediment

Mingjun Yang, Yongchen Song, Yu Liu, Lanlan Jiang, Yuechao Zhao, Dalian Univ of Technology, China

Engineering-Geological Study of Hydrothermal Polymetallic Sulphides Ore Fields [Oral presentation]

Anatoly V Kondratenko, Igor V Egorov, FSUE ; Viktor N Ivanov, Polar Marine Geological Survey Expedition; Dmitry L Kell, FSUE, Russia

Study on Gas Hydrate Dissociation in Small Bodies of Hydrate-bearing Sediments under Water-heating Condition [Proceedings only]

Peng Li, Xuhui Zhang, Xiaobing Lu, Institute of Mechanics, CAS; Lele Liu, Changling Liu, China Geological Survey, China

10. VORTEX-INDUCED VIBRATIONS I (V. 3)

Monday June 27 10:30 Delphi

Chair: Jin S Chung, ISOPE, USA

Chair: S. Etienne, Ecole Polytechnique de Montreal, Canada

Drilling-Induced Riser Vibration

Robert D Blevins, Consultant; Charles S Coughran, Consultant; Michael E Utt, Consultant; Kamaldev Raghavan, Chevron, USA

Prediction of Response for Vortex-induced Vibrations of a Flexible Riser Pipe by Using Multi-strip Method

Muyu Duan, Decheng Wan, Hongxiang Xue, Shanghai Jiao Tong Univ, China

Detached-Eddy Simulation of Flows over a Circular Cylinder at High Reynolds Number

Weiwen Zhao, Decheng Wan, Ren Sun, Shanghai Jiao Tong Univ, China

Computational Study of Three-Dimensional Flow past an Oscillating Cylinder: Effects of Oscillation Mode on Flow Structure and Forces

Sofia Peppas, TEI of Athens; Lambros Kaiktsis, NTUA, Greece; Christos E Frouzakis, ETH, Switzerland; George Triantafyllou, NTUA, Greece

Flow and Turbulence around an Inclined Pile

Soheil Farazi Majd, Oral Yagci, V S Ozgur Kirca, Vasileios Kitsikoudis, Istanbul Technical Univ, Turkey; Elpida Lentsiou, Aristotle Univ of Thessaloniki, Greece

3D VIV Fatigue Analysis using CFD Simulation for Long Marine Risers

Chetna Kamble, Hamn-Ching Chen, Texas A&M Univ, USA

**11. ARCTIC I:
Environment I (V. 1)**

Monday June 27 10:30 Executive C

Chair: Sauli Majaniemi, Finnish Meteorological Institute, Finland
Co-chair: V. Pavlenko, Arkhangelst Scientific Center, Russia

A Comparison of Wave Height Forecasts against Wave Measurements for a Location in the Barents Sea and in the Norwegian Sea

Adekunle Peter Orimolade, Univ of Stavanger; Birgitte Rugaard Furevik, Norwegian Meteorological Inst; Ove Tobias Gudmestad, Univ of Stavanger, Norway

Damping of Surface Waves Propagating below Solid Ice

Aleksey A Marchenko, Univ Centre in Svalbard, Norway

A Modeling Study on the Atmospheric Response to Winter Arctic Sea Ice Anomalies

Lixin Wei, Jing Ma, Hulin Sun, Ting Qin, National Marine Environmental Forecasting Center, China

MONDAY 13:15

PLENARY I

Monday June 27 13:15 Nefeli A

Introduction: Howard Wang, ExxonMobil Production Co., USA

Deep and Ultra-Deep Water Development – Technological Gaps and Execution Challenges [Oral Presentation]

Daniel Karunakaran, Subsea 7/University of Stavanger, Norway

KEYNOTE 1

Monday June 27 13:15 Athena

Introduction:: Sa Young Hong, KRISO, Korea

Some Nonlinear Phenomenon in Wave-body Interaction [Oral presentation]

Bernard Molin, Ecole Central Marseille, France

12. HYDRODYNAMICS II:

Comparative Study - Water Entry of Wedge 2 (V. 1)

Monday June 27 14:00 Athena

Chair: Sa Young Hong, KRISO, Korea

Co-chair: Hua Liu, Shanghai Jiao Tong Univ, China

Particle Simulation on a Free Fall Slamming Problem for 2-D Wedge and Ship Section

Di Ren, Jong-Chun Park, Sang-Moon Yun, Hee-Sung Shin, Pusan National Univ; Sung-Chul Hwang, KRISO, Korea

Numerical Study on Wedge Water Entry Problems Using Two-phase SPH Method

Lin Ma, Hua Liu, Shanghai Jiao Tong Univ, China

Comparative Study of Different Methods for Water Impact Computation

Charles Monroy, Sopheak Seng, Louis Diebold, Alexis Benhamou, Sime Malenica, Bureau Veritas; David Le Touzé, Guillaume Oger, Ecole Centrale Nantes, France

Computation of Water-entry Impact of Wedge and Ship-like Section Using Potential Theories and CFD Computations

Yonghwan Kim, Kyung-Kyu Yang, Jung-Hyun Kim, Zhang Zhu, Seoul National Univ, Korea

A Comparative Study on Water Entry Problems: A Report [ORAL PRESENTATION]

Sa Young Hong, KRISO, Korea

**13. SLOSHING II:
Physics & Assessment (V. 3)**

Monday June 27 14:00 Salon A

Chair: S Schreier, Univ of Rostock, Germany

Co-Chair: Laurent Brosset, GTT, France

Experimental Observation on the Effects of Phase Transition and Bubbles on Impact Pressure inside Gas Pocket

Yonghwan Kim, Jeongkyu Lee, Jieung Kim, Seoul National Univ, Korea

PIV Measurement of Violent Sloshing Flows and Comparison with CFD Computations [Oral presentation/to be published in IJOPE]

Kyung-Kyu Yang, Jieung Kim, Yonghwan Kim, Zhang Zhu, Seoul National Univ, Korea

Non-Isothermal Sloshing in Marine Liquefied Natural Gas Fuel Tanks

Erlend Liavåg Grotle, Vilmar Æsøy, Karl Henning Halse, Eilif Pedersen and Yue Li, NTNU, Norway

Preliminary Numerical Results on the Influence of Phase Change on Wave Impact Loads

Matthie Ancellin, Laurent Brosset, GTT; Jean-Michel Ghidaglia, ENS Cachan, France

Phenomenological Study of the Interactions between the Pressure Waves and the Jet Development During Liquid Impacts through a Simplified Liquid Impact Scenario [Oral presentation]

N Couty, Y Jus, P-M Guilcher, HydrOcean; L Brosset, GTT; D Le Touze, Ecole Centrale Nantes, France

A Motion Based Approach to Estimate the Sloshing Impact Rate in a Membrane Tank of LNG Carrier

Jegan S. Pushparajalingam, Thibaut Loysel, GTT, France

Variability of Impact Pressures Induced by Sloshing Investigated through the Concept of “Singularization”

Mohamed Frihat, GTT; Mohamed-Reza Karimi, ENS Cachan; Laurent Brosset, GTT; Jean-Michel Ghidaglia, ENS Cachan, France

**14. RENEWABLE ENERGY II:
Offshore Wind 2: Foundation & Installation (V. 1)**

Monday June 27 14:00 Salon B

Chair: W. Popko, Fraunhofer IWES, Germany

Alternative Numerical Pile Foundation Models for Integrated Analyses of Monopile-based Offshore Wind Turbines

Ana M Page, Sebastian Schafhirt, Gudmund R Eiksund, Kristoffer S Skau, Hans Petter Jostad, NTNU; Hendrik Sturm, Norwegian Geotechnical Institute, Norway

Dynamic Behavior of an Offshore Wind Turbine Scaled Model on Monopile Foundation

Laura Kerner, Jean-Claude Dupla, Gwendal Cumunel, Jean Canou, Jean-michel Pereira, Pierre Argoul, Université Paris-Est, France

Effective Consideration of Soil Characteristics in Time-Domain Simulations of Bottom Fixed Offshore Wind Turbines

Clemens Hübler, Jan Häfele, Andreas Ehrmann, Raimund Rolfes, Leibniz Univ Hannover, Germany

Derivation of Ground Models and Characteristic Geotechnical Profiles in Offshore Windfarms at Pre-FID Stage

V A Terente, M J Owen, D M Higgs, G Ellery, Cathie Associates, UK

Improving the Decision-making Process During the Installation Process of Offshore Wind Farms by Means of Information Sharing

Abderrahim Ait Alla, Moritz Quandt, Thies Beinke, Michael Freitag, BIBA – Univ of Bremen, Germany

A Study on the Mooring System for the Sinking Installation of the Preassembling Offshore Wind Turbine

Yun-Chih Chiang, Tzu Chi Univ; Pei-Yu Lee, Chi-Fang, Chen, National Taiwan Univ, Taiwan, China

**15. MECHANICS & ANALYSIS II:
Strength & Design 2 (V. 4)**

Monday June 27 14:00 Nafsika A

Chair: George E Varelis, PDL Solutions, UK

The Study on Vibration of Structures with Complex Stress Distribution

Nian Yang, Hong Yi, Luyun Chen, Shanghai Jiao Tong Univ, China

Experimental and Numerical Study on the Strength of Sandwich L-Joints in Ship Structure

Haiyan Zeng, Renjun Yan, Yaoyu Hu, Linzhi Xu Wuhan Univ of Technology, China

Simplified Estimation of Stress Distribution of Double Bottom Structure of Container Ship under Local Loads

Sadaoki Matsui, Chikahisa Murakami, Toshiro Arima, National Maritime Research Institute; Masahiko Fujikubo, Osaka Univ, Japan

Numerical Study of Relaxation Behavior of Hammer Peening Induced Residual Stresses

Seiichiro Tsutsumi, Kazushi Ueda, Riccardo Fincato, Osaka Univ, Japan

An Experimental Study on Overturning Stability of Hybrid Substructure for Offshore Wind Power

Young-Jun You, Youn-Ju Jeong, Min-Su Park, Korea Inst of Civil Eng & Building Tech, Korea

**16. SBD II:
Pipeline Material Properties (V. 4)**

Monday June 27 14:00 Nafsika B

Chair: E Ostby, DNV-GL, Norway

Co-Chair: E Tsuru, Nippon Steel & Sumikin Technology, Japan

Exploratory Experimental Investigation of Crack Growth Resistance Properties for a Nickel-Chromium Girth Weld of a Clad Lined Pipe

Diego F B Sarzosa, Vitor S Barbosa, Claudio Ruggieri, Univ of São Paulo; Eduardo Hippert Jr, Petrobras, Brazil

Establishing Tensile and Compressive Strain Limits by Full-Scale Testing [Oral presentation]

Qishi Chen, C-FER Technologies, Canada

Mechanical Properties and Performance Prediction for HF-ERW Line Pipes Reel-laid

Eiji Tsuru, Nippon Steel & Sumikin Technology; Hidenori Shitamoto, Masakazu Ozaki, Kenichiro Tomioka, Taro Muraki, Nippon Steel & Sumitomo Metal, Japan

Strain-based Design Rules for Spiral-welded Tubes Using Analytical Modelling

A M (Nol) Gresnigt, S H J (Sjors) van Es, TU Delft, Netherlands; S A (Spyros) Karamanos, D (Daniel) Vasilikis, Univ of Thessaly, Greece

Geometry and Collapse Pressure of HF-ERW Line Pipe Reel-laid in Deepwater

Yukinobu Nagata, Nippon Steel & Sumitomo Metal; Eiji Tsuru, Nippon Steel & Sumikin Technology, Japan

An Operator Experience with Reel Lay of an LSAW Linepipe with Suspect Local Brittle Zones in the Seam Weld and Mitigation Measures

Bostjan Bezensek, Tom Horsman, Shell UK Ltd., UK

17. COASTAL II: MiniSymposium:

Sediment Transport in Coastal & Deepsea Environment I (V. 3)

Monday June 27 14:00 Nefeli B

Chair: A. Dimas, Univ of Patras, Greece

Co-Chair: B Spinewine, Fugro GeoConsulting, Belgium

Numerical Simulation of Oscillatory Flow over 3-D Vortex Ripples Using the Immersed Boundary Method

Iason A Chalmoukis, Athanassios A Dimas, Univ of Patras, Greece

Large Eddy Simulation of Oscillatory Flow, Sediment Transport and Morphology Evolution over Ripples Based on the Immersed Boundary Method

Georgios A Leftheriotis, Athanassios A Dimas, Univ of Patras, Greece

Oblique Wave Breaking and Suspended Sediment Transport over a Constant Slope Bed

Gerasimos A. Kolokythas, Flanders Hydraulics Research, Flemish Government, Belgium; Athanassios A Dimas, Univ of Patras, Greece

Effect of Turbulent Pulsating Flow around a Near-Wall Submerged Cylinder on the Potential Motion of Bed and Suspended Loads

Efstratios N. Fonias, Dimokratis G. E. Grigoriadis, Univ of Cyprus, Cyprus

Simulation of Sudden Sedimentation in the Channel of Guangli Harbor in China Due to Typhoon

Bing Yan, Zhangyi Zhao, Tianjin Research Inst of Water Transp Eng.; Qingling Pi, CCCC First Harbor Consultants, China

GS Package: A MATLAB Graphical User Interface Program for Sediment Grain Size Data Processing [Proceedings only]

Lianqiang Shi, Second Institute of Oceanography; Weihua Li, Key Lab of Estuarine & Coastal Research, China

18. SUBSEA, PIPELINES, RISERS II:

Subsea Umbilicals 2 (V. 2)

Monday June 27 14:00 Nefeli A

Chair: Howard Wang, ExxonMobil Production Co., USA

Validation of the Loxodromic Bending Assumption Using High-quality Stress Measurements – High Tension Case

Mayuresh M Dhaigude, DNV GL, Knut I Ekeberg, Ultra Deep, USA

Analytical Calculation of Capacity for Bitumen-Coated Armor Wires in Subsea Cables and Umbilicals

Magnus Komperød, Nexans Norway AS, Norway

Novel Simulations of Subsea Cables and Umbilicals with Bitumen-Coated Armor Wires using UFLEX2D

Magnus Komperød, Nexans Norway AS, Norway

Comparison Study of Umbilical's Curvature Based on Full Scale Tests and Numerical Models

Tianjiao Dai, Svein Sævik, Norwegian Univ. of Sci. & Tech.,
Naiquan Ye, MARINTEK, Norway

Numerical Study on Truncated Model for Deep Sea Mooring Lines

Byoung Wan Kim, Hong Gun Sung, Sa Young Hong, KRISO, Korea

Validation of the Loxodromic Bending Assumption Using High-quality Stress Measurements

Knut I Ekeberg, Ultra Deep; Mayuresh M Dhaigude, DNV GL, USA

**19. FRONTIER ENERGY II:
Gas Hydrates, Minerals, EOR 2 (V. 1)**

Monday June 27 14:00 Executive A

Chair: Hong Xiao, Changsha Research Inst. of Mining & Metallurgy, China

Co-chair: Zhengquan Lu, China Geological Survey, China

Continue from Session 9

20. VORTEX-INDUCED VIBRATIONS II (V. 3)

Monday June 27 14:00 Delphi

Chair: George Triantafyllou, National Tech Univ of Athens, Greece

Co-Chair: Hidetaka Senga, Osaka Univ, Japan

Experimental Study on the Sensitivity of Vortex-Induced Motions (VIM) of a Semi-Submersible Floater to Damping and Mass Ratio

Antônio Simões Maximiano, Arjen Koop, Jaap de Wilde, MARIN, Netherlands; Rodolfo Trentin Gonçalves, Univ of Sao Paulo, Brazil

An Experimental Investigation of Six-Degrees-of-Freedom VIM Characteristics of a Tethered Buoyancy Can [Proceedings only]

Zhuang Kang, Wenchi Ni, Xu Zhang, Liping Sun, Harbin Engineering Univ, China

Numerical Study for the Effect of VIV on Tendon of TLP

Hyun-Sung Kim, Byoung Wan Kim, Seok Won Hong, Sa Young Hong, Korea Reseach Inst of Ships & Ocean Eng, Korea

Numerical Computations of Spar Vortex-Induced Motions at Different Current Headings

Weiwen Zhao, Decheng Wan, Shanghai Jiao Tong Univ, China

A Method for the Analysis of Multi-spanning Pipelines Subjected to Currents

Morten Slingsby, Ping Liu, INTECSEA; Joao de Oliveira Barbosa, TU Delft, Netherlands

**21. ARCTIC II:
Environment 2 (V. 1)**

Monday June 27 14:00 Executive C

Chair: Aleksey A Marchenko, Univ Centre in Svalbard, Norway

Co-chair: VM Kozin, Inst of Machining & Metallurgy, Russia

Studies of Influence of Water Area Depth on the Nature of Destruction of an Ice Cover when Paired Loads are Moving Over the Ice Cover

Victor M Kozin, Inst of Machining & Metallurgy; Vitaliy L Zemlyak, Sholom-Aleichem Pirmursky State Univ; Elena G Rogozhnikova, Amur State Univ. of Humanities & Pedagogy, Russia

Analyses of Summer Cyclone Activities over the Arctic Ocean
Lixin Wei, Ting Qin, National Marine Environmental Forecasting Center, China; Petteri Uotila, Timo Vihma, Bin Cheng, Finnish Meteorological Inst, Finland

Improving Sea Ice Information and Weather Forecasting for Operational Purposes

Juha Karvonen, Bin Cheng, Timo Vihma, Patrick Eriksson, Jukka-Pekka Jalkanen, Sauli Majaniemi, Finnish Meteorological Inst; Arto Koistinen, Janne Tolonen, Jarkko Tiesmäki, Olli Nilsson, Kari Nordström, TestLab Oy, Finland

Wave Spectra for Weather Restricted Marine Operations with Emphasis on Operations in the Barents Sea

Adekunle Peter Orimolade, Ove Tobias Gudmestad, Univ of Stavanger, Norway

MONDAY 16:20

**22. HYDRODYNAMICS III:
Wave-Structure Interactions 1 (V. 3)**

Monday June 27 16:20 Athena

Chair: Qingwei Ma, City University London, UK

New Offshore Engineering Basin in Korea: Design– Invited paper [Oral presentation]

Seok-Won Hong, Korea Research. Inst of Ships & Ocean Eng, Korea

Optimization of Motions of Surrounding Multiple Cylinders to Cloak a Central Body Oscillating in Regular Waves

Mariko Miki, Takahito Iida, Masashi Kashiwagi, Taiga Asaumi, Osaka Univ, Japan

A Monolithic Approach for Fluid-structure Interaction Applied to Hydrodynamics

Thomas Altazin, Frédéric Golay, Univ of Toulon; Philippe Fraunié; Université d'Aix-Marseille, France

Time-Domain Simulation of Ship Motions in Irregular Waves

Zhen-peng-sheng Zhao, Guang-hua He, Zhan-yang Chen, Zihao Zhang, Harbin Institute of Technology at Weihai, China

Locally-refined Free-surface Flow Simulations for Moored and Floating Offshore Platforms

Arthur E.P. Veldman, Roel Luppens, Peter van der Plas, Henri van der Heiden, Henk Seubers, Univ of Groningen; Bülent Düz, René Huijsmans, TU Delft; Joop Helder, Tim Bunnik, MARIN, Netherlands

Numerical Study of the Interaction between Combined Wave-Current and a Horizontal Cylinder Close to the Free Surface

Junli Bai, Ning Ma, Xiechong Gu, Shanghai Jiao Tong Univ, China

**23. SLOSHING III:
LNG Sloshing Reduction (V. 3)**

Monday June 27 16:20 Salon A

Chair: Andre Baeten, Augsburg Univ of Applied Sciences, Germany

Co-Chair: Kyong-Hwan Kim, Korea Resch. Inst. of Ships & Ocean Eng., Korea

Hydrodynamic Coefficients of a Rectangular Tank with a Baffle
Bernard Molin, Fabien Remy, Ecole Centrale Marseille, France

A Numerical Study on the Effects of the Perforated Swash Bulkheads on Sloshing Behaviours of Liquid Cargo Tanks

Liang-Yee Cheng, Cezar Augusto Bellezi, Rubens Augusto Amaro Jr, Univ of São Paulo, Brazil; Makoto Arai, Tetsuo Okada, Yokohama National Univ, Japan

Numerical Simulation of Effects of Two Different Baffles on Liquid Sloshing by MPS Method

Xiang Chen, Decheng Wan, Shanghai Jiao Tong Univ; Wenhua Huang, Huzhou Univ, China

Effects of an Upper Mounted Baffle on Reducing Liquid Sloshing in a Container

Mi-An Xue, Jinhai Zheng, Xiaoli Yuan, Liting Yu, Obai Kargbo, Hohai Univ, China

**24. RENEWABLE ENERGY III:
Offshore Wind 3: Support Structures A (V. 1)**

Monday June 27 16:20 Salon B

Chair: Hsuan-Teh Hu, National Cheng Kung Univ, Taiwan China

Approaching the Ideal Design of Jacket Substructures for Offshore Wind Turbines with a Particle Swarm Optimization Algorithm

Jan Häfele, Raimund Rolfes, Leibniz Univ Hannover, Germany

Breaking Wave Forces on an Offshore Wind Turbine Foundation (Jacket Type) in the Shallow Water

Jithin Jose, Univ of Stavanger; Sung-Jin Choi, DNV GL, Norway; Kwang-Ho Lee, Catholic Kwandong Univ, Korea; Ove Tobias Gudmestad, Univ of Stavanger, Norway

Structural Analysis for Jacket Type Support Structure for Offshore Wind Turbine under Local Environmental Conditions in Taiwan

Chin-Yu Lin, Jia-Hong Lin, Tung-Liang Chu, Chin-Cheng Huang, Inst of Nuclear Energy Research, Taiwan, China

Modeling and Wave Load Calculation Methods for a Hybrid Substructure System with a Concrete Gravity Based Foundation and a Tubular Frame

Kyunghwan Cho, Sungkil Kwak, Jongheon Park, Minkyun Kim, GS Engineering & Construction, Korea

Numerical Analysis of a Hybrid Substructure for 3MW Offshore Wind Turbines Due to Soil Conditions

Min-Su Park, Youn-Ju Jeong, Young-Jun You, Korea Inst of Civil Eng. & Building Technology, Korea

Experimental Investigation of Slamming Loading on a Three-Legged Jacket Support Structure of Offshore Wind Turbines

Eva Loukogeorgaki, Elpida-Niki Lentsiou, Aristotle Univ. of Thessaloniki; Ioannis K Chatjigeorgiou, National Tech Univ of Athens, Greece

Including Load Sequence Effects in the Fatigue Damage Estimation of an Offshore Wind Turbine Substructure

R C Dragt, J Maljaars, J T. Tuitman, Netherlands Inst for Applied Scientific Research (TNO); Y Salman, M E Otheguy, Keppel Verolme BV, Netherlands

**25. MECHANICS & ANALYSIS III:
Strength & Design 3 (V. 4)**

Monday June 27 16:20 Nafsika A

Chair: Beom-Seon Jang, Seoul National Univ, Korea

Verification of Indentation Parameters Depending on Indentation Speed Based on Representative Stress and Strain Approach

Oh Min Kwon, Jong Ho Won, Seung gyu Kim, Jun Sang Lee and Dongil Kwon, Seoul National Univ, Korea

Optimum Structural Design for the LNG Fuelled Container Ship
Tae Jun Kim, Joo Hyun Kim, Hoon Kyu Oh, Byung Ki Choi, Hyundai Heavy Industries, Korea

Structural Design and Application of Concrete Protection Covers in Shallow Waters
Arnstein S Waldeland, Univ of Stavanger; Meric Pakkan, Pål Myge, Subsea 7; Rune Egeland, Multiblokk AS; Ove T Gudmestad, John C Gronli, Univ of Stavanger, Norway

A Study on Shaft Balancing Vector Diagram in the Simulating Dynamic Characteristic of Integrated the Secondary LNG Pressure Pump [Oral presentation]
Sun-Hwi Park, Hyo-Jung Kim, Byung-Hyun Ahn, Gyeongsang National University; Byeong-Keun Choi and Hack-Eun Kim, Korea Gas Technology Corp., Korea

26. ASSET INTEGRITY I (V. 4)

Monday June 27 16:20 Nafsika B

Chair: E Wright, ExxonMobil Production Co., USA

Pitting Corrosion of Offshore Water Injection Steel Pipelines
Robert E Melchers, Mukshed Ahammed, Univ of Newcastle, Australia

Experimental Study on the Bond Behavior of Corroded Rebar in Ultra-high Toughness Cementitious Composite
Lijun Hou, Hong Liu, Da Chen, Hohai Univ, China

Condition Health Monitoring of Monopile and Transition Piece Using Guided Wave Testing
Kena Rachel Makaya, Plant Integrity Ltd.; George Emmanuel Varelis, Alex George Roff, PDL Solutions (Europe), UK

Integrity Assessment and Redeployment of Existing Mobile Offshore Production Unit for a Marginal Field Development
Abe Nezamian, Advisian WorleyParsons; Dennis Vuckovic, Intecsea, Worley Parsons; Robert J Nicolson, Advisian WorleyParsons, Australia

27. COASTAL III: MiniSymposium:

Sediment Transport in Coastal & Deepsea Environment 2 (V. 3)

Monday June 27 16:20 Nefeli B

Chair: A Dimas, Univ of Patras, Greece

Co-Chair: B Spinewine, Fugro GeoConsulting, Belgium

On the Migration of Tidal Dunes (Sand Waves)
Giovanna Vittori, Paolo Blondeaux, Univ of Genova, Italy

