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The Twenty-ninth (2019) International
**Ocean and Polar
Engineering Conference**
(Offshore and Polar Engineering Conference)

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- 1st Additive Manufacturing
- 2nd Environment Assisted Cracking
- 4th Underwater Technology
- 8th Tsunami & Safety
- 9th Asset Integrity
- 10th Arctic Science & Technology
- 10th Cryogenic/Arctic Materials
- 10th Renewable Energy & Environment
- 11th Sloshing Dynamics & Design
- LNG Membrane, Processing, Bunkering
- 15th Deep Ocean Mining & Gas Hydrates
- 17th High-Performance Materials

ISOPE-2019

Honolulu, Hawaii, USA, June 16-21

(As of March 15, 2019)

Technical Program

Refereed papers from 50+ countries in 151 technical general
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TECHNICAL PROGRAM

ISOPE-2019 Honolulu, Hawaii, USA
The Twenty-ninth (2019) International
Ocean and Polar Engineering Conference
Honolulu, Hawaii, USA, June 16–21, 2019



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-2019 Technical Program Committee (TPC) received in writing before **March 15**, 2019 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 978-1-880653-87-6; ISSN 1098-85-2) will be available as a set of 4 volumes (4,700 pp. est.) from ISOPE during and after the Conference. Proceedings papers are **indexed** by Engineering Index and Compendex, Google Scholars, Scopus, Web of Science and others.

SUNDAY, June 16 Conference Reception

17:00

Great Lawn, Outside Ground

MONDAY 08:30

1. Opening General Session:

OCEAN AND ARCTIC TECHNOLOGY: Challenges (V. 1)
Monday June 17 08:30 Coral 3, 6Fl

Chair: Jin S Chung, Conference Chair, ISOPE, USA

Co-Chair: Xiaojian Jin, Offshore Oil Engineering Co., CNOOC, China

Driving Changes in Challenging Times [Oral Presentation]
Andrew R LaFountain, ExxonMobil Research and Engineering Co., USA

Enabling Technology Adoption in the Oil & Gas Industry' from a Services Company Perspective [Oral presentation]
Geeta Thakorlal, INTECSEA, USA

2. HYDRODYNAMICS I: Wave Mechanics 1 (V. 3)
Monday June 17 10:30 Room 1

Chair: Qingwei Ma, City, University of London, UK

A Continuum Poroelastic Model for Gravity Waves on an Ice-Covered Ocean
Hua Chen, Robert P. Gilbert, Philippe Guyenne, Univ of Delaware, USA

Experimental Model of Wave Reflection and Transmission by Double Floating Plate

Filippo Nelli, Univ of Melbourne; Alberto Alberello, Luke Bennetts, Univ of Adelaide; Alessandro Toffoli, Univ of Melbourne, Australia

A HAM-based Analytic Approach for the Steady-State Resonant Acoustic-gravity Waves

Xiaoyan Yang, Shijun Liao, Shanghai Jiao Tong Univ, China

Study on the Propagation Characteristics of Ship Waves in Restricted Waters

Weina Du, Lilan Zhou, Jiangtao Qin, Wuhan Univ of Technology, China

Ocean Currents Trigger Rogue Waves

Alessandro Toffoli, Univ of Melbourne, Australia; Guillaume Ducrozet, Ecole Centrale de Nantes, France; Takuji Waseda, Univ of Tokyo, Japan; Miguel Onorato, Univ of Turin, Italy; Maryam Abdolahpour, Univ of Western Australia; Filippo Nelli, Univ of Melbourne, Australia

Spatial and Temporal Impulse Response Function of Propagating Wave

Munehiko Minoura, Naoki Hayatsu, Osaka Univ, Japan

Evaluation of free Surface Sensitised Turbulence Models for Wave Propagation

Vuko Vukcevic, Inno Gatin, Univ of Zagreb, Croatia; Hrvoje Jasak, Wikki Ltd, UK

3. DIGITAL, AI, Learning I (V. 1)

Monday June 17 10:30 Room 2

Chair: Sungho Lee, The Glosten, Inc., WA, USA

Machine Learning for Motion Prediction during Dry Transportation

Yan Zu, Francois-Xavier Sireta, DNV GL Singapore; Xu Lu, Hao Sun, COSCO Shipping Co., Ltd, China

A Machine Learning Based Framework for Model Approximation Followed by Design Optimization for Expensive Numerical Simulation-based Optimization Problems

Endashaw Tesfaye Woldemariam, Hirpa G. Lemu, Univ of Stavanger, Norway

Model Reduction through Machine Learning Tools Using Simulation Data with High Variance

Kevin Koosup Yum, SINTEF Ocean, Norway; Bhushan Taskar, Technical Univ of Denmark, Denmark; Eilif Pedersen, NTNU, Norway

A LSTM Deep Learning Model for Deterministic Ship Motions Estimation Using Wave-Excitation Inputs

Limin Huang, Shiliang Duan, Qingwei Ma, Limin Huang, Yucheng Liu, Wenyang Duan, Harbin Engineering Univ, China

4. RENEWABLE ENERGY I: Wave Energy 1 (V. 1)

Monday June 17 10:30 Room 3

Chair: Eric Friis-Madsen, Wave Dragon, Denmark

Experimental Study on a 3D Offshore-stationary Dual-chamber OWC Wave Energy Converter

Yu Zhou, Dezhi Ning, Rongquan Wang, Dalian Univ of Technology, China

Power Hardware-in-the-Loop Real Time Modelling Using Hydrodynamic Model of a Wave Energy Converter with Linear Generator

Tatiana Potapenko, Uppsala Univ, Sweden

Constrained Optimization of Parameters for LMMHD Wave Energy Conversion Device

Huabing Liu, Aiwu Peng, Lingzhi Zhao, Inst of Electrical Engineering, CAS, China

Fluid-Structure Interaction for Flapping Flexible Plate with Two Plates in a Line

Chaoran Yang, Xing Zheng, Harbin Engineering Univ, China; Qing-Wei Ma, City, Univ of London, UK; Zi-Ying Yu, Harbin Engineering Univ, China

Optimization of a Hinge-Type Wave Energy Converter

Wei Meng, Meng Chen, Heather Peng, Wei Qiu, Memorial Univ of Newfoundland, Canada

A Comparative Study of a Heaving Buoy Wave Energy Converter on the Performance of Fixed Bottom and Floating Breakwaters

Constantine Michailides, Cyprus Univ of Technology, Cyprus

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

Monday **June 17** **10:30** Room 4

Chair: Frank Lim, 2H Offshore, UK

Application of Dynamic Mode Decomposition (DMD) Analysis on the Flow Field around Free-surface Piercing Circular Cylinders with Low Aspect Ratio

Keigo Sakata, Univ of Tokyo, Japan; Murilo M Cicolin, Univ of Sao Paulo, Brazil; Rodolfo Conçalves, Gustavo RS Assi, Univ of Sao Paulo, Brazil; Hideyuki Suzuki, Univ of Tokyo, Japan

Numerical Simulation of Three Typical Vortex Dominant Flow Problems

Mengna Xu, Tingqiu Li, Zuyuan Liu, Jiangyan Shao, Wuhan Univ of Technology, China; William Geraint Price, Pandeli Temarel, Dominic Hudson, Univ of Southampton, UK

Characteristics of the Horseshoe Vortex at a Cylindrical Pile under a Current and Combined Waves and Current

Wen-Gang Qi, Kai Xu, Jun Liu, Fuping Gao, Inst of Mechanics, CAS, China

Coupling Viscous Vorticity Equation (VISVE) Method with OpenFOAM to Predict Turbulent Flow around 2-D Hydrofoils and Cylinders at High Reynolds Numbers

Hao Yao, Spyros A Kinnas, Univ of Texas at Austin, USA

Experimental Study on Flow Around Circular Cylinders with Different Free-end Corner Shapes

Rodolfo T Gonçalves, Univ of Tokyo, Japan; Raiza OP Silva, Univ of São Paulo, Brazil; Keigo Sakata, Univ of Tokyo, Japan; Dennis Gambarine, Technomare Engenharia Oceanica, Brazil;

Shinichiro Hirabayashi, Unive of Tokyo, Japan; Gustavo RS Assi, Univ of São Paulo, Brazil

Characterization of Combined Forced Motion In-line and Cross-flow Cylinder Wake Using Spatial Smooth Decomposition

Ersegun D Gedikli, E aktosun, J M Dahl, D Chelidze, NTNU, Norway

6. HPM I: Advanced Materials (V. 4)
Monday June 17 10:30 Room 5

Chair: HyunWoo Jin, ExxonMobil Research & Engineering, NJ, USA

Functional Nano Structuring Technology for Commercial Approaches [Oral Presentation]

Jae-Hong Park, Korea National NanoFab Center; Hae Su Yum, Ji-Hye Kim, NanoIn Inc; Jang Wook Choi, Sunhwa Lee, AJIN Industrial; Jae Hong Park, Korea National NanoFab Center, Korea

Bolt Tightening Qualification Procedure (BTQP) for Preloaded Bolted Connections Made of Stainless Steel

Dominik Jungbluth, Natalie Stranghöner, Nariman Afzali, Christoph Abraham, Univ of Duisburg-Essen, Germany

Correlation between Microstructure and Mechanical Properties of Steels for Offshore Platforms

Sangyong Shin, Hyunwook Lee, Gunhee Lee, Junggu Lee, Yongjai Kwon, Univ of Ulsan; Jongchul Kim, Sungkyu Cho, Hyundai Steel, Korea

TS 630-MPa Heavy Plate for Offshore Structures with Excellent HAZ Toughness at Low Preheat Conditions

Jongchul Kim, Sanghyup Lee, Kijung Park, Sungkyu Cho, Kyutae Kim, Hyundai Steel; Sangyong Shin, Univ of Ulsan, Korea

Inexpensive Hot-embossed Superhydrophobic Surface

Haonan Xu, China Ship Development & Design Center, China

EBSD Characterization of the Microstructure Evolution in (σ , χ)-containing SDSS Subjected to Long Term Heating

Ida Westermann, Mona Haukali, NTNU; Morten Karlsen, Quinor ASA; Jarle Hjelen, NTNU, Norway

Effects of Elevated Temperature on Mechanical Properties of the High Strength Al-Zn-Mg-Cu Alloy [Oral presentation]

Hyokyung Sung, Woojin An, Kwangho Lee, Sangshik Kim, Jehyun Lee, Gyeongsang National Univ, Korea

Composite Coatings Formed on PEO-layers Using Fluoroparaffin Materials

Sergey V Gnedenkov, Dmitry V Mashtalyar, Sergey L Sinebryukhov, Igor M Imshinetskiy, Andrey S Gnedenkov, Inst of Chemistry, FEB RAS, Russia

High-strength Nanoporous Cu Fabricated by Dealloying

Sung Soo Park, Si-Young Lee, Ulsan National Inst of Science and Technology, Korea

Role of Ca Microalloying in Improving the Mechanical Properties of Mg-Zn-based Alloy

Sung Soo Park, Beomcheol Kim, Ulsan National Inst of Science and Technology, Korea

A New Microstructure Design for High Performance Structure Metallic Materials

Kei Ameyama, Ritsumeikan Univ, Japan

Continue at Session 16

7. ENVIRONMENT I: Oil Spill, Emission (V. 1)
Monday June 17 10:30 Room 6

Chair: Charles Bostater, Florida Inst of Tech. USA

Safety Indicators of Critical Infrastructure Application to Port Oil Terminal Examination

Krzysztof Kołowrocki, Joanna Soszynska-Budny, Gdynia Maritime Univ, Poland

Effect of the Separation Channel Structure on Separation Performance of Oil-Seawater Mixed Flow Electromagnetic Separation Device

Xiaoqiang Chen, Lingzhi Zhao, Ciwen Sha, Aiwu Peng, Inst of Electrical Eng, CAS, China

A Numerical Study of the Drilling Fluid's Discharge in South China Sea

Meirong Jiang, CNOOC Research Inst, China

Near and Far Field Dynamically Coupled Simulation of Wastewater Discharged into Wave and Tidal Current Environment

Shuqiao Fang, Yongping Chen, Zhenshan Xu, Hongwei Ding, Yuhang Chen, Hohai Univ, China

Numerical Simulation of Water Exchange Ability in Xiyang Channel on the Radial Sand Ridges of South Yellow Sea [Proceedings only]

Zhipeng Zhou, Jianfeng Tao, Kehua Wang, Jun Zhang, CCCC-FHDI Engineering, China

UAV-based Detection and Spatial Analyses of Tidal Creek
Weiqi Dai, Huan Li, Xiaoyan Zhang, Zhiyuan Li, Hohai Univ, China

Experimental Study of Tandem Buoyant Jets in Wave and Current Coexisting Environment

Ebenezer Otoo, Yongping Chen, Zhenshan Xu, Hohai Univ, China

Analysis of Abnormal Wave Dynamics in Irregular Sea State

Huidong Zhang, Yongmou Zhang, Xujie Wang, Hongda Shi, Ocean Univ of China, China

8. OCEAN TECHNOLOGY I: Installation 1 (V. 1)
Monday June 17 10:30 Room 7

Chair: Hong-Gun Sung, Korea Research Inst of Ships & Oean Eng (KRISO), Korea

Co-Chair: Pasquale G F Filianoti, Univ Mediterranea of Reggio Calabria; Italy

Virtual Simulations for Dynamic Positioning Floater Installation

Alan M Wang, China Offshore Oil Eng. Co. (COOEC), China

Fatigue Analysis of Seafastening Structure Considering Coupled Behavior of DTV and Topside and Study on Average Sea-state Method for Fast Estimation of Fatigue Damage

Hyun-Sung Kim, Byoung Wan Kim, Kangsu Lee, Song Gun Sung, Korea Research Inst of Ships & Ocean Eng, Korea

An Experimental Study on the Float-over Installation of a Semi-submersible

NamWoo Kim, B W Nam, Y J Kwon, L B Park, S K Cho, H G Sung, Korea Research Inst of Ships & Ocean Eng, Korea

Design of Elastomeric Pad in LMU for Semi-submersible Float-over Installation

Hyun-Seok Kim, Kangsu Lee, Byoungjae Park, Hong-Gun Sung, Korea Research Inst of Ships & Ocean Eng, Korea

Study on the Mooring Simulator for Floating Multibody System

Namkug Ku, Jeahwa Kim, Dong-Eui Univ, Korea

Comparative Study of Dynamic Analysis and Model Test for Installation of Flare Tower considering Ocean Environments

Jun-Hyeok Bae, Ju-Hwan Cha, Sol Ha, Mokpo National Univ; Bo-Woo Nam, Hong-Gun Sung, Korea Research Inst of Ships & Ocean Eng, Korea

Numerical Simulation and Experimental Verification of Rock-breaking Mechanism of Angled Water Jet

Xiaoao Liu, Deyong Zou, Long Pan, China Univ of Petroleum (Huadong); Fangxiang Wang, CNPC Bohai Drilling Eng, China

Cost Effective Subsea Rock Removal Tool for Deepwater Applications

Ingvar Bjelland, Scanmudring AS, Norway

9. ADVANCED SHIP TECH I: EEDI, Added Resistance (V.⁴)

Monday June 17 10:30 Room 8

Chair: S H Van, Korea Research Inst of Ships & Ocean Eng, Korea

Numerical Study of Added Resistance of a Container Carrier in Oblique Seas

Seungyeon Han, Jinho Yang, Geonhong Kim, Sanghun Park, Hyundai Heavy Industries, Korea

Comparative Study on Added Resistance of a Container ship in Waves

Dong-Min Park, Jae-Hoon Lee, Jaehoon Lee, Beom-Soo Kim, Byung-Soo Kim, Kyung-Kyu Yang, Yonghwan Kim, Seoul National Univ; Young-Gill Lee, Samsung Heavy Industry; Jin-Ho Yang, Hyundai Heavy Industries; Kang-Hyun Song, Korean Register of Shipping; Seung-Gyu Jeong, Lloyd's Register Asia; Hyung-Min Do, ABS Global Eng, Korea; Frederik Gerhardt, SSPA Sweden AB, Sweden

Investigation of Wave Added Resistance for Minimum Propulsion Power of an Aframax-Class Tanker with Numerical Simulations and Model Tests

Doojin Jung, Jin-Woo Choi, Young-Bum Lee, Cheul-Hyun Kim, Seihwan Kim, Daewoo Shipbuilding & Marine Eng; Jae-Kyung Heo, DNV GL, Korea

Prediction of Power Increase and Propulsive Performances in Regular Head Short Waves of KVLCC2 Using CFD

Cheol-Min Lee, Jin-Hyeok Seo, Jin-Won Yu, Jung-Eun Choi, Inwon Lee, Pusan National Univ, Korea

Construction and Baseline Fitting of EEDI-LCA Ship Energy Efficiency Model

Shuqiao Wan, Wei Cai, Menglei Mei, Wuhan Univ of Technology, China

Robust Self-Steering and Energy Efficient Planning for an Autonomous Sailing Vessel

Ulysse Dhomé, Niklas Rolleberg, Jakob Kутtenkeuler, KTH, Sweden

Ship Intelligent Energy Efficiency Management System Design

Zuxian Tan, Shunhuai Chen, Hui Lin, Yuhong Zeng, Liang Luo, Wuhan Univ of Technology, China

10. GEOTECH I: Spudcan (V. 2)

Monday June 17 10:30 Room 9

Chair: Chun Fai Leung, National Univ of Singapore, Singapore

Cc-chair: Pan Hu, Univ of Western Australia; Australia

Evaluating the Penetration Resistance of Spudcan Foundations in Clay Overlying Sand

Yifa Wang, Univ of Western Australia; Mark J Cassidy, Univ of Melbourne; Britta Bienen, Univ of Western Australia, Australia

Bearing Capacity Envelopes for a Spudcan During Operation in Sand-over-Clay

Pan Hu, Univ of Western Australia; Mark Cassidy, Univ of Melbourne, Australia

Model Study for Spudcan-pile Interaction in Uniform Clay and Sand-Over-Clay

Sen Sven D Falcon, Shemelyn Sespene, Chun Fai Leung, National Univ of Singapore, Singapore

Three-legged Jack-up unit Scale Model Experiment Study of Spudcan Reinstallation Close to Footprint

Ye Yuan, Fudan Univ; Chengjiang Zhag, Lindong Fan, Menglan Duan, China Univ of Petroleum-Beijing, China

Bearing Capacity Analysis of a Strip Footing on Sand Overlying Soft Clay Using Adaptive Discontinuity Layout Optimisation

Mason Crumpton, S W Sloan, Univ of Newcastle, Australia

A Specialised V-H Failure Envelope for Spudcan during Reinstallation

Tingting Li, Sa Li, Tianjin Univ; Zhenwen Liu, Hao Xu, Haifeng Deng, CNPC Engineering Technology Research, China

Study of Spudcan Punch-Through in Multilayered Clay Via Centrifuge Tests

Sa Li, Lan Lin, Tianjin Univ, China

11. UNDERWATER I: Sensing & Navigation 1 (V. 1)
Monday June 17 10:30 Room 10

Chair: Shojiro Ishibashi, JAMSTEC, Japan

Development of Underwater 8K Super Hi-Vision Camera of ROV Mounted Type

Kiyotaka Tanaka, Shojiro Ishibashi, Kenkichi Tanioka, Hidehiko Nakajoh, Makoto Sugawara, JAMSTEC; Seiji Mitsuhashi, Daiki Furusawa, Managu Hirose, Japan Broadcasting, Japan

Multi-targets Real Time Detection from Underwater Vehicle Vision via Deep Learning CNN Methods

Fenglei Han, Haitao Zhu, Jingzheng Yao, Harbin Engineering Univ, China

Underwater Image Processing and Object Detection Based on Modified YOLO Method

Jingzheng Yao, Fenglei Han, Haitao Zhu, Harbin Engineering Univ, China

Absolute Scale Structure-from-Motion on Underwater Images with a Monocular Camera

Renxia Wu, Ocean Univ of China; Yali Duan, Shandong Academy of Sciences; Hui Fang, Ocean Univ of China, China

Underwater Computer Vision System for the UVMS: Enhancement, Detection and Localization

Yu Wang, Chong Tang, Rui Wang, Shuo Wang, Min Tan, Inst of Automation, CAS, China

System for Real-time Positioning and Monitoring of Fish in Commercial Marine Farms Based on Acoustic Telemetry and Internet of Fish (IoF)

Waseem Hassan, Martin Føre, NTNU; Henning Andre Urke, INAQ AS; Torstein Kristensen, John Birger Ulvund, Nord Univ; Jo Arve Alfredsen, NTNU, Norway

MONDAY 13:15

Plenary Presentation

Monday 13:10 Coral 1, 6F (Room 1)

Recent Development of Wave Modelling [Plenary]

Philip L-F Liu, National Univ of Singapore, Singapore

Keynote Presentation

Monday 13:10 S Pacific 1, 6F (Room 5)

Hydrogen Embrittlement: From Experiments and Modeling to Prognosis [Oral presentation]

Petros Sofronis, Zahra S Hosseini, Mohsen Dadfarnia, Masanobu Kubota, Akihide Nagao, Brian P Somerday, Robert O Ritchie, Univ of Illinois at Urbana-Champaign, USA

12. HYDRODYNAMICS II: Wave Mechanics 2 (V. 3)
Monday June 17 14:00 Room 1

Chair: Philippe Guyenne, Univ of Delaware, USA

Review of Experimental Modeling of Green Water in Laboratories

Wei-Liang Chuang, Kuang-An Chang, Richard Mercier, Texas A&M Univ, USA

The Study on the Prediction of Typhoon Induced Extreme Wave in the Offshore of Taiwan Island

Chih-Chung Wen, Hungkuang Univ; Shu-Huei Jhang, National Taiwan Ocean Univ, Taiwan, China

Numerical Investigation of Rogue Wave Occurrence in Spreading Seas with Current in Perpendicular Direction

Jinghua Wang, Qingwei Ma, Shiqiang Yan, City, Univ of London, UK

Virtual Source Method Simulation of Nonlinear Progressive Water Waves

Omar I K Al-Tameemi, David I Graham, Univ of Plymouth; Kurt Langfeld, Univ of Liverpool, UK

A Numerical Study on Freak Waves Generated from Wave Groups in Random Sea

Ruili Fu, Yuxiang Ma, Guohai Dong, Kezhao Fang, Dalian Univ of Technology, China

Numerical Investigations of the Resonant Interactions between Two Oblique Gravity Wave Trains

Jianjian Xie, Yuxiang Ma, Guohai Dong, Congfang Ai, Dalian Univ of Technology, China

The Variations of Storm Surge by the Forward Speed of Storm

Young Hyun Park, Korea Inst of Ocean Sci. & Tech. (KIOST); Daeok Youn, Chungbuk National Univ, Korea

13. DIGITAL, IT, AI, Learning II (V. 1)

Monday June 17 14:00 Room 2

Chair: Francois-Xavier Sireta, DNV GL Singapore

A Transfer Learning Strategy for Modeling Pressure Coefficient around Cylinder in Non-Uniform Flow Using Convolutional Neural Network

Shuran Ye, Yiwei Wang, Zhen Zhang, Chenguang Huang, Inst of Mechanics, CAS; , China;

A Novel Marine Digital Navigation System Based on OFDM Modulation

Xiang Wang, Jingxian Liu, Zhao Liu, Wuhan Univ of Technology, China

Ship Traffic Flow Prediction Model Based on BPNN-FNN Neural Network

Guangxu Gao, Jingxian Liu, Weihuang Wu, Yang Liu, Wuhan Univ of Technology, China

Research on the Speed Optimization Model Based on BP Neural Network and Genetic Algorithm (GA)

Hui Lin, ShunHuai Chen, Liang Luo, Ziming Wang, Yuhong Zeng, Wuhan Univ of Technology, China

Predicting Human Behavior in CO₂ Storage Process Using Artificial Intelligence Algorithm

Eric Buah, Lassi Linnanen, Huapeng Wu, Martin Kesse,
Lappeenranta Univ of Technology, Finland

**A Study on Classification and Performance Improvement of
Feature-Based**

Byeong Keun Choi, Deok Yeong Cheong, Dong Hee Park,
Byung Hyun Ahn, Jeong Phil Noh, Gyeongsang National Univ,
Korea

**A Study on the Classification of Rotary Defects Using
Difference Signal**

Seong Hun Park, Dong Hee Park, Hyeon Tak Yu, Gyeongsang
National Univ, Korea

14. RENEWABLE ENERGY II: Wave Energy 2 (V. 1)
Monday June 17 14:00 Room 3

Chair: Dezhi Ning, Dalian Univ of Technology, Dalian, China

**Parameterisation of Radiation Forces for a Multiple Degree of
Freedom Wave Energy Converter Using Moment-Matching: A
Case Study**

Nicolas Faedo, Yeraí Peña-Sánchez, John V Ringwood,
Maynooth Univ, Ireland

**A Critical Comparison Between Parametric Approximation
Methods for Radiation Forces in Wave Energy Systems**

Yeraí Peña-Sánchez, Nicolas Faedo, John V Ringwood,
Maynooth Univ, Ireland

**Numerical and Experimental Study for Nonlinear Dynamic
Behavior of an Asymmetric Wave Energy Converter**

Yoon Hyeok Bae, Haeng Sik Ko, Dongeun Kim, Il-Hyoung Cho,
Jeju National Univ, Korea

**Performance Evaluation and Optimization of a Hinged-typed
Wave Energy Converter"**

Wei Meng, Meng Chen, Heather Peng, Wei Qiu, Memorial Univ
of Newfoundland, Canada

**Performance Assessment of Pitch-type WEC Rotor Based on
Time Domain Simulations**

Yoon Hyeok Bae, Sunny Kumar Poguluri, Il-Hyoung Cho, Jeju
National Univ, Korea

15. VORTEX-INDUCED VIBRATIONS II (V. 3)
Monday June 17 14:00 Room 4

Chair: Michael S. Triantafyllou, M.I.T., MA, USA

Co-Chair: Shinichiro Hirabayashi, Univ of Tokyo, Japan

**Vibration Response for One-Fixed-One-Free Tandem
Arrangement Cylinders Using Wind Tunnel Experiment**

Zhongming Hu, Jiasong Wang, Ren Sun, Shanghai Jiao Tong
Univ; Jianliang Zhou, Liangbin Xu, Leixiang Sheng, CNOOC
Research Center, China

**Numerical Simulations of Vortex-induced Vibrations of
Flexible Risers in Tandem Arrangement**

Lei Wu, Di Deng, Decheng Wan, Gang Chen, Shanghai Jiao
Tong Univ, China

Experimental Study on Flow-induced Vibration of Floating Square Cylinders with Twisted Surfaces

Rodolfo T Gonçalves, Univ of Tokyo, Japan; Dennis Gambarine, Technomar Engenharia Oceanica, Brazil; Shinichiro Hirabayashi, Univ of Tokyo, Japan; Gustavo Assi, Univ of Sao Paulo, Brazil; Hideyuki Suzuki, Univ of Tokyo, Japan

Calculation of Hydrodynamic Force Acting on the Forced Oscillating Plate by Vortex Method

Yutaka Okamoto, Hitachi Zosen; Shuichi Nagata, Yasutaka Imai, Saga Univ; Hideyuki Niizato, Hitachi Zosen, Japan

Experiment and Numerical Simulation of Vortex Induced Vibration on Buoyancy Module Area of Steel Lazy Wave Riser

Mitsushi Watanabe, Kazuhiro Yukawa, Shunji Kato, National Maritime Research Inst; Kaito Chibana, Japan Marine United, Japan

Effect of the Curved Shape on the Vortex-induced Vibration of a Riser

J.H.Jung, S.H.Oh, B.W.Nam, D.H.Jung, B.W.Park, Y.J.Kwon, Korea Reseach Inst of Ships & Ocean Eng, Korea

16. HPM II: Low-Temperature, Cryogenic Materials (V. 4)
Monday June 17 14:00 Room 5

Chair: Odd M. Akselsen, SINTEF, Norway

Co-Chair: Abe Nezamian, Aurecon Group, Australia

Fracture Characteristics of Cryogenic Steel Weld Joints

Gyubaek An, Jeongung Park, Chosun Univ; Jiwook Han, POSCO, Korea

High Ductility Steels for Arctic Applications: Experimental and Numerical Results

Bilim Atli-Veltin, Martijn Hoogeland, TNO, Netherlands

Characterization of Weld Consumables for Arctic Service

Tom McGaughy, EWI, USA

Weldability Evaluation of a New High Strength 9% Ni Steel for Cryogenic Applications

Wenkao Hou, George J Fraley, ArcelorMittal Global R&D; Ronald Gollihue, Special Metals Corp; Fred B Fletcher, Murali Manohar, ArcelorMittal Global R&D, USA

How to Estimate Performances of Cryogenic Spillage Protection Materials?

Sebastien Viale, TechnipFMC, France

Effects of Phosphorus for Cryogenic-Temperature Charpy Impact Toughness of 9% Nickel Steel

Ki Jung Park, Hyundai Steel, Korea

The Evaluation of High Mn Steel for Slurry Pipe

S C Lee, I W Han, D H Lee, S G Lee, J K Choi, POSCO, Korea; H W Jin, N Ma, ExxonMobil Research & Engineering; A. Wasson, V Neerav, ExxonMobil Upstream Research; D Fairchild, ExxonMobil Production, USA

Welding of High Manganese Austenitic Steel to the LNG Storage Tank

Il Wook Han, Bong-guen Lee, Jong-gyo Choi, POSCO, Korea

Deformation Behavior of Hydrogen-charged Bi-crystal Micropillars of High Manganese Steel [Oral presentation]
Daehwan Kim, Chong Soo Lee, Pohang Univ of Science and Engineering, Pohang, Korea

Continue at Session 26

17. ENVIRONMENT II: EcoSystem, Water Quality (V. 1)
Monday June 17 14:00 Room 6

Chair: Francesco Lalli, ISPRA, Italy

Remotely Sensed Water Reflectance Measurements Based on Unmanned Aerial Vehicle (UAV)

Xiaoyan Zhang, Huan Li, Weiqi Dai, Zhiyuan Oi, Zhuocui Lu, Hohai Univ, China

Water and Bathing Quality Mapping of Barcelona's Coast

Aysun N Koroglu, IHE Delft, Netherlands; Dursun Seker, Ozan Ozturk, Batuhan Sariturk, Istanbul Technical Univ, Turkey

Verification and Improvement of Water Quality in Kumamoto (Japan) Using Lactic Acid Bacteria

Zahura Chowdhury, Kazumi Terada, Hideki Kinoshita, Tokai Univ, Japan

Experimental Study of Tandem Buoyant Jets in Wave and Current Coexisting Environment

Ebenzer Otoo, Yongping Chen, Zhenshan Xu, Hohai Univ, China

Interaction Between Dual Jets in the Marine Environment

Yuling Zhang, Zhenshan Xu, Yongping Chen, Hohai Univ, China

Modelling of Accidental Water Pollution Incidents at Chengtong Reach of Yangtze River

Hongwei Ding, Zhenshan Xu, Yongping Chen, Hohai Univ, China

Diesel Particulate Filter for Exhaust Gas from Marine Diesel Engines and Optimization of Its Regeneration System

Weiwei Tang, Junhong Wen, Aiguo Chen, Yang Liu, Guangzhou Maritime College, China

Integrated Ocean Resources Utilization Contributing to Climate Change Mitigation: A Case Study in East China Sea

Fengjun Duan, Canon Inst for Global Studies, Japan

18. OCEAN TECHNOLOGY II: Installation 2 (V. 1)
Monday June 17 14:00 Room 7

Chair: Alan M Wang, China Offshore Oil Eng. Co, China

Response Forecasts for a Suspended Wellbay Module and Flare Tower during Transit to Shore

Hoi-Sang Chan, Evren Armaoglu, Matthew Thomson, Alistair Garner Saipem Ltd., UK; Andrea Parisotto, Stefano Sovilla, Saipem, Italy

Stability Analysis of Crane Platform During Lifting Operation

Shi-lun Feng, Tianjin Univ, China

The Study on Finite Element Strength Analysis for FPSO Accommodation Lifting

Yan Wen, Gang Chen, Yuhua Wang, Danlei Zhao, Zhaohua Lian, Zhenhua Sun, Shanghai Waigaoqiao Shipbuilding, China

Experimental Analysis of Mating Operations with a Double-Barge Float-Over System

Daniele Dessi, Edoardo Faiella, CNR-INM, Italy

Study on the Synchronous Tandem Slewing Operation of a SSCV

Lixin Xu, Jinguang Wang, Indra Datta, Joe Zhou, Kai Huang, China Merchants Offshore Technology Research Center, China; Qi Hu, OOS International B.V., Netherlands

Motion Responses Study of Undocking Operation during Float-over Installation with a T-Shaped Barge in Shallow Water

Licheng Qin, Wentai Yu, Offshore Oil Engineering, China

Analysis and Study of Weather Window for Marine Operations in South China Sea

Botao Xie, CNOOC Research Inst, China

19. ADVANCED SHIP TECH II: Resistance (V. 4)

Monday **June 17** **14:00** Room 8

Chair: S H Van, Korea Research Inst of Ships & Ocean Eng, Korea
Co-Chair: Michele Martelli, Univ of Genoa, Genoa, Italy

Experimental Investigation of the Motion of a Fully Skirted Air Cushion Vehicle in Waves

Xueqian Zhou, Ning Liu, Fengxuan Zhuo, Chenfeng Li, Huilong Ren, Harbin Engineering Univ, China

Research on the Resistance Characteristics of a Side Wing Ship in Straight Forward Motion

Lixun Hou, Dalian Maritime Univ; Shengren Wei, Dalian Shipbuilding Industry Eng & Res Inst; Ankang Hu, Xin Zhang, Dalian Maritime Univ, China

Experimental Research on Shallow Water Resistance of a Patrol Craft

Hao Wang, Shunhui Chen, Wuhan Univ of Technology; Yucheng Wang, China Ship Development and Design Center, China

Numerical Calculation of Planing Boat Resistance Based on Remesh Method

Qi-nan Li, Jiang-tao Qin, Li-lan Zhou, Ke-qiang Chen, Wuhan Univ of Technology, China

Study on Resistance of Multi-Function Small Surface Boat Design

Chun-Cheng Lin, Sheng-Ju Wu, Yu-chi Hsiao, CCIT, National Defense Univ, Taiwan, China

Research on Scale Effect of Ship Appendage Resistance Based on CFD

Jiangtao Qin, Le Fang, Jiangtao Qin, Lilan Zhou, Wuhan Univ of Technology, China

Verification and Validation for the Resistance of a KRISO Container Ship in Calm Water

Anzheng Yu, Decheng Wan, Gang Chen, Shanghai Jiao Tong Univ, China

Wigley Hull Form Optimization with or without Bulbous

Xinwang Liu, Decheng Wan, Gang Chen, Shanghai Jiao Tong Univ, China; Changhong Hu, Kyush Univ, Japan

20. GEOTECH II: Pile Foundation (V. 2)

Monday June 17 14:00 Room 9

Chair Yun Wook Choo, Kongju National Univ, Korea

Co-chair Y K Chow, National Univ of Singapore, Singapore

Numerical Study on the Effect of Adjacent Layer Stiffness on p-y Relationship of Sand Layer for Laterally Loaded Monopile

Dongwook Kim, Kicheol Lee, Byeong-Hyun Choi, Jongho Bak, Incheon National Univ, Korea

Evaluation of Un- and Reloading Stiffness and Damping of Monopile Foundations in Non-Cohesive Soils

Jann-Eike Saathoff, Klaus Thieken, Martin Achmus, Leibniz Univ Hannover, Germany

Ultimate Strength of Steel Pile in Liquefied Soil Subjected to Multiple Earthquakes

Moeko Matoba, Yoshihiro Kimura, Tohoku Univ, Japan

Finite Element Modelling of p-y curves for Monopiles in Liquefied Soil

Aske T Mikkelsen, COWI; Søren Dam Nielsen, Aalborg Univ; Martin U Østergaard, COWI, Denmark

Centrifuge Tests on Bearing Behavior of Guardrail Supporting Piles Subjected to Horizontal Impact and Static Loads

Yun Wook Choo, Jong Seok Yun, Min Gy Lee, Kongju National Univ, Korea

Dynamic Response of Offshore Mono-pile Foundation Subjected to Underwater Explosion

Yaguang Wang, Guanlin Ye, C.C. Liao, Jinjian Chen, Shanghai Jiao Tong Univ; L Zhen, Shanghai Road and Bridge Group, China

Numerical Analysis of Lateral Behaviour of Large-diameter Monopile in Saturated Clay

Haiyang Zhang, Run Liu, Yu Yuan, Chao Liang, Tianjin Univ, China

Wave-induced Seabed Response around Mono-pile with Nonlinear Pile-Soil Interaction

Dagui Tong, Chencong Liao, Jinjian Chen, Shanghai Jiao Tong Univ, China

21. UNDERWATER II: Sensing & Navigation 2 (V. 1)

Monday June 17 14:00 Room 10

Chair: Shuo Wang, Institute of Automation, CAS, China

Development of Underwater RFID System

Makoto Sugawara, Hiroshi Yoshida, Shojiro Ishibashi, Kiyotaka Tanaka, JAMSTEC; Susumu Sato, SAS Co, Japan

Electromagnetic Under Ice Localization and Communication
Hiroshiroshi Yoshida, Ryo Sato, JAMSTEC; Masaharu Takahashi, Chiba Univ; Nozomu Ishii, Niigata Univ; Qiang Chen, Tohoku Univ, Japan

The Magnetic Array Study of Effective Detection and Location for Submarine Pipeline
Mianjin Wang, Xiaofeng Liang, Hongdong Wang, Hong Yi, Shanghai Jiao Tong Univ, China

RLS-ANF Phase Shift Estimator of Underwater Positioning System
Xianjun Ding, Min Yu, Wuhan Univ of Technology, China

Three-Dimensional Path Planning for an Under-actuated Autonomous Underwater Vehicle
Guohua Xu, Ben Li, Huazhong Univ of Sci & Tech; Rui Zhao, China Shipbuilding Industry Corp; Guanxue Wang, Zhen Su, Zhongxiang Chen, Huazhong Univ of Sci & Tech, China

Research on AUV Space-Time Dynamic Path Planning Based on Spatial Stratification
Yunlei Zhang, Yanmin Xu, Chunming Zou, Hongbing Zou, Yuanpeng Cheng, Wuhan Univ of Technology, China

MONDAY 16:20

22. HYDRODYNAMICS III: MetOcean 1 (V. 3)

Monday June 17 16:20 Room 1

Chair: Munehiko Minoura, Osaka Univ, Japan

Extreme Sea State Measurements and Energy Dissipation
Pedro Veras Guimarães, Fabien Leckler, SHOM; Jean-François Filipot, Rui Duarte, France Energies Marines, France; Alvise Benetazzo, Filippo Bergamasco, ISMAR, Italy

Identifying Breaking Waves from Measured Time Traces
Constantin Cosmin Craciunescu, Marios Christou, Imperial College London, UK

Intercomparison of Wind and Wave Reanalysis Based on ERA5 and WAVEWATCH III Databases
Christos Stefanakos, SINTEF Ocean, Norway

Evaluation of Wave Hindcast Models Skill in the Black Sea
Alessandra Saponieri, Politecnico di Bari; Giovanni Besio, Univ of Genoa; Francesca Simonetti, Politecnico di Bari, Italy; Vlad Radulescu, GeoEcoMar, Romania; Nico Valentini, Univ de Montpellier, France; Leonardo Damiani, Politecnico di Bari; Paolo Veltri, Univ della Calabria, Italy

A Comparison of Grid Models in WAVEWATCH III for a Typical Reef Lagoon of South China Sea
Ze Sun, Xiaolong Liu, Zhiwen Cai, China Ship Scientific Research Center, China; Jianguo Li, Met Office, UK; Wenwei Chen, Jun Ding, Chao Tian, China Ship Scientific Research Center, China

Response of Wave Characteristics to Binary Typhoons in South China Sea

Zelin Cheng, Fumin Xu, Hohai Univ, China

Physical and Mechanical Characteristics of Sea Ice in the Kara and Laptev Seas

Nikolay V Kolabutin, Arctic Research Centre; Sergey M Kovalev, Victor N Kornishin, Vladimir A Borodkin, Alexandr I Shushlebin, Arctic and Antarctic Research Inst; Konstantin A Kornishin, Rosneft Oil Co; Yaroslav O Efimov, Arctic Research Centre; Dmitry A Volodin, LLC IK "SIBINTEK", Russia

23. SLOSHING I: Physics & Prediction (V. 3)

Monday June 17 16:20 Room 2

Chair: André Baeten, Augsburg Univ of Applied Sciences, Germany
Co-Chair: Yonghwan Kim, Seoul National Univ, Korea

Prediction of Sloshing Severity for Membrane LNG Cargo

Yonghwan Kim, Jieung Kim, Miaozi Zheng, Seoul National Univ; Sang-Yeob Kim, Korean Register, Korea

Data Mining for Impulse Pressures of Sloshing Model Test

Yonghwan Kim, Yangjun Ahn, Jieung Kim, Jeoungkyu Lee, Seoul National Univ, Korea

Dynamic Response of Sloshing Pressure Sensors

Sebastian Schreier, Wout Cornel, Christian Poelma, Delft Univ of Technology, Netherlands

Study on Characteristics of Dynamic Evaporation of LNG Tank Containers during Seawater Transportation

Peng Yu, Qianjin Yue, Yuanchao Yin, Dalian Univ of Technology, China

Numerical Simulation of a Flip-through During Shallow Water Sloshing Using SPH Method

Chaitanya C Kesanapalli, Heon Y Kang, Texas A&M Univ, USA

Numerical Coupling Model Based on SPH and Panel Method to Solve the Sloshing Effect on Ship Motion in Wave Condition

Chong Ma, Masayoshi Oka, National Maritime Research Inst, Japan

The Effect of Compressibility and Surface Waves on the Hydrodynamic Pressures for Flood Gates in Various Sluice Geometries

Orson C Tieleman, Apostolos Tsouvalas, Bas Hofland, Delft Univ of Technology, Netherlands

24. RENEWABLE ENERGY III: Wave Energy 3 (V. 1)

Monday June 17 16:20 Room 3

Chair: Pasquale G F Filianoti, Univ Mediterranea of Reggio Calabria; Italy

Maximise Absorbed Wave Power with Wave Energy Converter Arrays in Time Domain

Fuat Kara, Sheffield Hallam Univ, UK

Revisiting Theoretical Limits for One-Degree of Freedom Wave Energy Converters

Nathan M Tom, National Renewable Energy Laboratory, USA

Failure Analysis on Darrieus Type Cross-flow Water Turbines Under Environment Load on Sea

Yongqi Zhao, Pipe Material & Equipment Corporation of CNPC; Yu Cao, Shiming Wang, Ling Ge, Shanghai Ocean Univ; Ziyang Liu, Ship Design and Research Inst, China

Dynamic Response Investigation of Combined Concepts of Column-type Offshore Wind Turbine and Heave-type Wave Energy Converter Applied in Deep, Moderate and Shallow Water Depth

Ling Wan, Newcastle Univ; Nianxin Ren, National Univ of Singapore; Zhiyong Tay, Singapore Inst of Technology, Singapore

Environmental Effects from Wave Power – Practical Insight from Two Wave Power Sites [Oral presentation]

Anke Bender, Uppsala Univ, Sweden

Float Resonance Characteristics for Wave Energy Converter in Heave Motion

Hanbin Gu, Bingtao Yin, Wei Xie, Yongqi Qiu, Xiwu Gong, Zhaode Zhang, Zhejiang Ocean Univ, China

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

Monday June 17 16:20 Room 4

Chair: Rodolfo T. Gonçalves, Univ of Tokyo, Japan

Direct Prediction Method of Streamwise Flow-induced Vibration Based on Modal Force Balance

Haojie Ren, Yuwang Xu, Mengmeng Zhang, Shanghai Jiao Tong Univ, China; Ziqi Lu, Univ of California-Berkeley, USA; Shixiao Fu, Shanghai Jiao Tong Univ, China

A Study on Reduction of Friction Resistance in Laminar Boundary Layer

Bonguk Koo, Changwon National Univ; Yong Duck Kang, Dong-Eui Univ; Nam-Hyun An, Koje College, Korea

Experimental Study of the Gap Effects on Vortex-Induced Vibrations of Free Span Pipelines

Maria Felipe Chame, Andre Fajarra, Univ of Sao Paulo, Brazil; Rodolfo Goncalves, Univ of Tokyo, Japan

Coupled CFD Analysis of Mooring Damping Effects on Vortex-Induced Motions of a Deep Draft Semisubmersible

Han Huang, Chia-Rong Chen, Hamn-Ching Chen, Texas A&M Univ, USA

VIV and Galloping of a Circular Cylinder with Splitter Plate

Robin LG Basso, Filipe Buscariolo, Imperial College London, UK; Gustavo Assi, Univ of São Paulo, Brazil; Spencer Sherwin, Yongyun Hwang, Imperial College London, UK

Tri-Helically Grooved Buoyancy Hydrodynamics Considering Surface Roughness using 3-D CFD

Lawrence Shien Hui Lai, Trelleborg Offshore, USA

26. HPM III: Corrosion Monitoring, Mitigation (V. 4)

Monday June 17 16:20 Room 5

Chair: Eric J Wright, formerly ExxonMobil Production Co., TX, USA

Reinforcement Corrosion Monitoring of Reinforced Concrete Structures Using Piezoceramic-Based Wave Method

Shi Yan, Yuanyuan Yao, Yaoyao Chen, Xuenan Wang, Shenyang Jianzhu Univ, China

Measurement Errors of ILI-reported Lengths of Corrosion Defects and Their Implications for System Reliability of Corroded Pipelines

Wenxing Zhou, Tammeen Siraj, Univ of Western Ontario, Canada

Exposure Test Results of the Corrosion Resistant Steel for Upper Deck Plate of Crude Oil Tanker

Yusuke Miura, Shinji Sakashita, Manabu Izumi, Haruya Kawano, Kobe Steel, Japan

Lightweight Steels with Enhanced Corrosion Property [Oral Presentation]

Chang-Hoon Lee, Kyeong-Won Kim, Sung-Dae Kim, Heon-Young Ha, Jae Hoon Jang, Jooh Moon, Seong-Jun Park, Tae-Ho Lee, Korea Inst of Materials Science; Young-Joo Lee, RIST, Korea

Corrosion Protection of the Magnesium Obtained via Direct Laser Deposition for the Offshore Construction

Valentin I Sergienko, Presidium of RAS; Andrey S Gnednikov, Dmitry Mashtalyar, Vladimir S Egorkin, Inst of Chemistry FEB RAS, Russia

Lightweight Mg Alloys with Highly Improved Corrosion Resistance

Sung Soo Park, Soo-Min Baek, Ulsan National Inst of Science and Technology, Korea

Atom Probe Study of the Passive Film Formed on Austenitic Stainless Steels

Jong-Chan Han, POSTECH, Korea; Shiun Ling, Hyun-Jo Jun, ExxonMobil Research and Engineering, USA; Jae-Bok Seol, Chan-Gyung Park, POSTECH, Korea

27. COASTAL I: Wave Mechanics (V. 3)

Monday **June 17** **16:20** Room 6

Chair Yuxiang Ma, Dalian Univ of Technology, China

Waves Enter a Reef Lagoon with Double Barriers in South China Sea: In-situ Measurement and Simulation

Zhiwen Cai, Wenwei Chen, Xiaolong Liu, Ze Sun, Chao Tian, Qiuqin Yun, China Ship Scientific Research Center, China

Investigation on Wave Attenuation Due to Bottom Friction of Sea Bed Using On-Site Measurement

Xiaolong Liu, Wenwei Chen, Zhiwen Cai, Ze Sun, Chao Tian, Qiuqin Yun, China Ship Scientific Research Center, China

Numerical Study on the Characteristics of Mixed Waves in the Indian Ocean during the Southwest Monsoon Season

Xuezhi Huang, Xiaozhou Ma, Yuxiang Ma, Guohai Dong, Dalian Univ of Technology, China

The Deterministic Reconstruction of Multi-directional Irregular Waves

Li Luo, Shuxue Liu, Jinxuan Li, Haochen Zhang, Dalian Univ of Technology, China

Experimental Study of Wave Calibration for Hydraulic Experiments

Il Ro Bae, Jong In Lee, Young Il Kim, Chonnam National Univ, Korea

Infragravity-wave Dominance at Sea-Dikes fronted by Very and Extremely Shallow Foreshores

Christopher H Lashley, Jeremy D Bricker, Delft Univ of Technology; Jentsje van der Meer, IHE Delft, Netherlands; Corrado Altomare, Ghent Univ; Tomohiro Suzuki, Flanders Hydraulics Research, Belgium

Investigation on the Wave Attenuation Physical Quantities of Stepped Embankments Considering Forward and Reversed Flow Field

Ruey-Syan Shih, Tungnan Univ; Wen-Kai Weng, Chi-Yu Li, National Taiwan Ocean Univ; Chia-Ying Wu, Ying-Chi Wang, Tungnan Univ, Taiwan, China

Partial Standing Wave in Finite Depth

Meng-syue Li, National Cheng Kung Univ; Yang-Yih Chen, National Sun Yat-sen Univ; Shou-Shiun Lin, heng-Da Lee, Taiwan, China

28. OCEAN TECHNOLOGY III:

Jackup, Jacket Structure (V. 1)

Monday

June 17

16:20

Room 7

Chair: L. Boswell, City, Univ of London, UK

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

Research on Spud Leg's Driving Depth Prediction and Punch-through Potential Analysis of Jack-up Drilling Platform

Guoxian Xu, Shujie Liu, Renjun Xie, CNOOC Research Inst, China

Automated Jacket Design

Eli Kling, Bianca Ferri, Brede Bjørhovd, Frode Strand, Sigmund Mongstad Hope, Kværner AS, Norway

A Novel Structural Reliability Approach to Improving the Target Reliability of a Fixed Offshore Facility Subject to Wave in Deck Using a Holistic Structural Integrity Management Triad Approach

Partha P Dev, ROSEN Australia; Mehrdad Kimiaei, Jalal Mirzadeh, Mike Efthymiou, Univ of Western Australia, Australia; Riaz Khan, Zul Helmy Suhaimi, Lee Luong Ann, Ellis SK Wong, PETRONAS, Malaysia

Nonlinear Finite Element Analysis of Bridge Pier under Static and Dynamic Loading

Hsuan-Teh Hu, C-H Kuo, P-J Chen, K-M Wu, National Cheng Kung Univ, Taiwan, China

Study on Structural Strength of Jack-up Leg and Spudcan under Asymmetric Load Using Coupled Soil-structure Analysis

Junhwan Choi, Seoul National Univ; Kangsu Lee, KRISO;
Beom-Seon Jang, Hanbaek Ju, Seoul National Univ, Korea

A New Method Based on Simulation Experiment to Evaluate Bearing Capacity of Jack-up Piles in Shallow Gas Stratum
Yongqi Ma, Jin Yang, Guodong Yang, Shanshan Shi, Nanding Hu, Xun Liu, China Univ of Petroleum (Beijing), China

Research on the Empirical Formula of Slip Stress for the Expansive Stressed Grouted Clamp
Xiang Shi, Zhen Zhang, Wan Lin Zhu, Ocean Univ of China, Bai Chen Song, Offshore Oil Engineering, China

29. ADVANCED SHIP TECH III: Navigation 1 (V. 4)
Monday June 17 16:20 Room 8

Chair: S Yamaguchi, Kyushu Univ, Japan

A Novel Algorithm for Modeling Human Decision-making of Inbound Chemical Tanker – A Case Study of the Shanghai Waigaoqiao Phase IV Port
Jie Xue, Delft Univ of Technology, Netherlands; Chaozhong Wu, Wuhan Univ of Technology, China