Morphological Evolution of Bed Profiles Induced By a Storm Event at the Belgian Coast Predicted By XBeach Model
Gerasimos A Kolokythas, Silva Raquel, Maria Rosalia Delgado Blanco, Flanders Hydraulics Research, Flemish Government, Belgium

A Two-Layer Framework for the Modelling of Submarine Slide-Induced Debris Flows Transitioning to Turbidity Currents
Mariangela Sfouni-Grigoriadou, Pierre Delnooz, Matthieu Guilmet, Univ of Louvain-la-Neuve, Belgium; Samuel Ingarfield, Fugro AG, Australia; Benoit Spinewine, Univ of Louvain-la-Neuve, Belgium

Simulation of Longshore Sediment Transport and Coastline Change in the Vicinity of Two Fishery Exploited Tidal Inlets of Messolonghi – Actoliko Lagoon Complex
Nikolaos Th. Fourniotis, Georgios M Horsch, Georgios A Leftheriotis, Univ of Patras, Greece

Efficient Coupling between a Turbulent Flow and Mobile Bed By Means of Level Set Method and Immersed Boundaries

Foteini Kyrousi, Alessandro Leonardi, Francesca Zanello, Idrostudi s.r.l.; Vincenzo Armenio, Univ of Trieste, Italy

Large Eddy Simulation (LES) of Suspended Sediment Transport (SST) at a Laboratory Scale

Mahmoud Jourabian, Vincenzo Armenio, Univ of Trieste, Italy

**28. SUBSEA, PIPELINES, RISERS III:
Risers & Flexibles 1 (V. 2)**

Monday June 27 16:20 Nefeli A

Chair: Ljiljana D Oosterkamp, Statoil, Norway

Computationally Efficient Simulation of Flexible Risers via Nonlinear Dynamic Substructures: Numerical and Experimental Validation

Arya Majed, INTECSEA; Gabriel Rombado, ExxonMobil Production; Luca Chinello, Nathan Cooke, INTECSEA; Wan Kan, ExxonMobil Production, USA

New Decompression Analysis for Flexible Pipes with Multi-Layer Barrier

Upul S Fernando, GE Oil & Gas, UK

Prediction of Extruded Profile Shape of Polymer Barrier in Flexible Pipes

Michelle Davidson, Upul S Fernando, Brendan O Donnell, GE Oil & Gas; Andrew Bell, Alex Ramsay, MSC Software, UK

Finite Element Modeling and Static Mechanical Property Analysis for Deepwater Flexible Jumper

Guoliang Pang, Chaohe Chen, Yijun Shen, South China Univ of Technology, China

Coupled Dynamic Analysis of TLP-TTR Systems Using an Extended Model

Gong Xiang, Univ of New Orleans; Han Huang, Texas A&M Univ; Lothar Birk, Univ of New Orleans; Jun Zhang, Texas A&M Univ; Xiaochuan Yu, Univ of New Orleans, USA

Design of Flexible Riser for FPSO in South China Sea [Proceedings only]

Xinzhong Li, CNOOC Research Inst, China; Hengteng Ji, Bo Zhang, Tuanjie Liu, Wei Ye, Offshore Tech, USA

Application of Flexible Risers in South China Sea {Proceedings only}

Jing Cao, CNOOC Research Inst, China; Tuanjie Liu, Wei Ye, OffshoreTech, USA

**29. FRONTIER ENERGY III:
Gas Hydrates, Minerals, EOR 3 (V. 1)**

Monday June 27 16:20 Executive A

Chair Norio Tenma, AIST, Japan

Co-chair: Jonggeun Choe, Seoul National Univ, Korea

Laboratory Study on High-performance Lightweight Cement Slurries for Thermal Production Wells

Jianguo Zeng, Tianjin Bo-Xing Eng. Sci. & Tech.; Gang Yu, Tarim Oilfield Co of Petrochina; Aiping Liu, Fuquan Sun, Yuanbo Xia, Pengxiao Li, Tianjin Bo-Xing Eng. Sci. & Tech.; Zhongtao Yuan, Tarim Oilfield Co of Petrochina, China

Characterization of 3D Channelized Gas Reservoirs with an Aquifer Using EnKF, DCT, and PFR

Sungil Kim, Junyi Kim, Hyungsik Jung, Choongho Lee, Seoul National Univ; Kyungbook Lee, KIGAM; Jonggeun Choe, Seoul National Univ, Korea

Deconvolution for Pressure-interfered Production Data of Multiple Shale Gas Wells Containing Sorption Characteristics

Joohyung Kim, Hyesoo Lee, Wonmo Sung, Hanyang Univ, Korea

Using of Triple-flow Vortex Tubes in Associated Petroleum Gas Preparation Units

Viktor S Vlasenko, Viacheslav V Slesarenko, Aleksandr N Gulkov, Far Eastern Federal Univ, Russia

30. VORTEX-INDUCED VIBRATIONS III (V. 3)

Monday June 27 16:20 Delphi

Chair: R Blevins, Consultant, USA

Study on Circular Cylinder Vortex-Induced Vibration(VIV) in Combined Flow at Different Mass and Damping Ratios

Yue Deng, Xinghua Tong, Zhenlin, Liang, Shandong Univ; Jingli Zhao, Shandong Marine Resource & Environment Research Inst, China

Experimental Study on Effects of Helical Strake on Vortex-Induced Vibration

Masashi Inoue, Hidetaka Senga, Osaka Univ, Japan

Two-phase Flow Induced Vibration of Subsea Span Pipeline

Fangqiu Li, China Univ. of Petroleum – Beijing; Jing Cao, CNOOC Research Inst; Menglan Duan, Chen An, China Univ. of Petroleum – Beijing, China; Jian Su, UFRJ-COPPE, Brazil, China

31. ARCTIC III:

Arctic/Ice Mechanics (V. 1)

Monday June 27 16:20 Executive C

Chair: A Bekker, Far Eastern Federal Univ, Russia

Co-chair: Aleksey A Marchenko, Univ Centre in Svalbard, Norway

Numerical Simulation of Ship-Ice Interactions with Physics Engines under Consideration of Ice Breaking

Michael Huisman, Christian F Janßen, Thomas Rung, Sören Ehlers, Hamburg Univ of Technology, Germany

Ice Plate Deflections Generated by Point Source in a Current

Alexandra V Pogorelova, Victor M Kozin, Inst. of Machining & Metallurgy; Elizaveta D Peregudova, Alina Ol Goncharik, Amur State Univ of Humanities & Pedagogy, Russia

Modeling of an Airplane Taking-off and Landing the Ice Cover in Variable Water Depth Conditions

Anna A Matiushina, Amur State Univ. of Humanities & Pedagogy; Alexandra Pogorelova, Inst of Machining & Metallurgy; Elizaveta D Peregudova, Amur State Univ. of Humanities & Pedagogy, Russia

Simplified Ship-Ice Collision Numerical Simulations

Ling Zhu, Xiaoming Qiu, Mingsheng Chen, T X Yu, Wuhan Univ of Technology, China

Arctic Pipeline with Thaw Settlement Analysis by Finite Element Method

Kyung Il Kim, Kyu Jung Yeom, Seoul National Univ; Kyu Hwan Oh, Kyung Il Kim, Seoul National Univ; Woo Sik Kim, Korea Gas, Kyu Hwan Oh, Seoul National Univ, Korea

The Impact of Bottom Contour on the Parameters of Flexural Gravity Waves Caused by Subglacial Motion of the Immersed Body

Vitaliy L Zemlyak, Sholom-Aleichem Priamursky State Univ; Victor M Kozin, Inst of Machine Science & Metallurgy; Nikita O. Baurina, Aleksandr A. Lamash; Sholom-Aleichem Priamursky State Univ, Russia

Study on the Structural Strengthening under the Load of Ship-Ice Collision

Jian Zhang, Wen-xin He, Jiangsu Univ of Science & Tech, China;
Zhi-ming Yuan, Univ of Strathclyde, UK; Cong Chen, Jiangsu Univ
of Science & Tech, China

TUESDAY 08:00

**32. HYDRODYNAMICS IV:
Wave-Structure Interactions 2 (V. 3)**

Tuesday June 28 08:00 Athena

Chair: Shiqiang Yan, City University London, UK

Response Based Design: Use of Extreme Response Events vs. Metocean Events

Hema Wadhwa, Yuriy Drobyshevski, INTECSEA, Australia

Design Considerations for Ultra Large Container Ships

Sung-Gu Park, Sang-Hyun Han, David Tozer, Lloyd's Register, UK

Study on Hydrodynamic Performances of a Deep-Water Drillship and Water Motions inside Its Rectangular Moonpool

Xiaoxian Guo, Haining Lu, Jianmin Yang, Tao Peng, Shanghai Jiao Tong Univ, China

Numerical Investigation of 3D Flow Around Two Tandem Cylinders

Ragnhild Birgitte Hidle Kalvig, Mia Abrahamsen Prsic, Bjørnar Pettersen, NTNU, Norway

Nonlinear Dynamics and Bifurcation Phenomena in Float-Over Systems under Wave Excitations

Zhihuan Hu, Xin Li, Jun Li, Xiao Wu, Shanghai Jiao Tong Univ, China; Fan Zhang, DNV GL-Software, Norway

**33. SLOSHING IV:
Experiment (V. 3)**

Tuesday June 28 08:00 Salon A

Chair: Decheng Wan, Shanghai Jiao Tong University, China

Chair: F Dias, University College Dublin, Ireland

Experimental Study of Wave Impacts on a Corrugated Ceiling

O Kimmoun, Ecole Centrale Marseille; Laurent Brosset, GTT; G Dupont, Ecole Centrale Marseille, France

Sloshing Analysis of Single Impact Wave & Irregular Motions in a 2D Tank - Experiments & Numerics

Louis Diebold, Eric Baudin, Bureau Veritas, France

Comparison of Free Surface Shape in Single Impact Wave Sloshing Experiments to Linear and Higher Order Predictions

Sebastian Schreier, Univ of Rostock, Germany

Study on Scale Effects on 3D Sloshing Flows

Sang-Yeob Kim, Jaehoon Lee, Yonghwan Kim, Seoul National Univ, Korea

Experimental Study of Sloshing Load on LNG Tanks for Unrestricted Filling Operation

Sang-Yeob Kim, Yonghwan Kim, Seoul National Univ; Jong-Jin Park, Booki Kim, Samsung Heavy Industries, Korea

**34. RENEWABLE ENERGY IV:
Offshore Wind 4: Support Structures B (V. 1)**

Tuesday June 28 08:00 Salon B

Chair: T Larsen, Technical Univ. of Denmark, Denmark
Co-Chair: Hsuan-Teh Hu, National Cheng Kung Univ, Taiwan
China

Statistical Properties of Local Slamming Forces on a Jacket Structure in Offshore Wind Applications
Ying Tu, Michael Muskulus, NTNU, Norway

Assessment of First- and Second-Order Wave-Excitation Load Models for Cylindrical Substructures of Offshore Wind Systems
Brandon Pereyra, Fabian Wendt, Amy Robertson, Jason Jonkman, National Renewable Energy Lab, USA

Comparison of Experiments, CFD Simulations and a Finite Element Code on a Stiff Monopile in Shallow Water under Shoaling Regular Waves
Luca Oggiano, Fabio Pierella, Jacobus de Vaal, Tor Anders Nygaard, Roy Stenbro, IFE – Institutt for Energiteknikk; Emile Arens, CD-adapco, UK

Usability Proof of Ordinary Portland Cement as a Grout Material for Offshore Wind Turbines
Dario Cotardo, Ludger Lohaus, Michael Werner, Leibniz Univ Hannover, Germany

Influence of Different Preload Levels and Faying Surfaces on the Slip-resistant Behaviour of Connections
Nariman Afzali, Jörn Berg, Natalie Stranghöner, Univ of Duisburg-Essen, Germany

**35. MECHANICS & ANALYSIS IV:
Impact & Collision (V. 4)**

Tuesday June 28 08:00 Nafsika A

Chair: T Shibue, Kinki Univ, Japan

Experimental Study on Dynamic Responses of a Floating Anti-collision System
Zhenxiang Sun, Yue Song, Ningchuan Zhang, Guoxing Huang, Yuguo Pei, Dalian Univ of Technology, China

Numerical Simulation of Vibration and Noise for Ship Collision
Xiang-wen Zhang, De-qing Yang, Shanghai Jiao Tong Univ, China

Research on Structural Damage Minimization Scheme of Ship-Bridge Collision
Junjie Gao, Langxiong Gan, Lei Zhang, Fucai Jiang, Xiaobo Zhao, Hui Li, Wuhan Univ of Technology, China

Numerical Study of Mobile Crane Fall on a Pipeline
Maxime Bertin, Charles Fernandez, CRIGEN-ENGIE-LAB; Emmanuel Chateau, Alain Goy, ELENGY, France

The Pressure of Hull Impact on Sea Bed in Shallow Water
Anna O Frolova, Viktor Grigorievich Bugaev, Andrey I Mamontov, Sergey Vladimirovich Antonenko, Alexander M Shmelev, Nikita Ya Tsimbelman, Far Eastern Federal Univ, Russia

Research on Inland Ship Collision Risk Entropy Model-Based-Complex System [Proceedings only]
Yanfeng Wang, Liwen Huang, Yaotian Fan, Wuhan Univ of Technology, China

36. ASSET INTEGRITY II (V. 4)

Tuesday June 28 08:00 Nafsika B

Chair: Abe Nezamian, Advisian WorleyParson Group, Australia

Effect of Pitting Corrosion on Fatigue Life of Flexible Armor Wires

Venkat R Krishnan, Stefanie Asher, ExxonMobil Upstream Research; Wan C Kan, ExxonMobil Production; Carl Popelar, Southwest Research Inst, USA

A Study on the Influence of Random Corrosion to the Fatigue Strength of Catamaran's Corner Spots

Xiaolong Lu, Huilong Ren, Xu Wang, Guoqing Feng, Xueqian Zhou, Harbin Engineering Univ, China

Estimation of Authenticity of Results of Measuring Residual Thicknesses of Ship Structures

Oleg E Surov, Vasilii A Kompanets, Far Eastern Federal Univ, Russia

Underwater Inspection Prioritisation of Offshore Steel Jacket Structures

Sirous F Yasseri, Safe-Sight Technology; Roohollah B Mahani, Smart Petroleum, UK

Technical Integrity in a Full Scale Qualification and Test Facility for Offshore Equipment

Iulian Comanescu, Torgrim Log, Statoil ASA, Norway

37. COASTAL IV: Storm Surge & Tides 1 (V. 3)

Tuesday June 28 08:00 Nefeli B

Chair: L K Chien, National Taiwan Ocean Univ, Taiwan, China

The Characteristics of Storm Surges in the Bristol Channel

C Gao, T A A Adcock, Univ of Oxford, UK

Storm Surge Simulation Response to Different Storm Tracks and Tidal Stencils on the Northeast Coast of Sri Lanka

Kai Yin, Sudong Xu, Rui Li, Yanfen Geng, Southeast Univ, China

Wave-current Interaction in Coastal Regions: Free Surface Fractional Step Method [Oral presentation]

F Lalli, A. Bruschi, ISPRA; A Di Maccio, CNR-IAC; A Lotti, ISPRA, Italy

The Study of Designation of Coastal Protection Zone and Management in Taiwan

Lien-Kwei Chien, National Taiwan Ocean Univ; Chih-Hsiang Hsu, CECI Engineering Consultants; Wei-Po Huang, I-Chieh Wang, National Taiwan Ocean Univ, Taiwan, China

Analysis on the Cause of the Specific High Tides in the South Yellow Sea

Danghan Xie, Ya Tan, Ao Chu, Changkuan Zhang, Hohai Univ, China

Numerical Investigation of Resonance in the Bristol Channel

C Gao, T A A Adcock, Univ of Oxford, UK

38. SUBSEA, PIPELINES, RISERS IV: Risers & Flexibles 2 (V. 2)

Tuesday June 28 08:00 Nefeli A

Chair: A. Kilner, AMOG Houston, USA

Integrity Management of Deepwater Drilling Riser Based on Monitor and Inspecting

Liangbin Xu, Jianliang Zhou, Leixiang Sheng, CNOOC Research Institute; Guoming Chen, China Univ of Petroleum; Shiquan Jiang,

CNOOC Research Institute; Jiayi Li, , China Univ of Petroleum, China

Determination of Damping Ratio Distribution along Riser Pipe Using Optimal Feedback Gain

Yoshiki Nishi, Wataru Shinohara, Yoshihiro Moriya, Yokohama National Univ, Japan

CFRP Strengthening of Steel Pipe Elbows Subjected to Severe Cyclic Loading

Ioannis Skarakis, National Tech Univ of Athens; Giannoula Chatzopoulou, Univ of Thessaly; Nicholas G Tsouvalis, National Tech Univ of Athens; Spyros A Karamanos, Aglaia E Pournara, Univ of Thessaly, Greece

Dynamic Response and Stress Impact Analysis of Production Riser under Severe Slug Flow

Mac Darlington Uche Onuoha, Menglan Duan, Yi Wang, China Univ. of Petroleum - Beijing, China

**39. ENVIRONMENT I:
Oil Spill and Emission (V. 1)**

Tuesday June 28 08:00 Executive A

Chair: C Bostater, Florida Inst of Tech. USA

Effect of Temperature on Submerged Oil Leakage from a Grounded DHT of Polar Tankers

J.S. Lu, Z.B. Yang, H.X. Wu, Q. Zhang, Zhejiang Ocean Univ, China

Stochastic Modeling of Oil Spill in the Salish Sea

Niu Haibo, Shihan Li, Dalhousie Univ; Thomas King, Bedford Inst of Oceanography, Canada; Kenneth Lee, CSIRO, Australia

A κ - ϵ Turbulence Model for Subsea Pipeline Oil Spill Numerical Simulation

Meirong Jiang, Zhigang Li, Jianxing Yu, Tianjin Univ; , Hanjun Yin, Ying Jiang, Offshore Oil Engineering, China

Detection of Marine Oil Spills from SAR Images Using an Artificial Neural Networks

Qing Xu, Hohai Univ; Ji Zheng, Zhejiang Surveying Inst of Estuary & Coast, China; Yongcun Cheng, Old Dominion Univ, USA; Shuangshang Zhang, Meixiang Chen. Qingze Huang, Hohai Univ, China

**40. OCEAN TECHNOLOGY I:
LNG Bunkering (V. 1)**

Tuesday June 28 08:00 Delphi

Chair: Hong Gun Sung, KRISO, Korea

Mooring Arrangement for a Floating LNG Bunkering Terminal at East Sea of South Korea

Jung Kim, Changwoo Song, Bongjae Kim, Jaewoong Choi, Samsung Heavy Industries, Korea

Study on the Re-liquefaction Processing for Boil Off Gas System of Floating Offshore LNG Bunkering Ship

Changwon Park, Byunghac Cho, Sanggyu Lee, YongSoo Kwon, KOGAS, Korea

FLBT Multi Docking Aid System Design and Development

Seung-Gi Lee, Jin-Lyul Park, Juin Information System; Geun-Chul Choi, Korea Marine Equipment Research Inst; Hong-Gun Sung, Korea Research Inst of Ships & Ocean Engineering, Korea

Characteristic Study of LNGC Membrane w.r.t Ni Contents of Stainless Steel

Yong-Tai Kim, Kwang-Seok Kim, Joong-Kyuu Kang, Man-Joo Huh, Hang-Sub Urm, Daewoo Shipbuilding & Marine Eng; Deok-Chan

Ahn, POSCO; Dong-Ho Jung, Korea Research Inst of Ships & Ocean Engineering, Korea

**41. ARCTIC IV:
Operations & Safety (V. 1)**

Tuesday June 28 08:00 Executive C

Chair: Nataliya A Marchenko, Univ Centre in Svalbard

Co-Chair: Frederic J L Hannon, TOTAL, France

Challenges for EER Solutions in European Arctic Waters

Tor E Berg, Ørjan Selvik, MARINTEK; Rune Rautio, Alexei Bambulyak, Akvaplan-niva, Norway; Andrey Marichev, VNIIGAZ, Russia

Characteristics of Arctic Infrastructure Resilience: Application of Expert Judgment

Bjarte Rød, Abbas Barabadi, UiT The Arctic Univ of Norway; Ove T Gudmestad, Univ of Stavanger, Norway

Maritime Safety in the High North - Risk and Preparedness

Nataliya A Marchenko, Univ Centre in Svalbard; Odd J Borch, Univ of Nordland, Norway; Sergey V Markov, Northern (Arctic) Federal University named after M.V. Lomonosov, Russia; Natalia Andreassen, Univ of Nordland, Norway

Maritime Emergency Management Capabilities in the Arctic

Ensieh Kheiri Pileh Roud, Odd Jarl Borch, Nord Univ, Norway; Uffe Jakobsen, Univ of Copenhagen, Denmark; Nataly Marchenko, Univ Centre in Svalbard, Norway

Appliances for Quick Personnel Evacuation from Offshore Structures in Ice Conditions

Gennady B Kryzhevich, Krylov State Research Centre, Russia

Ecological Safety of Oil and Gas Deposits Development on Arctic Shelf of Russia

V I Pavlenko, E K Glukhareva, S Yu Kutsenko, Arkhangelsk Scientific Centre, Russia

TUESDAY 10:30

**42. HYDRODYNAMICS V:
Dynamic Positioning (DP) Control (V. 3)**

Tuesday June 28 10:30 Athena

Chair: Hamn-Ching Chen, Texas A&M University, USA

Co-Chair: Jin S Chung, ISOPE, USA

Offset Requirements in Quasi-static DP Capability Calculations

Wouter Antheunisse, Dimitris Chalkias, GustoMSC; René Huijsmans, TU Delft, Netherlands

Modified Locally Optimal and Globally Inverse Optimal Controller for Dynamic Positioning with Actuator Dynamics

Yang Qu, Haixiang Xu, Wenzhao Yu, Keqiang Chen, Wuhan Univ of Technology, China

A Comparison of Positioning Abilities between DP Vessels with Different Thruster Configurations by Time Domain Simulations

Shengwen Xu, Xuefeng Wang, Lei Wang, Lijun Yang, Shanghai Jiao Tong Univ, China; Bo Li, Florida Atlantic Univ, USA

Research on Thrust Allocation Algorithm Based on Group Biasing Strategy

Wu Wen, Haixiang Xu, Hui Feng, Wuhan Univ of Technology, China

Drift Off Model Test and Simulation of a Deep Water Drillship

Jangwhan Bai, Sungkyun Lee, Hyun-Ho Lee, Hyundai Heavy Industries, Korea

**43. SLOSHING V:
Coupled Dynamics (V. 3)**

Tuesday June 28 10:30 Salon A

Chair: Yooil Kim, Inha Univ, Korea
Chair: Sang-Gab Lee, Korea Maritime and Ocean Univ, Korea

Investigation of Liquid Resonance in a 3D LNG-Tank Model by Means of Impact Pressure and Free Surface Elevation

Jens Neugebauer, Robert Potthoff, Ould el Moctar, Univ of Duisburg-Essen, Germany

Experimental Studies on Wave Elevation Inside a Two-Dimensional Sloshing Tank

Yucen Lu, Wenhua Zhao, Tongming Zhou, Liang Cheng, Univ of Western Australia, Australia

Numerical Studies on Coupling Effect of Sloshing on 3D Ship Motions

Jai Ram Saripilli, Indian Register of Shipping; Debabrata Sen, IIT Kharagpur, India

Effects of Tank Motion on Oil Spilling from Damaged Oil Tanks

Hao Yang, Shiqiang Yan, Qingwei Ma, City Univ London, UK

**44. RENEWABLE ENERGY V:
Offshore Wind 5: Floating Turbine A (V. 1)**

Tuesday June 28 10:30 Salon B

Chair: Hyunyoung Shin, Univ of Ulsan, Korea
Co-Chair: Matti N Scheu, Ramboll Wind & Towers, Germany

Validation of INNWIND.EU Scaled Model Tests of a Semisubmersible Floating Wind Turbine

Christian Koch, Frank Lemmer, Friedemann Borisade, Univ of Stuttgart; Denis Matha, Ramboll Wind; Po Wen Cheng, Univ of Stuttgart, Germany

Fully Coupled Dynamic Response of a Semi-submerged Floating Wind Turbine System in Wind and Waves

Pengfei Li, Decheng Wan, Shanghai Jiao Tong Univ, China; Changhong Hu, Kyushu Univ, Japan

Model Test & Numerical Simulation of OC4 Semi-submersible Type Floating Offshore Wind Turbine

Jungtae Kim, Hyunyoung Shin, Univ of Ulsan, Korea

Global Performance of a Square-type Semi-submersible KRISO Multi-unit Floating Wind Turbine; Numerical Simulation vs Model Test

H C Kim, M H Kim, Texas A&M Univ, USA; K H Kim, K Hong, KRISO; Y H Bae, Jeju National Univ, Korea

**45. MECHANICS & ANALYSIS V:
Safety & Reliability I (V. 4)**

Tuesday June 28 10:30 Nafsika A

Chair: S Herion, Karlsruhe Inst of Tech, Germany

Fatigue Life Performance of Titanium Grade 29 Welds in Tapered Stress Joints

Gabriel Rombado, ExxonMobil Production; David Baker, ExxonMobil Upstream Research; Wan C Kan, ExxonMobil Production, USA; Lars M. Haldorsen, Statoil Petroleum, Norway; Pedro Craidy, Petrobras Research Center, Brazil; Stephen J. Hudak, Jr, Southwest Research Inst, USA