Experimental Study on Association Model of Yangtze River Artificial Waterway and Ship
Yutian Tan, Lizheng Wang, Shunhuai Chen, Yan Jin, Aokui Xiong, Guo Li, Wuhan Univ of Technology, China

Experimental Study on Navigation Performance of 10000-ton Ship in Yangtze River Artificial Waterway with Inclined Bank
Guo Li, Lizheng Wang, Shunhuai Chen, Aokui Xiong, Yan Jin, Xiaosa Zhao, Yutian Tan, Wuhan Univ of Technology, China

A Calculation Method of the Navigable Width of LNG Carrier's Two-Lane Channel Based on Risk Acceptance Criteria
Fan Zhang, Yuanqiao Wen, Yubin Wang, Wuhan Univ of Technology, China

Research on Marine Traffic Accident Prediction Method Based on GA-SVR Model
Wenjie Qiao, Chengyong Liu, Feng Xiong, Wuhan Univ of Technology, China

Ship Traffic Volume Prediction Based on Optimized RBF Neural Networks in Anqing Section of Yangtze River
Mingwei Li, Yadong Yang, Wuhan Univ of Technology, China

A System Dynamics Model for Vessel Traffic Flow Evolution
Xiang Wang, Jingxian Liu, Zhao Liu, Wuhan Univ of Technology, China

Research on Ship Domain of Restricted Channel Waters Based on the Ship-Following Theory
Quandang Ma, Fucai Jiang, Qingbo Fan, Wuhan Univ of Technology, China

A Method for Establishing the Length of Moving Safety Zone around LNG Carrier Sailing in Yangtze River Downstream
Qifan Chen, Chengyong Liu, Yi Wan, Wuhan Univ of Technology, China

30. GEOTECH III: Soil Characterization 1 (V. 2)
Monday June 17 16:20 Room 9

Chair: M B C Ulker, Istanbul Technical Univ, Turkey

Interpretation of Indentation Tests on a Sensitive Clay of Eastern Canada

Vincenzo Silvestri, Claudette Tabib, École Polytechnique de Montréal, Canada

Case Study on Softening Effect of Coastal Soft Soil Foundation under Cyclic Loading

Yandi Wang, Dengfeng Fu, Shuwang Yan, Sa Li, Yuxiao Ren, Tianjin Univ, China

Correlation between Undrained Shear Strength and Tip Resistance of Miniature T-bar Penetrometer for Kaolin Clay

Shemelyn Sespeñe, Sen Sven Falcon, Jong Seok Yun, Min Jy Lee, Yun Wook Choo, Kongju National Univ, Korea; Chun Fai Leung, National Univ of Singapore, Singapore

Experimental Measurement of Thixotropy and Sensitivity in Gulf of Mexico Clay

Husham Al-Janabi, Charles Aubeny, Texas A&M Univ, USA

Bayesian Probabilistic Stratification Modeling in Varying Dimension with Shear Strength Profile for Offshore Site Characterization

Jungrak Son, Texas A&M Univ, USA

Development of Free Fall Cone Penetration Testing System

Hyoun Kang, Osoon Kwon, Changjoo Shin, Jungmin Seo, Insung Jang, Korea Inst of Ocean Sci & Tech, Korea

31. UNDERWATER III: Dynamics (V. 1)
Monday June 17 16:20 Room 10

Chair : Masahiko Nakamura, Kyushu Univ, Japan

Motion Simulations of AUV “YUMEIRUKA” with X-rudder

Masahiko Nakamura, Kyushu Univ; Tadahiro Hyakudome, JAMSTEC, Japan

Numerical Study of Flow Characteristics Around Underwater Vehicle Model at High Reynolds Number

Yuan Gao, Guoxiang Hou, Liuming Yang, Yang Yu, Huazhong Univ of Sci & Tech, China

CFD Study of the Hydrodynamic Characteristics of Blended Wing Unmanned Underwater Gliders

Guggilla Mukesh, R Vijayakumar, IIT Madras, India

Numerical Motion Analysis of ROV coupled with Tether Applying 24-DOF Absolute Nodal Co-ordinate Formulation

Thant Zin Htun, Hiroyoshi Suzuki, Asako Kuwano, Osaka Univ; Hiroto Tomobe, Mitsui E&S; Tomoya Inoue, JAMSTEC, Japan

Study on Longitudinal Stability of a Supercavitating Underwater Vehicle with Planing

Seonhong Kim, Min-Jae Kim, Yongrae Jung, Kurn Chul Lee, Agency for Defense Development, Korea

Data-driven Locomotive Strategies of the UVMS Propelled by Undulating Fins

Yu Wang, Ruichen Ma, Rui Wang, Shuo Wang, Inst of Automation, CAS, China

Analysis of the Vibration Characteristic of a Small Autonomous Underwater Vehicle Based on Transfer Function Method

Arom Hwang, Koje College; Youngmo Kong, DS Mirae-Tech, Korea

Numerical Simulation of Hull-propeller Interaction for Underwater Vehicle with Pump-jet Propulsor

Ronggang Nie, Ziru Li, Wei He, Wuhan Univ of Technology, China

TUESDAY 08:00

32. HYDRODYNAMICS IV: MetOcean 2 (V. 3)
Tuesday June 18 08:00 Room 1

Chair: Christos Stefanakos, SINTEF Ocean, Norway

Estimation of Ocean Wave Spectra from Vessel Motions in Sea Trial Using Kalman Filter

Hansung Kim, HeonYong Kang, MooHyun Kim, Texas A&M Univ, USA; Sewon Kim, DongYoung Lee, Daewoo Shipbuilding & Marine Engineering, Korea

Full-Scale Seakeeping Trials: An Integrated Analysis of Sea-State and On-board Data

Thomas Puzzer, Riccardo Pigazzini, Mitja Morgut, Simone Martini, Giorgio Contento, Univ of Trieste, Italy

Characterization of Wave Features of the Wave Tank Based on a Wave-generating Ball

Sheng-tao Chen, Qiang Qiu, Jiao-yi Hou, Da-yong Ning, Zeng-meng Zhang, Hao Tian, Ying-long Chen, Hong-wei Du, Yong-jun Gong, Dalian Maritime Univ, China

Mapping Ocean Waves Using LIDAR Technology

Thomas Kabel, Christos Gerogakis, Aarhus Univ; Allan Zeeberg, TOTAL, Denmark

Low-frequent Catastrophic Coastal Disaster Event around Tonga; Survey of Coastal Boulders Distribution in Tongatapu Island and Analysis Using Stochastic Model of Tropical Cyclone

Sota Nakajo, Osaka Univ; Junichi Ninomiya, Kanazawa Univ, Japan

UAV-based Short-term Variation Observation of Saltmarsh Wetland Before and After the Storm Tide

Huatao Yang, Huan Li, Weiqi Dai, Hohai Univ, China

A Study on the Analysis of Specific Physical Characteristics of Typhoon JEBI at Osaka Bay

Jong Hyeok Jeon, Takashi Tomita, Nagoya Univ, Japan

33. SLOSHING II: Coupled Sloshing Response 1 (V. 3)

Tuesday June 18 08:00 Room 2

Chair: Sebastian Schreier, Delft Univ of Technology, Netherlands
Co-Chair Chong Ma, National Maritime Research Institute, Japan

Two-Dimensional Study of Moonpools with Recess in Waves
Senthuran Ravinthrakumar, Trygve Kristiansen, NTNU; Babak Ommami, SINTEF, Norway

Coupling Effects of Sloshing and Barge Motion in Variable Bathymetry
Yan Su, Shikun Zhou, Zhiliang Gao, Jianxi Yao, Wuhan Univ of Technology, China

Sloshing Effect due to Hydrodynamic Interaction and Hydroelastic Response of Enclosed Large Floating Multi-Bodies
Zhi Yung Tay, Singapore Inst of Technology; Ling Wan, Newcastle Univ, Singapore

CFD Analysis for Fuel Tank Design of Large Civil Aircraft
Francesco Gambioli, Airbus in the UK, UK; Leon Malan, Univ of Cape Town, South Africa; Mark Narraway, Airbus in the UK, UK; Arnaud Malan, Univ of Cape Town, South Africa

Slosh Mitigation of LNG; New Products
Erik Eenkhoorn, Accede b.v., Netherlands

Free Vibration of Horizontally Submerged and Partially Liquid-filled Cylindrical Shells
Xiang Zhu, Yueyang Han, Tianyun Li, Yunyan Yu, Huazhong Univ of Sci & Tech, China

34. RENEWABLE ENERGY IV: Wave Energy 4 (V. 1)
Tuesday June 18 08:00 Room 3

Chair: Nathan M Tom, National Renewable Energy Lab, CO, USA

The Economics of Offshore Wave Energy – Will it Eventually Match Offshore Wind?
Erik Friis-Madsen, Hans C Sørensen, Iain Russel, Wave Dragon; Julia Fernández-Chozas, j Fernández-Chozas Consulting Engineers, Denmark

An Economical Cost Function for the Optimization of Wave Energy Converter Arrays
Marianna Giassi, Valeria Castellucci, Jens Engström, Marlin Götteman, Uppsala Univ, Sweden

Development of an Artificial Neural-Network-based Controller for the Maximization of Wave Energy Absorption
Liang Li, Yan Gao, Univ of Strathclyde, UK

Numerical Modeling Research at the Wave Energy Test Site, Honolulu, USA
Krishnakumar Rajagopalan, Patrick Cross, Gerard Nihous, Univ of Hawaii, USA

Applications of Wave Energy Converters for Autonomous Vehicles
Nicholas R Ulm, Reza Ghorbani, Univ of Hawaii, USA

Tackling the Wave Energy Paradox – Stepping towards Commercial Deployment

Andrea Caio, Thomas Davey, Univ of Edinburgh; Cameron McNatt, Mocean Energy Ltd, UK

35. SUBSEA, PIPELINES, RISERS I: Pipeline 1 (V. 2)
Tuesday June 18 08:00 Room 4

Chair: Bor-Feng Peng, J Ray McDermott, USA

Co-chair: Frank Lim, 2HOffshore, UK

Pipeline Transport Times and Sea Bottom Temperature – A Case Study

Filip Sund, Uni Research Polytec; Sigmund Mongstad Hope, NTNU, Norway

Cognitive IoT for Real Time Monitoring of Subsea Pipelines

Subrata Bhowmik, McDermott International, UK

Full Scale Bending Test and Numerical Simulation of Buckling Behavior of Spiral Pipe

Hongyuan Chen, CNPC Tubular Goods Research Inst, China

Collapse Mechanisms of Pipe-in-pipe Systems under External Pressure during Operation

Mahmoud Alrsai, Hassan Karampour, Griffith Univ; Faris Albermani, Central Queensland Univ, Australia

Next Generation Fracture Prediction Models of Pitted Pipelines for Cleaner Energy Transportation

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

Evaluation of Structural Performance of the Pipe Considering ERW Pipe Manufacturing Process through Numerical Analysis

Ho-Kyung Kim, Seong-Wook Han, Seoul National Univ; Soo-Chang Kang, POSCO, Korea; Sungmoon Jung, FSU, USA; Yeun Chul Park, Inst of Construction & Environmental Eng, Korea

Lateral Thermal Buckling Analysis of Fiber Reinforced Thermoplastic Pipe

Xiangjian Meng, Shuqing Wang, Hui Fang, Lu Yao, Ocean Univ of China, China

36. HPM IV: Advances in Welding Technology 1 (V. 4)
Tuesday June 18 08:00 Room 5

Chair: Hidekazu Murakawa, Osaka Univ, Japan

Co-Chair: Takuya Hara, Nippon Steel & Sumitomo Metal Corp., Japan

A Simplified Prediction Procedure of Temperature and Deformation Behavior for Ship hull Plate by Moving Thermal Process

Shuiming Zhang, Cungen Liu, Xuefeng Wang, Jiahua Tan, Shanghai Jiao Tong Univ, China

Study on Typical Out-of-Plane Bending Deformation of Hull Plate by High Frequency Induction Heating

Jiangchao Wang, Bin Yi, Huazhong Univ of Sci & Tech; Hong Zhou, Jiangsu Univ of Sci & Tech, China

Investigation on Welding Deformation in Fabrication of Offshore Cylindrical Leg Structure and Its Mitigation

Jiangchao Wang, Huazhong Univ of Sci & Tech; Yexing Niu, Shizhong Du, Shanghai Zhenhua Heavy Industry Marine Engineering; Bin Yi, Huazhong Univ of Sci & Tech; Hongquan Zhao, Jiangsu Univ of Sci & Tech, China

Simulation-Based Design of Girth Welds of High-Pressure Pipeline to Improve Tensile Strain Limit for Leakage from Weld Flaws

Hiroto Shoji, Tetsuya Shibatani, Osaka Univ; Satoshi Miki, Kohsuke Inagaki, Fumiaki Kimura, Nippon Steel & Sumikin Engineering; Mitsuru Ohata, Osaka Univ, Japan

Effects of Weld Flaw and Internal Pressure on Ductile Crack Growth of Girth Welded Joints in X65 Pipelines

Fumiaki Kimura, Kohsuke Inagaki, Satoshi Miki, Nippon Steel & Sumikin Engineering; Nirotto Shoji, Tetsuya Shibatani, Mitsuru Ohata, Osaka Univ, Japan

Rapid-Slow Arc – A Novel Interpretation of the Physical Principles for High Performance Penetration MIG/MAG Welding

Regis G Silva, Jair C Dutta, Kaue Riffel, Marcelo Okuyama, Federal Univ of Santa Catarina, Brazil

A Study on Deformation of Friction Stir Welded Aluminum Battery Housing Using Inherent Strain Method

Sungwook Kang, Wangho Yun, Hwanjin Kim, Jaewoong Kim, Korea Inst of Industrial Technology; Hyunsu Ryu, Changwon National Univ, Korea

Influence of the Gas Composition on Local Heat Transfer Efficiency in Oxy-Hydrogen Gas Cutting

Cesar De Jesus Pinzon Acosta, Naoki Osawa, Osaka Univ; Yuichi Ikegami, Air Water Co, Japan

An Application of Fabrication Method to Control Welding Distortion Regarding a Pressure Vessel

Jong Min Kim, Dong Ju Lee, Ha Geun Kim, Hyundai Heavy Industries; Hui Tae Lee, Hyundai Electric; Woo Seung Sim, Hyundai Heavy Industries, Korea

Continue at Session 46

37. COASTAL II Wave Modeling (V. 3)

Tuesday June 18 08:00 Room 6

Chair: Katsuya Hirayama, Port and Airport Research Inst., Japan

Numerical Simulation of Undular Bore Using a Shock-capturing Boussinesq Model

Kezhao Fang, Junkai Wu, Dalian Univ of Technology; Zhongbo Liu, Dalian Maritime Univ; Jiawen Sun, National Marine Environmental Monitoring Center, China

A New Model of Shoaling and Breaking Waves - Numerical Aspects, One and Two-Dimensional Applications

Arnaud Duran, Univ Claude Bernard Lyon 1; Gaël Richard, Univ Savoie Mont-Blanc; Maria Kazakova, Univ de Toulouse III; Benoit Fabrèges, Univ Claude Bernard Lyon 1, France

Run Up on Beaches through a Simplified Swallow Water Model

Chiara Favaretto, Luca Martinelli, Piero Ruol, Univ of Padova, Italy

Numerical Experiments of Surf-beat Distribution on a Fringing Reef Generated by Random Wave Penetration

Katsuya Hirayama, National Inst of Maritime, Port and Aviation Tech; Yasuhiro Aida, Nihon Univ, Japan

Wave Forecasting for 168 hours ahead using Group Method of Data Handling

Sooyoul Kim, Tottori Univ; Masahide Takeda, Toa Corp; Hajime Mase, Kyoto Univ; Yoshinosuke Kurahara, Chisato Hara, Yamato Nishiyama, Toa Corp; Koji Kawasaki, Hydro Technology Institute Co, Japan

Numerical Simulation of Solitary Wave-Current Interaction Using OpenFOAM

Shih-Chun Hsiao, Yen-Lung Chen, Han-Lun Wu, National Cheng Kung Univ, Taiwan, China

**38. OCEAN TECHNOLOGY IV: Floating Dynamics 1 (V. 1)
Tuesday June 18 08:00 Room 7**

Chair: Wengang Mao, Chalmers Univ of Technology, Sweden

Analysis of Seakeeping Performance of an Air-Cushion Supported Floating Platform for Offshore Wind Turbine

Li Xu, Hongbin Hao, Xing Zheng, Harbin Engineering Univ, China; Qinwei Ma, City, Univ of London, UK

Experimental and Numerical Study on the Resonance in the Narrow Gap between a Simplified Floating Hydrocarbon Storage Tanks System

Chi Zhang, Allan Ross Magee, Xiao Liu, Nianxin Ren, National Univ of Singapore, Singapore; Nuno Fonseca, SINTEF Ocean, Norway

A Holistic Examination of the Survivability of Offshore Platforms for the Gulf of Mexico Region

Maria A Rodriguez-Cruz, Adrian Colorado-Moreno, Universidad Veracruzana, Mexico; Santiago Suarez de la Fuente, University College London, UK; José Hernandez-Hernandez, Universidad Veracruzana, Mexico; Rachel Pawling, University College London, UK

A Floating Integrity Management System (F-SIMS) for a FLNG Structure

Riaz Khan, Zulkarnain B Mahani, Suman Kar, Sok Mooi Ng, PETRONAS, Malaysia

A Study for Improvement on Structural Strength Assessment of Semi-Submersible Unit

Wonhyuk Choi, Dong Kyoong Kim, Yongsun Baik, Seoungchan Moon, Daewoo Shipbuilding & Marine Eng, Korea

An Experimental Analysis on the Motion Responses of a Semi-submersible Offshore Aquaculture Platform in Waves

Hang-Fei Liu, Chun-Wei Bi, Yun-Peng Zhao, Dalian Univ of Technology; Yong Cui, Chang-Tao Guan, Yellow Sea Fisheries Research Inst, China

Numerical Analysis of Resistance and Dynamic Behavior of Gravity Cage involving Multiple Cages with the Same Internal Volume

Chun-woo Lee, Pukyong National Univ, Korea; Hirome Kinoshita, Nichimo Co, Japan; Subong Park, Kyusuk Choi, Dayun Lee, Pukyong National Univ, Korea

39. ADVANCED SHIP TECH IV: Navigation 2 (V. 4)
Tuesday June 18 08:00 Room 8

Chair: Satoru Yamaguchi, Kyushu Univ, Japan

A Novel Approach for Vessel Spatio-temporal Trajectory Reconstruction Using AIS Data

Yi Liu, Zhi Yuan, Jingxian Liu, Zongzhi Li, Le Qi, Wuhan Univ of Technology, China

Sea Trials Results on Estimating Seaway from Ship Motions

Butteur Mulumba Ntamba Ntamba, Graeme Oliver, Cape Peninsula Univ of Technology, South Africa

Application Research of Ship Maneuvering Simulator in Port and Navigation Engineering

Shuang Yu, Zhanli Jiao, Wuhan Univ of Technology, China

End-to-End Trajectory Tracking Algorithm for Unmanned Surface Vehicle Using Reinforcement Learning

Kefan Jin, Hongdong Wang, Hong Yi, Shanghai Jiao Tong Univ, China

Segment to Achieve Unmanned Ships Based on Digitized COLREGS

Xiupin Tong, Langxiong Gan, Lei Zhang, Wuhan Univ of Technology, China

Study on Ship Dynamic Cooperative under the Basis of Path Planning

Bowei Li, Yanmin Xu, Zheng Chang, Jianyu Wang, Wuhan Univ of Technology, China

Research on Real-time Navigation Optimization of Ship Based on Load Balancing Algorithm

Runqing Zhu, Lizheng Wang, Wuhan Univ of Technology, China

A Novel Adaptive Leader-Follower Formation Control Strategy for Underactuated Surface Vehicles

Te Yu, Bo Li, Lei Wang, Chang Zhou, Shanghai Jiao Tong Univ, China

40. GEOTECH IV: Soil Characterization 2 (V. 2)
Tuesday June 18 08:00 Room 9

Chair: Lien-Kwei Chien, National Taiwan Ocean Univ., TAIWAN China

Constitutive Modeling of Cyclic Seabed Behavior around Coastal and Offshore Structures: Key Aspects and Recent Developments

M B C Ülker, Istanbul Technical Univ, Turkey

Cyclic Simple Shear Response of Willamette Valley Soils

Abbas Abdollahi, AECOM, USA

Sediment Traction Flow Analysis around Elliptic Cylindrical Structures Regarding Seabed Effective Stress Response

Taichi Murakami, Kinya Miura, Tatsuya Matsuda, Toyohashi Univ of Technology, Japan

Estimation of Secondary Consolidation in One-dimensional Consolidation Analysis

Takahiro Yoshidomi, Pisith Hong, Tokai Univ; Koichi Inuma, Ohba Co; Motohiro Sugiyama, Tokai Univ, Japan

Effects of Fine Contents on the Fracture Behavior of Frozen Sands

Wan-jei Cho, Bumsik Hwang, Dankook Univ; Youngseok Kim, Korea Inst of Civil Eng & Building Tech; Seong-Yeol Park, Dankook Univ, Korea

Development of Countermeasure Against Liquefaction of Detached House with Drainage Pipe

Yoshinobu Murata, Keizo Kariya, Atsushi Yashima, Gifu Univ; Hiroshi Yokawa, Chubu Univ; Takayasu Yoshihara, Yoshihara Kakou Co, Japan

Rheological Properties of Fluid Mud under Large Amplitude Oscillatory Shear

Sihang Nie, Qin Jiang, Li Cui, Changkuan Zhang, Hohai Univ, China

41. UNDERWATER IV: Control (V. 1)

Tuesday June 18 08:00 Room 10

Chair: Guohua Xu, Huazhong Univ of Science and Technology, China

A New Recommender System for Determining Trim and Flight Parameters of Seaglidors

Enrico Anderlini, Giles Thomas, University College London; Catherine Harris, National Oceanographic Centre, UK; Mun Woo, Univ of Western Australia, Australia

Driving Control of Underwater Platform

Lulu Feng, Gang Liu, Guohua Xu, Jijia Liu, Huazhong Univ of Sci & Tech; Ji Kong, Wuhan Huahai Chuangzhi Technology, China

Control of Depth Keeping and Attitude Stability of Self-stabilizing Two-part Towed Vehicle

Shikun Pang, Jingyang Liu, Mianjin Wang, Hong Yi, Shanghai Jiao Tong Univ, China

Depth Control of ROVs Based on Disturbance Observer and Double-Loop Sliding Mode Controller

Bolun Huang, Qi Yang, Shanghai Jiao Tong Univ, China

Landing Motion Control of an Underwater Glider for Ocean Floor Resources Exploration

Satoru Yamaguchi, Kyushu Univ; Hirofumi Sumoto, Kagoshima Univ, Japan

Rudder Angle and Rudder Speed Control Based on Valve Controlled Hydraulic Actuator Loading Servo System

Guohua Xu, Zhang Xin, Wenjin Wang, Xiaolong Ma, Junhao Wu, Huazhong Univ of Sci & Tech, China

TUESDAY 10:30

42. HYDRODYNAMICS V: Storm Surge, Flooding (V. 3)
Tuesday June 18 10:30 Room 1

Chair: Decheng Wan, Shanghai Jiao Tong Univ, China
Co-Chair: Susumu Araki, Osaka Univ, Japan

Coastal Hazard: Some Numerical Computations [Oral Presentation]

A Bruschi, F Catini, M L Cassese, R Inghilesi, F Lalli, I Lisi, M Ferla, ISPRA; M Bajo, D Bellafiore, CNR-ISMAR; M Brocchini, F Memmola, M Postacchini, G Zitti, Univ Politecnica della Marche, Italy

Physics Informed Deep Learning-Based Early Warning System for Storm Surge Flooding

Teng Wu, Reda Snaiki, Univ of Buffalo, USA

Dynamic Flood Hazard Mapping and Its Management System Application

Guihui Zhong, Shuguang Liu, Zichen Hu, Sha Lou, Hong Zhang, Qi Fang, Tongji Univ, China

Probability Assessment of Flood Embankment in the Radial Sand Ridges Area of the South Yellow Sea

Jianxing Chen, Ya Tan, Ao Chu, Hohai Univ, China

Study on the Hydrodynamics of Rising Bubbles Considering Hydrate Phase Transition During the Shut-in Period in Avoiding the Typhoon

Zheng Liu, Baojiang Sun, Zhiyuan Wang, Hao Li, Shaowei Pan, China Univ of Petroleum (East China), China

Research on Retrieving Typhoon Wind Field Based on Satellite Cloud Data of Himawari-8

Zhiyuan Li, Huan Li, Hohai Univ, China

A Study of the Wind Speed Profile of Taiwan Coastal Area

Jing-Jong Jang, Po Hung Yu, National Taiwan Ocean Univ, Taiwan, China

Typhoon Trajectories Prediction Using Echo State Networks

Sangyoung Son, Yongsu Na, Korea Univ, Korea

Statistical Analysis on Tropical Cyclone Characteristics over the North Indian Ocean

Thu Hein Si, Fumin Xu, Hohai Univ, China

43. SLOSHING III: Coupled Sloshing Response 2 (V. 3)
Tuesday June 18 10:30 Room 2

Chair: Chong Ma, National Maritime Research Institute, Japan

A Numerical Study of the Effects of the Vertical Baffle on Liquid Sloshing in Two-Dimensional Tanks

Chao-Feng Shih, Yung-Wei Chen, Shih-Ping Soon, National Taiwan Ocean Univ, Taiwan, China

A Study on Effects of the Baffles in Reducing Sloshing in a Container under Earthquake Excitation

Mi-An Xue, Yichao Chen, Peng Dou, Xiaoli Yuan, Hohai Univ, China

Numerical Study on the Hydroelastic Effects of the Fluid-Structure Interaction in a Sloshing Tank with Baffles

Hao Qin, Lin Mu, Enjin Zhao, China Univ of Geosciences; Wenyong Tang, Shanghai Jiao Tong Univ, China

Structural Damping of Hybrid Structures Exposed to Sloshing

André Baeten, Augsburg Univ of Applied Sciences, Germany

A Lagrangian Finite Difference Method for Sloshing: Simulations and Comparison with Experiments

Josip Basic, Branko Blagojevic, Martina Andrun, Univ of Split; Nastia Degiuli, Univ of Zagreb, Croatia

Modifications to Improve the Unphysical Interface Motion in Resonant Sloshing Flow Using RANS Model

Ke Chen, Jinlong Li, Yunxiang You, Panpan Han, Yang Zhang, Xinshu Zhang, Shanghai Jiao Tong Univ China

Comparison between Non-hydrostatic and Hydrostatic Models in Predicting Dam-break Flow in Cascade Reservoirs

Dongfang Liang, Jingxin Zhang, Shanghai Jiao Tong Univ, China

44. RENEWABLE ENERGY V: Offshore Wind 1: Support Structure 1 (V. 1)

Tuesday June 18 10:30 Room 3

Chair: Dawid Augustyn, Ramboll; Denmark

Comparison of Different Soil and Hydrodynamic Force Models on a 13.2MW Offshore Rotor

Luca Oggiano, IFE, Norway; Fabio Pierella, DTU, Denmark

Simplified Model for Offshore Wind Turbines with Variable Cross-Section Towers

Yung-Yen Ko, National Cheng Kung Univ, Taiwan, China

Vibration Analysis of Monopiled Offshore Wind Turbines with Uncertain Modal Damping

Qianying Cao, Shuai Cong, Ocean Univ of China, China; Saulon James Hu, Univ of Rhode Island, USA; Huajun Li, Ocean Univ of China, China

Early-age Movement in Grouted Joints for Offshore Applications – Determination of the Development of Grout-stiffness

Dario Cotardo, Michael Haist, Ludger Lohaus, Leibniz Universität Hannover, Germany

Hydraulic Gradient Modeling of Long-term Cyclic Behavior of Tripod-pile Foundation for Offshore Wind Turbines

Wenjun Lu, Ga Zhang, Tsinghua Univ, China

Study on the SCFs of the Tower-Foundation Joints in the Jacket Base Offshore Wind Turbine

Wendi Qi, Yongchun Yang, Ocean Univ of China, China

A Methodology to Estimate the Risk of Ringing on Offshore Wind Turbine Gravity Based Foundations

Christophe Peyrard, EDF R&D LNHE; Matteo Capaldo, Lab d'Hydraulique Saint-Venant; Sylvain Saviot, EDF R&D LNHE; Jeffrey Harris, Ecole Nationale des Ponts et Chaussees, France

45. SUBSEA, PIPELINES, RISERS II: Pipeline 2 (V. 2)
Tuesday June 18 10:30 Room 4

Chair: Frank Lim, 2H Offshore Engineering, UK.

A Design Overview of Innovative Spool Connection Assembly
Wenwen Shen, Sean Dennis, Wood PLC; Joe Cenin, Woodside Energy, Australia

Numerical Study of Engineering Options for Protection of Offshore Pipelines
Zuodong Liang, Dong-Sheng Jeng, Griffith Univ, Australia

Optimising the Johan Castberg Trawl Interference Design Using Close Lay of Rigid Flowlines and Structural Reliability Analysis
Odd Martin Lyngsaunet, Per R Nystrom, Besmir Kajolli, IKM Ocean Design; Geir Endal, Erik Levold, Equinor; Halvor Stokholm, IKM Ocean Design, Norway

Advanced Pipeline Crossing Analysis
Abdul Rahman El-Chayeb, Don Xiaodong Wang, Faris Ragheb Kamal, Oussama Takieddine, National Petroleum and Construction Co, United Arab Emirates

Comparison of Pipeline Plough Performance Prediction Methods against Real Case Studies
Michael J Brown, Univ of Dundee; Paul Brunning, Marine Geotechnics, UK

Design Optimization of Subsea Rigid Jumpers Under Multiple Variables and Loading Cases
David Du, Shawn Tan, Subsea 7, USA

Influence of Ship Towing Anchor on Submarine Pipeline
Zhiqiang Yu, Lei Zhang, Jianguang Yue, Yuanzhou Zheng, Wuhan Univ of Technology, China

A Brief Function for Estimating the Influence of Soil Resistance Variation on Pipeline Walking Caused by Thermal Transient
Zhaohui Hong, Yue Yan, Dongfeng Fu, Shuwang Yan, Tianjin Univ, China

Seepage Force on a Pipeline Buried in a Poroelastic Seabed Induced by a Solitary Wave
Meng-Yu Lin, Chung Yuan Christian Univ, Taiwan, China

Critical Free Spans in the Exclusion Zone of Offshore Installations, Risk and Correction
Ljiljana Oosterkamp, Equinor ASA / Univ of Stavanger, Norway; Andrea Baldoni, Alberto Batistini, Saipem, Italy

Continue at Session 55

46. HPM V: Advances in Welding Technology 2 (V. 4)
Tuesday June 18 10:30 Room 5

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

A Study on Welding Distortion Mitigation by Gas Heating Using a Linearized Inherent Strain Method

Hector O Ruiz, Naoki Osawa, Sherif Rashed, Osaka Univ, Japan

Effect of Post Quenching-tempering on Mechanical Properties of Hybrid Welded Boron Steel [Oral presentation]

Ho Won Lee, Korea Inst of Materials Science; DongKyu Kim, Ulsan Univ; Youngseok Oh, Seong-hoon Kang, Korea Inst of Materials Science, Korea

HF-ERW Pipe Suitable for Reel-Lay Installation

Kensuke Nagai, Tatsuo Yokoi, Kenzo Tashima, Takuya Hara, Shun-ichi Kobayashi, Hideto Kawano, Osamu Yoshida, Taro Muraki, Nippon Steel & Sumitomo Metal, Japan

Assessment of NDE Methods for Dissimilar Metal Welds

Tom McGaughy, Roger Spencer, EWI, USA

Utilizing DFMA Aspects to Increase Productivity for Different Variants of TIG Welding Process

Martin Kesse, Lappeenranta Univ of Technology; Muiywa Olabode, Mecafer Oy; Eskelinen Harri, Paul Kah, Lappeenranta Univ of Technology, Finland

Technical Review on the Welding Technology and Properties of High Manganese Steels

Keiji Ueda, Atsushi Takada, Satoshi Igi, JFE Steel, Japan

Influence of Alloying Elements in Low Transformation Temperature Filler Metals on Microstructure and Mechanical Properties

Gitae Park, Seonghoon Jeong, Hanyang Univ; Heewoong Kang, Husteel RD Team; Changhee Lee, Hanyang Univ, Korea

Investigation of Mechanical and Microstructural Properties of Friction Stir Spot Welding of Dissimilar Ultra-high Strength Steels [Oral presentation]

Sung-Tae Hong, Mounarik Mondal, Hrishikes Das, Young Jin Yum, Univ of Ulsan; Kwang Jin Lee, Korea Inst of Industrial Technology, Korea

Progressive Collapse Analysis of Stiffened Panel Structure with Consideration of Actual Welding Distortion and Residual Stresses

Hui Huang, Oak Ridge National Laboratory, USA; Hidekazu Murakawa, Ninshu Ma, Osaka Univ, Japan

47. COASTAL III: Tide & Estuary (V. 3)

Tuesday **June 18** **10:30** Room 6

Chair: Ray-Yeng Yang, National Cheng Kung Univ, TAIWAN China

Exploratory Morphodynamic Modeling of the Evolution of a Multi-outlets Estuarine-bay System: Case Study of the Lingding Bay, Pearl River Delta

Min Su, Peng Yao, Zhan Hu, Sun Yat-Sen Univ, China

Tidal Dynamics Response to Intensive Land Reclamation in the Lingding Bay of the Pearl River Estuary Over the Last Century

Nanyang Chu, Peng Yao, Qingshu Yang, Sun Yat-Sen Univ,
China

**EOF Analysis Exploring Factors Contributing to Temporal
and Spatial Variations in the Tidal Level of the Yangtze River
Estuary**

Yuan Shi, JianFeng Tao, Zheng Gong, Ya Tan, Hohai Univ,
China

**Application of Modified Nonstationary Tidal Harmonic
Analysis Approach to Data Recovery of Missing Water Level
Measurements of Yangtze Estuary**

Gan Min, Yongping Chen, Hohai Univ, China; Shunqi Pan,
Cardiff Univ, UK; Ying Liu, Shicheng Liu, Hohai Univ, China

**Seasonal Flood Discharge Influences on the Water and
Sediment Movement at the Guan River Estuary and the
Channels**

Lin Zhao, Yi Xu, Ocean Univ of China, China

**Analytical Tide Inducing Net Sediment Transport in Coastal
and Estuarine Environment**

Ao Chu, Yi Xu, Yongping Chen, Jiaai Tai, Hohai Univ, China

48. OCEAN TECHNOLOGY V: Floating Dynamics 2 (V. 1)
Tuesday June 18 10:30 Room 7

Chair: Xiaochuan Yu, Univ of New Orleans, LA, USA

Operation Capability of an Ultra-Deep Water Drillship

Xu Yang, Hongbo Dou, Guolong Chen, Chunsheng Wang,
CNOOC Research Inst, China

**Design and Assessment Approach of Flexible Connectors for a
Double-module Semi-submersible Platform near Island and
Reef**

Minggang Tang, Zhengwei Zhang, Zepeng Guo, Jun Ding,
Enrong Qi, Xuekang Gu, China Ship Scientific Research Center,
China

**A Single Level Topside Design of Middle-sized FPSO for Cost
Saving and Risk Avoidance**

Beom-Seon Jang, Seoul National Univ; Seung-Kyun Park, Mirae
Engineering; In-Chul Jung, Korean Register; In-Sung Song,
Mirae Engineering; Dae-Eun Ko, Dong-Eui Univ; Sang-Woong
Han, Mirae Engineering, Korea

**Safety Research on a Coupled Feeder Vessel and Cages System
for Ocean Aquafarm**

Yong Jiang, Chaohe Chen, South China Univ of Tech; Yu Cao,
Qiaojiao Jia, Andong Liu, Shanghai Ocean Univ, China

**Optimal Mooring System Deployment with the Varying Water
Depth for the Vessel Working in Different Operational Area**

Mingxiao Liang, Shengwen Xu, Xuefeng Wang, Dahui Liu,
Aibing Ding, Shanghai Jiao Tong Univ, China

49. ADVANCED SHIP TECH V: Propulsor (V. 4)
Tuesday June 18 10:30 Room 8

Chair: S H Van, Korea Research Inst of Ships & Ocean Eng, Korea

Study on the Influence of Double Propeller Disturbance on the Hydrodynamic Performance of Surface-piercing Propellers

Yu-Ming Yuan, Xing Zheng, Harbin Engineering Univ, China; Qing-Wei ma, City, Univ of London, UK

A Study on Characteristic Parameter for Rotor Diagnosis

Byeong Keun Choi, Yun-O Choi, Dong-Hee Park, Hyeon-Tak Yu, Gyeongsang National Univ, Korea

Numerical Simulation and Design of Parameter Matching on the Open Water Performance of CRP

Xiaoning Jiang, Tieli Li, Junming Hu, Yan Lin, Dalian Univ of Technology, China

A Research of the DP Thruster Analysis with Various Duct Shapes for the Model Test

Hyung Do Song, Young-Shik Kim, Korea Research. Inst of Ships & Ocean Eng; Jung-Chun Suh, Seoul National Univ, Korea

Optimization Design and Analysis of Marine Ducted Propellers by RANS/Potential Flow Coupling Method

Weikang Du, Spyros A Kinnas, Univ of Texas at Austin, USA

Hydrodynamic Design and Verification of Water-jet Mixed-flow Pump Bases on Controllable Velocity Moment Method

Gang Chen, Bin Yu, Sheming Fan, Youlin Cai, Marine Design & Research Inst of China, China

Research on Vector Control Algorithm of Waterjet Propelled Crafts Based on SQP Algorithm

Jiangming Ding, Renyuan Chang, Jiangming Ding, Jiabing Jiang, Wuhan Univ of Technology, China

Numerical Prediction of Pressure Fluctuations on Cruise Ship Hull Induced by Podded Propulsors

Yiming Huang, Yifan Yang, Ronggang Nie, Wei He, Wuhan Univ of Technology, China

On Scale Effect of Open-water Characteristics of Podded Propulsor Based on RANS Solver

Yifan Yang, Tingqiu Li, Ziru Li, Wei He, Wuhan Univ of Technology, China

50. GEOTECH V: Suction Bucket Foundation (V. 2)

Tuesday June 18 10:30 Room 9

Chair Shazzad Hossain, Univ of Western Australia, Australia

Shake Table Testing for Suction Bucket Foundation Wind Turbine Seismic Response

Muhammad Zayed, Ahmed Elgamal, Kyungtae Kim, Univ of California, San Diego, USA

Axial Load-Transfer Curves for Suction Bucket Foundations in Sand

Sorin Grecu, Lars Bo Ibsen, Amin Barari, Aalborg Univ, Denmark

Field Application of Glass Fiber-reinforced Plastic (GFRP) Suction Pile

Juhyung Lee, Korea Inst of Civil Engineering and Building Technology; Sung-Ryul Kim, Seoul National Univ, Korea

Calibration of an Analytical Model for Tensile Loaded Suction Buckets

Patrick Gütz, Martin Achmus, Leibniz Univ Hannover, Germany

Cyclic Bearing Capacity Model Test of Suction Multi-bucket Foundation of Offshore Wind Turbine

YongChun Yang, JiaQiang Wu, ShuangChen Liu, YinFeng Cui, LiuFei Wang, Ocean Univ of China, China

Effects of Scour on Stiffness of Wide Shallow Bucket Foundation and 1st Natural Frequency of Offshore Wind Turbine

Yu Yuan, Run Liu, Jijian Lian, Dengfeng Fu, Haiyang Zhang, Yingchun Wang, Tianjin Univ, China

Numerical Analysis of Subsea Suction Pile Foundation Behavior

Xiaoyan Long, Fugro USA Marine; Alan Witthoeft, Geo-Logic Associates, USA

Upper Bound Solution of the Horizontal Bearing Capacity of a Composite Bucket Shallow Foundation in Sand

Guangsi Chen, Fun Liu, Jijian Lian, Hongyan Ding, Ye Yao, Tianjin Univ, China

51. UNDERWATER V: Design (V. 1)

Tuesday

June 18

10:30

Room 10

Chair: Satoru Yamaguchi, Kyushu Univ, Japan

Cavitation Analysis and Optimization Design of V-Bracket

Jiangbo Zhu, Xi Chen, Xiaoling Shen, China Ship Development & Design Center, China

Model Experiment and Numerical Research on Hydrodynamic Performance of Conformal Rudder in Open Water

Shuo Zhai, Zhihua Liu, Naval Univ of Engineering, China

Development of Remotely Operated Underwater Vehicle and Applications to the Sea

Ikuo Yamamoto, Akihiro Morinaga, Koki Ura, Nagasaki Univ, Japan

Characteristics of Autonomous Underwater Vehicle (AUV) under Different Navigational Conditions Research

Xiaoning Jiang, Tieli Li, Meihong Yang, Yan Lin, Dalian Univ of Technology, China

Conceptual Design and Basic Design of an Underwater Smart Drone for the Arctic Ocean

Shojiro Ishibashi, Kiyotaka Tanaka, Hiroshi Yoshida, JAMSTEC, Japan

Simulation of Free Running Maneuvers of Unmanned Underwater Vehicles Based on a CFD Study

Christian Weissenfeld, Moustafa Abdel-Maksoud, Hamburg Univ of Technology, Germany

Research on Submarine Buried Oil and Gas Pipeline Autonomous Inspection System of USV

Lei Gao, Hai-Tao Gu, Shenyang Inst of Automation CAS, China

Electrical Characteristics Test and SoC Estimation of Lithium-ion Batteries for Full Ocean Depth Submersible
Shiyao Zhou, Ziqiang Chen, Changwen Zheng, Deyang Huang,
Jian Liu, Shanghai Jiao Tong Univ, China

TUESDAY 13:10

2019 Professor Jin S Chung Award Lecture

Global Energy Trends, Permian Flaring, and Plastics in the Environment: Can Humans and Energy Needs Co-Exist? [Oral presentation]
Doug Fairchild, ExxonMobil Upstream Engineering, TX, USA

52. HYDRODYNAMICS VI: Loads, Added Resistance, Drag Reduction (V. 3)
Tuesday June 18 14:00 Room 1

Chair: Yonghwan Kim, Seoul National Univ, Korea
Co-Chair: YB Lee, Daewoo Shipbldg & Marine Eng, Korea

A MDHOBEM Energy Radiated Method to Evaluate Added Wave Resistance of Ship
Xi Chen, Yi Ren, Haisong Xiao, Xingong Cai, Marine Design & Research Inst of China; Renchuan Zhu, Shanghai Jiao Tong Univ, China

Study on Wave Added Resistance of Ship in Regular Head Waves on Panel Method
Xujie Wang, Ocean Univ of China; Jing Zhao, Qingdao Univ of Sci & Tech; Tongshun Yu, Ocean Univ of China, China

Experimental Study on the Added Resistance of KVLCC2 in Irregular Waves
Jin-Won Yu, Jonghyeon Lee, Jeongbeom Seo, Jung-Eun Choi, Inwon Lee, Pusan National Univ, Korea

Experimental Study on the Interaction between Focused Waves and Pipe Pile Enclosure Structure
Hui Yang, Yun-Peng Zhao, Chun-Wei Bi, Dalian Univ of Technology, Guan-Chang Tao, Yong Cui, Yellow Sea Fisheries Research Inst., CAS, China

A 3D Analysis of Wave Loads on a Truncated Vertical Cylinder Resting on the Seabed [Oral Presentation]
Pasquale G F Filianoti, Luana Gurnari, Univ Mediterranea of Reggio Calabria; Sergio Amporeale, Marco Torresi, Politecnics of Bari, Italy

Wave Basin Tests of Innovative Offshore Fishfarm Concept
Rene Lindeboom, MARIN, Netherlands

53. TSUNAMI I: Generation & Observation (V. 3)
Tuesday June 18 14:00 Room 2

Chair: Hua Liu, Shanghai Jiao Tong Univ, China

Fundamental Study on Influence of Tsunami Source Heterogeneity on Tsunami Height Distribution Along a Coast by Using Fractal Dimension

Tomoyuki Takahashi, Kansai Univ, Japan

Smoothed Particle Hydrodynamics (SPH) Modelling of Tsunami Waves Generated by a Fault Rupture

Ruaa Hisham Wana, Jason Hughes, David Graham, Alison Raby, Natalia Perez del Postigo Prieto, Univ of Plymouth, UK

Short Wavelength Tsunami Observation by Using Deep Ocean Bottom Pressure Gauges

Naotaka Chikasada, National Research Inst for Earth Science and Disaster Resilience, Japan

Numerical Investigations on Sea States Estimation Based on the Convolution Neural Networks Deep Learning Technique

Limin Huang, Wenyang Duan, Ke Yang, Harbin Engineering Univ, China

Numerical Approach in the Study of Tsunami-like Waves and Comparison with Experimental Data

Daisuke Nishiura, JAMSTEC, Japan; Davide Wüthrich, Ecole Polytechnique Federale de Lausanne, Switzerland; Mikito Furuichi, Shun Nomura, JAMSTEC, Japan; Michael Pfister, Haute Ecole d'Ingenierie et d'Architecture de Fribourg; Giovanni De Cesare, Ecole Polytechnique Federale de Lausanne, Switzerland

4D Mapping of Sea State by Stereo Photographic Imaging

Antonie Oosterkamp, Torleif Lethe, Sigmund Clausen, Uni Research Polytec, Norway

**54. RENEWABLE ENERGY VI: Offshore Wind 2:
Support Structure 2 (V. 1)**

Tuesday June 18 14:00 Room 3

Chair: Anand Natarajan, Technical Univ of Denmark, Denmark

Fatigue Analysis of Offshore Wind Turbine Support Structures Considering Uncertainty of Load [Oral presentation]

Gee Nam Lee, Donghyawn Kim, Yongjin Kim, Duc Vu Ngo, Kunsan National Univ, Korea

Loads Prediction on a Wind Turbine Operating in Yawed Flow

Luca Oggiano, IFE, Norway

A Nonlinear Potential Flow Model for High-frequency Wave Loads and Ringing Response of Offshore Wind Turbines

Yi Zhang Bin Teng, Dalian Univ of Technology, China

Physical Model Testing of Wave Impact Forces on Fixed Foundations of Offshore Wind Turbines

Pedro Lomonaco, Oregon State Univ; Andrew T Myers; Northeastern Univ; Sanjay A Arwade, Univ of Massachusetts Amherst; Timothy B Maddux, Bret Bosma, Oregon State Univ; Spencer Hallowell, Hannah M Johlas, Univ of Massachusetts Amherst, USA

Modeling of Non-simultaneous Ice Crushing Loads on Large Sloped Cone of Wind Turbines

Li Zhou, Shifeng Ding, Jiangsu Univ of Science & Technology; Wei Shi, Dalian Univ of Technology; Feng Diao, China Ship Scientific Research Center; Pu Gong, Shanghai Electric Wind

Power Group; Qingfeng Wang, Jiangsu Univ of Science & Technology, China

Experimental Investigations on Ice Induced Vibrations of a Monopile-type Offshore Wind Turbine in Bohai Sea
Yufeng Tian, Yufeng Tian, Yan Huang, Wei Li, Tianjin Univ, China

A Novel Approach to Wind Turbine Installation
Erik J Augestad, DNV GL, Norway

55. SUBSEA, PIPELINES, RISERS III: Pipeline 3 (V.2)
Tuesday June 18 14:00 Room 4

Chair: Hongbin V. Wang, ExxonMobil Production Company, TX, USA
Co-Chair: Frank K. Lim, 2H Offshore Engineering, UK

Application of Cable Burial Risk Assessment Guidelines in West Africa
Jordan Matthieu, Nicolas Guillemeter, Mylene Levesque, WSP Canada Inc, Canada

Experimental Study on the Dynamic Response of a Submarine Pipeline Collided by a Dropped Anchor
Zhipeng Zang, Ciheng Zhang, Yujun Xu, Yuhao Fang, Tianjin Univ, China

A Localization Development of Deep-water Surface Conductor
Guoxian Xu, Shujie Liu, Renjun Xie, CNOOC Research Inst, China

Experimental Study of Wave-induced Dynamic Response around Trenched Pipelines in Silty Seabed
Chao Wei, Yanyan Zhai, Yuan Gao, Jisheng Zhang, Hohai Univ, China

Standing Wave-induced Interaction of Pipeline and Saturated Sandy Seabed
Xiaowen Wang, Jian-Min Zhang, Tsinghua Univ, China

Analysis of Hydrodynamic Characteristics of a Multi-Arc Smooth Cylinder Based on DES
Li Zhang, Chuanming Zhou, Shanghai Ship and Shipping Research Inst, China

56. HPM VI: Fatigue & Fracture 1 (V. 4)
Tuesday June 18 14:00 Room 5

Chair: Gaute Gruben, SINTEF Industry, Norway

True Fatigue Life Calculation Using Digital Twin Concept and Operational Modal Analysis
Erik B Pedersen, Dennis Jørgensen, Hans Riber, LIC Engineering, Denmark; Sylvain Vallaghe, Benjamin Paccaud, Jonas Ballani, Akselos SA, Switzerland

Fatigue Life Estimation of Corroded Chains with Finite Element Analysis Method
Jianfeng Xu, Aravind Nair, DNV GL USA; Aifeng Yao, Chevron Energy Technology; Meng Luo, Shell International Exploration & Production, USA

Influence of Welding Bead Proximity on Cold Cracking and Fatigue Strength of Welded Joints

Shun Tsutsumi, Issei Uchino, Namura Shipbuilding; Teppei Okawa, Takayuki Yonezawa, Yuji Hashiba, Nippon Steel & Sumitomo Metal, Japan

Very High Cycle Fatigue Tests with a Resonance-regulated Device for Testing of Large-scale Cast Iron and Steel Specimens

Jan Kulikowski, Peter Schaumann, Luka Radulovic, Leibniz Univ Hannover; Attila Alt, Germany

Fatigue Integrity Evaluation of Small Bore Piping Using Belief Networks

Arvind Keprate, DNV GL; RM Chandima Ratnayake, Univ of Stavanger, Norway

Multiaxial Fatigue Assessment of Typical Fillet Welded Details based on Mesoscopic Plastic Strain

Sudath C Siriwardane, Univ of Stavanger, Norway

Influence of Long-Time Service at Elevated Temperature on the Material Behavior

Hyeong-Yeon Lee, Woo-Gon Kim, Korea Atomic Energy Research Inst, Korea

57. COASTAL IV: Waves on Structures (V. 3)

Tuesday June 18 14:00 Room 6

Chair: Bin Teng, Dalian Univ of Technology, China

Analysis of Oblique Wave Transmission and Reflection by Comb-Type Caisson Breakwaters

Xinyu Wang, Yong Liu, Ocean Univ of China, China

Numerical Investigations of Wave Interaction with Double Curtain Wall Breakwaters Using Improved MPS Method

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

Propagation of Solitary Wave over Impermeable Submerged Double Breakwaters

Lai Jiang, Jisheng Zhang, Hohai Univ, China

A Numerical Simulation of Hydrodynamic Characteristics of an Arc Breakwater with a Hole in the Face

Lin Zhao, Jian Liu, Ocean Univ of China, China

CFD Analysis on Wave Load Mitigation Effect of Porous Walls on Offshore Structures