Preventive Maintenance Policy Based on Mission Reliability Analysis: A Case Study on Offshore Oil Platform in ShengLi Oilfield

Hongdong Wang, Hong Yi, Xiaofeng Liang, Shanghai Jiao Tong Univ; Ping Yu, Jiangnan Shipyard, China

Dynamic Monitoring of Risk Failure of Loading Arm for LNG Site-by-Site Operations

Dimitrios I Stavrou, Nikolaos P Ventikos, Spyros A Mavrakos, National Technical Univ. of Athens, Greece

Vibration Signal Analysis of the Heat Exchanger for Defects by Analysis with Frequency Correlation

Jung-Min Ha, Byung-hyun Ahn, Yong-Seok Kim, Gyeongsang National Univ; Seok-Man Son, Korea Electric Power Research Inst; Byeong-Keun Choi, Gyeongsang National Univ, Korea

A Study on the Performance-Based Evaluation Techniques of Tunnel in Use

Jai-Wook An, Yong-Soo Kim, Hong-Kyoon Kim, Jea-Bong Park, Korea Infrastructure Safety & Technology Corp., Korea

Life Extension of Ageing Offshore Structures: Time Dependent Corrosion Degradation and Health Monitoring

Ashish Aeran, Sudath C Siriwardane, Ove Mikkelsen, Univ of Stavanger, Norway

**46. ASSET INTEGRITY III:
Corrosion Management (V. 4)**

Tuesday June 28 10:30 Nafsika B

Chair: RE Melchers, Univ of Newcastle, Australia

Co-chair: Ali Reza, Exponent, USA

Asset Integrity Assessment and Control of Operating Assets in Arctic Environment: Assuring Sustainable Performance

R. M. Chandima Ratnayake, Univ of Stavanger, Norway

Damage Mechanisms in the Petrochemical Industry: Identification, Influencing Factors, and Effective Monitoring Strategies

Ali Reza, Peter S Veloo, Brian A Ott, Exponent, Failure Analysis, USA

Advanced Numerical Method for Failure Assessment of Corroded Steel Pipes

Mojtaba Mokhtari, Robert E Melchers, Univ of Newcastle, Australia

Long-term Under-deposit Corrosion of Carbon Steel Pipelines under Stagnant Seawater

Xiang Wang, Robert E Melchers, Univ of Newcastle, Australia

Superhydrophobic Surfaces of Electroplated Carbon Steel: Fabrication, Mechanism, and Characteristic Analysis

Wenxuan Jiang, Yujun Liu, Ji Wang, Changyi Chen, Xin Yu, Dalian Univ of Technology, China

Inhibitor-Containing Composite Coatings on the Magnesium Alloys for the Offshore Structures Equipment

Valentin I Sergienko, Russian Academy of Sciences; Andrey S Gnedenkov, Dmitry V Mashtalyar, Inst of Chemistry, Russia

**47. COASTAL V:
Waves I (V. 3)**

Tuesday June 28 10:30 Nefeli B

Chair: K Hirayama, Port and Airport Research Inst, Japan

Co-Chair: Y. Yamamoto, Tokai Univ, Japan

Interaction of Waves with Nearly Equal Frequencies and Oceanic Microseisms [Oral presentation]

Paul Christodoulides, Cyprus Univ of Tech, Cyprus; Lauranne Pellet, Ecole Centrale Marseille, France; Sarah Donne, Chris Bean, Frederic Dias, University College Dublin, Ireland

Numerical and Field Study of Ship-generated Waves in Xicheng Canal, China

Lilei Mao, Sudong Xu, Yimei Chen, Southeast Univ, China

Extreme Water Waves off the West Coast of Ireland: Analysis of ADCP Measurements

Jason D Flanagan, Frederic Dias, University College Dublin, Ireland; Eugene Terray, Woods Hole Oceanographic Inst; Brandon Strong, Teledyne RD Instruments, USA; John Dudley, Univ of Franche-Comte, France

Wave Hindcast Resolution Reliability for Extreme Analysis [Proceedings only]

Lidovica Sartini, Giovanni Besio, Università degli Studi di Genova; Fabio Dentale, Ferdinando Reale, CUGRI, Italy

The Effect of Submerged Porous Structures on Wind Wave Model

Yuan-Jyh Lan, Tai-Wen Hsu, National Taiwan Ocean Univ; Yi-Shiung Lin, National Cheng Univ, Taiwan, China

Waves in Harbor: How to Choose the Optimal Location for the Terminal [Oral presentation]

Viacheslav Magarovskii, Alexander Kuznetsov, Konstantin Kurchukov, Krylov State Research Centre, Russia

Continue at Session 57

**48. SUBSEA, PIPELINES, RISERS V:
Risers & Flexibles 3 (V. 2)**

Tuesday June 28 10:30 Nefeli A

Chair: Yijun Shen, Wood Group Kenny, UK

Rationale for the Preferential Use of Fatigue Crack Growth over Traditional S-N Damage Calculations

T. Srisikandarajah, Daowu Zhou, Lingjun Cao, Graeme Roberts, Subsea 7, UK

Numerical Simulation and Experimental Investigation on the Upper and Lower Assemblies of Free Standing Hybrid Riser System

Xingkun Zhou, Menglan Duan, Jijun Gu, Ruilong Tan, Saisai Ouyang, China Univ. of Petroleum-Beijing, China

Study on Lateral Dynamic Performance of Riser-Conductor System

Song Deng, Honghai Fan, China Univ. of Petroleum - Beijing, Weige Shen, CNPC Greatwall Drilling; Yuhan Liu, Weiyan Ren, China Univ. of Petroleum - Beijing China

Innovative Processing Methods and Technology for Subsea Structural, Pipeline and Riser System Mechanical Analyses

Graeme Roberts, T Siskandarajah, Subsea 7, UK

Liquid Loading in Subsea Production Riser and a New Prediction Model

Zhennan Zhang, Baojiang Sun, Zhiyuan Wang, China Univ. of Petroleum (East China); Peibin Gong, Sinopec Oilfield Service Shengli; Dejun Cai, CNPC Offshore Engineering, China

Behavior of Steel Strip Reinforced Thermoplastic Pipe under Combined External Pressure and Bending

Ting Liu, Songhua Liu, Yutian Lu, Yong Bai, Zhejiang Univ, China

**49. ENVIRONMENT II:
Climate & Sea Level Change (V. 1)**

Tuesday June 28 10:30 Executive A

Chair: F Lalli, ISPRA, Italy

Co-chair: Haibo Niu, Dalhousie Univ, Canada

Characterization of Zeolites for Use as Environmental Washcoat Materials on Cordierite Ceramics

David O. Obada, Muhammad Dauda, Fatai O. Anafi, Samaila Umaru, Abdulkarim S. Ahmed, Olusegun A. Ajayi, Ahmadu Bello Univ, Nigeria; David Dodoo-Arhin, Univ of Ghana, Ghana, Abdulazeez Y. Atta, National Research Inst for Chemical Technology, Nigeria

Projections of the 21st Century Sea Level Rise in the China Seas from CMIP5 Models

Meixiang Chen, Wenhao Zhang, Shuangshang Zhang, Xiaofeng Lv, Qing Xu, Hohai Univ, China

A Comparison of Parameter Estimation Methods Using Typical Precipitation Data in Plain River Networks: Case Study in Taihu Basin, China

Xiaoming Zhang, Tongji Univ; Yan Hu, Ministry of Water Resources; Shuguang Liu, Guihui Zhong, Zhengzheng Zhou, Tongji Univ, China

On Sea Level Variation along the Coast of China

Zhigang Gao, Jianli Zhang, Jinkun Yang, Shanshan Xu, Kexiu Liu, Wenjing Fan, Hui Wang, National Marine Data & Information Service, China

**50. OCEAN TECHNOLOGY II:
Comparative Study I – Floater Design(V. 1)**

Tuesday June 28 10:30 Delphi

Chair: Alan Wang, COOEC, China

DP Conversion for a Successful Float-over Installation

Yan Zu, Chunyu Chiu, Chungun Cho, Andy Wang, DNV GL, Singapore; Alex Ruskin, DNV GL, Australia; Xiaohong Qiu, COSCO Shipping, China

Overcoming Challenges to Deliver West Africa’s First DP Float-over Topsides Installation

Dong Lin, Ding Zhang, Chungun Cho, Andy Wang, DNV GL, Singapore; Alex Ruskin, DNV GL, Australia; ; Xiaohong Qiu, COSCO Shipping, China

Development of a New Installation System for Deepwater Risers and Subsea Facilities

Lina Li, Wenjun Zhong, Ying Jiang, Ningqiang He, Offshore Oil Engineering; Chenggong Sun, China Univ of Petroleum - Beijing, China

Dynamic Analysis of Offshore Structure Installation Operation Using Dual Floating Cranes Based on Multibody System Dynamics

Ju-Hwan Cha, Sol Ha, Jun Hyeok Bae, Doo-Yeoun Cho, Chun-Sik Shim, Ha-Cheol Song, Mokpo National Univ, Korea

Topside Floatover Installation on Floating Substructure at Nearshore

Chang Han Yoon, Gi Tae Lee, Seung Han Moon, Daewoo Shipbuilding & Marine Eng, Korea

Continue at Session 60.

**51. ARCTIC V:
Ship-Ice Technology (V. 1)**

Tuesday June 28 10:30 Executive C

Chair: Alexander Bolshev, St Petersburg Polytechnical Univ, Russia.
Co-chair: Nikolay A Taranukha, Komsomol'sk-na-Amur State Technical Univ., Russia

Methodology for Investigation of Ice Breaking Performance

Daniela Myland, Hamburg Ship Model Basin (HSVA); Dennis Mierke, Hamburg Univ of Technology , Germany

A Study on Ice-induced Fatigue Life Estimation Based on Measured Data of the ARAON

Mi-Ran Hwang, Tak-Kee Lee, Donghoon Kang, Gyeongsang National Univ, Korea; Yong S. Suh, California State Univ-Sacramento, USA

Study of Ship Structural Performance under Ship-Ice Collision Load

Xiaodong Cheng, Yuanzhou Zheng, Langxiong Gan, Lei Zhang, Xiaobo Zhao, Hui Li, Wuhan Univ of Technology, China

Modification of Existing Ships for Ice-Strengthened Structure [Oral presentation]

Yeonhwa Jo, Moosung Son, Hongku Lee, Daeheon Kim, Korean Register, Korea

Experimental Researches of Ship Models for Two Problems of Hydrodynamics

Nikolay A Taranukha, Sergey V Koshkin, Evgenii I Selivanov, Mikhail P Shadrin, Komsomol'sk-na-Amur State Technical Univ., Russia

Study of Multidisciplinary Optimization Method for Conceptual Design of Ice-going Ships [Proceedings only]

Hongrong Cheng, Xiaodong Liu, Hongrui Li, China Ship Scientific Research Center, China

TUESDAY 13:15

Jin S Chung Award Lecture

Tuesday June 28 13:15 Athena

Introduction: D Angelides, Aristotle Univ of Thessaloniki, Greece

Hydrodynamic Interactions of Multiple Bodies Including Elastic Plate with Water Waves

[Oral presentation/To be published in IJOPE]
Masashi Kashiwagi, Osaka University, Japan

**52. HYDRODYNAMICS VI:
Lagrangian & Meshless Methods: (V. 3)**

Tuesday June 28 14:00 Athena

Chair: Decheng Wan, Shanghai Jiao Tong Univ, China

Co-Chair: Jong-Chun Park, Pusan National Univ, Korea

SPH Modeling of Wave Interaction with Partially Perforated Caissons

Bing Ren, Cheng Chen, Dalian Univ of Technology, China; Ping Dong, Univ of Dundee, UK; Yabin Li, Dalian Univ of Technology, China

Finite Point Method for Analysis of Ship Speed Performance

Shujie Lu, Jing Zou, Hanbing Sun, Zhiqun Guo, Harbin Engineering Univ, China

Application of IMPS Method in A Ship Bow Section Entering Water Problems

Zhengyuan Tang, Xiang Chen, Decheng Wan, Shanghai Jiao Tong Univ, China

Simulation of Water Entry of a Free-falling Wedge by Improved MPS Method

Youlin Zhang, Zhenyuan Tang, Decheng Wan, Shanghai Jiao Tong Univ, China

Interactions between Run-Up Tsunami and Structures Using Particle Based Method

Ardianti Andi, Hidemi Mutsuda, Kento Kawawaki, Yasuaki Doi,
Hiroshima Univ, Japan

**53. SLOSHING VI:
Structural Strength and Loads (V. 3)**

Tuesday June 28 14:00 Salon A

Chair: Yooil Kim, Inha Univ, Korea

**Numerical Study of Wave Interaction with a Modular Oscillating
Wave Surge Converter**

Thomas Abadie, Frederic Dias, University College Dublin, Ireland

**Introduction to a Structural-based Sloshing Assessment for
Membrane Containment System**

B Kayal, A Benoit, M Frihat, T Loysel, Gaztransport & Technigaz,
France

**Sloshing Load and Safety Assessment of Onshore LNG Storage
Tank under Seismic Leakage Condition**

Dong-Ju Lee, Eon Kim, Sang-Beom Shin, Hyundai Heavy Industries,
Korea

**Strength Assessment of Membrane Type Containment System of
LNG Carrier**

Yogendra Parihar, Karan Doshi, Jai Ram Saripilli, Ramkumar Joga,
Sharad Dhavalikar, Indian Register of Shipping, India

**LNG as a Fuel on Container Vessels with GTT Membrane
Systems**

Marie-Odette Quéméré, Sébastien Léonard, Jonathan Blicher,
Matthieu Fièrè, Frédéric Lormier, Gaztransport & Technigaz, France

**54. RENEWABLE ENERGY VI:
Offshore Wind 6: Floating Turbine B (V. 1)**

Tuesday June 28 14:00 Salon B

Chair: J Jonkman, National Renewable Energy Lab, USA

**Optimal Design and Experiment Evaluation of a TLP for FOWT
at Moderate Water Depth**

Xun Meng, Xiaohan Liu, Huiyuan Tian, Meng Liu, Ocean Univ of
China, China; Changzhi Wu, Curtin Univ, Australia

**Dynamic Analysis of a New Type of Floating Platform for
Offshore Wind Turbine**

Hongyan Ding, Yanqing Han, Puyang Zhang, Conghuan Le, Jing Liu,
Tianjin Univ, China

**Wind Tunnel Testing of Power Maximization Control Strategies
Applied to a Multi-Turbine Floating Wind Power Platform**

Filippo Campagnolo, Vlaho Petrovic, Emmanouil M. Nanos, Chun
Wei Tan, Carlo L. Bottasso, Technical Univ of Munich, Germany;
Insu Paek, Hyungyu Kim, Kwansoo Kim, Kangwon National Univ,
Korea

**Investigation of Tendon Fatigue of Tension Leg Platform Wind
Turbine**

Ying Li, Yang Cheng, Tianjin Univ, China

**Update on the Comparison of Second-Order Loads on a Tension
Leg Platform for Wind Turbines**

Sébastien Gueydon, MARIN, Netherlands; Jason Jonkman, National
Renewable Energy Lab, USA

**Multibody Modelling of Floating Offshore Wind Turbine
Foundation for Global Loads Analysis**

Lucie Guignier, Adrien Courbois, Riccardo Mariani, Thomas
Choisnet, Ideol, France

**Rational Selection of Floater Designs for Offshore Wind Farms
using Power Transfer Functions**

Shu Dai, Bert Sweetman, Texas A&M Univ, USA

Comparing Measured Results of Scaled Towing Tests of a Floating Substructure for Offshore Wind Turbines with Calculated Results

Frank Adam, Univ of Rostock; Jochen Großmann, GICON Holding GmbH; Burkhard Schuldt, GICON Großmann Ingenieur Consult GmbH, Germany

**55. MECHANICS & ANALYSIS VI:
Safety & Reliability 2 (V. 4)**

Tuesday June 28 14:00 Nafsika A

Chair: Beom Seon Jang, Seoul National Univ, Korea

Development and Application of Monitoring Systems for Increasing Reliability and Safety of Vessels and Offshore Structures

Viktor Platonov, Valery Shaposhnikov, Anatolii Aleksandrov, Aleksandr Gaina, Krylov State Research Centre, Russia

Dynamic Stress Intensity Factors of Through-Cracked Stiffened Panels under Transient Impact Load

Wei Jiang, Ping Yang, Junlin Deng, Qin Dong, Wuhan Univ of Technology, China

Sample Size Determination and Confidence Interval Derivation for Exponential Distribution [Proceedings only]

Fuqing Yuan, Jinmei Lu, Bjørn Morten Batalden, Univ of Tromsø, Norway

A Simplified Structural Safety Assessment Procedure for a Sea Water Caisson Attached to FPSO

Min Ju Gam, Beom Seon Jang, Dong Beom Lee, Seoul National Univ; Sung-Gun Park, Daewoo Shipbuilding & Marine Engineering; Min Sung Chun, Samsung Heavy Industries; Bon Yong Koo, American Bureau of Shipping, Korea

Structural Analysis of J-Lay Tower on Deepwater Semi-submersible Lifting and Pipe Laying Vessel [Proceedings only]

Wenjun Zhong, Ning He, Offshore Oil Engineering; Wenchi Ni, Xu Zhang, Harbin Engineering Univ, China

A Domain-Divided RBF-Based Level-Set Method for a Moving Interface

Qiu Jin, Tingqiu Li, Lin Ma, Yanxin Qin, Wuhan Univ of Technology, China; William Geraint Price, Pandeli Temarel, Univ of Southampton, UK

Study on Maintenance Strategy for FPSO Offloading System Based on Reliability Analysis [Proceedings only]

Liping Sun, Jichuan Kang, Song Gao, Peng Jin, Harbin Engineering Univ, China

56. HPM I:

Advance in Materials & Structures I(V. 4)

Tuesday June 28 14:00 Nafsika B

Chair: Takuya Hara, Nippon Steel & Sumitomo Metal, Japan

Co-Chair: Joonmo Choung, Inha Univ, Korea

Interrelationship of Structural and Mechanical Properties of Ship and Pipe Steels

Paul Kah, Pavel Layus, Victor Malyshevsky, Lappeenranta Univ of Technology, Finland; Betene Ebanda Fabien, Mbei Lissouck, Central Research Inst of Structural Materials Prometey, Russia; Jukka Martikainen, Lappeenranta Univ of Technology, Finland

Numerical Analysis of Stress Concentration in Two-Planar Tubular K-Joints of Jacket-Type Offshore Wind Turbine Foundation Subjected to Combined Loadings

Zuxing Pan, Guanye Wu, Huadong Engineering; Yong Bai, Zhejiang Univ; Hu Zhou, Huadong Engineering, China

Study on Local Structure Strengthening Method for the Semi-Submersible Drilling Platform Column

Yang Li, Bin Xie, Wenhui Xie, Kankan Ni, CNOOC Research Institute, China

Research on Three-dimensional Stress Intensity Factor of Surface Crack in T-joint under Biaxial Load

Geng Xu, Renjun Yan, Linbo Zhang, Wuhan Univ of Technology; Xiaolin Guo, China Ship Development and Design Center, China

Reliability Assessment of an Existing Offshore Steel Structure with Hot-spots

Matthias Schubert, Matrisk GmbH, Switzerland; Morten Tobias Lind, LICengineering, Denmark; Martin Eriksson, Validus Engineering, Sweden; Flemming Jacobsen, DONG Energy E&P, Denmark

Aero-acoustical and Dynamic Analysis of Complex Reciprocating Engine Exhaust Systems

Agron E Gjinolli, Cary D Bremigan, Jeffrey S Morgan, Universal Acoustic & Emission Technologies, USA

**57. COASTAL VI:
Waves 2 (V. 3)**

Tuesday June 28 14:00 Nefeli B

Co-Chair: Constantine Michailides, Liverpool University, UK John Moores University, UK

Continue from Session 47

**58. SUBSEA, PIPELINES, RISERS VI:
Subsea 1 (V. 2)**

Tuesday June 28 14:00 Nefeli A

Chair: Partha Sharma, DNV GL, USA

Co-Chair: Roberto Ramos Jr., Univ of São Paulo, Brazil

Fatigue Analysis of Non-rigid Locked Wellhead

Vivek Jaiswal, Lifeng Feng, Rajil Saraswat, Brian Healy, DNV GL, USA; Torfinn Hørte, DNV GL, Norway; Partha Sharma, DNV GL, USA

Pipeline Vertical Catenary Effects on the Stress Levels in Retrofit Wye Structure and Optimisation under Marine Operations

Ljiljana Djapic Oosterkamp, Statoil ASA; Zhenguo Tu, Samson Katuramu, Per R Nystrom, IKM Ocean Design; Arild Nedland, Technip Norge, Norway

Evaluation of Transversal Displacements of the Rotor of a Twin-Screw Multiphase Pump

Roberto Ramos Jr., Silvio de Oliveira Jr, Univ of São Paulo; Elisio Caetano Filho, Luiz Carlos Tosta da Silva, Petrobras, Brazil

The Pigging Slug Control Methods for Multiphase Subsea Pipeline in Offshore Oilfield Regional Development

Hong Lu, Jinghua Chen, Haishan Zhu, CNOOC Research Institute, China

Seismic Design of Subsea Rigid Jumpers [Oral presentation]

Lorenzo Maria Bartolini, Roberto Bruschi, Lorenzo Marchionni, Antonio Parrella, Luigino Vitali, Saipem, Italy

**59. ENVIRONMENT III:
Pollutant & Carbon Capture System 1 (V. 1)**

Tuesday June 28 14:00 Executive A

Chair: Qing Xu, Hohai Univ, China

Field Experimental Study of Artificial Tidal Flat as Short-necked Clam Habitat - Sulfide for an Index –
Mitsunari Hirasawa, Kouki Zen, Kyushu Univ, Japan

A Simulation Model of an Artificial Intelligent System to Predict Complex Human Behavior in Response to CO₂ Capture and Storage (CCS) Technology Deployment Processes
Eric Buah, Lassi Linnanen, Huapeng Wu, Lappeenranta Univ. of Technology, Finland

CO₂ Plume Migration with Gravitational, Viscous, and Capillary Forces in Saline Aquifers
Hyesoo Lee, Youngho Jang, Joohyung Kim, Woodong Jung, and Womno Sung, Hanyang Univ, Korea

On the Principles and Strategies in Building of Ecological Green Harbors
Lin Zhao, Lin Zhou, Ocean Univ of China; Lulin Tian, Qingdao Touch Environment Design, China

Transport Characteristics of Land-Sourced Pollutants along Jiangsu Coast Using Lagrangian Particle-tracking Techniques
Jie Yang, Qin Zhang, Hohai Univ; Jing Yao, Nanjing Inst of Geography and Limnology, CAS; Jianfeng Tao, Hohai Univ, China

60. OCEAN TECHNOLOGY III:

Comparative Study 2 – Launch & Measurements (V. 1)

Tuesday June 28 14:00 Delphi

Continue from Session 60.

**61. ARCTIC VI:
Structures (V. 1)**

Tuesday June 28 14:00 Executive C

Chair: O T Gudmestad, Univ of Stavanger, Norway.

Co-chair: D Myland, Hamburg Ship Model Basin, Germany.

Energy Concept for Determining Ice Strength in Calculation of Ice Load on Vertical Offshore Structures
Alexander T Bekker, Vladimir G Tsuprik, Far Eastern Federal Univ, Russia

Modal Parameter Identification for Offshore Platforms under Ice Load Excitation
Min Zhang, Zongli Chen, Yu Xu, Xingxian Bao, Ocean Univ of China, China

Determination of Ice loads Acting on Bow and Stern of the Modern Ice Ships and Icebreakers
Alexander Andryushin, Pavel Zuev, Central Marine Resesarch & Design Inst; Mikhail Kuteinikov, Olga Grigorjeva, Russian Maritime Register of Shipping; Alexander Bolshev, Sergey Frolov, Peter the Great St. Petersburg Polytechnic Univ, Russia

Sidestep Capability for Platforms in Arctic Using Steel Lazy Wave Riser Configuration
Airindy Felisita, D Karunakaran, O T Gudmestad, Univ of Stavanger; Lars Olav Martinsen, DEA E&P Norge, Norway

TUESDAY 16:20

**62. HYDRODYNAMICS VII:
NWT (V. 3)**

Tuesday June 28 16:20 Athena

Chair: Tingqiu Li, Wuhan Univ of Tech, China

Co-Chair: Qingwei Ma, City Univ London, UK

Numerical Simulation of Nonlinear Water Waves Based on Fully Nonlinear Potential Flow Theory in OpenFOAM®-Extend

Arshad Mehmooda, David I. Graham, Kurt Langfeld, Deborah M. Greaves, Plymouth Univ, UK

The Virtual Source Approach to Non-Linear Potential Flow Simulations

Kurt Langfeld, David I. Graham, Deborah M. Greaves, Arshad Mehmood, and Tim Reis, Plymouth Univ, UK

A Study on a Moving Body-Body Interaction by a Two-Phase Solver

Tingqiu Li, JianJian Xin, Lin Ma, Fulong Shi, Yanxin Qin, Wuhan Univ of Technology, China; William Geraint Price, Pandeli Temarel, Univ of Southampton, UK

Model and Full Scale VLCC Resistance Prediction and Flow Field Analysis Based on IDDES Method

Chonghong Yin, Jianwei Wu, Decheng Wan, Shanghai Jiao Tong Univ, China

A Frequency-Depth Explicit Interaction Theory Formulation

Pau Mercadé Ruiz, Francesco Ferri, Jens Peter Kofoed, Aalborg Univ, Denmark

Numerical Simulation of Wave-Current Interaction in Laboratory Basins

My Ha Dao, Jing Lou, Institute of High Performance Computing, Singapore

**63. HYDRODYNAMICS XVI:
MetOcean 1 (V. 3)**

Tuesday June 28 16:20 Salon A

Chair: Francis Noblesse, Shanghai Jiao Tong Univ, China

Co-chair: T. Soukissian, Hellenic Centre for Marine Research, Anavyssos, Greece

The Relationship between Sea Level Change of Xisha Sea Area and ENSO

Hui Wang, Kexiu Liu, Wenjing Fan, Guosong Wang, Zengjian Zhang, National Marine Data & Information Service, China

Nonstationary Prediction of Wind and Waves in the Pacific Ocean Using Fuzzy Inference Systems

Christos Stefanakos, SINTEF Materials and Chemistry, Norway

On the Use of Performance Shaping Factors (PSF) for Risk Analysis in Cold Climate Regions

D Kostopoulos, O T Gudmestad, Univ of Stavanger; A Barabadi, UiT, Arctic Univ of Norway, Norway

Low Frequency Variation of the Wind Field in the Pacific Ocean Since 1950

Xiaofeng Lv, Meixiang Chen, Wenhao Zhang, Changsheng Zuo, Juncheng Zuo, Hohai Univ, China

Statistical Analysis of Stationary Intervals for Random Waves

Pedro C Alvarez-Esteban, Univ de Valladolid, Spain; Carolina Euán, Joaquin Ortega, CIMAT A.C., Mexico

Wind-speed Prediction Based on Grey Fuzzy Mean Generating Function Model [Proceedings only]
Chunhui Zhou, Yongqing Cai, Yuanqiao Wen, Wuhan Univ of Technology, China

**64. RENEWABLE ENERGY VII:
Offshore Wind 7: Simulations (V. 1)**

Tuesday June 28 16:20 Salon B

Chair: M Muskulus, NTNU, Norway

Verification and Validation of the New Dynamic Mooring Modules Available in FAST v8

Fabian F Wendt, National Renewable Energy Lab, USA; Morten T Andersen, Aalborg Univ, Denmark; Amy N Robertson, Jason M Jonkman, National Renewable Energy Lab, USA

Engineering Tool for Turbine Fatigue Analysis in a Wind Farm

Koert Lindenburg, Remco Brood, Tjeerd van der Zee, Knowledge Centre WMC, Netherlands

Verification and Validation of Multisegmented Mooring Capabilities in FAST v8

Morten T Andersen, Aalborg Univ, Denmark; Fabian F Wendt, Amy N Robertson, Jason M Jonkman, National Renewable Energy Lab; Matthew Hall, Univ of Maine, USA

Dynamic Load Analysis for Offshore Wind Turbine with Flexible Bottom Condition under Earthquake Loading

Wen-Jeng Lai, Wei-Nian Su, Chin-Cheng Huang, Inst of Nuclear Energy, Taiwan, China

**65. MECHANICS & ANALYSIS VII:
Safety & Reliability 3 (V. 4)**

Tuesday June 28 16:20 Nafsika A

Chair: E Østby, DNV GL, Norway

Investigation of Strain-Stress State of Eccentric Compacted Concrete Elements Armored with Basalt- Plastic Reinforcement

Alexander T Bekker, Andrey M Umansky, Far Eastern Federal Univ (FEFU), Russia

The Effects of Air Cushion on the Buffering Performance of a Marine Fender Made of Hard Rubber

Tadashi Shibue, Takashi Hayami, Mitushi Ohmasa, Noriyasu Hirokawa, Kinki Univ, Japan

Impact on Ceramic Reinforced Liquid Cabin: Analysis and Simulation Method

Pu Zhang, Weiguo Wu, Xiangshao Kong, Huanxiang Sun, Wuhan Univ of Technology, China

Study on Ship Dynamic Route Planning in Multi-bridges Water Area Based on PSO-OPF Algorithm

Rujiang-Gao, Yanmin-Xu, Dangli-Wang, Chunming-Zou, Min Chen, Cheng Jin, Wuhan Univ of Technology, China

Force Equilibrium-Based Safety Assessment System for Cargo Securing of Car Ferries

Huisang Jo, Joonmo Choung, Inha Univ; Kyounghoon Lee, Korea Ship Safety Technology Authority, Korea

Comparative Study of Responses to Natural Catastrophes Based on Typical Cases [Proceedings only]

Xueqin Liu, Ning Xu, National Marine Environmental Forecasting Center; Peng Zhang², Armed Police Academy; Shuai Yuan, Wenqi Shi, Weibin Chen, National Marine Environmental Forecasting Center, China

**66. HPM II:
Advance in Materials & Structures 2(V. 4)**

Tuesday June 28 16:20 Nafsika B

Chair: Kim R W Wallin, VTT; Finland
Co-Chair: Tsunehisa Handa, JFE Steel Corporation, Japan

High-strength Steel Tubular Welded Joints under Extreme Loading Conditions

George E Varelis, PDL Solutions (Europe), UK; Theocharis Papatheocharis, Philip C. Perdikaris, Spyros A. Karamanos, Univ of Thessaly; Greece

An Empirical Formula to Calculate the Material Factors of High Tensile Steels for Marine Structures

Xiaoping Huang, Shanghai Jiao Tong Univ, China

Modelling of Spiral-welded Pipe Manufacturing and Its Effect on Pipeline Structural Performance

G Chatzopoulou, G C Sarvanis, C I Papadaki, S A Karamanos, Univ of Thessaly, Greece

An Approach to Using Weibull Stress Analysis in Design

Carey Leroy Walters, Roelof Cornelis Dragt, TNO, Netherlands

A Shockproof Hull Made of Foam: a Useful Project for Operations on Uneven Ice

Angelo Odetti, CNR-ISSIA, Italy; Marco Mastrangeli, MACP Hovercraft Ltd, UK

Crack Arrest Toughness Estimation for High Strength Steels from Sub-sized Instrumented Charpy-V Tests

Kim Wallin, Päivi Karjalainen-Roikonen, VTT; Pasi Suikkanen, SSAB Europe, Finland

Mechanism of Arrowhead Fracture Occurrence in DWTT

Takuya Hara, Nippon Steel & Sumitomo Metal, Japan

Fatigue Qualification of UOE SAWL Pipes

Rodrigo Galves De Lucca, Fabio Arroyo Moreira, Marcelo Fritz, Tenaris Confab, Brazil; Philippe P Darcis, Tenaris Dalmine; Luigi Di Vito, Centro Sviluppo Materiali, Italy

Fatigue Studies Based on Real-time Strain Measurement on a Stinger Tubular Joint

Natalia S Ermolaeva, Yanrong Yu, Olympia Korakidou, Allseas Engineering BV; Camilo P Fernando, Arie Romeijn, TU Delft, Netherlands

**67. COASTAL VII:
Wave Propagation Over Uneven Topography (V. 3)**

Tuesday June 28 16:20 Nefeli B

Chair: K. Belibassakis, National Tech Univ of Athens, Greece
Co-chair: George Triantafyllou, NTUA, Greece

Weakly Nonlinear Transformation of Bichromatic Wavegroups over General Bathymetry

K A Belibassakis, National Technical Univ. of Athens, Greece; B Molin, O Kimmoun, Ecole Centrale Marseille, France

Numerical Simulation of Wave Propagation in Surf and Swash Zones Using OpenFOAM

Nikolaos Karagiannis, Theofanis Karambas, Christopher Koutitas, Aristotle Univ. of Thessaloniki, Greece

Experimental Investigation of Wave Breaking on Lens Topography

Wei Jia, Shuxue Liu, Jinxuan Li, Dalian Univ of Technology, China

**Oscillatory Flow around a Sphere Resting on a Rough Bottom:
Direct Numerical Simulations**

Marco Mazzuoli, Paolo Blondeaux, Univ of Genova, Italy; Julian Simeonov, Joseph Calantoni, US Naval Research Laboratory, USA

**An Efficient Coupled-Mode/FEM Numerical Method for Linear
Wave Propagation over 3D Variable Bathymetry Domains**

Theodosios K Papathanasiou, Univ of Trento, Italy; Angeliki E Karperaki, Kostas A Belibassakis, National Technical Univ. of Athens, Greece

**On the Modeling of Linear Waves Interacting with Bathymetry in
the Presence of Vertically Sheared Currents**

K A Belibassakis, National Technical Univ. of Athens, Greece; J Touboul, V Rey, Univ of Toulon, France

68. SUBSEA, PIPELINES, RISERS VII:

Subsea 2 (V. 2)

Tuesday June 28 16:20 Nefeli A

Chair: Howard H Wang, ExxonMobil Production Co., USA

**Heat Transfer Modelling of Natural Gas Pipe Flow-Effect of
Yearly Ambient Temperature Cycles**

Antoine Oosterkamp, Uni Research Polytec/NTNU, Norway

Direct Electrical Heating Closer to Subsea Structures

Kristian Thinn. Solheim, Jens Kristian. Lervik, Martin. Hoeyer-Hansen, SINTEF Energy Research, Norway

**Modeling and Simulation of a Twin Screw Multiphase Pump,
Considering Gradual Last Chamber Opening and Liquid
Recirculation between Suction and Discharge**

José Luis Ramirez Duque, Celso Yukio Nakashima, Silvio de Oliveira Junior, Univ of São Paulo, Brazil

**Multifunctional Composite Coatings on Metals and Alloys for
Marine Applications**

Sergey V Gnedenkov, Sergey L Sinebryukhov, Institute of Chemistry, FEB RAS; Alexander N Minaev, Far Eastern Federal Univ; Dmitry V Mashtalyar, Vladimir S Egorkin, Andrey S Gnedenkov, Konstantine V Nadaraia, Inst of Chemistry, FEB RAS, Russia

69. SLOSHING VII:

Panel 1 Aerospace and Defense (V. 3)

Tuesday June 28 16:20 Executive A

Chair: S Schreier, Univ of Rostock, Germany

Co-Chair: Y H Kim, Seoul National Univ, Korea

Panelists

Andre Baeten, Augsburg Univ of Applied Sciences, Germany

Philipp Behruzi, Airbus DS GmbH, Germany

Committee Discussions

70. OCEAN TECHNOLOGY IV:

Subsea Design (V. 1)

Tuesday June 28 16:20 Delphi

Chair: W C Kan, ExxonMobil Production Co., USA

**Liuhua19-5 Gas Field Development: A Successful Subsea Tie
Back Solution**

Jiayou Mao, Jianjun Yang, CNOOC China; Jing Gong, China Univ of Petroleum at Beijing, China

**Design and Installation of Flowline Jumper for South China Sea
Application [Proceedings only]**

Zhigang Li, Ning He, Bo Wang, China Offshore Oil Engineering (CŌOEC); Wenchi Ni, Harbin Engineering Univ, China

A Novel Subsea Pipeline Connection Method and Experimental Study

Liquan Wang, Zongliang Wei, Yu Guan, Shaokai Li, Harbin Engineering Univ, China

Improving Pipeline Flow Modeling by Multivariate Analysis

Sigmund Clausen, Uni Research Polytec; Jan Fredrik Helgaker, DNV GL; Sigmund Mongstad Hope, Uni Research Polytec, Norway

Dynamic Analysis of Marine Riser in Subsea Production Tree Installation

Yongli Hu, Baoheng Yao, Zeng Zheng, Lian Lian, Shanghai Jiao Tong Univ, China

Optimal Positioning of Submarine Manifolds through Genetic Algorithms

Paula Panaro Castiñeira, Juliana Souza Baioco, Paulo Couto, Breno Pinheiro Jacob, Federal Univ. of Rio de Janeiro, Brazil

**71. ARCTIC VII:
Test Methods (V. 1)**

Tuesday June 28 16:20 Executive C

Chair: Armin Parsa, Rutter, Inc., Canada

Co-Chair: Toshihiro Ozeki, Hokkaido Univ of Education, Japan

Strength Tests on Grounded Rubble

Eleanor Bailey, C-CORE; Ken Croasdale, K R Croasdale and Assoc.; Rocky Taylor, Memorial Univ of Newfoundland, Canada

A Model Test Study of Ice-Induced Vibration in Four-Legged Jacket Platforms with Conical Structure in Bohai Bay

Xiaying Du, CNOOC China; Yan Huang, Tianjin Univ, China

Comparison of Co- and Cross-Polarization Measurements for the Detection of Growlers and Bergy Bits in Rain Using X-Band Radar

Armin Parsa, Rutter, Inc., Canada

Distribution of Oil in Sea Ice: Laboratory Experiments for 3-Dimensional microCT Investigations

M L Salomon, S Maus, NTNU; M Arntsen, M O'Sadnick, C Petrich, Northern Research Inst (Norut) Narvik, Norway; F Wilde, Helmholtz-Zentrum Geesthacht, Germany

Development of Sea Spray Meters and an Analysis of Sea Spray Characteristics in Large Vessels

Toshihiro Ozeki, Hokkaido Univ of Education; Toshinari Shiga, Univ of Tokyo; Junji Sawamura, Osaka Univ; Yuhei Yashiro, Hokkaido Univ of Education; Satoru Adachi, National Research Inst for Earth Sci & Disaster Prevention; Hajime Yamaguchi, Univ of Tokyo, Japan

WEDNESDAY 08:00

**72. HYDRODYNAMICS VIII:
CFD & Applications (V. 3)**

Wednesday June 29 08:00 Athena

Chair: Ling Qian, Manchester Metropolitan Univ, UK

Numerical Prediction of Anisotropic Turbulence Integral Length of Marine Propeller

Cheng Ma, Chen Ke, Jingwei Jiang, Zhengfang Qian, Naval Academy of Armament; Haopeng Cai, Institute of Acoustics, CAS, China

CFD Analysis of Natural Convection in a Welding Chamber: Analytical, Numerical and Experimental Proof of Concept

Leonid Vasilyev, Magnus Axelsson, Sigmund Clausen, UNI Resesarch Polytec, Norway

CFD Analysis on Gas Flow and Droplet Dynamics within Exhaust Gas Scrubbers

Baili Zhang, Te Ba, Shengwei Ma, Chang-Wei Kang, Institute of High Performance Computing; Junjie Tan, SembCorp Marine; Chua Chee Yong, Chew Hwee Hong, Ecospec Technology, Singapore

A Numerical Study of the Thermal Plume from Coastal Power Plants

Arthur T H Perng, Chin-Pin Ko, Chen-Shan Kung, Sinotech Engineering Consultants, Taiwan, China

Iterative Band Algorithm for Hole-Cutting for Dynamic Structured and Unstructured Overset Grid [Proceedings only]

Juntao Huang, OHMUGA Fluid Dynamics, Canada

73. HYDRODYNAMICS XVII:

MetOcean 2 (V. 3)

Wednesday June 29 08:00 Salon A

Chair: M Minoura, Osaka Univ, Japan

Co-Chair: C-O Ng, Univ of Hong Kong, Hong Kong China

Standardized Procedure for Estimation of Extreme Ocean Waves

Zai-Jin You, Ludong Univ; Baoshu Yin, Inst of Oceanology, CAS, China

Some Challenges in Recovering Wave Features From a Wave Radar System

Fabio Fucile, CNR-INSEAN; Giovanni Ludeno, CNR-IREA; Francesco Serafino, CNR-IBMET; Gabriele Bulian, Univ of Trieste; Francesco Soldovieri, CNR-IREA; Claudio Lugni, CNR-INSEAN, Italy

Validation of NOAA's WAVEWATCHIII Hindcast Using in situ Data Covering Different Area in the World

Claudia Pizzigalli, Gianluca Manes, SAIPEM S.p.A., Italy; Roberto Padilla-Hernandez, MSG-NOAA/NCEP/EMC, USA

Stochastic Sea-state Model Based on Fourier Series Expansion

Munehiko Minoura, Osaka Univ, Japan

Complex Empirical Orthogonal Function (C-EOF) for Current Profile Extremes

Matteo Mattioli, Claudia Pizzagalli, SAIPEM S.p.A., Italy

**74. RENEWABLE ENERGY VIII:
Offshore Wind 8: Aerodynamics (V. 1)**

Wednesday June 29 08:00 Salon B

Chair: F. Vorpahl, Senvion GmbH, Germany

Simulation of Tower Shadow Effect for Offshore Wind Turbine by CFD Method

Long Meng, Yan-ping He, Jun Wu, Yong-sheng Zhao, Zi-wei Guo, Shanghai Jiao Tong Univ, China

Unsteady Aerodynamic Simulations of Floating Offshore Wind Turbines with Overset Grid Technology

Ping Cheng, Decheng Wan, Changhong Hu, Shanghai Jiao Tong Univ, China

Nozzle and Diffuser in Drifting Horizontal Turbine Flow

Bang-Fuh Chen, Cheng-wei Huang, National Sun Yat-sen Univ, Taiwan, China

Influence of Jet Flow on the Aerodynamics of a Floating Model Wind Turbine

Levin Klein, Christoph Schulz, Thorten Lutz, Ewald Krämer, Univ of Stuttgart, Germany

Assessment of Wake Effects on Floating Wind Turbines

D I Manolas, G P Papadakis, P I Chasapogiannis, V A Riziotis, S G Voutsinas, National Technical Univ. of Athens (NTUA), Greece

Cost Assessment for a Semi-submersible Floating Wind Turbine with Respect to the Hydrodynamic Response and Tower Base Bending Moments Using Particle Swarm Optimisation

Alexander Steinert, Sören Ehlers; TU Hamburg-Harburg, Germany; Marit Irene Kvittem, Daniel Merino Hoyos, Magnus Ebbesen, DNV GL, Norway

**75. ADVANCED SHIP TECH I:
Powering & Performance I (V. 4)**

Wednesday June 29 08:00 Nafsika A

Chair: Mario Felli, INSEAN, Italy

Co-chair: Rickard E Bensow, Chalmers Univ of Technology, Sweden

Identification of Flapper Fin Oscillations for Active Flow Control Applications in Improved Watercraft Propulsion

Kostas A Belibassakis, National Tech Univ of Athens, Greece; Nikolaos I Xiros, Univ of New Orleans, USA; Gerassimos K Politis, Evangelos Filippas, National Tech Univ of Athens, Greece; Erdem Aktosun, Univ of New Orleans, USA; Vasileios Tsarsitalidis, National Tech Univ of Athens, Greece

Measurement Technique of Ship Hydrodynamic Experiments by Large-scale Free Running Model Sea Trial

Jialong Jiao, Huilong Ren, Shuzheng Sun, Xin Li, Zhenyu Wang, Harbin Engineering Univ, China

The Highest Waves Created by Fast Ships as a Result of Wave-interference Effects

Yi Zhu, Chao Ma, Jiayi He, Chenliang Chang, Huiyu Wu, Wei Li, Francis Noblesse, Shanghai Jiao Tong Univ, China

Numerical Simulation of Ship-Ship Interactions in Shallow Water

Qingjie Meng, Decheng Wan, Gang Chen, Shanghai Jiao Tong Univ, China

Numerical Prediction of KCS Self-Propulsion in Shallow Water

Jianhua Wang, Xiaojian Liu, Decheng Wan, Gang Chen, Shanghai Jiao Tong Univ, China

**76. HPM III:
Advance in Materials & Structures 3(V. 4)**

Wednesday June 29 08:00 Nafsika B

Chair: Kensuke Nagai, Nippon Steel & Sumitomo Metal, Japan

On the Influence of Alloying and Micro Alloying on the Structure and Characteristics of New High-Strength Steels

Pavel Layus, Lappeenranta Univ. of Technology, Finland; Victor Orlov, Victor Malyshevsky, Central Research Inst of Structural Materials, Russia; Paul Kah, Lappeenranta Univ. of Technology, Finland

Development of 7% Nickel Quenched and Tempered Steel Plates for LNG Storage Tanks and Transportation Vessels

Natalia Loukachenko, Dany Cornut, Industeel France, Arcelor Mittal, France; Fabian Arrogante, Patrick Toussaint, Industeel Belgium, ArcelorMittal, Belgium; Stéphanie Corre, Industeel ArcelorMittal, France

Effect of Toughness Distribution in the Thickness Direction on Long Brittle Crack Propagation/Arrest Behavior of Heavy Gauge Shipbuilding Steel

Tsunehisu Handa, Satoshi Igi, Kenji Oi, Kimihiro Nishimura, Hisakazu Tajika, Tetsuya Tagawa, JFE Steel, Japan

Development of Advanced TMCP Steel Plate with Excellent Low-Temperature Toughness of Welded Joints by Electron Beam Welding for Large Offshore Wind Structures

Ryuichi Homma, Masaaki Fujioka, Kazuhiro Fukunaga, Seiji Nishimura, Akihiro Date, Nippon Steel & Sumitomo Metal, Japan

Effect of Niobium Addition on Austenite Recrystallization Behavior and Mechanical Properties after Bainite Transformation

Junji Shimamura, Sota Goto, Shunsuke Toyoda, Satoshi Tsutsumi, JFE Steel, Japan

High Strain Flow Stress Characteristics of Marine Structural Steel beyond Onset of Necking

Sung-Ju Park, Joonmo Choung, Inha Univ; Younghun Kim, Kyungnam Univ, Korea

UHPC-Steel Hybrid Tube Components for Application in Offshore Support Structures

Niklas Scholle, Ludger Lohaus, Leibniz Univ Hannover, Germany

**77. COASTAL VIII:
Structures 1 (V. 3)**

Wednesday June 29 08:00 Nefeli B

Chair: P Ruol, Univ of Padova, Italy

Co-chair: T.V. Karambas, Aristotle Univ of Thessaloniki, Greece

RANS-VOF Solver for Wave Overtopping over Sloping Breakwaters

Ning Guan, BaoLei Geng, Tianjin Resch Inst of Water Transp Eng., China

Considerations on Wave Transmission Induced by Overtopping at Vertical Structures

Katsuya Hirayama, Port & Airport Research Institute, Japan

Wave Energy Dissipation by Four-layer Submerged Horizontal Porous-plate Breakwater

Zhichao Fang, Longfei Xiao, Lijun Yang, Shanghai Jiao Tong Univ, China

Experimental Studies on the Transmission Coefficients of Multiple Plates

Jing Ping Wu, Jun Pan, Wuhan Univ of Technology; Wei Wei Ding, Zao Jian Zou, Shanghai Jiao Tong Univ; Ting Qiu Li, Wuhan Univ of Technology, China

**78. SUBSEA, PIPELINES, RISERS VIII:
Pipeline Installation (V. 2)**

Wednesday June 29 08:00 Nefeli A

Chair: Mason Wu, DMAR, USA

Non-Parametric Sensitivity Analysis for Deep Water S-Lay Stinger

Xiaobo Wang, Offshore Oil Engineering; Hongsheng Yan, Yang Yuan, Tianjin Univ, China

Controlling Fatigue Damage in Deep-Water Installation

Roberto Bruschi, Lorenzo Marchionni, Adelina Mancini, Luigino Vitali, SAIPEM S.p.A.; Jacopo Pazzaglia, Seatech S.r.L, Italy

Prediction of Pipeline Rotation During S-lay Installation

Nicholas James Vaughan, Per Richard Nystrom, IKM Ocean Design, Norway

State of the Art Ploughability Assessment

Indrasenan Thusyanthan, Saudi Aramco, Saudi Arabia

Residual Strength of Metallic Pipelines Subject to Combined Loads Accounting for Impact Induced Damage

Jie Cai, Xiaoli Jiang, Gabriel Lodewijks, Delft Univ of Technology, Netherlands

Study on Evaluation Technique for Ground Settlement by Decrepit Sewer Using CCTV Monitoring and GPR Exploration in Korea

Deayoung Lee, Dongmin Kim, Korea Inst. of Civil Eng. & Building Tech; Jeill Oh, Jaehyun Lee, Chung-Ang Univ, Korea

**79. GEOTECH I:
Anchors & Pipelines (V. 2)**

Wednesday June 29 08:00 Executive A

Chair: Haydar Arslan, ExxonMobil Production Co., USA

Finite Element Analysis of Vertical Strip Anchors Buried in Dense Sand Subjected to Lateral Loading

Kshama Roy, Bipul Hawlader, Memorial Univ of Newfoundland; Shawn Kenny, Carleton Univ; Ian Moore, Queen's Univ, Canada

Lateral Loading Test for Buried Pipe under Different Hydraulic Gradient

Kohei Ono, Yu Yokota, Yutaka Sawada, Toshinori Kawabata, Kobe Univ, Japan

Finite Element Modeling of Pipe-Soil Interaction in Permafrost Regions

Haydar Arslan, ExxonMobil Production Co., USA

Large Deformation Numerical Analysis of the Ultimate Pullout Capacity of Plate Anchors in Sand

Zhou Li, Haixiao Liu, Yanbing Zhao, Tianjin Univ, China

Analytical Study on Comprehensive Anchor Behaviors in the Seabed

Jinsong Peng, Haixiao Liu, Yanbing Zhao, Tianjin Univ, China

Numerical Simulations of the Load on an Embedded Anchor from a Taut Mooring System