Bing Chen, Long Wang, Dezhi Ning, Dalian Univ of Technology, China; Lars Johanning, Univ of Exeter, UK

Experimental and Numerical Modeling of Solitary Wave Forces on Horizontal Cylinders near the Bed

Francesco Aristodemo, Giuseppe Tripepi, Danilo Algieri Ferraro, Paolo Veltri, Università della Calabria, Italy

Experimental Investigation on Overtopping for Rubble Mound Breakwaters under Oblique Cyclonic Waves

Luca Martinelli, Matteo Volpato, Chiara Favaretto, Piero Ruol, Univ of Padova, Italy

Wave Overtopping and Water Inflow through Rubble Mound of Gravity Seawall

Kojiro Suzuki, Port and Airport Research Inst; Kiyohiro Okada, Pacific Consultants, Japan

An Analysis Solution for Wave Propagating through a Fixed and Floating Poroelastic Medium

Yuan-Jyh Lan, National Taiwan Ocean Univ, Taiwan, China

58. OCEAN TECHNOLOGY VI: Floating Dynamics 3 (V. 1)
Tuesday June 18 14:00 Room 7

Chair Eva Loukogeorgaki, Aristotle Univ. of Thessaloniki, Greece

Co-Chair: Hung-Jie Tang, National Cheng Kung Univ, Tainan, TAIWAN China

Station Keeping Systems for Offshore Wind Turbines

Yong Luo, Xin Xu, COTEC Inc., USA

Linear and Nonlinear Dynamic Coupled Analysis for Floating Body with Mooring Lines and Risers With or Without Bending & Torsion Effect of Riser

Byoung Wan Kim, Hyun-Seok Kim, Korea Research. Inst of Ships & Ocean Eng, Korea

Motion Response of a Moored Semi-Submersible over Multi-Slope Seabed

Yiting Wang, Xuefeng Wang, Shengwen Xu, Lei Wang, Shanghai Jiao Tong Univ, China

Numerical Modelling of the Mooring Line Breaking of a Marine Fish Cage in Waves and Current

Hung-Jie Tang, Ray-Yeng Yang, National Cheng Kung Univ, Taiwan, China

Hydrodynamic Response Analysis for a Deepwater Spar under its Mooring Failures

Yang Yua, Shuai Hao, Lixin Xu, Tianjin Univ, China

Evaluation and Life Extension of Mooring Systems

Yong Luo, COTEC Inc, USA

Evaluation of the Dynamic Responses of Truss Spar Platforms for Different Mooring Materials in Intact and Damaged Line Conditions

Montasir O Ahmed, Anurag Yenduri, V J Kurian, Universiti Teknologi PETRONAS, Malaysia

59. ADVANCED SHIP TECH VI: Structures (V. 4)
Tuesday June 18 14:00 Room 8

Chair: Deyu Wang, Shanghai Jiao Tong Univ, China

An Experimental Study on Buckling Behavior of Cruciform Joint made of SBHS400

Moe Komeda, Jing Nie, Waseda Univ; Takeshi Miyashita, Nagaoka Univ of Technology; Seiji Okada, IHI Infrastructure Systems; Kiyoshi Ono, Waseda Univ, Japan

Structural Strength Analysis of Five-Hull Ship with Different Bow Angles

Bin Hu, Fucai Jiang, Quandang Ma, Wuhan Univ of Technology, China

Study on Ultimate Strength Analysis and Reinforcement Methods of Side Structure with Openings of Large Cruise Ship Superstructure

Haotian Hu, Xiangshao Kong, Jin Gan, Weiguo Wu, Wuhan Univ of Technology, China

Ultimate Strength of Bilge Panels in Container Ships under Combined Axial Compression, Bending and Lateral Pressure

Jinju Cui, Deyu Wang, Shanghai Jiao Tong Univ, China

Study of Sandwich Structural Strength for Power-CAT

Daobing Zhang, Hanju Hui, Zhixin Xiong, Zhiquan Huang, Shanghai Maritime Univ, China

The Study of Configuration Optimization for Air Cushion Vehicle Skirt Based on CATIA-Abaqus Parametric Finite Element Method

Wenyong Tang, Shengjie Xu, Shanghai Jiao Tong Univ; Zhongke Zhang, Marine Design & Research Inst of China; Xiaoyuan Gao, Shanghai Jia Tong Univ; Tao Ma, Marine Design & Research Inst of China, China

Structural Analysis of the Cylinder Subsection Assembly Correction System

Tang Xu, Huazhong Univ of Sci & Tech, China

60. GEOTECH VI: Offshore Foundation 1 (V. 2)

Tuesday June 18 14:00 Room 9

Chair: Yun Wook Choo, Kongju National Univ, Korea

A Rapid Loading Test of a Bored Pile and Pile Construction Management Method

Hikaru Yoshida, Shohei Ishida, Daiken Sekkei, Inc; Tomoya Yamazaki, Nippon Concrete Industries; Mori Toshihiro, Kumagai Gumi Co; Yukihiro Kani, Eiton Co, Japan

Use of Bayesian Updating in Piling Design

Jinsong Huang, Scott W Sloan, Univ of Newcastle, Australia

Assessment of the Bearing Capacity of a Pile with Geotechnical Design Parameters Based on Chemical Weathering Indices

Young-Woo Song, Sheung-Hwan Lee, Hee-Jun Lee, Choong-Ki Chung, Seoul National Univ, Korea

Shaft Friction to Driving of Large-Diameter Super-Long Pipe Pile Considering Pile Running

Jiangsong Yin, Sa Li, Tianjin Univ; Yaocun Wang, Panhua Construction Group; Huailiang Li, Shantian Huang, COOEC, China

Compaction Grouting to Improve the Pile Bearing Capacity in Non-cohesive Soil

Peter Geissler, Johannes Schwarz, Götz, Pablo Cuélar, Carmine Morone, Matthias Baessler, Hans-Carsten Kühne, Bundesanstalt für Materialforschung und -prüfung (BAM), Germany

Model Test on Casting Finish Control Method for Steel Piles Driven by the Vibratory Hammer Method

Tomoyuki Ogata, Shuichi Shimomura, Keigo Kamiya, Nihon Univ, Japan

Model Experimental Study on the Load Sharing of Piled Raft on Foundation Underpinning

Jintae Han, Korea Inst of Civil Eng & Building Tech; Chengcan Wang, Korea Univ of Science & Technology, Korea

Fundamental Study on End Resistance of Bored Precast Pile

Toshihide Yamashita, MAEDA Co; Hideto Sato, Nihon Univ Junior College; Yutaka Kubo, Keizo Minagawa, System Keisoku Co; Katsuhiko Kanuka, Kanuka Design Co, Japan

Tuesday **61. UNDERWATER VI: Panel**
June 18 **14:00** Room 10

Chair: S Yamaguchi, Kyushu Univ, Japan

Panelists

TUESDAY 16:20

62. HYDRODYNAMICS VII: Loads, Dynamics (V. 3)
Tuesday **June 18** **16:20** Room 1

Chair: Masashi Kashiwagi, Osaka Univ, Japan

Computations and Field Measurements of Wave Forces on Pile-cap Foundations in China-Maldives Friendship Bridge

Hong Zhang, Yongtao Zhang, Ningbo Gao, CCCC Second Harbor Engineering Co, China

The Study of Mitigation Measures for Impact on the Existing Marina Caused by a New Terminal

Zhao Luo, Hong-xing Lin, Chao Wang, CCCC Second Harbour Engineering, China

Comparative Study on Bow Waves and Motion Responses of a Modified Wigley Hull in Incident Waves

Yonghwan Kim, Jae-Hoon Lee, Beom-Soo Kim, Byung-Soo Kim, Seoul National Univ, Korea

Identifying Wave Loads During Random Sea Using Structural Response

Michael Vigsø, Christos Georgakis, Aarhus Univ; Rune Brincker, Technical Univ of Denmark, Denmark

Comparison of Experimental and Theoretical Wave Forces on Elevated Structures

Sarah E Mouring, Shelby Sipes, Victoria Tomiczek, US Naval Academy, USA

The Motion Response Amplitudes Research of Freak Waves Interaction with JIP Spar

Zhen Liu, Xiaojian Ma, Yucheng Zou, Qingyang Wang, Guohui Wang, Jiangsu Univ of Science & Technology, China

Experimental Study to Irregular Wave Action on a Pile Group with a Double Row Side-by-Side Arrangement

Haochen Zhang, Shuxue Liu, Jinxuan Li, Yarong Zhang, Dalian Univ of Technology, China

Comparative Analysis of Static Method and Time-Domain Simulation Method of DP Calculation for A DP3 Drillship
Jinhui He, Shanghai Jiao Tong Univ; Haibin Zhang, Marine Design & Research Inst of China; Renchuan Zhu, Shanghai Jiao Tong Univ; Baohe Yang, Marine Design & Research Inst of China, China

63. TSUNAMI II: Propagation & Transformation (V. 3)
Tuesday June 18 16:20 Room 2

Chair: Daisuke Nishiura, JAMSTEC, Japan

Water Surface Gravity Waves Boundary Layer Measurements & Modeling

Charles R Bostater, Jr., Florida Inst of Technology, USA

Numerical Study on Sea Bottom Boundary Layer and Bed Shear Stress under Tsunami

Hitoshi Tanaka, Tohoku Univ, Japan; Sana Ahmad, Sultan Qaboos Univ, Oman; Tinh Nguyen, Wenzhong Song, Tohoku Univ, Japan

Numerical Investigation of Solitary Wave over a Flat Bottom Using Non-Hydrostatic Model with Viscous Effects

Jingxin Zhang, Hua Liu, Shanghai Jiao Tong Univ, China

Tsunami Wave Shoaling Theory

Kalle M Lampela, Lamprotek Oy, Finland

Interaction between Internal Waves and Surface Waves over a Slope-Shelf

Chih-Min Hsieh, National Kaohsiung Univ of Sci & Tech; Ming-Hung Cheng, National Taiwan Ocean Univ, Robert R Hwang, Academia Sinica; Yih-Feng Peng, National Chi Nan Univ; Wen-Chang Yang, National Applied Research Labs, Taiwan, China

Application of Tsunami Simulator in Oceans and Coastal Areas "T-STOC" to Storm Surge Simulation

Koji Kawasaki, Masaki Nimura, Hydro Technology Institute Co; Tomokazu Murakami, Shinya Shimokawa, National Research Inst for Earth Science & Disaster Resilience, Japan

64. RENEWABLE ENERGY VII: Offshore Wind 3:
Floating Structure 1 (V. 1)
Tuesday June 18 16:20 Room 3

Chair: Ersegun Gedikli, NTNU, Trondheim, Norway

Comparative Research on Hydrodynamic Response Characteristic of Foundation of Floating Offshore Wind Turbine

Chaohe Chen, Yijun Shen, Yuefu Yang, South China Univ of Technology, China

Equivalent Static Wave/Wind Loads for the Structural Design of Semi-Submersible Platform of Floating Offshore Wind Turbine

Chao. Li, Shunyun. Zheng, Aixian. Peng, Shengtao. Zhou, Yiqing. Xiao, Harbin Inst of Technology, China; Gang Hu, Univ of Sydney, Australia; Haifeng Wang, Tsinghua Univ, China

Dynamic Analysis of Mooring Break for a Semi-Submersible Floating Offshore Wind Turbine

Gang Ma, Liang Zhong, Harbin Engineering Univ, China; Qing-Wei Ma, City, Univ of London, UK; Yao-Wen Zhu, Hong-Wei Wang, Harbin Engineering Univ, China

Study on the Optimization Design Method of Triangular Semi-submersible Platforms of Offshore Wind Turbines

Xun Meng, Pin Tang, Dezhi Wang, Yu Xu, Dawei Chu, Ocean Univ of China; Dejiang Li, Yantai CIMC Ocean Eng, China

Applicability of a Toroidal Hull Structure for Floating Wind

Kurt Delpeche, COWI A/S, Germany

A Parametric Study of a Semi-submersible Platform for an Offshore Wind Turbine in Mexican Coasts

Adrian I Colorado-Moreno, Maria Rodriguez-Cruz, Universidad Veracruzana; Aldo R Cruces-Giron, Mexican Petroleum Inst; Jose Hernandez-Hernandez, Universidad Veracruzana; Ivan Felix-Gonzalez, Mexican Petroleum Inst, Mexico

65. SUBSEA, PIPELINES, RISERS IV: Riser 1 (V. 2)
Tuesday June 18 16:20 Room 4

Chair Frank K. Lim, 2H Offshore Engineering, UK

Co-chair: Woojae Seong, Seoul National Univ, Korea

TLP Riser Interference Analysis and Optimization Design – A Case Study

Gang Tong, CNOOC Research Inst; Jin Yang, Nanding Hu, China Univ of Petroleum (Beijing), China

Experimental Investigation on Vibrations of a Drilling Riser in a Jack-up Platform under Environmental and Operating Loads

Zhixiong Chen, Yuxin Sun, Zhipeng Zang, Tianjin Univ; Cong Wang, CNPC Eng Tech Research, China

Anti-Typhoon Drilling Riser Freestanding Mode Study

Jinlong Wang, 2H Offshore; Liangbin Xu, Lixiang Sheng, CNOOC Research Inst; Lihui Li, Hui Zhang, 2H Offshore, China

Experimental Investigation on Vibration of a Drilling Riser in a Jack-up Platform under Environmental Loads

Cong Wang, CNPC Engineering Technology Research; Zhipeng Zang, Tianjin Univ; Zhenwen Liu, CNPC Engineering Technology Research; Zhixiong Chen, Tianjin Univ., China

Hang-off Analysis on Deepwater DST String Evacuation in Typhoon Condition

Liu Kang, Guoming Chen, Gaogeng Zhu, Ziliang Dai, China Univ of Petroleum (East China), China

Analysis on the Wave-Induced Fatigue Analysis of Marine Drilling Riser Based on the Time Domain Method [Proceedings only]

Yanbin Wang, Deli Gao, Chenyu Meng, China Univ. of Petroleum (Beijing), China

A Model Test on a Response Characteristics of a Free Hanging Riser

Y J Kwon, D H Jung, B W Park, J H Jung, S H Oh, Korea Research Inst of Ships and Ocean Engineering, Korea

66. HPM VII: Fatigue & Fracture 2 (V. 4)
Tuesday June 18 16:20 Room 5

Chair Arvind Keprate, DNV GL; Norway

Local Approach for Elastic-Plastic Fracture Assessment of Cracked Component under Mixed Mode Loading

Kazuma Shimizu, Mitsuru Ohata, Hiroto Shoji, Osaka Univ;
Taochiro Kato, Hiroyasu Tanigawa, National Inst for Quantum &
Radiological Sci & Tech, Japan

Mechanical Properties and Charpy Absorbed Energy of SBHS400

Jing Nie, Daiki Kitazume, Kiyoshi Ono, Waseda Univ; Takeshi Miyashita, Nagaoka Univ of Technology; Kengo Anami, Shibaura Inst of Technology; Toshio Matsumura, The Takigami Steel Construction, Japan

Calibration of Pipeline Steel Model for Computational Running Ductile Fracture Assessment

Gaute Gruben, Stephane Dumoulin, Håkon O Nordhagen, SINTEF Industry; Morten Hammer, Svend T Munkejord, SINTEF Energy Research, Norway

Simulation of Crack Opening and Propagation Considering the Effect of Localized Residual Stress Field

Wanchuck Woo, Korea Atomic Energy Research Inst; Dong Kyu Kim, Huai Wang, Ho Won Lee, Univ of Ulsan, Korea

Investigation of Stress Intensity Factors and Crack Growth on Crack Front Shapes under Different Loadings with Finite Element Approach

Enqian Liu, Nigel Barltrop, Univ of Strathclyde, UK; Wei Shen, Wuhan Univ of Technology; Benqiang Lou, Jiangsu Univ of Sci & Tech, China

Prediction of Brittle Fracture at the Toes of Weld Access Hole of the Welded I-section Beam End

Junwei Wang, Koji Azuma, Sojo Univ; Tsutomu Iwashia, National Inst of Technology-Ariake; Toshiomi Itatani, Nagai Steel Works, Japan

Prediction of Brittle Fracture at the Crack Tips of Improved Weld Access Hole of the Full-scale Beam-to-Column Assembly

Satoshi Jinbo, Koji Azuma, Sojo Univ; Toshiomi Itatani, Nagai Steel Works; Masato Nikaïdo, Nippon Steel & Sumitomo Metal, Japan

Control Strategy of Stress Concentration Factors for Five-planar Tubular Y-joints under Axial Force

Shiliu Bao, Dalian Univ of Technology; Kanmin Shen, Bin Wang, Powerchina Huadong Engineering; Yong Shi, Jiangsu Longyuan Offshore Wind Power; Xin Li, Dalian Univ of Technology, China

Numerical Simulation of SENT Tests for Welded X80 Line Pipes

Yasuhiro Shinohara, Eiji Tsuru, KTakuya Hara, Nippon Steel & Sumitomo Metal, Japan

67. COASTAL V: Behavior of Structures (V. 3)

Tuesday June 18 16:20 Room 6

Chair: Piero Ruol, Univ of Padova, Italy

Experimental Study of Scale and Model Effects for Wave Impacts on Dike Mounted Vertical Walls

Maximilian Streicher, Andreas Kortenhaus, Corrado Altomare, Ghent Univ, Belgium; Xuexue Chen, TU Delft, Netherlands; Lorenzo Cappiotti, Univ degli Studi di Firenze, Italy; Steven Hughes, Colorado State Univ, USA

Physical Model Tests on Stability of Sea Dike Under Construction

Yanqiu Meng, Guoping Chen, Shichang Yan, Chaofeng Tong, Yuhang Xu, Wanwei Zhang, Hohai Univ, China

A Time-Frequency Analysis of Dynamic Responses of a Moored Rectangular Cylinder under Freak Waves

Wenbo Pan, Zhuowei Zhou, Ningchuan Zhang, Qian Gu, Yichao Sun, Dalian Univ of Technology, China

Experimental Study on Physical Model of Concrete Block Quay Wall with Wave Dissipation Hole Structure

Deshuang Yu, Guanting Zhou, Guirong Lu, Xinming Wang, Zhanhang Wang, Chinese Academy of Fishery Sciences; Jinsong Gui, Dalian Ocean Univ, China

The Performace of an "Active" Submerged Breakwater by a CFD Analysis

Pasquale G F Filianoti, Luana Gurnari, Univ Mediterranea of Reggio Calabria; Sergio Camporeale, Marco Torresi, Politecnics of Bari, , Italy

Design Method of Joint Plates Installed in a Caisson Type Seawall

Kazuki Horii, Shibata Industrial; Kohiro Suzuki; Port and Airport Research Inst; Yuichiro Takebe, Nishino Yoshio, Shibata Industrial, Japan

Drifting Buoy Moving Westward from the Emperor Seamount Chain: Leeway Effect

Yoichi Shimada, National Fisheries Univ, Japan

Experimental Studies of Vertical Forces on Submerged Horizontal Plates

Shuangjiu Fu, Reza M Alam, Univ of California, Berkeley, USA

68. OCEAN TECHNOLOGY VII: FSRU, Floating Operation (V. 1)

Tuesday June 18 16:20 Room 7

Chair: Alan M. Wang, Offshore Oil Engineering Co., China

A Challenging Float-on & Float-off Operation for 350,000DWT FPSO P67

Ruhua Yuan, Xiaojian Jin, Alan M Wang, Xueyi Liu, Wenwen Chai, Mine He, Offshore Oil Engineering, China

HP Vent Mast Design Guideline for FSRU Considering Emergency Situations

Sunghee Kim, Hyunjoon HNam, Sangmin Park, Hyundai Heavy Industries, Korea

Development of Standard Emergency Shutdown Scheme for FSRU

Hyunjoon Nam, Sunghye Kim, Sangmin Park, Hyundai Heavy Industries, Korea

Global Performance Analysis for a Barge Type Offshore Structure Using CFD

Jihun Kim, Byunghyuk Lee, Joongsoo Moon, Jongjin Jung, Hyundai Heavy Industries, Korea

Study on Rectification Method for Cruciform Joint Exceeding IACS Fabrication Tolerance (Phase II)

Sang-Woo Lee, Kyung-seok Lee, Hyoung-June Jeon, Jung-sin Jae, Ki-sub Choi, Jin-Sik Yoo, Daewoo Shipbuilding & Marine Eng. Korea

Reliability-based Design Optimization of an Ultra-Deepwater Semi-Submersible Drilling Platform

Jia Zhou, Pu Wang, Marine Design & Research Inst of China, China; Marco Panzeri, NOESIS Solutions, Belgium; Wei Sun, Noesis Engineering Software (Shanghai), China

69. ADVANCED SHIP TECH VII: Strength (V. 4)

Tuesday June 18 16:20 Room 8

Chair: S Yamaguchi, Kyushu Univ, Japan

Co-Chair: C Kawakita, Mitsubishi Heavy Industries, Japan

Machine Learning for Fatigue Design of Floating Structures

Francois-Xavier Sireta, Xiasha Huang, DNV GL Singapore, Singapore

Research Status and Development Trend in LNG Tank Containment System

Xiaosong Zhu, Bin Xie, Wenhui Xie, Xichong Yu, Xuliang Han, CNOOC Research Inst, China

Study on the Optimum Design of the IMO Type C LNG Fuel Tank Considering Characteristics of Cryogenic Materials

Joo Hyun Kim, Tae Jun Kim, Hoon Kyu Oh, Byung Ki Choi, Hyundai Heavy Industries, Korea

Comparative Study of the Element Section Properties to the Hull Girder Ultimate Strength on Double Hull Tanker

Muhammad Zubair Muis Alie, Taufiqur Rachman, Putri Ayu ovia Lestari, Hasanuddin Univ, Indonesia

Experimental and Numerical Investigation on the Ultimate Strength of Steel Welded Ring-stiffened Conical Shell under External hydrostatic Pressure

Jung Min Sohn, Teguh Muttaqie, Pukyong National Univ; Sang-Rai Cho, Univ of Ulsan, Korea

Hydro-elastic Effect on the Ultimate Strength Assessment of the Very Large Ore Carrier(VLOC) Based on the Segmented Model Test

In-Gyu Ahn, Byoung-hoon Jung, Seung-Yoon Han, Hyundai Heavy Industries, Korea

Vibration Analysis for Ship Structures Employing the Algebraic Dynamic Condensation Method

Seung-Hwan Boo, Jun-Bum Park, Korea Maritime and Ocean Univ, Korea

70. GEOTECH VII: Offshore Foundation 2 (V. 2)
Tuesday June 18 16:20 Room 9

Chair: Chun Fai Leung, National Univ of Singapore, Singapore

Research on Pile Stick-up Analysis of Deepwater Platform
Fei Wu, CNOOC Research Inst, China

ZRB Foundations Alternative Design Approach
Justin C Kelly, Wood PLC Meysam Banimahd, Woodside Energy, Australia

Offshore Stone Columns – Equipment, Quality Control and Outlook for Future Applications
Wilhelm S Degen, Eleonora Di Mario, Betterground (HK) Ltd., Hong Kong, China

Beyond Predicting Stiffness of Disturbed Foundation
Tomas Sabaliauskas, Lars Bo Ibsen, Aalborg Univ, Denmark

Deformation and Bearing Capacity of Vertical Load Plate Anchors under Cyclic Loads
Jianhua Wang, Zhaoxin Wang, Tianjin Univ, China

Keying Mechanism of Offshore Plate Anchors Embedded in Granular Soils Determined by Discrete Element Simulations
Nan Zhang, T M Evans, Oregon State Univ, USA; Shiwei Zhao, South China Univ of Tech; Yushun Lian, Hohai Univ; Yu Du, Shanghai Dong Hai wind Power, China

Analysis of Pull-out Behavior of Tunnel-type Anchorage for Suspended Bridge Using Scaled Model Tests
Moonkyung Chung, Seunghwan Seo, Korea Inst of Civil Engineering and Building Technology, Korea

Research on Assessment Method for Bridge Pier-Foundation Stability Using Non-destructive Tests
Min Taek Yoo, Korean Railroad Research Inst, Korea

71. ARCTIC I: Ice Kinematics (V. 1)
Tuesday June 18 16:20 Room 10

Chair: Dmitri Matskevich, ExxonMobil Upstream Research Co., TX, USA
Co-Chair: Igor Buzin, Arctic & Antarctic Research Inst. (AARI), Russia

An Experimental Model of Wave Attenuation in Pancake Ice
Alberto Alberello, Univ of Adelaide, Filippo Nelli, Univ of Melbourne; Azam Dolatshah, Swinburne Univ of Technology; Luke G Bennetts, Univ of Adelaide, Australia; Miguel Onorato, Univ of Turin, Italy; Alessandro Toffoli, Univ of Melbourne; Australia

Study on the Water Drag Force on Sea Ice Ridge Keels
Peng Lu, Yongheng Zu, Xiaowei Cao, Yan Wu, Zhijun Li, Dalian Univ of Technology, China

Influence of Water on Collisions of Floating Ice Blocks
Aleksy Marchenko, University Centre in Svalbard, Norway; Vladimir Markov, Lomonosov Moscow State Univ, Russia; Rocky Taylor, Memorial Univ of Newfoundland, Canada

Influence of Ice Cover on the Motion of a Submerged Body
Vitaliy L Zemlyak, Sholom-Aleichem Priamursky State Univ;
Victor M Kozin, Inst of Machining and Metallurgy, RAS;
Aleksy Vasilyev, Nikita Maurin, Sholom-Aleichem Priamursky
State Univ, Russia

**Risk Assessment and Case Analysis of Sea Ice Dynamic
Accumulation in Water Intakes of Nuclear Power Plants**
Ning Xu, National Marine Environmental Monitoring Center;
Wang Yanlin, Dalian Univ of Tech; Zhao Boqiang, Xu Peng,
Liaoning Hongyanhe Nuclear Power Co; Zhang Yawei, Dalian
Univ of Tech; Chen Yuan, Yuan Shuai, Shi Wenqi, Ma Yuxian,
National Marine Environmental Monitoring Center, China

**Study on Extreme Parameters of Drift Ice in the Northern
Barents Sea**
Chenglin Duan, Sheng Dong, Zhifeng Wang, Songtao Li,
Shanshan Tao, Ocean Univ of China, China

WEDNESDAY 08:00

72. HYDRODYNAMICS VIII: Loads, Turbulence (V. 3)
Wednesday June 19 08:00 Room 1

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

**Flow Investigation in the Wake of a Tanker Model Advancing
in Straight Ahead and Pure Sway Conditions**
Massimo Falchi, Giovanni Aloisio, Silvano Grizzi, Mario Felli,
CNR-INM, Italy

**Computation of Wake Field of Fin Installed in Boundary
Layer**
Rikizo Yamashita, Sumitomo Heavy Industries Marine & Eng;
Yasuyuki Toda, Osaka Univ, Japan

**Application of a Decision Support Tool for the Collision
Avoidance of a Container Vessel**
Panagiotis Mzythras, Evangelos Boulougouris, Gerasimos
Theotokatos. Univ of Strathclyde, UK

Study on the Influence of Filter Model on Ship Capsizing
Qian Qiao, Ju Fan, Lizhi Wang Shanghai Jiao Tong Univ, China

**Analysis on the Hydrodynamic Effects of Lateral Ocean
Current on Side-by-Side Arranged Ships for Offshore
Operations in Deep Sea**
Arun Kambivalappil, Makoto Ohta, Makoto Kawabuchi,
Mitsubishi Heavy Industries, Japan

**Experimental Study on the Mechanical Characteristics of FRP
Pipes in Seabed Water Intake and Drainage Engineering of
Coastal Power Plant**
Longzai Ge, Hanbao Chen, Ning Guan, Tianjin Research Inst of
Water Transp Eng, China

**Laboratory Tests Regarding Hydrodynamic Forces and
Accelerations Exerted on Long Line Aquaculture Systems in
Offshore Conditions**
Jannis Landmann, Rieke Santjer, Leibniz Universität Hannover;
Rebekka Gieschen, Nils Goseberg, TU Braunschweig; Arndt
Hildebrandt, Leibniz Universität Hannover, Germany

73. TSUNAMI III: Structure & Scouring (V. 3)
Wednesday June 19 08:00 Room 2

Chair: Koji Kawasaki, Hydro Technology Institute Co., Ltd, Japan

Numerical Analysis of Liquefaction of Sandy Ground Induced by Tsunami

Yoshihiro Okumura, Kansai Univ; Ryosuke Kato, Nikken Sekkei Civil Engineering; Fusao Oka, Kyoto Univ, Japan

Development of a Rational Prediction Method of Topographical Change by a Tsunami

Masihullah Sayed Ahmadi, Maiki Hayakawa, Yoshimichi Yamamoto, Tokai Univ, Japan

An Experiment Study on Wave Loads on a Submerged Horizontal Plate in Solitary Wave

Qian Wang, Yongliu Fang, Hua Liu, Shanghai Jiao Tong Univ, China

Experimental Study on Applicability of Hydro-Plane Type Removable Breakwater as Tsunami Energy Dissipater for River Gate

Tetsuya Hiraishi, Kyoto Univ; Ryoukei Azuma, Osaka Technical Inst; Hideaki Handa, Tadao ItoMarushima Aqua System, Japan

SPH-DEM Simulation on Stability of Composite Breakwater against Long-lasting Tsunami

Tetsuya Iwamoto, Hitoshi Nakase, Daisuke Nishiura, Hide Sakaguchi, Junji Miyamoto, Kazuhiro Tsurugasaki, Tokyo Electric Power Services, Japan

Submerged Wall-Trench Systems to Suppress Tsunami Impact on Coast

Kukulge Bhathisha Akalanka Silva, Susumu Araki, Osaka Univ, Japan

Numerical Estimation of the Motion of Oil Storage Tank for Tsunami Wave with Fluid-Structure Interaction Analysis

Youhei Takagi, Reiji Tazawa, Takanori Hino, Yasumi Kawamura, Yokohama National Univ, Japan

74. RENEWABLE ENERGY VIII: Offshore Wind 4: Floating Structure 2 (V. 1)
Wednesday June 19 08:00 Room 3

Chair: Eva Loukogeorgaki, Aristotle Univ of Thessaloniki, Greece

Accounting for Hydroelasticity in the Analysis of Offshore Wind Turbine Spar-Type Platforms

Eva Loukogeorgaki, Nikos Mantadakis, Aristotle Univ of Thessaloniki, Greece; Madjid Karimirad, Queen's Univ of Belfast, UK

An Optimization for the Mooring System of a 10MW Spar Type Floating Wind Turbine in Time Domain

Jiyuan Men, Fasuo Yan, Qingwei Ma, Harbin Engineering Univ, China

Wave Tank Experiment and Coupled Simulation Analysis of Barge-type Offshore Wind Turbine

Ko Matias Adrian Kosasih, Hideyuki Niizato, Shigeki Okubo, Shunsuke Mitani, Hitachi Zosen; Hideyuki Suzuki, Univ of Tokyo, Japan

Theoretical and Experimental Investigation on Floating Offshore VAWT Concept with Rotating Spar in Currents and Waves

Uwe S Paulsen, Technical Univ of Denmark, Denmark

A Rapid Figure Selection of Darrieus Wind Turbine Based on DMST Model and CMA-ES Algorithm

Yaoran Chen, Dai Zhou, Zhaolong Han, Yan Bao, Jie Su, Lei Hang, Shanghai Jiao Tong Univ, China

Effect of Heave Plates on Hydrodynamic Response of a Spar-type Floating Offshore Wind Turbine

Jithin Jose, Multiconsult Norge AS, Norway; Sung-Jin Choi, DNV GL, Denmark; Ove Tobias Gudmestad, Univ of Stavanger, Norway

Long-term Extreme Structural Loads of a Triple-column Spar Floating Wind Turbine Concept

Liang Li, Univ of Strathclyde, UK; Jin Wang, Shanghai Jiao Tong Univ, China

75. SUBSEA, PIPELINES, RISERS V: Riser 2 (V. 2)
Wednesday June 19 08:00 Room 4

Chair: Mason Wu, Trafigura Trading LLC, TX, USA

Probabilistic Assessment of the Criticality of Riser/Mooring Line Overlapping

François Lirola, SAIPEM, France

Dynamic Simulation of Steel Lazy Wave Riser Excited at the Top-End

S Oh, D Jung, B W Park, J H Jung, Y J Kwon, B W Nam, B W Kim, Korea Research Inst of Ships & Ocean Eng, Korea

Feasibility Studies of the Branched Steel Lazy Wave Riser Systems for Deep Water North Sea Application

Achoyamen M Ogbeifun, Selda Oterkus, Julia Race, Univ of Strathclyde; Naik Harit, Eduarodp Decnop, Moorthy Dakshina, McDermott International, UK

Fatigue Analysis of Flexible Riser Using Hybrid Machine Learning Method

Subrata Bhowmik, McDermott International, UK

On the Effects of a Buoyancy Module on the Dynamics of Flexible Risers Transporting Fluid

Hyung-Taek Kim, Oliver M O'Reilly, Univ of California, Berkeley, USA

Numerical Assessment of Optimized Mooring Truncated Systems for Different Ocean Basins

Aldo R Cruces-Giron, Ivan Felix-Gonzalez, Oscar Alfredo Godoy Marroquin, Mexican Petroleum Inst., Joel Sanchez Mondragon, Catedras CONACYT; Adrian Isidro Colorado Moreno, Universidad Veracruzana, Mexico

76. HPM VIII: Asset Integrity I: Structure, Asset Integrity

Management 1 (V. 4)
Wednesday June 19 08:00 Room 5

Chair: Ali Reza, Exponent, Los Angeles, CA, USA

The Role of the Material Verification Program for Incident Investigation Root Cause Analysis in the Offshore Oil and Gas Production Industry

Brian A Ott, Ali Reza, Carmen H Osorio-Amado, Exponent Inc, USA

Cable Sheathing for Dynamic Power Cables

Audun Johanson, Nexans Norway; Antonio Alvaro, SINTEF, Norway

Risk-Informed Asset Management Framework for Aged Port Facilities against Potential External Hazards

Abe Nezamian, Aurecon, Australia

An Asset Lifecycle Integration Program to Achieve Sustainable and Long-Term Asset Performance

Craig Adcock, Abe Nezamian, Aurecon, Australia

Buckling of Corroded Metallic Domes under External Pressure

Jan Blachut, Univ of Liverpool, UK; Dariusz Sala, AGH Univ of Science and Tech, Poland

Comparative Study on Interactions of Solitary Waves and a Horizontal Plate – Validation of REFRESCO and COMFLOW

Tim Bunnik, Bu;eny Diz. Maritime Research Inst (MARIN), Netherlands

Application of Long Pulse Thermography for Detection of Delamination with Different Thicknesses in Concrete Structure

Van Ha Mac, Jungwon Huh, Quang Huy Tran, Choonghyun Kang, Chonnam National Univ, Korea

Non-Destructive Detection of Near Surface Defects in Steel Products

Tanja S Eisele, Hermann Lücken, Esslingen Univ of Applied Sciences; Siegfried Schmauder, Univ of Stuttgart, Germany

77. COASTAL VI: Storm Surge & Protection (V. 3)
Wednesday June 19 08:00 Room 6

Chair: Luca Martinelli, Univ of Padova, Italy

Co-Chair: Kezhao Fang, Dalian Univ of Technology; China

Lessons Learned from Storm Surge Disasters and Technical Issues on Countermeasures in Japan

Hiroyasu Kawai, National Inst of Maritime, Port and Aviation Tech. (MPAT), Japan

Impact of Submerged Breakwater on the Extreme Wave Estimation in the Xinghua Bay

Zhifeng Wang, Miao Yu, Sheng Dong, Songtao Li, Shanshan Tao, Zegao Yin, Ocean Univ of China, China

Case Study on Designing Adaptation Measures against Storm Surge Disasters along Innermost Coast of Ariake Sea, Japan

Yoshihiko Ide, N Hashimoto, M Yamashiro, M Kodama, Kyushu Univ, Japan

Protection Performance against Storm Surge Due to Vertical Telescopic Breakwater

Koki Kawai, Shogo Tokunaga, Katsumi Seki, Taro Arikawa, Chuo Univ, Japan

Study on the Durability of Quay with Soil Solidifier Against Tsunamis

Naoki Tsuruta, Kojiro Suzuki, Port and Airport Research Inst; Kazunori Tatewaki, Katsuhiro Okada, Ministry of Land Infrastructure Transport & Tourism; Shota Asahi, Port and Airport Research Inst, Japan

Long-lead-time Prediction of Storm Surge Using Effective Controlling Parameters and Adaptive Neuro-Fuzzy Inference System Approach

Wei-Ting Chao, Chih-Chieh Young, National Taiwan Ocean Univ, Taiwan, China

Study on Classification of the Storm Surge Warning

Guilin Liu, Ocean Univ of China, China; Baiyu Chen, Univ of California-Berkeley, USA; Yuanxin Li, Xiao Li, Liping Wang Ocean Univ of China, China

Beach Response During Storm Conditions on Pingtan Coast

Wenshan Li, National Marine Data & Info. Service; Shaowu Li, Tianjin Univ; Hui Wang, National Marine Data & Info. Service, China

78. OCEAN TECHNOLOGY VIII: LNG, Liquefaction, Bunkering 1 (V. 1)

Wednesday June 19 08:00 Room 7

Chair: Hong Gun Sung, KRISO, Korea

Cost-based Optimization of Natural Gas Liquefaction Process

Youngsub Lim, Heechang Son, Seoul National Univ, Korea

A Study on Loading and Offloading Operability of FLBT

Dong-Woo Jung, Y H Kim, S K Cho, D H Jung, H G Sung, Korea Research Inst of Ships & Ocean Eng, Korea

Development & Application of FLBT Simulator System for Operational Safety Assessment

In-Young Gong, Seong-Phil Ann, Seung-Jun Yi, Young-Hwan Kim, Hyeon-Jin Jang, Jae-Seok Han, SafeTechResearch; Hong-Gun Sung, Dong-Ho Jung, Korea Research Inst of Ships & Ocean Eng, Korea

Welding of High Manganese Austenitic Steel to the LNG Storage Tank

Il-Wook Han, Bong-guen Lee, Jong-gyo Choi, POSCO, Korea

Application of High Manganese Austenitic Steel to the LNG Fuel Tank for 50,000 DWT Eco-Friendly Bulk Carrier [Oral presentation]

Dowon Seo, Juntae Lee, Geon Shin, POSCO; Nuri On, Korea Maritime & Ocean Univ; Kangki Lee, POSCO, Korea

Structural Assessment Techniques for a Newly Developed LNG Cargo Containment System

Haeng-Sung Heo, Daewoo Shipbuilding & Marine Eng. (DSME), Korea

Business Model Using FLBT Based on North America's LNG Bunkering Models

Won-Jun Cho, Bio Friends; Bongjoo Shim, H&H Worldwide; Kidong Kim, KOGAS, Korea

79. ADVANCED SHIP TECH VIII: Cavitation (V. 4)
Wednesday June 19 08:00 Room 8

Chair: Benlong Wang, Shanghai Jiao Tong Univ, China

CFD Sensitivity Studies of Turbulent Model, Grid, Roughness and Scale Effect for Full Scale Ship Performance Estimation

Seong-Wook Jeong, Seung-Gyu Jeong, Sung-Gu Park, Young-Doo Kim, Lloyd's Register Asia; Suak Ho, Van, Kwang Soo, Kim, KRISO, Korea

Research and Analysis of Inlet Duct Cavitation of Water Jet Propulsion

Guorui Ji, Xiaohui Yin, Yan Zhang, Marine Design & Research Inst of China, China

Comparison of SST k- ω and Smagorinsky Model in Cavitation Simulation around NACA0012

Minsheng Zhao, Decheng Wan, Gang Chen, Shanghai Jiao Tong Univ, China

Numerical Investigation of Inhibition Effect of Placed Obstacles on Cloud Cavitation

Yong Li, Decheng Wan, Gang Chen, Shanghai Jiao Tong Univ, China

Non-Cavitation Control to NACA0012 Hydrofoil

Weiwei Jin, Xin Chen, Shanghai Jiao Tong Univ, China

Numerical Investigation of the Natural and Ventilated Cavitation Dynamics around NACA66 Hydrofoil

Tiezhi Sun, Zihao Wang, Li Zou, Zhe Sun, Dalian Univ of Technology, China

Hydrodynamic Design of SWATH for Offshore Wind Turbine Transportation and Installation

Sing-Kwan Lee, Zicheng Chen, Jiahuan Liu, Haidong Lu, Lixin Xu, China Merchants, China

Analysis of Aerodynamic and Hydrodynamic Characteristics of High-speed Planing Trimaran and Optimal Design of Hull

JiangMing Ding, Yan Li, Wuhan Univ of Technology, China

Validity of a Dynamic Stall Model for Oscillating Foil Propulsion

Eirik Bockmann, Sverre Steen, NTNU, Norway

Design by Optimization and Flume Test of Ducted Horizontal Axis Marine Current Turbines

Weikang Du, Huy Pham, Spyros A Kinnas, Univ of Texas at Austin, USA

80. GEOTECH VIII: Simulation & Experiment (V. 2)
Wednesday June 19 08:00 Room 9

Chair: Yin Wang, Dalian Univ of Technology, China

Development of Particle-scale CFD-DEM Models and Application to Hydraulic Analysis of Marine Sands
Yin Wang, Yichen Tao, Zhe Ma, Lingxin Zhou, Dalian Univ of Technology, China

Wave Flume Experiment on the Soil Transportation with Influence of Tractive Force and Seepage Force in Seabed Induced by Ocean Wave
Tatsuya Matsuda, Kinya Miura, Keita Anai, Rintaro Takayanagi, Toyohashi Univ of Technology, Japan

Calculation Method for Effective Stress Response of Stratified Seabed to Sea Wave Loading Regarding Effects of Permeability and Degree of Saturation
Kinya Miura, Tatsura Matsuda, Toyohashi Univ of Technology; Natsuhiko Otsuka, Hokkaido Univ, Japan

A Particle Method for Simulation of Submarine Landslides and Mudflows
Y K Chow, S Li, C G Koh, National Univ of Singapore, Singapore

Mitigation Method of Rockfall Hazard on the Huge Rock Slope Using Field Tests and Numerical Simulations
Hoki Ban, Kangwon National Univ; Young-Cheol Hwang, Sangji Univ; Yong-Jun Lee, POSCO E&C, Korea

Numerical Study on Pile Countermeasure Against Liquefaction Behind Retaining Wall
Kakuta Fujiwara, Tokai Univ, Japan

Microscopic Investigation of the Macroscopic Soil Arch Phenomenon in Active Trapdoor Condition Using Discrete Element Analysis
Young-Hoon Jung, Kyung Hee Univ, Korea

81. ARCTIC II: Ice Properties (V. 1)

Wednesday June 19 08:00 Room 10

Chair: Aleksey Marchenko, University Centre in Svalbard, Norway;

Strength-Temperature Relationships for First-year, Second-year and Multi-year Sea Ice
M E Johnston, National Research Council Canada, Canada

Comparative Study of Brash Ice Growth Formulation and Field Measurements
Cayetana Ruiz de Almiron, Aker Arctic Technology, Finland

A Simulation Study on the Ice Fracture Behaviors in Ice-Lighthouse Interaction Considering Initial Defects and Change of Elastic Modulus
Yang Wang, Zaojian Zou, Feng Wang, Chu Shi, Yu Luo, Tengchao Lu, Shanghai Jiao Tong Univ, China

Experimental Studies of Influence of the Distance Between Loads on the Nature of Destruction of an Ice Cover when Paired Loads are Moving Over the Ice Cover
Elena G Rogozhnikova, Amur State Univ of Humanities and Pedagogy; Victor M Kozin, Inst of Maching & Metallurgy; Vitaliy L Zemlayk, Sholom-Aleichem Priamursky State Univ, Russia

Numerical Modelling of Interaction of the Hummock with a Seabed in ABAQUS Software

Alexander T Bekker, Olga A Sabodash, Far Eastern Federal Univ, Russia

Numerical Simulation of Ice Crystal Growth

Yongkui Wang, Lei Ju, Qing Wang, Jianwei Wang, Harbin Engineering Univ, China

WEDNESDAY 10:30

82. HYDRODYNAMICS IX: CFD 1- FSI (V. 3)

Wednesday June 19 10:30 Room 1

Chair Abbas Khayyer, Kyoto Univ, Japan

Co-Chair: M La Rocca, Univ Roma TRE, Italy

Three-Dimensional Numerical Study of Solitary Waves Interacting with a Horizontal Plate

Zhihua Xie, Cardiff Univ; Shiqiang Yan, Qingsei Ma, City, Univ of London; Thorsten Stoesser, University College London, UK; Lin Lu, Dalian Univ of Tech, China

Numerical Investigation and Experimental Study on Cylindrical Drag Reduction with Bionic Wings Attached at High Reynolds Number

Tao Zhang, Cong Chen, Huazhong Univ of Sci & Tech, China

The Application of Radial Basis Function Interpolation in Fluid-Structure Interaction

Yunzhe Zhang, Tingqiu Li, Wuhan Univ of Technology, China; William Geraint Price, Pandeli Temarel, Dominic Hudson, Univ of Southampton, UK

MPS Method for Study of Interactions between Solitary Wave and Submerged Horizontal Plate

Yanzhang Xu, Guanyu Zhang, Decheng Wan, Gang Chen, Shanghai Jiao Tong Univ, China

Improved MPS-FEM Coupled Method for FSI in Free-Surface Flows

Guanyu Zhang, Decheng Wan, Gang Chen, Shanghai Jiao Tong Univ, China

MPS for Free Surface Flow with Elastic and Destructible Structures

Takahito Iida, Takefumi Higaki, Osaka Univ, Japan

83. TSUNAMI IV: Flooding (V. 3)

Wednesday June 19 10:30 Room 2

Chair: Hiroyasu Kawai, National Inst of Maritime, Port and Aviation Tech. (MPAT), Japan

Modeling Coastal Urban Flooding Scenario Caused by Tsunami Breakwater Overtopping

Akio Nagayama, Kagoshima Univ, Japan

Added Mass Coefficient of Debris in Short-term Phenomena for Evaluating Collision Force by Tsunami Debris

Tadashi Sano, Akihiro Matsuda, Hitachi Ltd, Japan

Tsunami Debris Mapping by Optical and LiDAR Remote Sensing

Shinichi Koshimura, Tohoku Univ; Takumi Fukuoka, NTT Data Corp, Japan

A Study on Reproducibility of Tanker Drifting in Typhoon JEBI using Wind and Storm Surge as External Force

Shogo Tokunaga, Kazuhiro Fujiwara, Takuto Haga, Katsumi Seki, Taro Arikawa, Chuo Univ, Japan

A Tsunami Scenario Determination Methodology for Risk Assessment of Coastal Industrial Facilities

Naoto Kihara, Hideki Kaida, Central Research Inst of Electric Power Industry; Tatsuto Kimura, Ayumi Nishi, Masahiro Masuko, Naoki Fujii, Tokyo Electric Power Service, Japan

Development of an Evacuation Route Selection Method Depending on Tsunami Level

Yusuke Sakata, Katsumi Seki, Taro Arikawa, Chuo Univ, Japan

84. RENEWABLE ENERGY IX: Offshore Wind 5: Floating Structure 3 (V. 1)

Wednesday June 19 10:30 Room 3

Chair: Renata Archetti, Univ of Bologna, Italy

Mitigation of Hydrodynamic Ringing Phenomena via Tendon Inclination of a 10 MW Tension-leg Platform Floating Wind Turbine

Daniel Milano, Univ of Edinburgh, UK; Christophe Peyrard, Matteo Capaldo, EDF Lab, France; David Ingram, Univ of Edinburgh; Qing Xiao, Univ of Strathclyde; Lars Johanning, Univ of Exeter, UK

A TLP Floating Foundation Design with Novel Tendon Mooring Technology for Hawaii Offshore Wind

Sung Youn Boo, Steffen Shelley, Daejun Kim, VL Offshore, USA

The Investigation of Conceptual Approaches to the Creation of Marine Ice-Resistant Floating Wind Power Plant

Viktor V Elistratov, Alexander Bolshev, Alexander A Panfilov, Peter the Great Saint-Petersburg Polytechnic Univ; Konstantin V Megretsky, Vyacheslav . Kupreev, CDB ME "Rubin", Russia

Analysis of the Motion Characteristics of Offshore Floating Wind Power Platform in Waves

Junlai Li, Yonghe Xie, Zhejiang Ocean Univ; Weiguo Wu, Wuhan Univ of Technology, China

85. SUBSEA, PIPELINES, RISERS VI: Riser 3 (V.2)

Wednesday June 19 10:30 Room 4

Chair: Frank Lim, 2H Offshore Engineering, UK

Reliability-Based Fatigue Assessment for Subsea Risers and Pipelines

Hany Elost, TechnipFMC, Norway

Early Recognition of Severe Slugging in Pipeline-Riser System using Accelerometer Sensors

Woojae Seong, Sunah Jung, Haesang Yang, Seoul National Univ, Korea

Parametric Vibration Analysis of Top-tensioned Risers with Internal Flow

Fajun Yu, Binqi Xie, Han Wu, Qi Wang, Hemu Shi, Xiaohui Zeng, Inst of Mechanics, CAS, China

Early Detection of Dirlstring Washout Based on Hydraulics Model and Pattern Recognition Method

Yipeng Zhao¹, Baojiang Sun¹, Guangming Fu, China Univ. of Petroleum (East China); Shujie Liu, Liangbin Xu, Ning Wang, CNOOC Research Inst, China

An Initial Configuration and Dynamic Analysis of SLWR under Internal Slug Flow Conditions

B W Park, S H Oh, Y J Kwon, J H Jung, D H Jung, Korea Research Inst of Ships & Ocean Eng, Korea

Critical Internal Flow Velocities in FRP Risers

Dimitrios G Pavlou, Dionysia Mouloupoulou, Univ of Stavanger, Norway

86. HPM IX: Asset Integrity II:

Structure, Asset Integrity Management 2 (V. 4)

Wednesday June 19 10:30 Room 5

Chair: Harovel G. Wheat, Univ of Texas at Austin, TX, USA

Co-Chair: Brian A Ott, Exponent Inc, USA

Tensile Strength Evaluation of Painted Steel from Spot Rusting Grade

Intae Kim, Hyoung-Seok Kim, Pusan National Univ, Korea

Automatically Welded Tubular X-Joints – Welding Procedure and Prediction of the Technical Fatigue Crack Location

Karsten Schuermann, Peter Schaumann, Leibniz Unive Hannover; Andreas Pittner, Michael Rethmeier, BAM,, Germany

Buckling of Cylinders with Uneven Length Subjected to Axial Compression

Olawale F Ifayefunmi, Zulkefli, Universiti Teknikal Malaysia Melaka, Malaysia

A Literature Review of Machine Learning Applications in Pipeline Integrity Management System

Andika Rachman, Univ of Stavanger, Norway; Tieling Zhang, Univ of Wollongong, Australia; RM Chandima Ratnayake, Univ of Stavanger, Norway

Sound Transmission through Double-Plate Partition with Enhanced Columns in Different Surrounding Fluids

Mengqing Huang, Meixia Chen, Huazhong Univ of Sci. & Tech., China

Experimental Study on Bearing Capacity of Reinforced Concrete Beam of In-Service High Piled Wharf under Natural Environment

Lin-wang Su, Zong-quan Ying, Shuai Yang, CCCC Fourth Harbor Engineering Inst., China

Ultra-high Performance Concrete Sandwich Structures as Basic Element of Offshore Mega Structures - A Finite Element Model