Lingzhi Xiong, Shanghai Jiao Tong Univ, China; Wenhua Zhao, Univ of Western Australia, Australia; Jianmin Yang, Shanghai Jiao Tong Univ, China; David White, Univ of Western Australia, Australia

**80. OCEAN TECHNOLOGY V:
Jacket and Jack-up 1 (V. 1)**

Wednesday June 29 08:00 Delphi

Chair: LF Boswell, City University London, UK

Co-chair: Liqun Wang, Harbin Engineering Univ, China

Simplified Bottom Fixed Offshore Wind Turbine in Extreme Sea State

Loup Suja-Thauvin, Jørgen Ranum Krokstad, Statkraft AS, Norway

Modal Parameters Study of Fixed Offshore Platforms Using Measured Sea Test Data

Fushun Liu, Falei Hou, Ocean Univ of China; Wei Li, Powerchina Huadong Engineering; Jinchao Cao, Hongchao Lu, Ocean Univ of China, China

Analysis of Lifting Operation of a Monopile Considering Vessel Shielding Effects in Short-crested Waves

Lin Li, Zhen Gao, Torgeir Moan, NTNU, Norway

Vibration Property Analysis of Jack-up Platform Based on Nonlinear Foundation-hull Finite Element Model

Yan-Yun Yu, Xu-Dong Meng, Yan Lin, De-Lai Leng, Dalian Univ of Technology, China

Predicting the Penetration Resistance of Plain Tubular Jack-Up Legs

J Irvine, I Torres, D Cathie, Cathie Associates, UK; S Raymackers, C Morris, Geosea NV, Belgium; A Ezzamei, J Osborne, Vattenfall, UK

**81. ARCTIC VII:
Committee Panel**

Wednesday June 29 08:00 Executive C

Chair: T Kokkinis, ExxonMobil Production Co., USA

WEDNESDAY 10:30

**82. HYDRODYNAMICS IX:
Hydroelasticity, Impact and Whipping 1 (V. 3)**

Wednesday June 29 10:30 Athena

Chair: Yongwon Lee, Lloyd's Register, UK

Co-chair: Guanghua He, Harbin Inst of Tech at Weihai, China

Coupling CFD with a Time-domain Ship Motions Method for Prediction of Slamming

Neil Southall, Yongwon Lee, Michael C Johnson, Lloyd's Register, UK; Frank Lin, Lloyd's Register, Canada; Nigel White, Lloyd's Register, UK

Sliding of Caisson Submitted to Water Wedge Impact: Analytical Calculation and CFD Verifications

M Martin Medina, S Abadie, Univ. de Pau et des Pays de l'Adour, France; C Mokrani, Federico Santa Maria Technical Univ, Chile; D Morichon, Univ. de Pau et des Pays de l'Adour, France

Guidance Notes on Whipping Assessment of Large Container Ships

Yongwon Lee, Nigel White, Zhenhong Wang, Lloyd's Register, UK; Young-Hwan Kim, Lloyd's Register Asia, Korea; Yoshinari Yanai, Lloyd's Register Group, Japan; Zhi-Jun Wang, Lloyd's Register Asia, China

Laboratory and Numerical Investigation of Extreme Flow Impact on Simplified Sea-Crossing Bridge Structures

Kaicui Chen, Qiuhua Liang, Yan Xiong, Juan Qiang, Gang Wang, Jinhai Zheng, Hohai Univ, China

An Experimental Investigation of Freak Wave Forces on Vertical Cylinders

Yanfei Deng, Jianmin Yang, Xin Li, Xinliang Tian, Shanghai Jiao Tong Univ, China

A Preliminary Analysis on the Statistics of about One-Year Air Gap Measurement for a Semi-submersible in South China Sea

Xiaona Ge, Xinliang Tian, Jianmin Yang, Yufeng Kou, Shanghai Jiao Tong Univ, China

Study on the Load Behavior of a Large Ship in Head and Oblique Regular Waves

Siyuan Cai, Jialong Jiao, Huilong Ren, Harbin Engineering Univ, China

**83. HYDRODYNAMICS XVIII:
Wave-Structure Interactions 3 (V. 3)**

Wednesday June 29 10:30 Salon A

Chair: Arthur E.P. Veldman, Univ of Groningen, Netherlands

Co-chair: Shiqiang Yan, City Univ London, UK

Approximation of the Green Function for Diffraction-Radiation of Water-Waves

Huiyu Wu, Chao Ma, Yi Zhu, Zheng Yang, Wei Li, Francis Noblesse, Shanghai Jiao Tong Univ, China

Oblique Wave Interaction with Double Flexible Porous Barriers near a Rigid Wall

Harekrushna Behera, Chiu-On Ng, Univ of Hong Kong, China

Probabilistic Research on System Response of a Moored Platform in Non-Gaussian Seas

Anteng Chang, Junfeng Du, Shuqing Wang, Huajun Li, Ocean Univ of China, China

Numerical Study of a Moving Object in Calm Water Using Overset and Non-overset Grids

Yao Peng, Decheng Wan, Gang Chen, Shanghai Jiao Tong Univ; Wenhua Huang, Huzhou Univ, China

CFD Application to Prediction of Ship Motions and Forces in Regular Head Wave Using URANS Approach

Yoo-Chul Kim, Kwang-Soo Kim, Jin Kim, Yoonsik Kim, Myoung-Soo Kim, Korea Resch. Inst. of Ships & Ocean Eng, Korea

Research on Overland Shifting and Marine Transportation of Large-Scale Topside

Ji Zeng, Shanghai Maritime Univ; Wei Zhang, Yuhan Wang, Lei Cheng, Yan Yin, Chao Wang, Shanghai Waigaoqiao Shipbuilding, China

84. RENEWABLE ENERGY IX:

Offshore Wind 9: Production & Environment (V. 1)

Wednesday June 29 10:30 Salon B

Chair: A Robertson, National Renewable Energy Lab, USA

Offshore Wind Turbines: An Overview of the Effects on the Marine Environment

Luigia Riefolo, Caterina Lanfredi, Arianna Azzellino, Politecnico di Milano; Giuseppe R Tomasicchio, D'Alessandro Felice, Univ del Salento, Italy; Valery Penchev, Coastal Research and Engineering, Bulgaria; Diego Vicinanza, Sedonda Univ degli Studi di Napoli, Italy

Challenges in Using Risk Assessments in Offshore Wind Asset Management

Matti Scheu, Denis Matha, Philipp Hohrath, Ramboll, Germany; Roberts Proskovics, ORE Catapult, UK

Overview of Energy Storage Technologies and a Short-term Storage Application for Wind Turbines

Maria C Argyrou, Paul Christodoulides, Christos C Marouchos, Soteris A Kalogirou, Georgios A Florides, Lazaros Lazari, Cyprus Univ of Technology, Cyprus

85. ADVANCED SHIP TECH II:

Powering & Performance 2 (V. 4)

Wednesday June 29 10:30 Nafsika A

Chair: Nikolaos I Xiros, Univ of New Orleans, USA

Investigation of Twin Skeg Vessel Performance with Twisted Rudder in Auto-Pilot Condition

Sangho Han, Young Ee Shon, Youn Mo Lee, Seok Ho Son, Hyundai Heavy Industries, Korea

Multi-objective Optimal Design of Ship Propeller Considering Fluid - Structure Interaction

Jingwei Jiang, Naval Academy of Armament; Haopeng Cai, Institute of Acoustics, CAS; Cheng Ma, Chen Ke, Naval Academy of Armament, China

CFD Analysis of the Flow around a Propeller Drifting Forward and Backward

Jin Chen, Zao-Jian Zou, Hai-Peng Guo, Shanghai Jiao Tong Univ; Guo-Dong Wang, China Ship Development and Design Center, China

Numerical Simulation of Open-Water Characteristics and Cavitation Performance for a Highly Skewed Propeller
Guang-ming Zhang, Zi-ru Li, Wei He, Wuhan Univ of Technology, China

Unsteady Dynamics of Cloud Cavitation on a Hydrofoil with Large Eddy Simulation
Ze Xiong, Ziru Li, Keqiang Chen, Wuhan Univ of Technology, China

Theoretical and Numerical Study of the Whale Tail Wheel Propulsion Performance
Songlin Li, Jiangming Ding, Wuhan Univ of Technology, China

Hydrodynamic Performance Research and Sea Trial Verification for the Modification of Propeller Trailing Edge [Proceedings only]
Pengcheng Li, Yongbo Han, Zhengqing Dong, Lu Zhao, China Ship Scientific Research Center, China

**86. HPM IV:
Arctic Material Development (V. 4)**

Wednesday June 29 10:30 Nafsika B

Chair: OM Akselsen, SINTEF, Norway

New Developments on Arctic Steels by Application of TMCP Technology
Peter Flüß, Daniel Rupp, Frank Hanus, Wolfgang Schütz, AG der Dillinger Hüttenwerke, Germany

Effects of Rolling Pass Schedule for Recrystallization Behavior in the Arctic Offshore Steels by Thermo-Mechanical Control Processing (TMCP)
Ki-Jung Park, Jong-Chul Kim, Sung-Doo Hwang, Yong-Chan Seo, Hyundai Steel Company, Korea; Douglas Stalheim, DGS Metallurgical Solutions, USA; Cheol-Woong Yang, Sungkyunkwan University, Korea

YP690 N/mm² Class Heavy Gauge Steel Plates with Low Temperature Toughness for Offshore Structures Manufactured by Continuous Casting, Forging and Rolling Process
Shigeki Kitsuya, Katsuyuki Ichimiya, Kazukuni Hase, Kenji Hayashi, Yusuke Terazawa, Teruhisa Kinugawa, JFE Steel, Japan

Development of Grade X80 Heavy Gauge Linepipe for Extremely Low Temperature Service
Taishi Fujishiro, Yasuhiro Shinohara, Takuya Hara, Naoki, Doi, Nippon Steel & Sumitomo Metal, Japan

Effect of Microstructure on the Yield Ratio and Strain-aged Low Temperature Toughness of Offshore Structural Steels
Jong-Chul Kim, Byung-Jun Park, Ki-Jung Park, Sung-Doo Hwang, Yong-Chan Suh, Hyundai Steel Company, Korea

**87. COASTAL IX:
Structures 2 (V. 3)**

Wednesday June 29 10:30 Nefeli B

Chair: E Loukogeorgaki, Aristotle Univ of Thessaloniki, Greece
Co-chair: O Kirca, Istanbul Tech Univ, Turkey

Numerical Analysis of A New Kind of Submerged Breakwater with An Air Chamber
Qin Le, YongChun Yang, ZeGao Yin, FuYou Zhang, Ocean Univ of China, China

Hydrodynamic Loading and Wave Run-up on "Elliptical" Breakwaters
Vanessa Katsardi, Theofanis Grammenos, Univ of Thessaly; Stefanos Katifeoglou, Spyros A. Mavrakos, Ioannis K. Chatjigeorgiou, National Technical Univ of Athens, Greece

Effect of Pipe Spacing on the Performance of a Trimaran Floating Pipe Breakwater

Mehmet Adil Akgul, Yeditepe Univ, Turkey

Flow Field Alteration due to Permeability and Subcanopy Flow for Emergent Vegetation

Vasileios Kitsikoudis, Oral Yagci, V S Ozgur Kirca, Istanbul Technical Univ; Dorukhan Kellecioglu, YPU Engineering, Turkey

**88. SUBSEA, PIPELINES, RISERS IX:
Pipeline 1 (V. 2)**

Wednesday June 29 10:30 Nefeli A

Chair: AM Gresnigt, Delft Univ of Tech, Netherlands

Co-Chair: Spyros A Karamanos, Univ of Thessaly, Greece

Load Bearing Capacity of Subsea Pipeline with Ovality and Eccentricity

Jong-hyun Baek, Young-pyo Kim, Cheol-man Kim, Woo-sik Kim, KOGAS Research Institute, Korea

Numerical Simulation of Nearshore Submarine Pipeline Scour under Storm Surge Condition

Duo Li, PLA Navy North Sea Fleet; Bing Shi, Guoxiang Wu, Bingchen Liang, Ocean Univ of China, China

Environmental Assisted Cracking Resistance of High Grade Steel Pipeline in Real Operating Conditions

G Malatesta, Centro Cviluppo Materiali; C M Spinelli, eni S.p.A.; G Mannucci, E Meozzi, Centro Cviluppo Materiali, Italy

Numerical Modeling of Local Scour below a Pipeline in Currents

Hongyi Jiang, Liang Cheng, Hongwei An, Univ of Western Australia, Australia

**89. GEOTECH II:
Bucket Foundation & Spudcan (V. 2)**

Wednesday June 29 10:30 Executive A

Chair: S C Bang, South Dakota School of Mines, USA

Co-chair: Dong-Sheng Jeng, Griffith University, Australia

Seepage Study for Suction Installation of Bucket Foundation in Different Soil Combinations

Aleksandra Katarzyna Lada, Lars Bo Ibsen, Johan Clausen, Aalborg Univ, Denmark

Effect of Horizontal Loading on the Bearing Capacity of Tripod Skirted Foundations on Clay

Vangelis Petas, Georgios Kolotsios, Konstantinos Georgiadis, Eva Loukogeorgaki, Aristotle Univ. of Thessaloniki, Greece

Case History on the Penetration of Suction Foundation Into Seabed

Kouki Zen, Mitsunari Hirasawa, Kyushu Univ, Japan

Model Tests for Soil Plug Heave in Installation of Suction Caisson on SilicaSand

Jae-Hyun Kim, Korea Advanced Inst. of Sci. & Tech., Seung-Tae Lee, POSCO; Dong-Soo Kim, Korea Advanced Inst. of Sci. & Tech., Korea

Comparison of Two Meteorological Tower Foundations for Off-shore Wind Turbines

Moo Sung Ryu, Jun Shin Lee, Korea Electric Power; Dae Jin Kwag, ADVACT, Korea; Sangchul Bang, South Dakota School of Mines & Technology, USA

Performance of Perforation Drilling in Easing Spudcan-Footprint Interaction Issues in Moderate Clays

Muhammad Shazzad Hossain, Vinh Triet Ngo, Youngho Kim, Mark Jason Cassidy, Univ of Western Australia, Australia

Effects of Eulerian Domain Size in CEL Model on Calculated Results of Spudcan-Pile Interaction

Jianhua Wang, Yifei Fan, Xiaoru Dai, Jianping Ma, Tianjin Univ, China

90. OCEAN TECHNOLOGY VI:

Jacket and Jack-up 2 (V. 1)

Wednesday June 29 10:30 Delphi

Chair: LF Boswell, City University London, UK

Design Method of an Expansive Stressed Grouted Clamp on a Joint of a Jacket Platform

Chuan Jie Zhang, Offshore Oil Engineering; Hong Hui Zhang, Xiang Shi, Jian Ren Chen, Ocean Univ of China; Lei Zhou, Offshore Oil Engineering, China

Experimental Study of Mode Shapes Using the Residues of Measured Data

Chao Wang, Hongchao Lu, Ocean Univ of China; Wei Li, Powerchina Huadong Engineering; Fushun Liu, Ocean Univ of China, China

Comparison of Time Domain and Spectral Fatigue Analyses of an Offshore Jacket Structure

S F Mohammadi, N S Galgoul, Universidade Federal Fluminense, Brazil; U Starossek, Hamburg Univ of Tech, Germany

Design Wave Condition and Structural Analysis for Jacket Structures Installed in Wave Breaking Zone

Insik Chun, Konkuk Univ; Chanjo Woo, Mapes Engineering, Korea; Christy Ushanth Navaratnam, NTNU, Norway; Jaeseol Shim, KIOST, Korea

Fixed Structure Motion Measurement and Structural Damping Calculation

Jeremy Rosen, Andrew E Potts, Paul Sincock, Simon Dimopoulos, Peter Kriznic, Daniel Johnstone, AMOG Consulting, Australia

91. UNDERSEA I: Systems (V. 2)

Wednesday June 29 10:30 Executive C

Chair: Satoru Yamaguchi, Kyushu Univ, Japan

A Hierarchical Control Strategy of Autonomous Unmanned Surface Vehicle Swarm

Zihe Qin, Hanbing Sun, Zhuang Lin, Harbin Engineering Univ, China

MHD Wave Energy Underwater Recharging Platforms for AUVs

L Z Zhao, Institute of Electrical Engineering; H L Ye, Tianjin HSE Co; A W Peng, Q H Zhang, Q Xia, B L Liu, J Li, F Wang, R Li, Institute of Electrical Engineering, China

Design of PCS for MHD Wave Energy Underwater Recharging Platforms

Qinghe Zhang, Qi Xia, Aiwu Peng, Lingzhi Zhao, Institute of Electrical Engineering, CAS, China

A Robotic Platform for Underwater Assisted Manipulation

Giuseppe Conte, David Scaradozzi, Univ. Politecnica delle Marche; Giuseppe Casalino, Enrico Simetti, Alessandro Sperindè, Sandro Torelli, Univ of Genova, Italy

A Dynamic Interaction Simulator for Studying Macroscopic Swarm Self-organization of Autonomous Surface Watercraft

Eleftherios Loghis, National Tech Univ of Athens, Greece; Nikolaos I Xiros, Ralph Saxton, Univ of New Orleans, USA

WEDNESDAY 13:15

KEYNOTE 3 (NEW)

Wednesday June 29 13:15 Salon B

Introduction: Ivar Langen, Univ of Stavanger, Norway

U.S. Developments in Offshore Wind Energy [Oral presentation]
Jason Jonkman, NREL, USA

KEYNOTE 4

Wednesday June 29 13:15 Nafsika B

Introduction: R. Melchers, Univ of Newcastle, Australia

Materials Integrity by Design [Oral presentation]
Eric Wright, ExxonMobil Production Co., USA

KEYNOTE 5

Wednesday June 29 13:15 Nefeli A

Introduction: Wan C Kan, ExxonMobil Production Co., USA

Analysis Procedures Used to Calculate Fatigue and Extreme Stresses in Umbilicals Versus Future Needs [Oral presentation]
Svein Saevik, NTNU, Norway

92. HYDRODYNAMICS X:

Hydroelasticity, Impact and Whipping 2 (V. 3)

Wednesday June 29 14:00 Athena

Chair: Gaute Storhaug, DNV GL, Norway
Co-chair Yooil Kim, Inha University, Korea

Nonlinear Hydroelasticity of Large Container Ship
Kaihong Zhang, Huilong Ren, Hui Li, Liu Yan, Harbin Engineering Univ, China

Fluid-structure Hydroelastic Analysis and Hydrodynamic Cavitation Experiments of Composite Propeller
Zheng Huang, Ying Xiong, Guang Wang, Naval Univ of Engineering, China

On the Modal Parameter Estimation of a Segmented Ship Model with a Hydroelastic Response
Yooil Kim, In-Gyu Ahn, Inha Univ; Sung-Gun Park, DSME R&D Institute, Korea

Springing Effect on Fatigue Assessment of HHI SkyBench™ Ultra Large Container Ships
Donghyeong Ko, Junseok Park, Hong Il Im, Byoungsoon Jung, Hyundai Heavy Industries, Korea; NikolaVladimir, Univ of Zagreb, Croatia

Springing Induced Fatigue Damage Assessment including Torsional Loads on a Large Container Ship
Young-Hwan Kim, Lloyd's Register Asia, Korea; Yongwon Lee, Zhenhong Wang, Nigel White, Lloyd's Register, UK; Kwang-Cheol Ha, Young-Doo Kim, Lloyd's Register Asia, Korea

The Effect of Hydrophobicity in Bow Flare and Wet Deck Slamming
F C Korkmaz, B Guzel, A Safa, Yildiz Technical Univ, Turkey

Hydroelasticity of Floating Bodies with Time Domain Prediction
Fuat Kara, Cranfield Univ, UK

Research on the Springing Effects of an Ultra-large Ore Carrier on Fatigue Strength

Zhanyang Chen, Dongsong Tao, Harbin Institute of Technology at Weihai, China

Calibration of Hull Monitoring Strain Sensors in Deck Including the Effect of Hydroelasticity

Gaute Storhaug, Olav Aagaard, Ørjan Fredriksen, DNV GL, Norway

**93. TSUNAMI I:
Generation to Inundation 1 (V. 3)**

Wednesday June 29 14:00 Salon A

Chair: Qiuhua Liang, Newcastle Univ, UK

Co-chair: K. Murali, IIT Madras, India

The Effects of Sliding Block as a Kind of Submarine Mass Movements on the Tsunami Amplitudes

Servet Mert Kutsal, Abdul Hayir, Istanbul Technical Univ, Turkey

Generation of Very Long Waves in Laboratory for Tsunami Research

Heng Lu, Yong Sung Park, Univ of Dundee, UK; Yong-Sik Cho, Hanyang Univ, Korea

Performance of Different Hardware Devices for Tsunami Simulations

Qiuhua Liang, Reza Amouzgar, Newcastle Univ, UK

A Verification of the Validity of the Conditions on the Location of Evacuation Centers for Vulnerable People in Osaka Bay Area

Kohji Uno, Kobe City College of Technology; Susumu Nakano, Junko Kanai, Tokushima Univ, Japan

**94. RENEWABLE ENERGY X:
Ocean, Wind Energy & Other Resources (V. 1)**

Wednesday June 29 14:00 Salon B

Chair: I. Langen, Univ of Stavanger, Norway

System Long - Term Monitoring on Base Ocean Energy

Alexander Anatolyevich Gorlov, Nikolai Andreevich Rimskiy-Korsakov, P.P. Shirshov Inst. of Oceanology, RAS, Russia

Verification of Continuous Time Random Walk Wind Model

Wojciech Popko, Fraunhofer IWES; Matthias Wächter, Carl von Ossietzky Univ; Philipp Thomas, Fraunhofer IWES, Germany

Local Wave Height Amplification by Use of a Submerged Lens

Ole Henrik Holvik, Konstantinos Christakos, Leonid Vasilyev, Torleif Lothe, Anja Meyer, Martin Mathiesen, Uni Research Polytec, Norway

Calibration of Wind Directions in the Mediterranean Sea

Flora E Karathanasi, National Technical Univ. of Athens; Takvor Soukissian, Panagiotis G. Axaopoulos, Hellenic Centre for Marine Research, Greece

Evaluating Proper Wave Measuring Instrument Locations: Ensuring Representative Waves at Wave Energy Converter

JeongSeok Kim, Korea Resch. Inst. of Ships & Ocean Eng.; SangHo Kim, Research Institute of Medium and Small Shipbuilding; JongSu Choi, SeungHo Shin, Korea Resch. Inst. of Ships & Ocean Eng., Korea

Missing Wind Speed Data: Clustering Techniques for Completion and Computational Intelligence Models for Forecasting

Ioannis P Panapakidis, Technological Education Institute of Thessaly, Greece; Constantine Michailides, NTNU, Norway; Demos C Angelides, Aristotle Univ of Thessaloniki, Greece

Impact of Fixed Bottom Offshore Wind Farms on the Surrounding Wave Field

Georgia Sismani, Aristotle Univ. of Thessaloniki, Greece; Aurélien Babarit, Ecole Centrale de Nantes, France; Eva Loukogeorgaki, Aristotle Univ. of Thessaloniki, Greece

Numerical Estimation for Tidal-current Energy Resources in Indonesia

Shade Rahmawati, Hidemi Mutsuda, Erika Yoshitomi, Yasuaki Doi, Hiroshima Univ, Japan

A Preliminary Design of an Intelligent System for the Optimal Utilization of Renewable Energy Sources in Buildings

Georgios S Georgiou, Paul Christodoulides, Soteris A Kalogirou, Georgios A Florides, Lazaros Lazari, Cyprus Univ of Technology, Cyprus

**95. ADVANCED SHIP TECH III:
Optimization (V. 4)**

Wednesday June 29 14:00 Nafsika A

Chair: S Y Hong, KRISO, Korea

Controller Design for Hybrid Diesel Electric Ship Propulsion During Transient Operation

Sotirios K Topaloglou, George I Papalambrou, Nikolaos P Kyrtatos, National Technical Univ. of Athens, Greece

The Research of an Airfoil Boat Take-off Stage [Proceedings only]

Sergey V Antonenko, Maksim V Kitaev, Valery V Novikov, Viktor G Bugaev, Andrei Zinevich, Far Eastern Federal Univ, Russia

Multi-Objective Hydrodynamic Optimization of Ship Hull Based on Approximation Model

Jianwei Wu, Xiaoyi Liu, Decheng Wan, Shanghai Jiao Tong Univ, China

Research of Robust Optimization for Ship Hull Form Design

Xiao Wei, Baiwei Feng, Zuyuan Liu, Haichao Chang, Wuhan Univ of Technology, China

Collection and Analysis of Data for Ship Condition Monitoring Aiming at Enhanced Reliability & Safety

Yiannis Raptodimos, Iraklis Lazakis, Gerasimos Theotokatos, Univ of Strathclyde, UK; Raul Salinas, Alfonso Moreno, TSI Técnicas y Servicios de Ingeniería, Spain

Ductile Damage Accumulation under Cyclic Loading Evaluated by the Extended Subloading Surface

Riccardo Fincato, Seiichiro Tsutsumi, Osaka Univ, Japan

**96. HPM V:
ARCTIC Materials Properties 1 (V. 4)**

Wednesday June 29 14:00 Nafsika B

Chair: Ki Bong Kang, Yeonsei University, Korea

Assessment of Low Temperature Toughness in Welding of Extra Low Carbon Steel for Arctic Application

Odd M Akselsen, Hans I Lange, Xiaobo Ren, Bård Nyhus, SINTEF Materials and Chemistry, Norway

Fatigue Crack Growth of a 420 MPa Structural Steel Heat Affected Zone at Low Temperatures

Antonio Alvaro, Odd M. Akselsen, Xiaobo Ren, Pascal A Kane, Bård Nyhus, SINTEF Materials and Chemistry, Norway

Atomistic Modeling of Mechanical Properties of Iron: Effect of Temperature

A Brocks, NTNU; I G Ringdalen, SINTEF Materials and Chemistry; E Østby, DNV GL; C Thaulow, NTNU, Norway

Brittle Fracture Arrest - The State of Art in a Multiscale Universe

Brage D Snartland, NTNU; Erling Østby, DNV GL; Mons Hauge, Statoil; Xiaobo Ren, SINTEF Materials and Chemistry; Christian Thaulow, NTNU, Norway

Strain Measurement on Water Intake Coarse Grid of Nuclear Power Plant in Ice-covered Region of China: FBG Sensor [Proceedings only]

Ning Xu, National Marine Environmental Monitoring Center; Xu Wang, Liao Ning Hong Yan He Nuclear Power; Yuan Chen, National Marine Environmental Monitoring Center; Bizhong Yan, Peng Xu, Liao Ning Hong Yan He Nuclear Power; Shuai Yuan, National Marine Environmental Monitoring Center; Weibin Chen, Liao Ning Hong Yan He Nuclear Power, China

The Effect of Stability of M-A Constituent at Low Temperature on CTOD Properties of Offshore Steel [Oral presentation]

Kyung-Keun Um, Woo-Gyeom Kim, Jang-Yong Yoo, POSCO, Korea

[Continue at Session 106](#)

**97. COASTAL X:
Structures 3 (V. 3)**

Wednesday June 29 14:00 Nefeli B

Chair: D Angelides, Aristotle Univ of Thessaloniki, Greece
Co-chair: O Yagci, Istanbul Tech Univ, Turkey

Preliminary Engineering of a Seawall against Storm Tides and Waves along a Built-up Waterfront

Eric C Cruz, Univ of the Philippines; Jose Carlo Eric L Santos, AMH Philippines; Jeane B Camelo, Mark Albert H Zarco, Univ of the Philippines; Maria Elena L del Rosario; John Michael B Gargullo, Ismael Aragorn D Inocencio, Laurenz Luigi B Cruz, AMH Philippines, Philippines

Design of Breakwaters under the Effect of Climate Change

Spyridoula Nata, Anthoula Charalampidou, Eva Loukogeorgaki, Theofanis Karambas, Aristotle Univ. of Thessaloniki, Greece

Innovative Combiwall Quay-Wall with Internal Rubble Mound Chamber: Numerical Tools Supporting Design Activities. The Case of Vlora's Harbor

Alessandro Antonini, Giacomo Tedesco, Alberto Lamberti, Renata Archetti, Univ of Bologna; Simone Ciabattini, Luca Piacentini, Piacentini Ingengeri, Italy

Nonlinear Analysis of a Spar Platform under the Action of Wind and Wave

Wenjun Shen, Feng Gao, Tianjin Resch Inst of Water Transp Eng.; Qu Jianbing, China Classification Society; Peng Zhao, Tianjin Resch Inst of Water Transp Eng., China

Preliminary Engineering of a Cargo Pier and Intake Breakwater of a Power Plant along Mindanao Coast

Eric C Cruz, Egbert B Abiad, Jose Carlo Eric L Santos, AMH Philippines, Philippines

Large Wave Flume Test on Semi-circular Jetty of Yangtze River Estuary Regulation Project

Yunpeng Jiang, Xiangwei Meng, Tianjin Resch Inst of Water Transp Eng., China

**98. SUBSEA, PIPELINES, RISERS X:
Pipeline 2 (V. 2)**

Wednesday June 29 14:00 Nefeli A

Chair: Howard H Wang, ExxonMobil Production Company, USA

Pipeline Integrity Management Experiences Using PiMSlider Software in Statoil

Cristina I Comanescu, Steinar O Skjold, Frank Haugen, Statoil ASA, Norway; Andy Glover, Associated Technology Pipeline, UK

Upheaval Buckling Assessments Considering an SRA Methodology and DnV-RP-F110 Guidelines

Martin S Gallegillo, Michele Cerulli, Chris Cooper, Genesis, UK

Remaining Useful Life (RUL) of Corroding Pipelines

Sirous F Yasseri, Safe-Sight Technology; Roohollah B Mahani, Smart Petroleum Ltd, UK

High Frequency Heating of Subsea Oil Production Pipelines

Jens Kristian Lervik, SINTEF Energy Research; Øyvind Iversen, Nexans Norway AS, Kristian Thinn Solheim, SINTEF Energy Research, Norway

Study on Seabed-Pipeline Interaction under Random Wave Loading [Proceedings only]

Haifeng Deng, Xiaoqiao Luo, Wenran Cao, Xuhao Lei Qi, CNPC Research Institute of Eng. Tech., China

**99. GEOTECH III:
Offshore & Pile Foundation 1 (V. 2)**

Wednesday June 29 14:00 Executive A

Chair: H Arslan, ExxonMobil Production Co, USA

Describing Six-Degree-of-Freedom Response of Foundations Supporting OWEC Jacket Structures

Klaus Thieken, Martin Achmus, Mauricio Terceros, Jan Dubois, Tim Gerlach, Leibniz Univ Hannover, Germany

Advanced Incorporation of Soil-Structure Interaction into Integrated Load Simulation

Jan Dubois, Klaus Thieken, Mauricio Terceros, Peter Schaumann, Martin Achmus, Leibniz Univ Hannover, Germany

Study and Application on In-situ Automatic Monitoring of Offshore Construction Foundation [Proceedings only]

Hao Xu, Wenran Cao, Xiaoqiao Luo, Haifeng Deng, Zhenwen Liu, CNPC Research Institute of Eng. Tech., China

Study on Coastal Levee Reinforcement Using Double Sheet-Piles with Partition Walls

Kakuta Fujiwara, Shinji Taenaka, Kazutaka Otsushi, Nippon Steel & Sumitomo Metal; Atsushi Yashima, Kazuhide Sawada, Takashi Hara, Tatsuya Ogawa, Kazuyoshi Takeda, Gifu Univ, Japan

**100. OCEAN TECHNOLOGY VII:
FPSO, FLNG, TLP 1 (V. 1)**

Wednesday June 29 14:00 Delphi

Chair: JH Cross-Whiter, The Glosten Inc, USA

Optimization of Heave RAO and Mean Drift Force for Four-Column Semi-submersible Hull in Waves

Sheng-chao Jiang, Wei Bai, National Univ of Singapore; Ankit Choudhary, Anis Hussain, Wei Xu, Keppel Offshore and Marine Technology Center, Singapore

Numerical Analysis of Elasto-plastic Buckling Strength of Irregular-shaped Steel Plates

Soye Kim, Xingji Zhu, Korea Univ; Min Han Oh, Jong min Kim, Hyundai Heavy Industries; Goangseup Zi, Korea Univ, Korea

VIM Tow Model Test of TLP with Round Columns

Yufeng, Kou, Haining Lu, Shanghai Jiao Tong Univ; Hanjun Yin, Yuanlang Cai, Offshore Oil Engineering, China

**A Design Approach for an Icebreaker Based on Model Tests
[Oral presentation]**

Konstantin V Kurchukov, Alexey A. Dobrodeev, Maxim V. Renny,
Dmitriy V. Fomichev, Ekaterina A. Morozova, Krylov State Research
Centre, Russia

**101. UNDERSEA II:
Sensing (V. 2)**

Wednesday June 29 14:00 Executive C

Chair: S. Ishibashi, JAMSTEC, Japan

Development of Camera Module for Module-Composite Underwater Vehicle

Masayoshi Ozawa, Etsuro Shimizu, Ryo Matsuoka, Tokyo Univ of Marine Science & Technology, Japan

Underwater Obstacle Classification Method for Forward-looking Sonar of the AUV

Lei Gao, Hongli Xu, Shenyang Institute of Automation, CAS, China

The Target Comparison from Different Sidescan Sonar System

Yi Hu, Jiang Xu, Guicai Zhong, Aijun Lin, Xudong Fang, Liming Wang, Third Institute of Oceanography, China

Experimental and Numerical Study on Underwater Implosion of Photo-multiplier Tubes

Ying Li, Weiguo Wu, Haiqing Zhu, Wuhan Univ of Technology; Zhipeng Du, Navy Research Center; Xiangshao Xong, Wuhan Univ of Technology, China

A Wearable Critical Flicker Fusion Frequency Detector for SCUBA Divers

Giuseppe Conte, David Scaradozzi, Paolo Pelaia, Laura Screpanti, Univ. Politecnica delle Marche; Fabrizio Gala, Monica Rocco, Univ degli Studi di Roma, Italy

3D Visualization of Deep-Seabed Using a Stereo Vision System Applied into Underwater Vehicles

Shojiro Ishibashi, JAMSTEC, Japan

WEDNESDAY 16:20

**102. HYDRODYNAMICS XI:
Ship Resistance & Drag (V. 3)**

Wednesday June 29 16:20 Athena

Chair: M Kashiwagi, Osaka Univ, Japan

Prediction of the Added Resistance of Ships in Oblique Seas

Shukai Liu, Apostolos Papanikolaou, National Technical Univ of Athens, Greece

Practical Estimation of a Ship's Sinkage and Trim

Chao Ma, Chenliang Zhang, Shanghai Jiao Tong Univ, China; Fuxin Huang, Chi Yang, George Mason Univ, USA; Francis Noblesse, Shanghai Jiao Tong Univ, China

Ship Sinkage and Trim Predictions Based on a CAD Interfaced Fully Nonlinear Potential Model

Andrea Mola, Luca Heltai, Antonio De Simone, SISSA, Italy

Numerical Study of the Added Resistance of a Ship Advancing at Various Headings

Do Chun Hong, Joon-gyu Kim, Gi-young Jeon, Korean Register, Korea

A Study on Ship Speed Loss due to Added Resistance in a Seaway

Mingyu Kim, Univ of Strathclyde; Olgun Hizir, Orwell Offshore; Osman Turan, Sandy Day, Atilla Incecik, Univ of Strathclyde, UK

Application of a Rankine Source Method in Seeking for Optimum Trim of a Container Ship with Lowest Wave-Making Resistance

Xiaohui Zhang, Xiechong Gu, Ning Ma, Shanghai Jiao Tong Univ; Wenlei Mao, Nippon Kaiji Kyokai (China), China

Numerical Study of Current Forces Acting on Floating Bodies in Side-by-Side Configuration

Jang-Pyo Hong, Seok Kyu Cho, Yun Ho Kim, Hyung Do Song, Dong Ho Jung, Sung Chul Hwang, Hong Gun Sung, Korea Resch. Inst. of Ships & Ocean Eng., Korea

A New Method of Wind Load Calculation for Offshore Structures

Jinhui He, Haibin Zhang, Xiaoping Li, Marine Design & Research Inst. of China, China

**103. TSUNAMI II:
Generation to Inundation 2 (V. 3)**

Wednesday June 29 16:20 Salon A

Chair: Alex Sheremet, Univ of Florida, USA

Numerical Simulation of Tsunami Flooding Downstream a Quay Wall

S Abadie, Univ. of Pau, France; P Catalan, Federico Santa Maria Tech Univ, Chile; M Martin Medina, D Morichon, Univ. de Pau et des Pays de l'Adour, France

Characteristics of Flow Separation and Hydraulic Jump during Run-down Motion of Shoaling Solitary Wave Traveling over Steep Sloping Bottom

Chang Lin, Ming-Jer Kao, Wei-Ying Wong, Ching-Piao Tsai, National Chung Hsing Univ; Kuo-Tong Chang, National Kaohsiung Marine Univ, Taiwan, China; James Yang, Royal Institute of Tech., Sweden

High-Performance Simulation of Tsunami Inundation and Impact on Building Structures

Yan Xiong, Qihua Liang, Hohai Univ, China; Reza Amouzgar, Newcastle Univ, UK; Daniel T Cox, Oregon State Univ, USA; Nobuhito Mori, Disaster Prevention Research Institute, Japan; Gang Wang, Jinhai Zheng, Hohai Univ, China

**104. RENEWABLE ENERGY XI:
Wind & Wave Energy (V. 1)**

Wednesday June 29 16:20 Salon B

Chair: OT Gudmestad, Univ of Stavanger, Norway

Co-chair: Ching-Piao Tsai, Natl Chung Hsing Univ., Taiwan, China

A Sensitivity Study of Wave and Wind Induced Responses of the Combined Energy Concept SFC Based on Experimental Measurements

Constantine Michailides, Zhen Gao, Torgeir Moan, NTNU, Norway

A Reduced-Order, Statistical Linearization Approach for Estimating Nonlinear Floating Wind Turbine Response Statistics

Jocelyn M Kluger, Themistoklis P Sapsis, Alexander H Slocum, Massachusetts Institute of Technology, USA

Nonlinear Local Structural Modelling and Analysis of the Interface for a Hybrid Wind and Wave Energy Converter Concept

Ling Wan, Zhen Gao, Torgeir Moan, NTNU, Norway

Uranium Extraction from Seawater Using Adsorbent Shell Enclosures via a Symbiotic Offshore Wind Turbine Device

Maha N Haji, Cedric Delmy, Jorge Gonzalez, Alexander H Slocum, Massachusetts Institute of Technology, USA

Feasibility and LCA for a Wave Dragon Platform with Wind Turbines

H.C. Soerensen, E. Friis-Madsen, Wave Dragon, Denmark; I. Russel, Wave Dragon, UK; S Parmeggiani, Wave Dragon; J Fernandez-Chozas, Julia F Chozas, Consulting Engineer, Denmark

105. ADVANCED SHIP TECH IV:

Green Ship (V. 4)

Wednesday June 29 16:20 Nafsika A

Chair: Suak Ho Van, KRISO, Korea

Establishment of a Comprehensive Fleet Optimization Model for River –Sea-Going Ships under Low-Carbon Economy

Chao Liu, Wei Cai, Menglei Mei, Wuhan Univ of Technology; Guoliang Huang, CNOOC Energy Technology & Services-oil Production Services, China

Green Ship with Solar Power in Practice

Chengqing Yuan, Wuhan Univ of Technology, China

Multi-Objective Optimization Method in the Main Dimensions of High Performance Ship Based on Current EEDI

Lei Zhang, Jia Ning Zhang, Dalian Maritime Univ; Yong Zou, Guangzhou Salvage Bureau, China

Experimental and Numerical Investigation of Draught and Trim Effects on the Energy Efficiency of a Displacement Mono-Hull

Marco Altosole, Massimo Figari, Alberto Ferrari, Dario Bruzzone, Giuliano Vernengo, Univ of Genova, Italy

Experimental Study on the Bow Hull-Form Modification for Added Resistance Reduction in Waves of KVLCC2

Seunghyun Hwang, Haeseong Ahn, Young-Yeon Lee, Myoung-Soo Kim, Suak-Ho Van, Kwang-Soo Kim, Jin Kim, Korea Resch. Inst. of Ships & Ocean Eng.; Young-Hun Jang, Daewoo Shipbuilding & Marine Eng, Korea

Numerical Simulation of Energy Saving Effects of Pre-swirl Stators and Mechanism Analysis

Huiping Fu, Ning Ma, Chenjun Yang, Jing Jiang, Shanghai Jiao Tong Univ, China

Overall Efficiency Assessment of a Trawler Propulsion System Based on Hydrodynamic Performance Computations

Michele Martelli, Giuliano Vernengo, Dario Bruzzone, Univ of Genova; Emilio Notti, CNR-ISMAR, Italy

Stern Flow Field Measurement around Japan Bulk Carrier Model with Rotating Propeller and Upstream Energy Saving Duct

Masatoshi Hori, Norihiro Jufuku, Syougo Itou, Munchiko Hinatsu, Yasuyuki Toda, Osaka Univ, Japan

106. HPM VI:

ARCTIC Materials Properties 2 (V. 4)

Wednesday June 29 16:20 Nafsika B

Continue from Session 96

107. COASTAL XI:

Structures 4 (V. 3)

Wednesday June 29 16:20 Nefeli B

Chair: Wei-Po Huang, National Taiwan Ocean Univ, Taiwan China

Experimental Studies on Toe Stability of Revetment with Wide Scour Protection Layer

Parameswara Pandian S, Sarath Aravapalli, BMT Consultants (India); Abhishek Basu, PMC Projects (India); Tarun Kaw, Rajat Roy Chaudhury, BMT Consultants (India), India

Improvement of Suction Rate Methods of Backfilling Materials from a Coastal Dike or a Seawall

Wirayut Kuisorn, Nunthawath, Charusrojthanadech, King Mongkut's Institute of Technology, Thailand; Yoshimichi Yamamoto, Tokai Univ, Japan

Instantaneous Liquefaction of Seabed around Rubble Mound Breakwater under Waves

Mehmet Barış Can Ülker, Maryam Massah Fard, Istanbul Technical Univ, Turkey

Study on the Hydraulic Geometry of the Canal Section under the Action of Ship-generated Waves and Currents

Yimei Chen, Fangqiu Hu, Southeast Univ, China

Research on the Method to Detect Vertical Bearing Capacity for High-Piled Wharf Piles Based on Prototype Test [Proceedings only]

Xi-ping Sun, Hua-qing Zhang, Tianjin Resch Inst of Water Transp Eng., China

Critical Issues for the Classification of Floating Units Moored to a Jetty

Martin Dumont, Saeed Alibakhshi, Olivier Cartier, Bureau Veritas, France

Study of Coastal Protection System in Eastern Coast of Bali - Indonesia

Nita Yuanita, Roka Pratama, Bandung Institute of Technology; Semeidi Husrin, Ministry of Marine Affairs and Fisheries; Parama Shanti, Hendra Achiari, Bandung Institute of Technology, Indonesia

Remedies for Coastal Defense Due to Coastal Development

Wei-Po Huang, National Taiwan Ocean Univ; I-Fan Tseng, National Sun Yat-sen Univ; Jaw-Guei Lin, National Taiwan Ocean Univ, Taiwan, China

108. SUBSEA, PIPELINES, RISERS XI:

Pipeline 3 (V. 2)

Wednesday June 29 16:20 Nefeli A

Chair: Nicholas J Vaughan, IKM Ocean Design, Norway

Soil-Pipe Interaction Models for Simulating the Mechanical Response of Buried Steel Pipelines Crossing Active Faults

G C Sarvanis, Univ of Thessaly, Greece; J Ferino, Centro Sviluppo Materiali, Italy; S A Karamanos, P Vazouras, P Dakoulas, Univ of Thessaly, Greece; E Mecozzi, G Demofonti, Centro Sviluppo Materiali, Italy

A Semi-analytical Solution of the Dynamic Behavior of Free-spanning Submarine Pipelines Conveying Fluid

Tongtong Li, China Univ. of Petroleum, Beijing; Xinhong Li, CNÖOC Research Institute; Wei Liang, China Univ. of Petroleum, Beijing, China; Su Jian, Federal Univ. of Rio de Janeiro, Brazil; Chen An, Menglan Duan, China Univ. of Petroleum, Beijing, China

Latest Development and Application of High Strength and Heavy Gauge Pipeline Steel in China

Chunyong Huo, Tubular Goods Research Institute of CNPC; Yongqing Zhang, Aimin Guo, CITIC Metal, China; Frank J Barbaro, CBMM Technology Suisse, Switzerland; J. Malcolm Gray, Microalloyed Steel Inst., USA

Damage Identification for Connection of Pipeline Structures Using PZT-based Wave Method

Shi Yan, Zhiqiang Wang, Yong Dai, Shuai Zhang, Shenyang Jianzhu Univ, China

Research on Numerical Simulation of Submarine Pipeline Impacted by an Anchor

Ying Ouyang, Lei Zhang, Langxiong Gan, Yuanzhou Zheng, Zhenning Wang, Wuhan Univ of Technology, China

Collapse Strength Assessment of JCO Pipes Using Numerical Analysis on Forming Process [Oral presentation]

Soo-chang Kang, POSCO; Jiwoon Yi, Hyun-Moo Koh, Seoul National Univ; Woo-Yeon Cho, POSCO; Dong-Chun Hur, Jai-Woo Yang, Hyundai RB, Korea

The Comparison of DNV-RP-F105 with FEA Results to Free Spanning Pipelines [Oral presentation]

Jaepil Koh, Jong Hyun Baek, Woo Sik Kim, Youngpyo Kim, KOGAS, Korea

**109. GEOTECH IV:
Offshore & Pile Foundation 2 (V. 2)**

Wednesday June 29 16:20 Executive A

Chair: Jan Dubois, Leibniz Univ Hannover, Germany

Vertical Dynamic Stiffness of Offshore Foundations

Chiara Latini, Michele Cisternino, Varvara Zania, Technical Univ of Denmark, Denmark

Theoretical Model for the Stability of Soils under Shell Gravity Structures

Nikita Ya. Tsymbelman, Tatiana I Chernova, Far Eastern Federal Univ, Russia; Omer Bilgin, Univ of Dayton, USA

Deformation Behavior of Horizontal Loaded Injection Piles for Non-Cohesive Soil Conditions (FINO1)

Stefan Herion, Oliver Fleischer, KoRoH GmbH; Claas Bruns, Vallourec Deutschland, Germany

Evaluation of p-y Approaches for Large Diameter Monopiles in Soft Clay

Martin Achmus, Mauricio Terceros, Klaus Thieken, Leibniz Univ Hannover, Germany

Laboratory Experiment for End Bearing Capacity of Pile with Fragile Root Solidifying Part

Hideto Sato, Nihon Univ; Katsuhiro Kanuka, Sena Miyazaki, Kanuka Design; Toru Osakabe, Shozo Wada, Ashikaga Inst of Tech, Japan

Large-Deformation Finite Element Analyses Using Coupled Eulerian-Lagrangian Technique for Structural Members Loaded into Marine Clays [Proceedings only]

Ching-Hsiang Chen, Shih-Hsiang Liu, Jiun-Yih Chen, Fu Wu, Energo Engineering, USA

**110. OCEAN TECHNOLOGY VIII:
FPSO, FLNG, FSRU, TLP 2 (V. 1)**

Wednesday June 29 16:20 Delphi

Chair: Xiaochuan Yu, Univ of New Orleans, USA

Co-chair: Montasir Osman Ahmed, Univ of PETRONAS, Malaysia

Improvement of Natural Gas Liquefaction Process by Application of Carbon Dioxide Boiling in Triple Point

Aleksander N. Gulkov, Victor D Lapshin, Aleksey A Morozov, Viktor S Vlasenko, Aleksei N Alembaev, Far Eastern Federal Univ, Russia

Fatigue Analysis for the Floating Collar of Fish Cage in Waves

Xiaodongbai Bai, Yunpeng Zhao, Guohai Dong, Chunwei Bi, Dalian Univ of Technology, China

3D-Numerical Analysis of Wave-Floating Structure Interaction with OpenFOAM

Agnese Paci, Gabriella M Gaeta, Alessandro Antonini, Renata Archetti, Univ of Bologna, Italy

Nonlinear Coupling of Heave and Pitch for a Semi-submersible Platform with Bracings

Handi Wei, Longfei Xiao, Xinliang Tian, Shanghai Jiao Tong Univ, China

**111. UNDERSEA III:
Navigation & Communication (V. 2)**

Wednesday June 29 16:20 Executive C

Chair: Satoru Yamaguchi, Kyushu Univ, Japan

A High-accuracy Visual Localization Method Oriented to Underwater Slide Way Installation

Hong Zhang, Jin Guo, CCCC Second Harbor Engineering; Ting Ma, Huazhong Univ of Sci. & Tech.; Qihe Wu, CCCC Second Harbor Engineering; Guohua Xu, Yan Tian, Huazhong Univ of Sci. & Tech., China

The AIS-aid Vision Measuring Method for Vessel Positioning

Haiwen Yuan, Changshi Xiao, Yuanqiao Wen, Chunhui Zhou, Xiaochun Wu, Wuhan Univ of Technology, China

Underwater Electromagnetic Transmission for an AUV

Hiroshi Yoshida, Shojiro Ishibashi, Ohta Yutaka, Makoto Sugawara, Frank H Fan, Kiyotaka Tanaka, Ryotaro, Suga, JAMSTEC; Naoto Iwakiri, National Inst of Information and Communications Technology, Japan

Basic Experimental Demonstration for Acoustic Communications between an ASV and an AUV

Mitsuyasu Deguchi, Yukihiro Kida, Yoshitaka Watanabe, Takuya Shimura, Hiroshi Ochi, JAMSTEC, Japan

One Algorithm of the Autonomous Unmanned Vehicle Single Beacon Navigation and Its Accuracy Investigation [Oral presentation]

Andrei I Mashoshin, Concern CSRI Elektropribor, JSC, Russia

Adaptive Method for Unmanned Underwater Vehicle Navigation Using Stereo Vision [Proceedings only]

Valery A Bobkov, Inst of Automation and Control Processes; Vladimir Yu Mashentsev, Anton Yu Tolstonogov, Far Eastern Federal Univ; Alexander Ph Scherbatyuk, Inst of Marine Technology Problems, Russia