Jan Markowski, Ludger Lohaus, Leibniz Univ Hannover, Germany

87. COASTAL VII: Sediment Transport (V. 3)
Wednesday June 19 10:30 Room 6

Chair: Charles R. Bostater, Florida Inst. of Technology, FL, USA

Application of Real-time Simulation in Dredging Design of Panama Amador Cruiser Terminal

Zhao Luo, Chao Wang, Hongxing Lin, CCCC Second Harbour Engineering, China

Beach Nourishment Assessments to Hydrodynamics and Sediment Transport: Case Study of Ceinturon Beach, France

Minh-Tuan Vu, Thanh Viet Nguyen, Univ of Transport and Communications, Vietnam; Yves Lacroix, SEATECH, Univ of Toulon, France

Experimental Study on Influence of Clay Content on Wave-Seabed Interaction

Jun Zhang, Qin Jiang, Changkuan Zhang, Hohai Univ, China

Flocculation Effects on the Sedimentation Behavior of High-Concentrated Mud Suspensions

Lili Yu, Chunyang Xu, Yongping Chen, Hohai Univ, China

Examinations on Sand Outflow Phenomena by Using a Numerical Model

Kornvisith Silarom, Yoshimichi Yamamoto, Tokai Univ, Japan

An Experimental Study on Cross-shore Morphodynamics of a Composite Sand-Gravel Beach

Muhajjir, Hiroki Suga, Shin-ichi Aoki, Osaka Univ, Japan

Hydraulic Characteristics of Ripples in a River Bed Based on Stochastic Process

Seunghwan Seo, Korea Inst of Civil Engineering and Building Technology, Korea; Tadashi Yamada, Chuo Univ, Japan

**88. OCEAN TECHNOLOGY IX:
LNG, Liquefaction, Bunkering 2 (V. 1)**
Wednesday June 19 10:30 Room 7

Chair: Youngsub Lim, Seoul National Univ, Korea

3D Virtual Plant Modeling at the Conceptual Design Stage of LNG Liquefaction Plant

Seog Soon Kim, Kyu Sang Cha, An Na Kim, Chul Gu Lee, Korea Gas Corporation, Korea

Reducing Boil-off Rate for Bi-lobed Tank on Small-scale LNG Carrier

Chao Ye, Yan Lin, Yanyun Yu, Dalian Univ of Technology, China

Investigation on Low-pressure Transfer Method of Liquefied Natural Gas (LNG) Without Venting

Kyoung Joong Kim, Sangkwon Jeong, Korea Advanced Inst of Sci & Tech (KAIST), Korea

Scale Amplification Analysis of FLNG Liquefaction Process in South China Sea Deepwater Gas Field

Xichong Yu, Bin Xie, Yuxing Li, Miaoer Liu, Yan Li, Qing Wang, Jianlu Zhu, CNOOC Research Inst, China

Eigenvalue Analysis on Floating LNG Bunkering Terminal during LNG Transfer Operation

YunHo Kim, Dong Woo Jung, Bo Woo Nam, Seok Kyo Cho, Dong Ho Jung, Hong Gun Sung, Korea Research Inst of Ships & Ocean Eng, Korea

Optimum Layout Design of Resin Ropes for an LNG Tank Considering Cost and Flatness

Do-Hyun Chun, Myung-Il Roh, Sung-Jun Lee, Seung-Ho Ham, Seoul National Univ, Korea

A Study on Impact Behavior of Glass Fiber Reinforced Polyurethane Foam for Liquefied Natural Gas Cargo Containment Systems

Jae-Myung Lee, Myung-Sung Kim, Jeong-Hyeon Kim, Seul-Kee Kim, Pusan National Univ, Korea

Molecular Design of Refrigerants and Their Applications for Utilizing LNG Cold Energy

Haiyan Wang, Sicong Yu, Chunsheng Wang, Jie Chen, Ming Zhang, Xiaopeng Zheng, CNOOC Research Inst, China

89. ADVANCED SHIP TECH IX: Powering, Performance (V. 4)

Wednesday June 19 10:30 Room 8

Chair: Takako Kuroda, National Maritime Research Institute, Japan
Co-Chair: Jiangming Ding, Wuhan Univ of Technology, China

Full Scale Performance Monitoring of Large Merchant Ships and Comparison with Theoretical Predictions

Hideo Orihara, Hisafumi Yoshida, Kenji Takagishi, Japan Marine United Corporation, Japan

A Ship Main Engine Power Predictive Model Based on Big Data Analytics and Machine Learning

Yanfei Zhang, Shanghai Ship and Shipping Research Inst, China

Development of A Numerical Model on Displacement Correction for Ship Performance in Calm Seas Based on Full-Scale Measurement

Naoto Sogihara, Akiko Sakurada, Mariko Kuroda, Masaru Tsujimoto, National Maritime Research Inst; Yoshihiko Sugimoto, Ken Hasegawa, Mitsui O.S.K. Lines, Japan

Numerical Wave Tank for Surface-Piercing Strut Hydrodynamics in Calm Water and in Waves

Giuliano Vernengo, Univ of Genoa; Riccardo Angelini Rota, Univ of Rome, Italy; Stefano Brizzolara, Virginia Tech, USA; Roberto Guercio, Univ of Rome, Italy

Adaptive Group Bias Thrust Allocation Algorithm Based on Energy Optimization

Yahao Chen, Haixiang Xu, Hui Feng, Wenzhao Yu, Wuhan Univ of Technology, China

Hull Form Multi-objective Optimization Design of Cruise Ship Based on Capsizing Risk Prediction

Yuehua Lou, Lizheng Wang, Min Wang, Wuhan Univ of Technology, China

Prediction of the Calm Water Performance by the Database of the Model Test

Myoung-Soo Kim, Yoo-Chul Kim, JungJoong Kim, Young-Yeon Lee, Kwang-Soo Kim, Haeseong Ahn, Jin Kim, Seung-Hyun Hwang, Korea Research Inst of Ships & Ocean Engineering, Korea

Prediction of the Powering Performance for the ONR Tumblehome

Jin-Zhou Liu, Zao-Jian Zou, Hai-Peng Guo, Shanghai Jiao Tong Univ, China

90. GEOTECH IX: Site Characterization (V. 2)

Wednesday June 19 10:30 Room 9

Chair: Choong-Ki Chung, Seoul National Univ, Seoul, Korea

Co-chair: Vincenzo Silvestri, Ecole Polytechnique de Montréal, Canada

SCPT-based Investigation and Analysis for the Multi-liquefied Site

Chih-Sheng Ku, I-SHOU Univ, Taiwan, China

Estimation of Permeability Using Dielectric Constant of Electromagnetic Wave

Hyung-Koo Yoon, Daejeon Univ, Korea

Assessment on Suffusion Sensitivity on Earth-fill Dam Soils in Korea through Seepage Tests

Choong-Ki Chung, In-Hyun Kim, Hee-Jun Lee, Seoul National Univ, Korea

Case Studies on Ground Investigation for Liquefaction Mitigation in Kamisu, Japan and Christchurch, New Zealand

Hiroshi Yokawa, Chubu Univ; Atsushi Yashima, Yoshinobu Murata, Keizo Kariya, Gifu Univ; Takayasu Yosihara, Yoshihara Kakou Co, Japan; Misko Cubrinovski, Univ of Canterbury, New Zealand

A New Type of Device Used on Deepsea Submarine Terrain Monitoring

Jiawang Chen, Chen Cao, Chunying Xu, Huangchao Zhu, Yuan Lin, Zhejiang Univ, China

A Utilization of the Electric Logging Method for a Liquefaction Evaluation Targeting a Detached House Ground Survey

Noriaki Sako, Nihon Univ; Mamoru Fujii, Tokai Univ, Japan

91. ARCTIC III: Russian Arctic (V. 1)

Wednesday June 19 10:30 Room 10

Chair: Yuri P Gudoshnikov, Arctic and Antarctic Research Inst, Russia

Co-chair: Rocky S Taylor, Memorial Univ of Newfoundland, Canada

Morphometry and Internal Structure of Ice Ridges in the Kara and Laptev Seas

Roman B Guzenko, Yevgeny U Mironov, Ruslan I May, Victor S Porubaev, Victor V Kharitonov, Arctic and Antarctic Research Inst; Konstantin A Kornishin; Rosneft Oil Co; Yaroslav O Efimov, Arctic Research Centre; Petr A Tarasov, Rosneft Oil Co, Russia

Geometry and Mass of Icebergs in the Russian Arctic

Ruslan I May, Andrey A Skutin, Aleksey K Naumov, Yevgeny U Mironov, Roman B Guzenko, Arctic and Antarctic Research Inst; Konstantin A Kornishin, Rosneft Oil Co; Yaroslav O Efimov, Arctic Research Centre, Russia

Morphometric Parameters of Stamukhas in the Laptev Sea

Yevgeny U Mironov, Roman B Guzenko, Victor S Porubaev, Alex V Kharitonov, Stepan V Khotchenkov, Alexander V Nesterov, Arctic and Antarctic Research Inst; Konstantin A Kornishin, Rosneft Oil Co; Yaroslav O Efimov, Arctic Research Centre, Russia

Outlet Glaciers of the Barents, Kara and Laptev as Iceberg Factories

Petr A Tarasov, Konstantin A Kornishin, Rosneft Oil Co; Yaroslav O Efimov, Teymur E Mamedov, Arctic Research Centre; Evgeny S Bagorian, LLC SakhNiPimordef; Andrey F Glazovsky, Ivan I Lavrentiev, Inst of Geograpy, RAS; Igor V Busin, Arctic and Antarctic Research Inst; Alexander L Salman, LLC ES-PAS, Russia

Instrumental Real-time Monitoring and Prediction of Sea Ice Compression and Ridging

Victor N Smirnov, Sergey M Kovalev, Nikolay V Kolabutin, Maxim S Znamensky, Arctic and Antarctic Research Inst; Konstantin A Kornishin, Rosneft Oil Co; Yaroslav O Efimov, Arctic Research Centre; Vladimir A Pavlov, Rosneft Oil Co, Russia

Peculiarities of Morphometric Features and Inner Structures of the Ridged Formations in the Ob Bay

Alexey K Naumov, Elena A Skutina, Nikolay V Golovin, Nikolay V Kubyshkin, Yuri P Gudoshnikov, Igor V Buzin, Andrey A Skutin, Arctic and Antarctic Research Inst, Russia

The Main Results of the Iceberg Drift Studies in the Russian Arctic According to Surveys of 2012-2017

Igor V Buzin, Alexander V Nesterov, Yu P Gudoshnikov, Arctic and Antarctic Research Inst; Konstantin A Kornishin, Rosneft Oil Co; Yaroslav O Efimov, D S Stragnikov, Arctic Research Centre, Russia

Submarine Permafrost in the Laptev Sea

Andrey V Koshurnikov, Vladimir E Tumskoy, Vladimir SV kosar, Lomonosov Moscow State Univ; Yaroslav Efimov, Arctic Research Centre; Konstantin Kornishin, Rosneft Oil; Alexander Bekker, Yuri Piskunov, Nikita Zimelman, Far Eastern Federal Univ; Denis Kosmach, V I Il'chev Pacific Oceanological Inst, Russia

Continue at Session 101

WEDNESDAY 13:10

Keynote Presentations

Wednesday 13:10 **Coral 5, 6F (Room 4)**
Digital Twin for Marine Risers [Keynote]
Michael S Triantafyllou, Massachusetts Institute of Technology, USA

Wednesday 13:10 **Nautilus Suite, 6F (Room 10)**
Russian Arctic Coastal Infrastructure: Population, Energy, Transportation and Environment
Vladimir Pavlenko, Svetlana Kutsenko, FCIARctic, RAS, Russia

Wednesday: 14:00 **Nautilus Suite, 6F (Room 10)**
Management of Ice Risks to Offshore Operations and Shipping along Canada's East Coast [Invited, Oral Presentation]
Ivana Kubat, National Research Council Canada, Canada

92. HYDRODYNAMICS X: CFD 2; Hydrodynamics (V. 3)
Wednesday June 19 14:00 Room 1

Chair: Decheng Wan, Shanghai Jiao Tong Univ, China
Co-Chair: SQ Yan, City, Univ of London, UK

Numerical Simulation of the Evolution of Wave Breaking in Finite Water Depth
Qunbin Chen, Yuxiang Ma, Guohai Dong, Dalian Univ of Technology, China

Predicting Wind Loads on the Topside of a Drillship Using CFD
Zana Sulaiman, GustoMSC B.V., Netherlands

Survivability Modelling of a OWSC
Caitlin J Worden Hodge, IDCORE; William Bateman, Zyba, UK

A Preliminary Numerical Investigation of Drag Reduction Performance of Simplified Shell Surface Morphology
Hangyu Qiu, Kapil Chauhan, Chengwang Lei, Univ of Sydney, Australia

Numerical Modeling of Multi-fraction Sediments under the Combined Effect of Wave and Current
Tianyue Sun, Jianfeng Tao, Hohai Univ, China

A Multiphase Particle Method for Interaction between Sluicing Water and Fluvial Mud Bed
Lizhu Wang, Qin Jiang, Hohai Univ, China; Abbas Khayyer, Kyoto Univ, Japan; Changkuan Zhang, Hohai Univ, China

Validation of a Coupled CFD Model for Evaluating Floating Tidal Systems
Edward J Ransley, Scott A Brown, Nan Xie, Deborah M Greaves, Univ of Plymouth; Rachel Nicholis-Lee, Whiskerstay Ltd; Lars Johanning, Univ of Exeter; Eamon Guerrini, Modular Tide Generators, UK

93. HYDRODYNAMICS XVI: Impact, Hydroelasticity (V. 3)
Wednesday June 19 14:00 Room 2

Chair: Benlong Wang, Shanghai Jiao Tong Univ, China
Co-Chair: Hua Liu, Shanghai Jiao Tong Univ, China,

Approach to Simulate Dynamic Elasto-Plastic Whipping Response of Global Hull Girder of a Large Container Ship Due to Slamming Load

Yasuhira Yamada, National Inst. of Maritime, Port and Aviation Tech. (MPAT), Japan

A Relationship Between Breaking Wave Characteristics and Slamming Forces Acting on Jacket Structures

Olga Podrażka, Witold Cieslikiewicz, Univ of Gdańsk, Poland; Ove Tobias Gudmestad, Univ of Stavanger, Norway

A Novel Concept in Reducing Wetdeck Slamming Loads – CFD Investigation

Ahmed A Swidan, Univ of Tasmania, AMC, Australia

Study on Mechanism of Cutting Hard Soil by High Pressure Water Jet

Jifu Yin, CCCC National Eng. Research Center of Dredging Tech. & Equip., China

94. RENEWABLE ENERGY X: Offshore Wind 6: Floating Structure 4 (V. 1)

Wednesday June 19 14:00 Room 3

Chair: Sung Youn Boo, VL Offshore, TX, USA

Design of a 10-MW Floating Offshore Wind Turbine in Korea

Hyeonjeong Ahn, Hyunkyung Shin, Univ of Ulsan, Korea

Simulation of Self-Aligning Floating Offshore Wind Turbines

Andreas Manjock, DNV GL; Jan-Christoph Hinrichs, Aerodyn Engineering GmbH; Stefan Netzband, Christian Schulz, Moustafa Abdel-Maksoud, Hamburg Univ of Technology, Germany

Numerical Investigation on the Aerodynamic Performance of a Scaled Model Offshore Floating Wind Turbine under Surge Motion

Yuan Fang, Lei Duan, Ye Li, Shanghai Jiao Tong Univ, China

Uncertainties in the Design of Floating Offshore Wind Turbine Structures

Do-Eun Choe, Prairie View A&M Univ; Steffen Shalley, VL Offshore; Jeong-Yun Won, Barr Engineering; Sung Youn Boo, VL Offshore; Hyoung Chul Kim, Prairie View A&M Univ, USA

An Improved Time-Frequency Analysis Method Based on the Energy Gridding for Offshore Wind Turbines

Fushun Liu, Shujian Gao, Ocean Univ of China; Bin Wang, Powerchina Huadong Eng; Fushun Liu, Ocean Univ of China, China

95. SUBSEA, PIPELINES, RISERS VII: Umbilicals 1(V. 2)

Wednesday June 19 14:00 Room 4

Chair: Efstathios Theotokoglou, National Tech Univ of Athens, Greece

Co-chair: Sung Yoon Boo, VL Offshore; USA

Freespan Lengths for Umbilicals and Flexible Pipes determined by Bending Stiffness, Soil Conditions and SN curves

Rolf-Hugo Kirkvik, Fredy Coral, Kongsberg Maritime, Norway

Semi-analytical Method for Flexible Pipe Indentation Analysis

Kevin Huang, Oceanergy, USA

Fatigue Flexible Pipe Integrity Assessment Based on Floating Unit Motion Data

Simon Peronne, TechnipFMC, France

Stress Concentration Factor of Flexible Riser with Damaged Tensile Armor Wires under Combined Bending and Tension Load

Guomin Ji, SINTEF Ocean; Mathias Haugen, Muk Chen Ong, Univ of Stavanger, Norway

Stress State of Unbonded Flexible Pipe's Tensile Armour Wires Inside End-Fittings

Efstathios E. Theotokoglou and Panagiotis S. Anastasiadis, National Technical Univ of Athens, Greece

96. HPM X: Additive Manufacturing (V. 4)

Wednesday June 19 14:00 Room 5

Chair: Ning Ma, ExxonMobil Research & Engineering, NJ, USA

Co-Chair: R.M. Chandima Ratnayake, Univ of Stavanger, Norway

Leaning Offshore Petroleum Operations with Additive Manufacturing: Digital Supply Chains and Services Innovation

R M Chandima Ratnayake, Tore Markeset, Univ of Stavanger, Norway

Additively Manufactured Precipitate Hardened Corrosion Resistant Alloys and Post-Build Heat Treatment

Liu Cao, W Kovacs, C Taylor, R Thodla, DNV GL, USA

Material Development Challenges and Advantage of Additive Manufacturing [Oral presentation]

Satyajeet Sharma, Matt Donavan, Kumar Kandasamy, Oerlikon am, USA

Additive Manufacturing for Oil and Gas – Potential of Topology Optimization for Offshore Applications

John Barnes, Joseph A Camisa, ExxonMobil Technical Computing Company, USA

Application of 3D Printer for Laboratory Soil Tests

Jun Yoneda, National Inst of AIST, Japan

97. COASTAL VIII: Coastal Erosion (V. 3)

Wednesday June 19 14:00 Room 6

Chair: Susumu Araki, Osaka Univ, Japan

Co-chair: Pasquale G F Filianoti, Univ Mediterranea of Reggio Calabria; Italy

Frequency-domain Hydroelastic Analysis of a Two-dimensional Floating Structure in Variable Bathymetry by a Hybrid Technique

Xiaolei Liu, Xuefeng Wang, Shengwen Xu, Xin Li Shanghai Jiao Tong Univ, China

Sediment Grain Size Distribution Behind Detach Breakwater in Bengkalis Island of Indonesia

Basir Noerdin, Tetsuya Hiraishi, Kyoto Univ, Japan

A Study on Wind Driven Current and Nearshore Current at Ishikari-hama Beach

Naoyuki Inukai, Nagaoka Univ of Technology; Keita Shinada, New Civil Engineering, Japan

The Study on the Effect of Coastal Erosion Mitigation Using Artificial Coral Reefs - Understanding with 3 Dimensional Hydraulic Experiment

S Hong, T Kim, Pusan National Univ; S Lee, G S Lee, Han Ocean Corp; D S Hur, Gyeongsang National Univ; J S Yoon, Inje Univ; Soonchul Kwon, Pusan National Univ, Korea

On the Role of Morphological Evolution in Lanyang River Estuary and Adjacent Coastlines: Effects of Regular and Extreme Metrological Conditions

Hui-Ming Fang, National Taiwan Ocean Univ; Ting-Chieh Lin, National Kaohsiung Univ of Sci & Tech; Kun Lee, National Taiwan Ocean Engineering, Taiwan, China

Characteristics of Beach Erosion in Headland Bays Due to Storm-Waves

Xi Feng, Yingtao Zhou, Hohai Univ, China

98. OCEAN TECHNOLOGY XV: Panel

Wednesday June 19 14:00 Room 7

Chair: Alan Wang, Offshore Oil Engineering Co, China

Panelists

99. ADVANCED SHIP TECH X: Maneuvering (V. 4)

Wednesday June 19 14:00 Room 8

Chair: Yonghwan Kim, Seoul National Univ, Korea

Air Lubrication Sweep Angle Estimation Based on Air Injection Condition Using Model Experimental Image Analysis

Seong-hyeon Park, Seung-Chan Park, Inwon Lee, Pusan National Univ, Korea

Simulation Study on the Maneuverability of Twin-propeller Twin-rudder Bulk Carrier in Large Artificial Waterway

Pengfei Yue, Lizheng Wang, Yan Jin, Wuhan Univ of Technology, China

Path Following of Underactuated Marine Vehicles Based on Model Predictive Control

Zhi-Hua Zeng, Zao-Jian Zou, Zi-Hao Wang, Jian-Qin Wang, Shanghai Jiao Tong Univ, China

Identification of MMG Model for Ship Manoeuvring Motion in 4-DOF Using Least Square Support Vector Machines

Xuegang Wang, CCCC Fourth Harbor Engineering Inst; Zao-Jian Zou, Yan Jiang, Shanghai Jiao Tong Univ, China

Research on Ship Traffic Conflict in Crossing Situation based on Ship Maneuverability

Jinpeng Xie, Zhao Liu, Yanmin Xu, Wuhan Univ of Technology, China

An Analysis of the Ventilated Flow on a Rudder

Martina Andrun, Josip Basic, Branko Blagojevic, Univ of Split, Croatia

Efficient Coupling of Slender Ship Theory and Modular Maneuvering Model to Estimate the Ship Turning Motion in Waves

Ardhana Wicaksono, Masashi Kashiwagi, Osaka Univ, Japan

Research on the Numerical Simulation Method of IMO Ship Minimum Installed Propulsion Power

Wei-Min Chen, Shanghai Ship & Shipping Research Inst, China; Yu-chen Shang, Texas A&M Univ, USA; Chuan-qing Li, Shanghai Ship & Shipping Research Inst; Dan Nie, Lei Zhang, Jia-Ning Zhang, Dalian Maritime Univ, China

Predictions of Noise Levels on Board Ships by Hybrid SEA: Ro-Ro Passenger Ship and Self-Propelled Cutter Suction Dredger Examples

Nikola Vladimir, Marko Mikulec, Andro Bakica, Univ of Zagreb, Croatia

100. GEOTECH X: Soil-Pipeline Interactions (V. 2)
Wednesday June 19 14:00 Room 9

Chair: Osoon Kwon, Korea Inst. of Ocean Science and Technology, Korea

Constitutive Modeling of Cyclic Seabed Behavior around Coastal and Offshore Structures: Two Robust Models and Their Predicting Capabilities

Mehmet Barış Can Ülker, Istanbul Technical Univ, Turkey

Pipe Walking for Onshore Pipelines

Thomas Jurca, TransCanada Corporation; Zhang He, Robert M Thom, SES Canada; , Canada

Effects of Seabed Shear Strength and Gap between Pipeline and Seabed on Drag Force on Suspended Pipelines Caused by Submarine Debris Flow

Diponkar Saha, Bipul Hawlader, Memorial Univ of Newfoundland; Sujan Dutta, Terraprobe; Ashutosh Dhar, Memorial Univ of Newfoundland, Canada

Shaking Table Tests for Buried Pipe Bends with Thrust Restraints Using Geogrid and Gravel in Liquefied Ground

Yoko Ohta, Yutaka Sawada, Mina Kawamura, Kobe Univ; Kohei Ono, Ehime Univ; Toshinori Kawabata, Kobe Univ, Japan

Numerical Analysis for Buried Pipe Bends Subjected to Lateral Load by 3-Dimensional Discrete Element Method

Makoto Hirokawa, Kobe Univ; Kenji Terada, Civil Eng Research Inst for Cold Region; Yutaka Sawada, Yoko Ohta, Mina Kawamura, Toshinori Kawabata, Kobe Univ, Japan

Effects of Angle and Interface Friction of Buried Pipe Bend on Lateral Resistance Force

Mina Kawamura, Yutaka Sawada, Yoko Ohta, Kobe Univ; Kohei Ono, Ehime Univ; Toshinori Kawabata, Kobe Univ, Japan

Model Experiments on Influence of Sheet-pile Extraction on Mechanical Behavior of Twin Buried Flexible Pipes

Mayu Toda, Yutaka Sawada, Noritake Miyazaki, Takuya Ishiwawa, Toshinori Kawabata, Kobe Univ, Japan

Influence of Large-diameter Pipe Pile Driving on Adjacent Pipelines Embedded in Marine Sediments

Jinjian Chen, Jinzhong Dou, Chencong Liao, Shanghai Jiao Tong Univ, China

101. ARCTIC IV: Ice Management & DP (V. 1)

Wednesday June 19 14:00 Room 10

Chair: Igor Buzin, Arctic & Antarctic Research Inst, Russia

Management of Ice Risks to Offshore Operations and Shipping along Canada's East Coast [Invited, Oral Presentation]

Ivana Kubat, National Research Council Canada, Canada

The Influence of Floe Size and Ice concentration on the Operating Envelopes of an FPSO in Pack Ice

Mohamed Sayed, Shameen Islam, David Watson, National Research Council of Canada; Brian Wright, B Wright & Associates, Canada

Icebergs Towing Experiments in the Barents and Kara Seas in 2016-2017

Konstantin A Kornishin, Rosneft Oil Co; Yaroslav Efimov, Arctic Research Centre; Petr Tasesov, Rosneft Oil Co; Alex Chernov, Ivan Svistunov, Polina Maksimova, Igor Buzin, Alexander Nesterov, Arctic and Antarctic Research Center, Russia