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WEDNESDAY 19:00

19:00	Super Dome Pool
Annual Conference Banquet	
26th ISOPE Cultural Event, Best Paper, Best Student Paper, Outstanding Student Scholarships, Best Session Organizer(s) and ISOPE Awards	
<i>Don't forget the banquet ticket!</i>	

THURSDAY 08:00

112. HYDRODYNAMICS XII: Roll & Stability (V. 3)

Thursday June 30 08:00 Athena

Chair: Hideo Orihara, Japan Marine United Corp., Japan

Evaluation of Full-Scale Performance of Large Merchant Ships by Means of Onboard Performance Monitoring

Hideo Orihara, Hisafumi Yoshida, Ichiro Amaya, Japan Marine United Corp., Japan

A Study on the Nonlinear Roll Behavior of a FPSO Using Hilbert Transform

Yooil Kim, Myung-Jin Park, Jang-Hyun Lee, Inha Univ, Korea

Estimation of Roll Motion Parameters Using R-MISO System Identification Technique

Abhilash Somayajula, Jeffrey Falzarano, Texas A&M Univ, USA

Numerical Prediction of JBC Resistance in Calm Water

Tao Sun, Chonghong Yin, Decheng Wan, Shanghai Jiao Tong Univ, China

SVR-based Parameter Identification of Coupled Heave-pitch Motion Equations in Regular Waves

Xian-Rui Hou, Zao-Jian Zou, Shanghai Jiao Tong Univ; Feng Xu, Wuhan Second Ship Design and Research Inst, China

Analysis of Towing Stability and Motion Response for Lower Hull of Semi-submersible Drilling Platform

Gang Chen, Yan Yin, Hongtong Yuan, Changning Feng, Yuhan Wang, Yong Yang, Shanghai Waigaoqiao Shipbuilding, China

Coupled Response Models for Ship Manoeuvring and Roll Motions

Xuegang Wang, CCCC Fourth Harbor Eng. Inst; Zaojian Zou, Ruyi Ren, Xiaoyan Liu, Shanghai Jiao Tong Univ, China

113. TSUNAMI III: Generation to Inundation 3 (V. 3)

Thursday June 30 08:00 Salon A

Chair: Susumu Araki, Osaka Univ, Japan

Study on Application of Artificial Neural Networks to Solver of Three-dimensional Tsunami Numerical Model

Kazuhiko Honda, National Inst. for Land and Infrastructure Mgmt., Japan

Testing a Shock-Capturing Hydrodynamic Model for Storm Surge Simulation

Juan Qiang, Qiuhua Liang, Gang Wang, Jinhai Zheng, Hohai Univ, China

Meteo-tsunami Disintegration and Soliton Forerunners on Atchafalaya Shelf, Louisiana [Oral presentation]

Alex Sheremet, Uriah Gravois, Univ of Florida, USA; Victor Shrira, Keele Univ, UK

114. RENEWABLE ENERGY XII:

Wave Energy1 (V. 1)

Thursday June 30 08:00 Salon B

Chair: F. Dias, University College Dublin, Ireland

Risk-based Operation and Maintenance Approach for Wave Energy Converters Taking Weather Forecast Uncertainties into Account

Simon Ambühl, Morten Kramer, John Dalsgaard Sørensen, Aalborg Univ, Denmark

Wave Energy Conversion by Cylinder Array with a Bottom Slack-Moored Submerged Plate

Wanchao Zhang, Hengxu Liu, Liang Zhang, Hailong Chen, Harbin Engineering Univ, China

Initial Assessment of Mooring Solutions for Floating Wave Energy Converters

Jonas Bjerg Thomsen, Jens P Kofoed, Aalborg Univ, Denmark; Martin Delaney, Stephen Banfield, Tension Technology International, UK

Comparative Study of Dual-Cylinder System with Permanent Magnet Linear Generator for Wave Energy Conversion

H Y Kang, C K Jin, M H Kim, Texas A&M Univ, USA; J R Kim, I H Cho, Jeju National Univ, Korea

Performance Evaluation and Optimization of a Slack-Moored Two-floating WEC using CFD [Proceedings only]

Wei Guo, Xiongbo Zheng, Wanchao Zhang, Liang Zhang, Harbin Engineering Univ, China

115. ADVANCED SHIP TECH V:

Design, Analysis & Construction 1 (V. 4)

Thursday June 30 08:00 Nafsika A

Chair: Myung-Il Roh, Seoul National Univ, Korea

Co-chair: Sang Gab Lee, Korea Maritime Univ, Korea

Point Cloud-based Erection Process Method and Its Application to Cost-Benefit Analysis for Modular Construction of Offshore Installations

Jung Kwan Seo, Pusan National Univ; DeokHyun Yoon, Deok Eun Kim, Kyeong Wan Kang, Samin Information System, Korea

Lug Arrangement Design Based on the Optimization Technique and the Dynamic Analysis for Safe Block Lifting in Shipbuilding

Sung-Min Lee, Myung-Il Roh, Ki-Su Kim, Seung-Ho Ham, Seoul National Univ; Shin-Hyung Kim, Jin-Ho Hwang, Daewoo Shipbuilding & Marine Engineering, Korea

Ship Multidisciplinary Robust Design Optimization under Multidimensional Stochastic Uncertainties

Dong-qin Li, Zhi-yong Jiang, Xin Zhao, Jiangsu Univ of Science & Tech, China

Design and Performance Analysis of a Water Lubricated Tilting Pad Thrust Bearing

Xingxin Liang, Zhenglin Liu, Chengqing Yuan, Wu Ouyang, Xinping Yan, Wuhan Univ of Technology, China

Mechanical Performance Analysis on Marine Spherical Water-lubricated Stern Bearing Based on FEM

Huanjie Wang, Zhenglin Liu, Xingxin Liang, Weijing Chen, Jun Yang, Wuhan Univ of Technology, China

An Inverse Design of the Fore Part of KCS Container Ship

Yujia Huang, Guoxiang Hou, Huazhong Univ of Sci. & Tech.; Baiwei Feng, Wuhan Univ of Technology, China

Design of an Intelligent Trimaran USV for Maritime Rescue

Zhen Huang, Weiqin Liu, Xuming Wang, Xuemin Song, Xiaoqiang Xu, Xuehua Chen, Li Ma, Wuhan Univ of Technology; Lei Tang, Changjiang Wuhan Waterway Bureau, China

Study on Under-Keel Clearance Algorithms for Very Large Ships in Restricted Waters

Cong Liu, Jingxian Liu, Wuhan Univ of Technology, China

**116. HPM VII:
Hi Manganese (Mn) Steel (V. 4)**

Thursday June 30 08:00 Nafsika B

Chair: HyunWoo Jin, ExxonMobil Research & Engineering, USA

Dissimilar Welding of High-Manganese Steels

Belinga Mvola, Paul Kah, Lappeenranta Univ. of Technology, Finland; Ateba Jean Atangana, Univ of Douala, Cameroon

Grain Growth of Dual-phase Structure Dispersed by Liquid Particles in the Fe-Mn-Al-Bi Alloys [Oral presentation]

T Hagsiawa, T Saegusa, T Omori, L Ohnuma, R Kainuma, K Ishida, Tohoku Univ, Japan

Effect of Alloying Additions on the Microstructure and Solidification Cracking Susceptibility of High-Manganese Steel Filler Metals

Jansen C Lenzo, John C Lippold, Ohio State Univ, USA

**117. COASTAL XII:
Morphodynamics & Cohesive Estuaries (V. 3)**

Thursday June 30 08:00 Nefeli B

Chair: A. Sheremet, Univ of Florida, USA

The Dynamics of an Estuary Characterized by Cohesive Sediments [Oral presentation]

Maurizio Brocchini, Univ. Politecnica Delle Marche, Italy; Joseph Calantoni, Naval Research Laboratory, USA; Matteo Postacchini, Univ. Politecnica Delle Marche, Italy; Allen H Reed, Naval Research Laboratory, USA; Carlo Lorenzoni, Univ. Politecnica Delle Marche, Italy; Alex Sheremet, Univ of Florida, USA; Alessandro Mancinelli, Univ. Politecnica Delle Marche, Italy; Joseph Smith, US Naval Academy; Margaret L Palmsten, Naval Research Laboratory, USA

Modeling Flocculation Processes Using Artificial Neural Networks

Cihan Sahin, H Anil A Guner, Mehmet Ozturk, Yildiz Technical Univ, Turkey; Alexandru Sheremet, Univ of Florida, USA

Storm Impact on Barrier Island Subaerial Morphology and Subsequent Recovery

Jens Figlus, Craig Harter, Texas A&M Univ, USA

Characterization of Dissipation in a Mixed Coherent-Random Wave Field [Oral presentation]

James M Kaihatu, John Goertz, Texas A&M Univ; Alex Sheremet, Univ of Florida; Robert Weiss, Virginia Tech, USA

Quantifying Flocculation Settling Dynamics of Natural Fine-Grained Suspended Sediments [Oral presentation]

Andrew J Manning, HR Wallingford Ltd., UK; David H Schoellhamer, US Geological Survey; Ashish J Mehta, Nutech Consultants; Geoffrey Schladow, Univ of California-Davis; Stephen Monismith, Ivy Huang, Stanford Univ; James S Kuwabara, James L Carter, US Geological Survey; Alex Sheremet, Univ of Florida, USA; Daniel R. Parsons, Univ of Hull; Richard J.S. Whitehouse, David Todd, Thomas Benson, Jeremy R. Spearman, HR Wallingford Ltd., UK

118. SUBSEA, PIPELINES, RISERS XII:

Pipeline 4 (V. 2)

Thursday June 30 08:00 Nefeli A

Chair: Ping Liu, INTECSEA, Netherlands

3D Study of the Dropped Object Motion in Sea Water Based on Scale Tests

Michael Berhe Awotahegn, Univ of Stavanger; Ljiljana D Oosterkamp, Statoil ASA; Per R Nystrom, IKM Ocean Design, Norway

The Effect of Sample Preparation on Quantification of Retained Austenite in Supermartensitic Stainless Steel Studied by EBSD and XRD

K R Elstad, B S Andresen, M Karlsen, I Westermann, J Hjelen, NTNU, Norway

Elastic Anisotropy in Linepipe Materials

Ruud Selker, Ping Liu, INTECSEA; Jay Chaudhuri, Erich Jurdik, Andrey Fick, South Stream Transport BV, Netherlands

Pipe Material Weldability for Sour Service Conditions

Philippe Thibaux, OCAS NV, Belgium; Vincent Gaffard, Total SA, France

119. GEOTECH V:

Offshore & Pile Foundation 3 (V. 2)

Thursday June 30 08:00 Executive A

Chair: Yunwook Choo, Kongju National University, Korea

The Influence of Surcharge Load on the Negative Skin Friction on Pile Groups

Ting Huang, Liangde He, Lijun Hou, Hohai Univ, China

Seabed Scour around Inclined-pile Group Foundation of Offshore Wind Turbine

Haitao Zhang, Xianqi Luo, Jinfeng Bi, Hui Shen, Shanghai Jiao Tong Univ, China

Derivation of Hardening Soil Model Properties from Triaxial Tests

Ahmad A Bagbag, Barry M Lehane, James P Doherty, Univ of Western Australia, Australia

Comparison of Field Test Results Obtained in a Lightly Overconsolidated Clay

Vincenzo Silvestri, Ecole Polytechnique de Montreal; Claudette Tabib, Consultant, Canada

A New Study on the Behavior of Pile Groups Using Settlement Based Design Approach [Proceedings only]

Ozan Alver, Bursa Technical Univ; Gürkan Özden, Dokuz Eylül Univ, Turkey

120. OCEAN TECHNOLOGY VIX:

FPSO, FLNG, FSRU, TLP 3 (V. 1)

Thursday June 30 08:00 Delphi

Chair: Arnoldus Van Wingerde, Fraunhofer IWES, Germany

Fatigue and Monitoring of SPM

Michele Rizzo, Ostilio Spadaccini, Univ of Florence; Paolo Castelli, Edison SpA, Italy

The Effects of Topside Structure Modeling on Wind Tunnel Tests of a FPSO Vessel

Seungho Lee, Soon-Duck Kwon, Chonbuk National Univ; Seihwan Kim, Daewoo Shipbuilding & Marine Eng; Jejun Park, DSR Corp, Korea

Experimental and Numerical Study of the Environmental Loads on a FPSO

Sung-Chul Hwang, Seok-Kyu Cho, Hong-Gun Sung, Jang-Pyo Hong, Korea Resch. Inst. of Ships & Ocean Eng., Korea; Alberto Omar Vazquez-Hernandez, Instituto Mexicano del Petroleo, Mexico

Effect of Mooring Line Pretensions on the Dynamic Responses of Truss Spar Platforms [Proceedings only]

Montasir Osman Ahmed, Anurag Yenduri, Kurian V. John. Univ of PETRONAS, Malaysia

Tapered Column Deep Draft Semi-submersible (TCDD-Semi) Platform for Dry-tree Application [Proceedings only]

Wei Ye, Alex Ran, Jim Li, OffshoreTech LLC, USA; Guojie Li, Xiujun Tang, Zhongnian Wang, Hongwu Wu, SANY Marine Heavy Industry, China

**121. UNDERSEA IV:
Design & Development 1 (V. 2)**

Thursday June 30 08:00 Executive C

Chair: S Yamaguchi, Kyushu Univ, Japan

Design & System Control of a Hybrid Underwater Vehicle, SeaKite

Hongbao Qian, Pengfei Xu, Libin Ma, Lei Wang, Linglong Li, Admin Center for China's Agenda 21, China

Clean Sea Hybrid ROV/AUV for Asset Integrity Operations

T Grasso, F Bruni, M Filippini, F Gasparoni, D Maddalena, L Miozza, Tecnomare; P Cioffi, A Lainati, A Rimodi, ENI; L Gentile, Eni Med; G Di Fede, Ionica Gas, Italy

Development and Testing of a Low-cost ASV

G Conte, D Scaradozzi, D Mannocchi, P Raspa, L Panebianco, Univ. Politecnica delle Marche, Italy

Sea Trials of an Underwater Glider for Long-term Virtual Mooring

Kenichi Asakawa, JAMSTEC; Masahiko Nakamura, Kyushu Univ; Tadahiro Hyakudome, Yasuhisa Ishihara, JAMSTEC, Japan

Preliminary Design of an Underwater Glider for Ocean Floor Resources Exploration

Satoru Yamaguchi, Hideki Mizunaga, Taishiro Katsu, Satoshi Nakamura, Yasuki Kono, Kyushu Univ, Japan

THURSDAY 10:30

**122. HYDRODYNAMICS XIII:
Green Water & Wave Runup (V. 3)**

Thursday June 30 10:30 Athena

Chair: Hua Liu, Shanghai Jiao Tong Univ, China,

A Study on Simplified Loading Models for Vertical Wave-in-deck Loading

Jule Scharnke, Wim Lafeber, MARIN, Netherlands

An Experimental Study of Runup of Several Successive Solitary Waves of Same Wave Height on Slope

Yiyi Rong, Wei Wu, Hua Liu., Shanghai Jiao Tong Univ, China

A Study on the Wave Run Up Dynamics in Jogehama Beach, Niigata Prefecture Japan

Naoyuki Inukai, Nagaoka Univ of Technology; Yoshifumi Ejiri, Penta-Ocean Construction; Takeshi Ootake, Ecoh Corp; Hiroshi Yamamoto, Nagaoka Univ of Technology, Japan

An Experimental Analysis of the Impact of Green Water on Offshore Platforms with Green Water Protectors of Various Shapes

DongHyun Lee, MyungJun Jeon, Van Minh Nguyen, Hyeon Kyu Yoon, Changwon National Univ, Korea

**123. TSUNAMI IV:
Tsunami Force & Impact (V. 3)**

Thursday June 30 10:30 Salon A

Chair: Koji Kawasaki, Hydro-soft Technology Inst Co., Japan

Collapse Mechanism of Composite Breakwater under Continuous Tsunami Overflow and its Countermeasure

Kazuhiro Tsurugasaki, Junji Miyamoto, Ramrav Hem, Toyo Construction; Hitoshi Nakase, Tetsuya Iwamoto, Tokyo Electric Power, Japan

Large-scale Experiments of Tsunami Impact Forces on Bridges: The Role of Fluid-Structure Interaction and Air-Venting

D Istrati, I Buckle, Univ of Nevada, Reno; P Lomonaco, S Yim, Oregon State Univ; A Itani, Univ of Nevada, Reno, USA

Estimation of Tsunami Wave Load Acting on Storage Tank

Susumu Araki, Wataru Kunimatsu, Shinji Nishisyama, Tomohiro Furuse, Shin-ichi Aoki, Osaka Univ; Yasuo Kotake, Toyo Construction, Japan

Evaluation Method of Tsunami Wave Force Utilizing Depth-Integrated Flow Simulation under Installation of Land Structure

Tsuyoshi Arimitsu, Kansai Electric Power; Koji Kawasaki, Hydro-soft Technology Institute, Japan

Simulation of Heavy Metal Transport Induced by a Giant Tsunami Based on Nankai-Trough Earthquake: Application to Osaka Bay

Satoshi Nakada, Soto Suzuki, Mitsuru Hayashi; Kobe Univ; Shunichi Koshimura, Tohoku Univ; Ei-ichi Kobayashi, Kobe Univ, Japan

Morphological Changes and Tsunami Deposits Studies around Northern Part of Sumatra Island, Indonesia

Musa Al'ala, Syamsidik, Teuku Mudi Hafi, Mirza Fahmi, TDMRC Syiah Kuala Univ, Indonesia

Tsunami Wave Impacts on Coastal Morphological Changes and One-Decade Process of Coastal Line Recovery after the 2004 Indian Ocean Tsunami around Banda Aceh, Indonesia

Syamsidik, Mirza Fahmi, Musa Al'ala, Tursina Syiah Kuala Univ, Indonesia

**124. RENEWABLE ENERGY XIII:
Wave Energy 2 (V. 1)**

Thursday June 30 10:30 Salon B

Chair: S Nagata, Saga Univ, Japan

Numerical Study of Reciprocating Liquid Metal MHD Generator for Wave Energy Conversion System

Yanjiao Liu, Aiwu Peng, Lingzhi Zhao, Institute of Electrical Engineering, CAS, China

Prototype Overtopping Breakwater for Wave Energy Conversion at Port of Naples

Pasquale Contestabile, Vincenzo Ferrante, Enrico Di Lauro, Diego Vicinanza, Second Univ of Naples, Italy

Hybrid Structure Combining a Wave Energy Converter and a Floating Breakwater

Luca Martinelli, Piero Ruol, Chiara Favaretto, Univ of Padova, Italy

Study on Wave Reflection Coefficient and Wave Runup Height on a Slope

Tomoya Inami, Hiromichi Tanaka, Tetsuo Sakurada, Tokai Univ, Japan

Effect of PTO on the Dynamics of a WEC-type Floating Breakwater

Xuanlie Zhao, Dezhi Ning, Haigui Kang, Dalian Univ of Technology, China; Malin Götteman, Uppsala Univ, Sweden

Researches and Developments of Wave Overtopping Type Wave Power Generation

Hiromichi Tanaka, Tokai Univ; Masato Minami, Hachinohe College; Tomoya Inami, Tetsuo Sakurada, Tokai Univ, Japan

Effect of Wave Spectra on Power Predictions for an OPT PowerBuoy

James G Bretl, Kathleen A Edwards, John M Montgomery, Kourosh Parsa, Mike Mekhiche, Ocean Power Technologies, USA

Submerged TLP-type Mooring System Analysis for a Heaving Buoy Wave Energy Converter

Hongda Shi, Huiyuan Tian, Xun Meng, Ocean Univ of China, China; Xiangyu Wang, Curtin Univ, Australia

**125. ADVANCED SHIP TECH VI:
Design, Analysis & Construction 2 (V. 4)**

Thursday June 30 10:30 Nafsika A

Chair: H Polezhayeva, Consultant UK

Co-chair: Jung Kwan Seo, Pusan National Univ, Korea

Simulation-based Performance Analysis for Naval Ships at the Initial Design Stage

Dong-Hoon Jeong, Myung-Il Roh, Seung-Ho Ham, Seoul National Univ; Woo-Young Choi, Chan-Young Lee, Kyung-Min Seo, Dong-Chul Lee, Daewoo Shipbuilding & Marine Engineering, Korea

Design and Model Test of Safety Monitoring System for Marine Structures

Haoyun Tang, Huilong Ren, Lianhui Jia, Harbin Engineering Univ, China

Reliability-based Design Optimization of Ship Structure Using Sequential Optimization and Reliability Assessment

Xinming Hu, Deyu Wang, Shanghai Jiao Tong Univ, China

Ship Berthing Dynamic System Based on Single-chip Microcomputer

Yuxuan Shi, Yanming Xu, Chunming Zou, Junchao Zhao, Jianyu Wang, Wuhan Univ of Technology, China

Parametric Study for Deciding Optimum Dimension of Super Large LNG Storage Tank

Kangwon Lee, Jun Hwi Kim, Seul Kee Lee, KOGAS, Korea

Dynamic Risk and Reliability Assessment of Ship Machinery and Equipment

Konstantinos Dikis, Iraklis Lazakis, Univ of Strathclyde, UK

**126. HPM VIII:
Advance in Welding Technologies 1 (V. 4)**

Thursday June 30 10:30 Nafsika B

Chair: E Tsuru, Nippon Steel & Sumikin Technology, Japan

Parameter Optimization for Automatic Girth Welding Using Friction Process in Duplex Pipeline

Daniela R Pissanti, Diego R Alba, Filipe C Kroeff, Tiago Falcade, Fabiano Mattei, Douglas Martinazzi, Telmo R Strohaecker, LAMEF - UFRGS, Brazil

Mechanical Properties and Microstructure of Welding Joint for High Strength-toughness Line Pipe

Jiming Zhang, Qiang Chi, Lingkang Ji, Chunyong Huo, Hongyuan Chen, Hui Feng, Haitao Wang, Peng Wang, Meijuan Hu, CNPC Tubular Goods Research Inst., China

A Study on Control of Welding Distortion at Cofferdam in LNG Carriers

Bong-Gook Kang, Sang-Beom Shin, Hyundai Heavy Industries, Korea

A DFMA-Based Approach for the Design of Challenging Welds [Oral presentation]

Hamed Tasalloti Kashani, Paul Kah, Lappeenranta Univ. of Technology, Finland

**127. COASTAL XIII:
Dredging & Environment (V. 3)**

Thursday June 30 10:30 Nefeli B

Chair: C. R. Bostater, Florida Inst of Tech, USA

High-Resolution Numerical Model for Predicting the Transport and Dispersal of Oil Spill in Result of Accidental Deepwater Blowout in the Black Sea

Konstantin A Korotenko, P.P. Shirshov Inst. of Oceanology, RAS, Russia

GIS Mapping of Fluid Mud Transport Pre-, During-, and Post-Dredging Agitation by using Engineered Novel Instrumentation

Tyler A Rotkiske, Charles R Bostater, Jr., Florida Institute of Technology, USA

Estimating and Studying the Reaction Forces and Torque on Cutter Head in Rock Dredging with Cutter Suction Dredger

Yiping Ouyang, Qi Yang, Long Yu, Shanghai Jiao Tong Univ, China

Fluid Mud Sondes & Acoustic Imaging Methods for Coastal Dredging

Charles R Bostater, Jr., Tyler Rotkiske, Florida Institute of Technology, USA

Suspended Sediment Environment Characteristics in Haizhou Bay Sea Area, China

Shu-hua Zuo, Hua-liang Xie, Yun-xin Huang, Tianjin Res. Inst of Water Transp Eng., China

The Application of Multibeam Bathymetry System in Process Control and Quality Detection of Channel Dredging Operations [Proceedings only]

Minghao Chun, Xiaodi Yang, Wenran Cao, Xiaoqiao Luo, CNPC Research Institute of Eng. Tech., China

**Original Session 128 changed to
Session 138 I 14:00 and 138 II, 16:20**

**128. RENEWABLE ENERGY XVI:
Offshore Wind Energy Panel**

Thursday June 30 10:30 Nefeli A

Chair: F Vorpahl, Senvion GmbH, Germany

Co-chair: I Langen, Univ of Stavanger, Norway

Co-chair: Michael Muskulus, NTNU, Norway

Dynamics and Design of Floating Wind Turbines

Mareike Strach-Sonsalla, Fraunhofer IWES, Germany; Michael Muskulus, NTNU, Norway

Long-term Research Challenges in Wind Energy – A Research Agenda by the European Academy of Wind Energy

Tor Anders Nygaard, Institute for Energy Technology (IFE), Norway

Committee Discussions

**129. GEOTECH VI:
Geohazards (V. 2)**

Thursday June 30 10:30 Executive A

Chair: Yunwook Choo, Kongju National University, Korea

Effect of the Different Fines Content Definition on Liquefaction Resistance

Chih-Sheng Ku, I-Shou Univ; Der-Her Lee, National Cheng Kung Univ; Ming-Syuan Bai, Yi-Ching Shih, Chia-Chin Hsu, I-Shou Univ, Taiwan, China

Influence of Effective Stress of Soil on Scour at Landward Toe of Coastal Dykes under Tsunami Overflow

Yutaka Sawada, Naoki Takegawa, Kazuki Murai, Toshinori Kawabata, Kobe Univ, Japan

Toyoura Sand Movement Caused by Tube Penetration during Sampling

Takaharu Shogaki, Daishi Okuda, National Defense Academy, Japan

Study of Retaining Wall's Seismic Earth Pressure and Its Distribution [Proceedings only]

Wenran Cao, CNPC Research Institute of Eng. Tech.; Xuan Chen, China IPPR International Eng., China

Application of Modified Newmark Method Considering Seismic Acceleration Amplification for Highway Embankment [Proceedings only]

Tadakazu Miyoshi, West-Nippon Expressway Eng. Kansai; Ken-ichi Tokida, Toyoko Yoshikawa, Osaka Univ., Japan

The Development of the Formulate of Local Scour around Pipelines [Proceedings only]

Fei Wu, Xu Jia, CNOOC Research Institute; Lin Zhao, Fu Jian, Ocean Univ of China, China

**130. OCEAN TECHNOLOGY X:
FPSO, FLNG, FSRU, TLP 4 (V. 1)**

Thursday June 30 10:30 Delphi

Chair: A. Antonini, University of Bologna, Italy

Validation of CFD Simulation for Heat Flow Analysis of an FPSO Topside Model

Songhua Liu, Younghoon Kim, Huibin Yan, Yong Bai, Zhejiang Univ, China

Risk Assessment on FPSO Lightering Operation and Study on the Operation Standards

Xiaoxia Luo, Jingxian Liu, Wuhan Univ of Technology, China

Challenges and Solutions for Dry Dock Life Extension to a Semisubmersible FPS

Yiyong Liu, Jiayou Mao, Jianjun Yang, CNOOC, China

Technical Consideration for Pipe Unit Support of FPSO in the Harsh Environmental Conditions

Jeong-Wook Seo, Ki-Jeong Yoon, Yong-Woon Kim, Kyung-Seok Lee, Daewoo Shipbuilding & Marine Eng, Korea

A Numerical and Experimental Study of a Simplified FPSO in Extreme Free Surface Waves

Zheng Zheng Hu, Tri Mai, Deborah Greaves, Alison Raby, Plymouth Univ, UK

A Study of Spar-FPSO VIM Phenomenon and Its Influence to Mooring System [Proceedings only]

Wei Gao, Weiquan Zhu, Lu Dong, COTEC Offshore Eng. Solutions; Xiaoliang Qi, DMAR Offshore Engineering, China

**131. UNDERSEA V:
Design & Development 2 (V. 2)**

Thursday June 30 10:30 Executive C

Chair: Guohua Xu, Huazhong Univ of Sci & Tech, China
Co-chair: M Nakamura, Kyushu Univ, Japan

Hydrodynamic Relationship between Thrust and Velocity Component around Ducted Propeller in an Underwater Vehicle
Jiaming Wu, Jiangwei Li, Yusheng Lin, Yufeng Lai, Ying Xu, South China Univ of Technology, China

A Novel Terminal Sliding Mode Control for the Navigation of an Under-actuated UUV

Gang Liu, Guohua Xu, Ying Chen, Huazhong Univ of Sci. & Tech.; Wei Zhang, Wuhan Second Ship Design & Research Inst.; Guanxue Wang, Fengyuan Li, Huazhong Univ of Sci. & Tech., China

Design and Experiment of an Abdominal Operation ROV

Guanxue Wang, Guohua Xu, Huazhong Univ of Sci. & Tech.; Xiong Shen, Wuhan Second Ship Design & Research Inst; Han Xu, Chang Liu, Wenjin Wang, Huazhong Univ of Sci. & Tech., China

A Hybrid Heading Control Scheme for a Biomimetic Underwater Vehicle

Rui Wang, Shuo Wang, Yu Wang, Institute of Automation, CAS, China

Structure and Mechanical Properties of the Dense Connective Tissue in Dolphin Tail Flukes [Proceedings only]
Qilong Sun, Cong Ma, Nantong Univ, China

THURSDAY 13:00

STUDENT FORUM
Refreshment served

Tips for Technical Paper Writing

Speaker: Prof. Jin S. Chung, Editor

Adv. Reservation required at isope-5@isope.org by **May 20**

Thursday June 30 13:00 Executive C

Student Advisor: L F. Boswell, City University, London, UK

**132. HYDRODYNAMICS XIV:
Nonlinear Waves I: Freak Waves (V. 3)**

Thursday June 30 14:00 Athena

Chair: Shiqiang Yan, City Univ London, UK

Non-Linear Evolution of Large Waves in Deep Water – The Influence of Directional Spreading and Spectral Bandwidth
Thomas A A Adcock, Paul H Taylor, Univ of Oxford, UK

Numerical Simulation of Wind Effects on the Evolution of Freak Waves [Proceedings only]
Qingping Zou, Haifei Chen, Univ of Maine, USA

Revisiting Rogue Wave Events in Europe [Oral Presentation]

Joseph D Brennan, Frederic Dias, University College Dublin, Ireland; Francesco Fedele, Georgia Inst of Technology, USA; Sonida Ponce de Lesn Alvarez, University College Dublin, Ireland

ADCP Measurements of Extreme Water Waves Off the West Coast of Ireland [Oral presentation]

Jason Flanagan, UCD, Ireland; Eugene Terray, Woods Hole Oceanographic Institution, USA; Mithra Djahanbani, UCD, Ireland;

Brandon Stron, Teledyne RD Instruments, USA; John Dudley, Univ de Franche-Comte, France; Frederic Dias, University College Dublin, Ireland

Shapes and Statistics of the Rogue Waves Generated by Chaotic Ocean Current

Cihan Bayindir, Isik Univ, Turkey

Towards Long Random Sea Simulations in Numerical Wave Tanks

Eleni S Zve, Johannes Spinneken, Imperial College London, UK

Evolution of the Rogue Waves under the Influence of the Wave-current Interference

Wenyue Lu, Jianmin Yang, Xin Li, Shanghai Jiao Tong Univ, China

**133. TSUNAMI V:
Risk Analysis & Monitoring (V. 3)**

Thursday June 30 14:00 Salon A

Chair: Kazuhiko Honda, National Inst. for Land & Infrastructure Mgmt., Japan

Statistical Emulation of Landslide and Tsunami Hazard in the NE Atlantic Ocean [Oral Presentation]

Dimitra M Salmanidou, Guillas Serge, Aggeliki Georgiopoulou, Frederic Dias, University College Dublin, Ireland

Influence of Eddies on Vessel Evacuation from Tsunami

Mitsuru Hayashi, Satoshi Nakada, Taketo Abe, Ei-ichi Kobayashi, Kobe Univ, Japan

Algorithms for Tsunami Detection by High Frequency Radar: Development and Case Studies for Tsunami Impact in British Columbia, Canada

Stéphan T Grilli, Michael Shelby, Annette R Grilli, Univ of Rhode Island, USA; Charles-Antoine Guérin, Univ of Toulon; Samuel Grosdidier, Diginext Ltd., France; Tania Insua, Ocean Networks Canada, Canada

**134. RENEWABLE ENERGY XIV:
Wave Energy 3 (V. 1)**

Thursday June 30 14:00 Salon B

Chair: Seok Won Hong, KRISO, Korea

Co-chair: Hiromichi Tanaka, Tokai Univ, Japan

A Cost-effective Method for Modelling Wave-OWSC Interaction
Yanji Wei, Thomas Abadie, Frederic Dias, University College Dublin, Ireland

Influence of Local Conditions on the Oscillating Wave Surge Converter

Sergey Demidovich Chizhiumov, Iraida Vitalievna Kamenskikh, Komsomol'sk-na-Amur State Technical Univ., Russia

Numerical Simulation of Wave Slamming on a Flap Type Oscillating Wave Energy Device

P J Martinez Ferrer, D M Causon, L Qian, C G Mingham, Z H Ma, Manchester Metropolitan Univ, UK

Numerical Analysis of a Water Column and Structure Heave Velocity Relationship for a Floating Oscillating Water Column Wave Energy Device

York Stanham, Timothy J McCarthy, Brad Stappenbelt, Univ of Wollongong, Australia

Designing Short Term Wave Traces to Assess Wave Power Devices
Pál Schmitt, Queen's University Belfast, UK; Lukas Danisch, TU Hamburg-Harburg, Germany; Paul Lamont-Kane, Björn Elsässer, Queen's University Belfast, UK

**135. ADVANCED SHIP TECH VII:
Structural Analysis I (V. 4)**

Thursday June 30 14:00 Nafsika A

Chair: Adrian Kahl, DNV GL, Germany

Simulation of a Buried Pipeline Crossing Strike-slip Fault Based on Vector Form Intrinsic Finite Element (VFIFE) Method with Fiber Element Model

Junqing Liu, Leige Xu, Mian Lin, Institute of Mechanics, CAS, China

Fracture Mechanics Based Spectral Fatigue Life Prediction of Ship Structural Details

Daniel Cudeiro-Blanco, Univ of Southampton; Vaibhav Parsoya, Jimmy Tong, Lloyd's Register, UK

A Study of Ultimate Strength for Container Ship Bottom Structures under Bi-axial Loads Considering Corrosion Effects

Jinju Cui, Deyu Wang, Ning Ma, Shanghai Jiao Tong Univ, China

Experimental and Numerical Analysis of Absorber Materials for Steel Decks

Tatiana Pais, Dario Boote, Univ of Genoa, Italy; Patrick Kaeding, Univ of Rostock, Germany

**136. HPM IX:
Advance in Welding Technologies 2 (V. 4)**

Thursday June 30 14:00 Nafsika B

Chair: Kazukuni Hase, JFE Steel, Japan

The Influence of Mechanical Constraint on the Welding Deformation of a Large-scale Ship Bottom Grillage

Gongrong Li, Shanghai Jiao Tong Univ; Zhen Chen, Yu Luo, CISSE, China

Risk Management System and Execution in Welding for Offshore and Coastal Constructions

Xiaochen Yang, Emmanuel Afrane Gyasi, Paul Kah, Jukka Martikainen, Lappeenranta Univ. of Technology, Finland

Study of Welding Deformation and Residual Stress of a Stiffened Structure under Different Procedures

Zhen Chen, Min Guo, Qi Yu, Yu Luo, Shanghai Jiao Tong Univ, China

A Numerical Case Study on Repair Welding of Clad Pipes with Focus on Post Weld Heat Treatment and its Influence on Hydrogen Diffusion

Dag Lindholm, Institute for Energy Technology, Norway

Development of Optimum Specimen for Determination of Diffusible Hydrogen Content in Weld Metal [Oral presentation]

Oleg V Panchenko, Victor A Karkhin, Alexey M Levchenko, Sergey Y Ivanov, St. Petersburg State Polytechnic Univ., Russia

**137. COASTAL XIV:
Beach & Estuary (V. 3)**

Thursday June 30 14:00 Nefeli B

Chair: L Martinelli, Univ of Padova, Italy

Improving the Efficiency in the Identification of Coastal Evolution Profiles

Elder V Goriounov, Mikhail M Lavrentiev, Alexey A Romanenko, Novosibirsk State Univ, Russia; Renato Spigler, Roma Tre Univ, Italy

**Analysis on the Process and Factors which Influence Erosion
Recession in the Soft Sea Cliff on Haitan Island in over the Past
50 Years**

Lianqiang Shi, Xiaoming Xia, Second Institute of Oceanography;
Xiaoling Tong, Zhejiang Univ; Yuan Li, Second Institute of
Oceanography, China

**Quantitative Study on Beach-Face Slope Based on Field and
Laboratory Experiments**

Zhengdong Yang, Zai-jin You, Ludong Univ, China

Original Session 138 changed to Session 128

138. RFCS project SBD-SPipe Workshop I (new)

Thursday June 30 14:00 Nefeli A

Chair: Giuliano Malatesta, CSM, Italy

Co-chair: S. Karamanos, Univ of Thessaly, Greece

Introduction by E Mecozzi, CSM, Italy

Bending Response of Spiral Welded Tubes [Tentative title, Invited]

A.M. Gresnigt, Delft Univ of Technology, Netherland

**Flaw Acceptability in Girth Welds Connecting Spiral-welded
Pipes: Experimental and Numerical Analysis**

S. Hertelé, W. De Waele, Koen Van Minnebruggen, Ghent University,
Belgium

**Bending Deformation Behavior of Spiral-welded Pipes for Onshore
Applications**

E. Mecozzi, F. Iob, G. Malatesta, CSM, Italy

**Structural Stability of Spiral Pipes for Onshore and Offshore
Applications**

O. Hilgert, SZMF, Germany

Session 138 continue at 16:20

**139. GEOTECH VII:
Soil Characterization (V. 2)**

Thursday June 30 14:00 Executive A

Chair: V Silvestri, Ecole Polytechnique de Montreal, Canada

**Comparison of Undrained Shear Strength Obtained from Field
Vane Shear Test and Direct Shear Test for Marine Clays in Japan**

Hiroshi Hirabayashi, TOA Corporation; Masanori Tanaka, Port and
Airport Research Inst; Ryuzo Tomita, Koa Kaihatsu Co, Japan

**Research on Elastoplastic Constitutive Relation for Saturated
Soft Clay Under Cyclic Loading**

Zhao-huan Yang, Jian-hua Wang, Tianjin Univ, China

**Assessment of the Side Thrust Induced by a Grouser for Off-road
Tracked Vehicle**

Sung-Ha Baek, Gyu-Beom Shin, Hye-Min Jeong, Choong-Ki Chung,
Seoul National Univ, Korea

**Design Method of Drain Pipe and Its Application for Full-scale
Road Embankment [Proceedings only]**

Shunki Kitaguchi, Ken-ichi Tokida, Osaka Univ; Tadakazu Miyoshi,
West-Nippon Expressway Engineering Kansai, Japan

**Development of Compaction Grouting Method with Improved
Upheaval Control**

Kanji Takenouchi, Sanshin Corporation; Hiroyuki Yamazaki, Shinji
Sassa, Port and Airport Research Inst; Takashi Shinsaka, Sanshin
Corp; Takeshi Konishi, Masaki Adachi, Mirai Construction; Yuichi
Kanno, Keita Takada, Fukken Co; Tsuyoshi Okami, Hiroshi Okada,
Toko Geotech; Tadashi Takahashi, Aton Civil Eng&Tech; Kouki Zen,
Kyushu Univ, Japan

**140. OCEAN TECHNOLOGY XI:
Offshore Systems (V. 1)**

Thursday June 30 14:00 Delphi

Chair: Goangseup Zi, Korea University, Korea
Co-Chair Chuan Cao, CNPC, China

Analysis of Jack-up Transportation in Overland Construction
Hongtao Yuan, Yuhan Wang, Changning Feng, Chao Wang, Yan Yin,
Lei Cheng, Shanghai Waigaoqiao Shipbuilding, China

**An Experimental Study on the Subsea Structure Installation
Using the Active Heave Compensator**
Young-Myung Choi, Bo Woo Nam, Sa Young Hong, Korea Research
Inst. of Ships & Ocean Eng.; Jong Wook Kim, Hyundai Heavy
Industries, Korea

**Minimization of Uncertainty During Technology Qualification
Process: Fuzzy Logic Based Approach**
S M Samindi, M K Samarakoon, R M Chandima Ratnayake, Univ of
Stavanger, Norway

**141. UNDERSEA VI:
Motion Control (V. 2)**

Thursday June 30 14:00 Executive C

Chair: M Nakamura, Kyushu Univ, Japan

Pod Propulsion Small Surface USV Heading Control Research
Dandan Yan, Changshi Xiao, Yuanqiao Wen, Wuhan Univ of
Technology, China

**Spatial Maneuvering Analysis of Underwater Vehicles Using
CFD**
Chenran Huang, Xide Cheng, Zuyuan Liu, Yan Su, Wuhan Univ of
Technology, China

**Model Experiments on Depth and Motion Control of Deep Tow
System**
Masahiko Nakamura, Kotaro Nakamura, Joshiro Noda, Koji
Matsuoka, Kyushu Univ, Japan

**Experimental Analysis of the Vibration Transfer Function in
Time Domain of an Underwater Vehicle**
Arom Hwang, Koje College; Youngmo Kong, Daewoo Shipbuilding
Marine Eng, Korea

THURSDAY 16:20

**142. HYDRODYNAMICS XV:
Nonlinear Waves 2: Freak Waves (V. 3)**

Thursday June 30 16:20 Athena

Chair: Frederic Dias, University College Dublin, Ireland

**Unstructured Spectral Element Model for Dispersive and
Nonlinear Wave Propagation**
Allan P Engsig-Karup, Technical Univ of Denmark, Denmark; Claes
Eskilsson, Chalmers Univ of Technology, Sweden; Daniele Bigoni,
Massachusetts Inst of Technology, USA

**Numerical Study of Air Entrainment and Bubble Plume
Dynamics under Breaking Waves**
Lian Tang, Onyx W H Wai, Hong Kong Polytechnic Univ, Hong
Kong China

**Crest Height Distribution from Model Tests Compared to Second
Order Simulations and Full-Scale Measurements**

Gunnar Lian, Statoil ASA; Sverre K Haver, Univ of Stavanger; Carl Trygve Stansberg, MARINTEK; Ove Tobias Gudmestad, Univ of Stavanger, Norway

A Study on the Prerequisites and Methods of Creating Repeatable Signals for Wave-Maker

Xiaoliang Li, Jiangsu Univ of Science & Tech.; Shuiying Zhuang, Suzhou Water Conservancy Design and Research, China

A Stream Function Theory Based Calculation of Wave Kinematics for Very Steep Waves Using a Novel Non-linear Stretching Technique

Ionut- Emanuel Stroescu, Lasse Sørensen, Peter Frigaard, Aalborg Univ; Morten Fejerskov, Universal Foundation, Denmark

**143. TSUNAMI VI:
Committee Panel**

Thursday June 30 16:20 Salon A

Chair: Kazuhiko Honda, National Inst. for Land & Infrastructure Mgmt., Japan

Committee Discussions

**144. RENEWABLE ENERGY XV:
Tidal & Current Energy (V. 1)**

Thursday June 30 16:20 Salon B

Chair: Thomas Adcock, Univ of Oxford, UK

A Machine Learning Approach to the Prediction of Tidal Currents

Dripta Sarkar, Michael Osborne, Thomas Adcock, Univ of Oxford, UK

Development of an Optimal Approach from Hydrofoil to Blade for a Horizontal Axis Marine Current Turbine

Long Yu, Hang Li, Yanping He, Qi Yang, Shanghai Jiao Tong Univ, China

Numerical Simulation of Cavitation on a Horizontal Axis Tidal Turbine

Behrad Gharraee, Claes Eskilsson, Rickard Bensow, Chalmers Univ of Technology, Sweden; Guilherme Vaz, MARIN, Netherlands

Analytical Modelling of a Novel Tidal Turbine

Shane C Heavey, Patrick J McGarry, Sean B Leen, National Univ. of Ireland, Galway, Ireland

Validation of an Actuator Line Method for Tidal Turbine Rotors

Aidan Wimshurst, Richard Willden, Univ of Oxford, UK

Design and Hydrodynamic Characteristics of the Gate-type Tidal Current Energy Converter

Yong Ma, Bingqiang Li, Yan Xu, Yue Dong, Harbin Engineering Univ, China

A Hydrogen Storage System for Efficient Ocean Energy Harvesting by Hydrokinetic Turbines

Georgios Tsakyridis, German Aerospace Agency, Germany; Nikolaos I Xiros, Univ of New Orleans; Cornel Sultan, Virginia Tech, USA; Marco Scharringhausen, German Aerospace Agency, Germany; James H VanZwieten Jr., Florida Atlantic Univ, USA

**145. ADVANCED SHIP TECH VIII:
Structural Analysis 2 (V. 4)**

Thursday June 30 16:20 Nafsika A

Chair: Yongwon Lee, Lloyd's Register, UK

Research on Ultimate Strength of SWATH under Combined Loads

Zhiyong Pei, Jianqiang Chen, Chong Cui, Zhihui Zhu, Ping Yang, Ling Zhu, Wuhan Univ of Technology, China

Latest Research and Rule Development Activities on Fatigue Strength and Thick Plates and Higher Tensile Steels

Hubertus von Selle, Adrian Kahl, DNV GL, Germany; Gaute Storhaug, DNV GL, Norway; Viktor Wolf, DNV GL, Germany

Fatigue Strength Assessment of the River-Sea Bulk Carrier Based on Spectral Analysis Method

Y H Xie, J P Zhang, W Wang, G Q Li, B Y Geng, Zhejiang Ocean Univ, China

Numerical Analysis of Stress and Strain for Ship Decks with Wide Hatches [Proceedings Only]

Valery V Novikov, Oleg A Goretyi, Oleg E Surov, Maxim V Kitaev, Yana R Domashevskaya, Far Eastern Federal Univ (FEFU), Russia

The Influence of Superstructure on the Longitudinal Ultimate Strength of a RO-RO Ship [Proceedings only]

Muhammad Zubair Muis Alie, Ganding Sitepu, Juswan, Wahyuddin, Andi Mursid Nugraha, Alamsyah, Hasanuddin Univ, Indonesia

**146. HPM X:
Composite & Nano Materials (V. 4)**

Thursday June 30 16:20 Nafsika B

Chair: HyunWoo Jin, ExxonMobil Research & Engineering, USA

An Experimental and Numerical Study of CFRP Pressure Housings for Deep Sea Environment Research

Astrinos Z Papadakis, Tsouvalis G Nicholas, National Technical Univ. of Athens, Greece

The Influence of Carbon Dioxide on the Durability of Offshore Concrete Structures

Sergey N Leonovich, Eugeny E Shalyi, Nadezhda A Falaleeva, Lev V Kim, Far Eastern Federal Univ (FEFU), Russia

Mathematical Modeling of Glass-metal Composite Shells Manufacturing

Anna A Bocharova, Far Eastern Federal Univ; Vladimir K Goncharuk, Institute of Chemistry, FEB RAS; Alexandr A Ratnikov, Far Eastern Federal Univ, Russia

Nanostructured TiO₂(Anatase) Doped with Hf⁴⁺ Ions as Safety Anode Material for Li-ion Battery

Sergey L Sinebryukhov, Denis P Opra, Sergey V Gnedenkov, Alexander A Sokolov, Elena I Voit, Yurii V Sushkov, Veniamin V Zhelezov, Institute of Chemistry, FEB RAS, Russia

**147. COASTAL XV:
Committee Panel**

Thursday June 30 16:20 Nefeli B

Chair: E Loukogeorgaki, Aristotle Univ of Thessaloniki, Greece

Committee Discussions

138. RFCS project SBD-SPipe Workshop II

(Continue from Workshop I)

Thursday June 30 16:20 Nefeli A

Chair: A. Fonzo, CSM, Italy

Co-chair: S. Karamanos, University of Thessaly, Greece

Numerical Modeling of Cold-Spiral Bending Manufacturing Process and its Effect on the Buckling Response of Spiral Welded Pipes

G. Sarvanis, S. A. Karamanos, G. Chatzopoulou, Univ of Thessaly, Greece

Experimental and Numerical Study on the Evolution of Mechanical Properties during Spiral Pipe Forming

P. Thibaux, S. Cooreman, D. Van Hoecke, M. Liebeherr and M. Yamaguti Enderlin, OCAS-Belgium

Final Outcomes and Critical Analysis of the Design Guidelines and Their Applicability to Spiral Welded Pipes

E. Mecozzi, CSM, Italy; S. Karamanos, Univ of Thessaly, Greece

Discussions

Closure

**148. GEOTECH VIII:
Soil Improvement & Seepage (V. 2)**

Thursday June 30 16:20 Executive A

Chair: Choong-Ki Chung, Seoul National University, Korea

Investigation of Contribution of High Modulus Columns on Liquefaction Mitigation Based on Effective Stress Approach by 3D Finite Difference Method [Proceedings only]

Ugur Can Erginag, Izmir Univ of Economics; Arif Sengun Kayalar, Izmir Gediz Univ, Turkey

A Study of Soil Improvement Using Electro-Osmotic Microbial Injection [Proceedings only]

Shao-Chi Chien, Hsuan Chuang Univ; Chang-Yu Ou, National Taiwan Univ of Science & Tech; Pio-Go Hsieh, Hwa Hsia Univ of Tech, Taiwan, China

**149. OCEAN TECHNOLOGY XII:
Committee Panel (V. 1)**

Thursday June 30 16:20 Delphi

Chair: Alan Wang, COOEC, China

Co-chair: Hong Gun Sung, KRISO, Korea

Committee Discussions

**150. UNDERSEA VII:
Committee Panel**

Thursday June 30 16:20 Executive C

Chair: S Yamaguchi, Kyushu Univ, Japan

Committee Discussions

FRIDAY 08:00 – 17:00

**152. RENEWABLE ENERGY XVII:
IEA Wind OC5 Workshop**

Friday July 1 08:00 VIP Lounge

Chair: Fabian Vorpahl, SEVION, Germany
Co-chair: Amy Robertson, NREL, USA

**153. RENEWABLE ENERGY XVIII:
IEA Wind OC5 Workshop**

Friday July 1 10:30 VIP Lounge

Chair: Fabian Vorpahl, SEVION, Germany
Co-chair: Amy Robertson, NREL, USA

**154. RENEWABLE ENERGY XIX:
IEA Wind OC5 Workshop**

Friday July 1 14:00 VIP Lounge

Chair: Fabian Vorpahl, SEVION, Germany
Co-chair: Amy Robertson, NREL, USA

**155. RENEWABLE ENERGY XX:
IEA Wind OC5 Workshop**

Friday July 1 16:20 VIP Lounge

Chair: Fabian Vorpahl, SEVION, Germany
Co-chair: Amy Robertson, NREL, USA

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