Iceberg Towing in Newly Formed Ice

Yaroslav O. Efimov, Arctic Research Centre; Konstantin A. Kornishin, Oleg Ya. Sochnev, Rosneft Oil Co; Yury P. Gudoshnikov, Alexander V. Nesterov, Ivan A. Svistunov, Polina V. Maksimova, Igor V. Buzin, Arctic and Antarctic Research Inst, Russia

WEDNESDAY 16:20

**102. HYDRODYNAMICS XI:
CFD 3 Ship Hydrodynamics (V. 3)**

Wednesday June 19 16:20 Room 1

Chair: Suak Ho Van, KRISO, Korea

Geometric Modeling and Mesh Generation by Radial Basis Functions and their Application to Ship Flow Simulations

Lin Ma, Tingqiu Lia, Zuyuan Liu, Jiangyan Shao, Hao Wu Wuhan Univ of Technology, China; William Geraint Price, Pandeli Temarel, Dominic Hudson, Univ of Southampton, UK

Simulation of Roll Performance for Various Ship Sections by Solving Navier-Stokes Equations

Xiechong Gu, Xiaohui Zhang, Ning Ma, Shanghai Jiao Tong Univ, China

CFD Study of Coupled Heave-Roll Motion Effect on Flooding Process of a Cruise Ship

Xiaoting An, Shanghai Jiao Tong Univ; Gaoshuai Wang, Yue Ding, Shanghai Waigaoqiao Shipbuilding, Decheng Wan, Shanghai Jiao Tong Univ, China

Benchmark Computations on Motion Responses and Bow Waves of the Ship in Incident Waves

Hao Guo, Jianhua Wang, Decheng Wan, Shanghai Jiao Tong Univ, China; Changhong Hu, Kyushu Univ, Japan

Verification and Validation of the Numerical Simulation of the Roll Motion of Ships

Zhaobing Jiang, Sanjiang Univ; Jiannan Zhou, Xinbgkun Xie, Univ of PLA; Yali Zhou, Sanjiang Univ, China

CFD Numerical Simulation on Motion Responses of the Double M-hull in Waves

Liang Yan, Xiaofei Mao, Wuhan Univ of Technology; Zeshuang Yu, China Classification Society, China

Computational Fluid Dynamics Study on KRISO Container Ship Maneuvering in Calm Water

Seemontini RoyChoudhury, Osaka Univ, Japan; Ping-Chen Wu, National Cheng Kung Univ, Taiwan, China; Yugo Sanada, Univ of Iowa, USA; Yasuyuki Toda, Osaka Univ, Japan

103. HYDRODYNAMICS XVII: Dynamic Positioning 1 (V. 3)
Wednesday June 19 16:20 Room 2

Chair: Shengwen Xu, Shanghai Jiao Tong Univ, China

An Experimental Study on Pontoon Bridge Position Keeping

Van-Trong Nguyen, Tae-Wan Kim, Dong-Hun Lee, Chang-Hyo Son, Jing-In Yoon, Kwang-Hwan Choi, Young-Bok Kim, Pukyong National Univ, Korea

Mitigating Roll-Pitch Motion by an Adaptive Fuzzy Damping Controller in Dynamic Positioning System

Huacheng He, Lei Wang, Shengwen Xu, Bo Li Shanghai Jiao Tong Univ, China

Drift-off Safety Limits of Dynamic Positioned FPSO on the Next GenSPS

Yue Han, Xingwei Zhen, Yi Huang, Dalian Univ of Technology, China

State Estimation of Dynamic Positioning Using a Model Predictive Extended Kalman Filter

Fan Jiang, Haixiang Xu, Wenzhao Yu, Hui Feng, Wuhan Univ of Technology, China

Robust Dynamic Positioning Control of Marine Ships via a Disturbance Observer

Chenfeng Huang, Xianku Zhang, Yingjie Deng, Dalian Maritime Univ, China

Research on Dynamic Positioning Thrust Allocation Switching Strategy

Mengfei Zhu, Haixiang Xu, Wenzhao Yu, Hui Feng, Wuhan Univ of Technology, China

104. RENEWABLE ENERGY XI: Offshore Wind 7: Management 1 (V. 1)

Wednesday June 19 16:20 Room 3

Chair: Erik Friis-Madsen, Wave Dragon; Denmark
Co-chair: Richard S K Argall, Makai Ocean Engineering, USA

Operational Modal Analysis of a Multi-Rotor Wind Turbine
Oliver Tierdad Filsoof, Aarhus Univ; Anders Yde, Vestas Wind Systems; Xuping Zhang, Aarhus Univ, Denmark

Study on the Influence of Uniform and Dynamic Winds on Coupled Dynamic Response of 5-MW Semi-Submersible FOWT

Xinkuan Yan, Chaohe Chen, Yijun Shen, Tianhui Fan, South China Univ of Technology, China

Energy Extraction and Wake Velocity Distribution of the Turbine Array with Different Layouts

Jisheng Zhang, Can Zhang, Hohai Univ; Ya Wang, China Design Group; Tiantian Zhang, China Three Gorges Corp, China

Large Eddy Simulation of Wake Characteristics of a Yawed Wind Turbine in Uniform Inflow Conditions Using Actuator Line Approach

Lin Yang, Harbin Engineering Univ, China; Qing-Wei Ma, City, Univ of London, UK; Kangping Liao, Hongde Qin, Harbin Engineering Univ, China

CFD Analysis for A Set of Axial Fan Array to Produce Inflow for Wind Turbine Model Test

Long Yu, Ying Chen, Shanghai Jiao Tong Univ, China

Numerical Study of Wake Interaction and its Effect on Wind Turbine Aerodynamics Based on Actuator Line Model

Xu Ning, Yang Huang, Decheng Wan, Shanghai Jiao Tong Univ, China; Changhong Hu, Kyushu Univ, Japan

Reduction of Offshore Wind Cable Failures

Richard S K Argall, Greg Rocheleau, Jose Andres, Makai Ocean Engineering, USA

**105. SUBSEA, PIPELINES, RISERS VIII:
Umbilicals 2 (V. 2)**

Wednesday June 19 16:20 Room 4

Chair: Mason Wu, Trafigura Trading LLC, TX, USA
Co-Chair: Rolf-Hugo Kirkvik, Kongsberg Maritime, Norway

Evaluation of Accuracy and Precision for Derived Axial Stiffness for Cables and Umbilicals from Full-Scale Testing [Proceedings only]

Roger Slora, Bjørn Konradsen, Magnus Komperød, Nexans Norway AS, Norway

Power Cable Design and Dynamic Analysis for a Hybrid Platform

Sung Yoon Boo, VL Offshore; He Yang, Texas A&M Univ, USA

Carbon Fibre Armour for Hyper Deep Water Power Cables – Termination System Development

Anne Berg Thorvaldsen, Torunn Lund Clasen, Nexans Norway AS, Norway

Small-Scale Testing and Mathematical Modeling of Cable Elements' Shear Forces due to Dry Friction and Bitumen
Magnus Komperød, Bjørn Kondradsen, Bjørn Aspli, Nexans Norway AS, Norway

Investigation of Dynamic Wet Design XLPE Cable after 12 Years in Operation
Torunn Lund Clasen, Randi Floden, Elise Olsen, Nexans Norway AS, Norway

Small- and Full-Scale Fatigue Testing of Lead Cable Sheathing;
Audun Johanson, Nexans Norway AS, Luigi Mario Viespoli, NTNU; Antonio Alvaro, SINTEF Industry; Filippo Berto, NTNU, Norway

106. HPM XI: EAC I: Hydrogen Embrittlement - Fundamentals, Modeling 1 (V. 4)
Wednesday June 19 16:20 Room 5

Chair: Eiji Akiyama, Tohoku Univ, Japan
Co-Chair: Hyun Jo Jun, ExxonMobil Research & Engineering, USA

Effect of Mn Content on Hydrogen Embrittlement of High-Mn Steel at Low Temperature
Jang Woong Jo, Hyun Soo Seo, Chong Soo Lee, Pohang Univ of Sci & Tech, Korea

The Role of VC Precipitates in Hydrogen Assisted Cracking of Vanadium Modified 2¼Cr1Mo Steel
Kevin A Nibur, Hy-Performance Materials Testing; Brian Somerday, Southwest Research Inst, USA; Sylvain Pillot, ArcelorMittal, France; Richard Gangloff, Univ of Virginia, USA

An Experimental Study on Environmental Assisted Cracking of Structural Steel in 3.5 wt% NaCl Solution
Nirosha D Adasooriya, Tor H Hemmingsen, Dimitrios Pavlov, Univ of Stavanger, Norway

Hydrogen Embrittlement of High Strength Steels Assisted by Corrosive Environment [Oral presentation]
Eiji Akiyama, Tohoku Univ, Japan

A Comparison of Inhibitory Effects of Carbon Monoxide and Oxygen on Hydrogen-Accelerated Fatigue Crack Growth
Ryosuke Komoda, Fukuoka Univ; Kazuki Yamada, Masanobu Kubota, Kyushu Univ, Japan

Effects of Hydrogen and Surface Cracks on the Tensile Properties of Torsional Prestrained Carbon Steel
Hiroshi Nishiguchi, takayuki Fukuda, Kenji Higashida, Sasebo College, Japan

107. COASTAL IX: Coastal Management (V. 3)
Wednesday June 19 16:20 Room 6

Chair: Yoshimichi Yamamoto, Tokai Univ, Japan

Risk Assessment Study in the Port Water Area Based on Entropy Weight and Matter-Element Model
Congcong Zhou, Quandang Ma, Yujie Jiang, Wuhan Univ of Technology, China

Innovative Strategies, Monitoring and Analysis of the Coastal Erosion Risk: The STIMARE Project

Renata Archetti, et al, Univ of Bologna, Italy

Safety and Resilience Indicators of Critical Infrastructure Impacted by Operation Application to Port Oil Terminal Examination

Krzysztof Kołowrocki, Joanna Soszyńska-Budny, Gdynia Maritime Univ, Poland

108. OMGH I - Gas Hydrates 1 (V. 1)

Wednesday June 19 16:20 Room 7

Chair: Jiawang Chen, Zhejiang Univ, China

Co-chair: Yuan Chen, China Univ of Petroleum (Beijing), China

Simulation and Analyze of Evaporation of Stationary Methane Droplet in Its Vapor during Cooling Down Process

Jiajia Deng, Jian Xu, Youwu Hu, Jinshu Lu, Zhejiang Ocean Univ, China

Experimental Investigation of Methane Hydrate Reformation with Under-inhibition of MEG

Yutaek Seo, Hyunho Kim, Seoul National Univ; Jakyung Kim, KAIST, Korea

An Experimental Study on Flow Assurance in Methane Hydrate Production System

Satoshi Hirobayashi, Tokai Univ; Fumio Kiyono, Hiromitsu Morita, AIST; Yoshiyuki Shimizu, Tokai Univ, Japan

A Study on Optimization Measures for Offshore Oil&Gas Field Development under Low Oil Price Situation

Hualei Yi, Zejun Yang, Lu Wu, Qiang Zhang, CNOOC Research Inst, China

Dynamic Mechanical Properties of Tetrahydrofuran Hydrate-bearing Silty Sediments

Xuhui Zhang, Shuyun Wang, Fangfang Sun, Xiaobing Lu, Inst of Mechanics, CAS, China

The Suitable Strength Criterion to Determine the Collapse of Hydrate Reservoirs with Different Saturation

Yuan Chen, Ting Sun, China Univ of Petroleum (Beijing), China; Yida Zhang, Univ of Colorado-Boulder, USA; Ying zhao, China Univ of Petroleum (Beijing), China

109. ADVANCED SHIP TECH XI: Design & Production (V. 4)

Wednesday June 19 16:20 Room 8

Chair: Gianmarco Vergassola, Univ of Genoa, Italy

Research on Habitability Evaluation of Ocean Exploration Vessel Accommodations Based on FAHP

Hongtao Yuan, Yan Yin, Chunhui Li, Bo zhou, Haiwen Zhang, Yan Yang, Shanghai Waigaoqiao Shipbuilding, China

Multi-objective Reliability-Based Design Optimization of an Autonomous Sailing Vessel

Julian C Fraize, Mirjam Fürth, Steven Hoffenson, Fanny Ekman, Stevens Inst of Technology, USA

**Using the Conditional Generative Adversarial Networks
Extend the Visual Ocean scene Image Set**
Ruolan Zhang, Masao Furusho, Kobe Univ, Japan

**Recognition and Location of Ship Small Assemblies Stiffeners
for Automatic Manufacturing Based on Machine Vision**
Jinhong Ding, Chongben Ni, Shanghai Jiao Tong Univ; Dewu
You, Shipbuilding Technology Research Inst, China

Study on Technology of Skidded Loadout of SPAR Hull
Yuhan Wang, Hongtao Yuan, Gang Chen, Chunhui Li, Shugang
Ma, Xingfeng Zheng, Shanghai Waigaoqiao Shipbuilding, China

Study on the Multi-area Concurrent Construction of Drillship
Bo Zhou, Jianwei Chen, Xuehui Zhang, Shugang Ma, Yan Yin,
Yan Wen, Shanghai Waigaoqiao Shipbuilding, China

**Fatigue Life Improvement Method and Allowable Defect
Criteria for Repair Welds of Marine Propeller Blade**
Hyeon Su Kim, Dong-Wook Kim, Tae-Jong Park, Dong-Ju Lee,
Hyundai Heavy Industries, Korea

110. GEOTECH XI: Ground Improvement (V. 2)
Wednesday June 19 16:20 Room 9

Chair: Young-sang Kim, Chonnam National Univ, Korea
Co-chair: Yun Wook Choo, Kongju National Univ, Korea

**Development of New Chemical Grouting Method with High
Injection Efficiency and Quality**
Yasutoshi Ohno, Tkayoshi Ito, Taiyo Foundation; Atsushi
Yashima, Yoshinobu Murata, Keizo Kariya, Yuki Hanada, Gifu
Univ, Japan

**Study on Fluidity and Mechanical Characteristic of Fiber
Reinforced Cement Milk**
Masahide Niina, Ken Watanabe, Mamoru Fuji, Daisuke
Kajiwara, Tokai Univ; Mitsuru Kodera, Nippon Concrete
Industries, Japan

**The Strength Development of Cement-treated Marine Clay
with the Measurement of the Cement-hydrate**
Erika Yamashita, Hiroyasu Kasuu, Tsuchida Takashi, Hiroshima
Univ, Japan; Gyeong-O Kang, Chonnam National Univ, Korea;
Arlyn Aristo Cikmit, Hiroshima Univ, Japan

**Strength Monitoring of Dredged Marine Clay Stabilized with
basic Oxygen Furnace Steel Slag Using Non-destructive
Method**
Gyeong-o Kang, Young-sang Kim, Chonnam National Univ,
Korea; Tan Do, Hanoi Univ of Mining and Geology, Vietnam;
Tran Thien, Chonnam National Univ, Korea

**Engineering Performance Review of Matrix/Binder
Conjugated Nonwoven Geotextiles for Weak Ground
Improvement**
Han-Yong Jeon, Inha Univ, Korea

**Analysis of Behaviour of Reinforced Soil Retaining Wall
According to Convex Angle**

Yong-Joo Lee, Dong-Wook Oh, Seoul National Univ of Sci & Tech; Hyuk-Sang Jung, So-Yeon Lee, Young-Je Kim, Dongyang Univ, Korea

A Study of Selection of the Target Reliability Index of Tunnel
Seongwon Lee, Korea Inst of Civil Engineering and Building Technology, Korea

111. ARCTIC V: Ice Navigation (V. 1)
Wednesday June 19 16:20 Room 10

Chair: Mohamed Sayed, National Research Council, Canada

Experimental Investigations on Snow Cover Effect on the Navigating Resistance of an Icebreaker
Siyang Huang, Yan Huang, Jianqiao Sun, Tianjin Univ, China

Numerical Analysis of Air Cavity Propagation in Hovercraft
Lei Ju, Ziheng Su, Qing Wang, Zhou Yang, Harbin Engineering Univ, China

Investigations on the Dynamic Characteristics of Ship-ice Impact Load Through Model Tests
Jianqiao Sun, Yan Huang, Siyang Huang, Tianjin Univ, China

Study on Estimation of Ice Resistance and an Attainable Speed in Oblique Condition
Eric Ozden, Inha Univ; Hyun-Soo Kim, Inha Technical College, Korea

Investigations on the Level Ice Resistance of Ships with Conventional Bow Shapes
Quentin Hisette, Daniela Myland, Hamburg Ship Model Basin; Franciska Müller, Hamburg Univ of Technology; Mikko Suominen, Hamburg Ship Model Basin, Germany

Study on the Influence of Ice-going Ship Speed on Local Ice Loads
Anatoli V Aleksandrov, Valerii Shaposhnikov, Viktor Platonov, Krylov State Research Centre, Russia

WEDNESDAY 19:00

19:00	CORAL, 6F
Annual Conference Banquet	
29th ISOPE Cultural Event, Best Paper, Best Student Paper, Outstanding Student Scholarships, Best Organizer(s) and ISOPE Awards	
<i>Don't forget the banquet ticket!</i>	

THURSDAY 08:00

112. HYDRODYNAMICS XII: CFD 4 Hydrodynamics 2 (V. 3)
Thursday June 20 08:00 Room 1

Chair: Shiqiang Yan, City, University of London, London, UK

Simulation of Wave Breaking in Deep Water with a Non-Hydrostatic Shock-Capturing Model

Dongbin He, Yuxiang Ma, Guohai Dong, Dalian Univ of Technology, China

Modeling Wave Attenuation by Plants under Combined Wave-current Interaction in SWAN

Zhan Hu, Hong Wang, Sun Yat-Sen Univ, China

Numerical Simulation of Motion of Rectangular Body in Rogue Waves Using Open Source Libraries

Wooyoung Jeon, Sunho Park, Korea Maritime and Ocean Univ, Korea

Numerical Simulation of Typhoon Wave of Taitung Zhiben Coast in Taiwan

Chen-Shan Kung, Pei-Yu Lee, PinTzu Su, Ken Huang, ATE Energy International, Taiwan, China

A New Scheme of Thermal Properties for VOF Method in Heat Transfer Problems

Ke Chen, Panpan Han, Yunxiang You, Jingjing Zhang, Xinshu Zhang, Shanghai Jiao Tong Univ, China

A Multiphase SPH Model for Large Scale Bubble Dynamics in Ocean Engineering Applications

Xiangli Fang, Pingping Wang, Furen Ming, Harbin Engineering Univ, China; Pengnan Sun, Ecole Centrale de Nantes, France; A-Man Zhang, Harbin Engineering Univ, China

Modified Volume-of-Fluid Interface Tracking Methods for 2D Incompressible Flows

Richards Chizhuthanickel SunnyJuan Horrillo, Texas A&M Univ Galveston, USA

113. HYDRODYNAMICS XVIII: Dynamic Positioning 2 (V. 3)

Thursday June 20 08:00 Room 2

Chair: Katsuji Tanizawa, National Maritime Research Inst., Japan

Virtual Reality Simulations for Dynamic Positioning Floatover Installation

Alan M Wang, Rongqi Chen, Min He, Xiaohuan Zu, Jingkuo Xu, Offshore Oil Engineering, China; Wim van't Padje, STC BV, Netherlands

A Model Test Study for DP Floatover Installation of Large Integrated Topsides

Mingxing Yu, Nan Xu, Hongxin Tian, Alan M Wang, Biao Wang, Offshore Oil Engineering; Lei Wang, Shanghai Jiao Tong Univ, China

Adaptive PID for Dynamic Positioning System Based on Reinforcement Learning

Daesoo Lee, Seung Jae Lee, Korea Maritime and Ocean Univ, Korea

Initial Design of Autonomous Controller for Stationkeeping System using Flapping Foils in Combined Ocean Environments

Woolim Sim, Rupesh Kumar, Hyunkyong Shin, Univ of Ulsan, Korea

Influence of Mooring Components on the Wave Structure Interaction of a Moored Floating Body

Jannik Meyer, Arndt Hilderbrandt, Univ of Hannover, Germany

Simulation Implementation of the Active Hybrid Model for Deepwater Mooring System

Yaowen Zhu, Hongwei Wang, Gang Ma, Liang Zhong, Harbin Engineering Univ, China

Study of Drag Force Acting on Various Types of DP Jack-up Vessel Legs

Nitin Damodhar Thulkar, Satoru Yamaguchi, Koki Ebihara, Kyushu Univ, Japan

114. RENEWABLE ENERGY XII: Offshore Wind 8: Management 2 (V. 1)

Thursday June 20 08:00 Room 3

Chair: John M. Niedzwecki, Texas A&M Univ, TX, USA

Data-Driven Design and Operation of Offshore Wind Structures

Dawid Augustyn, Ulf T Tygesen, Ramboll; Martin D Ulriksen, John D Sørensen, Aalborg Univ, Denmark

An Integrated Asset Management Model for Offshore Wind Turbines

Jerome Lonchamp, EDF R&D, France; Antoine Joly, Tariq Dawood, Alexios Koltsidopoulos Papatzimos, EDF Energy R&D UK Center, UK

Simulation-Based Economic Evaluation of the Operational Phase of Offshore Wind Turbines

Stephan Oelker, Univ of Bremen; Abderrahim Ait Alla, BIBA; Marco Lewandowski, Univ of Bremen; Melanie Löffler, BIBA; Michael Freitag, Univ of Bremen, Germany

Study on the Application Framework of BIM in the Life Cycle Management of Offshore Wind Farms

Jing Jia, Shengyu Dou, Shutong Yang, Yajie Wu, Feifei Cao, Ocean Univ of China, China

Optimal State Estimation for Wind Turbines Based on Real Measurements

Thomas van Dijk, Jitse Pruijsma, TNO, Netherlands

Dynamic Measurements of a 1:25 Scale Floating Wind Turbine [Oral presentation]

Antonie Oosterkamp, Sigmund Clausen, Uni Research Polytec, Norway

The Structural Vibration Monitoring and Analysis of Offshore Wind Turbine in Taiwan

Kung-Chun Lu, James Chang, National Center for Research on Earthquake Engineering; Yu-Shu Kuo, Wei-Chen Tseng, National Cheng Kung Univ; Harris Lee, Formosa 1 Wind Power; Zron Wang, Hao Chang, System Access Co, Taiwan, China

115. SUBSEA, PIPELINES, RISERS IX: Multiphase Flow (V. 2)

Thursday June 20 08:00 Room 4

Chair: Ljiljana D. Oosterkamp, Equinor ASA, Norway
Co-chair: A-Man Zhang, Harbin Engineering Univ, China

Influence of Specific Surface Area and Morphology of Nanocomposite Pour Point Depressant on the Modification of Waxy Oil

Zheng Peng, Wei Wang, Huirong Huang, Weijie Yu, Jing Gong, China Univ of Petroleum (Beijing), China

Experimental Investigation of Severe Slugging in Vertical Riser and Its Mitigation with Inlet Choke Control

Yutaek Seo, Ki Heum Park, Younghoon Sohn, Wonjin Jang, Seoul National Univ, Korea

Water Hammer in Multiphase Subsea Pipeline with Low Gas-Liquid Ratio

Hong Lu, CNOOC Research Inst, China

Modelling of Liquid-Solid Flow in Horizontal Pipe Applying Computational Fluid Dynamics Method

Sihang Chen, China Univ of Petroleum (Beijing), China

Numerical Simulation of Flow Field of a Combined Jetting Pig in Subsea Natural Gas Pipeline

Hang Zhang, Na Lu, Shimin Zhang, China Univ of Petroleum-Beijing, China

An Experimental Investigation of In-Situ Water Cut Distribution for Oil-water Two Phase Horizontal

Hai-Yuan Yao, Qing-Ping Li, Bing Chen, CNOOC Research Inst; Jing Gong, China Univ of Petroleum-Beijing, China

116. HPM XII: EAC II: Hydrogen Embrittlement-Fundamentals, Modeling 2 (V. 4)

Thursday June 20 08:00 Room 5

Chair: Brian Somerday, Southwest Research Inst, USA
Co-Chair: Ramgopal Thodla, DNV GL, USA

Towards Molecular Dynamics Simulations of Hydrogen Effects in Fe-Ni-Cr Stainless Steels

Xiao W Zhou, Michael E Foster, Ryan B Sills, Richard A Karmesky, Sandia National Laboratories, USA

Two Dimensional Visualization of Hydrogen Permeated through a Stainless Steel Membrane

Akiko Itakura, National Inst for Materials Science; Satoka Aoyagi, Seikei Univ; Yoshiharu Murase, Taro Yakabe, National Inst for Materials Science; Shoji Takagi, Toho Univ; Tomoya Iwasawa, Univ of Tsukuba; Naoya Miyauchi, National Inst for Materials Science, Japan

Modelling of a Crack-induced Hydride Formation near a Phase Boundary in Metals

Claudio F Nigro, Christina Bjerken, Yiva Mellbin, Malmö Univ, Sweden

Atomistic Modelling for Intergranular and Quasi-cleavage Fracture Caused by Hydrogen Embrittlement

Nobuyuki Ishikawa, Kazuki Matsubara, JFE Steel, Japan; Liang Wan, Wuhan Univ, China; Wen-Tong Geng, Shigenobu Ogata, Osaka Univ, Japan

The Dislocation Structure as a Function of Distance from a Fatigue Crack Tip in the Absence and Presence of Hydrogen [Oral presentation]

Shuai Wang, Univ of Wisconsin-Madison, USA; Akihide Nagao, Kyushu Univ, Japan; Petros Sogronis, Kyushu Univ, Japan; Ian M Robertson, Univ of Wisconsin-Madison, USA

4D Characterization of the Stress Corrosion Cracking Behavior in Al-10Mg Aluminum Alloy via Synchrotron X-ray Tomography

Dongsheng Fu, Hiroyuki Toda, Hang Su, Kyosuke Hirayama, Kyushu Univ; Kentaro Uesugi, Akihisa Takeuchi, Japan Synchrotron Radiation Research Inst, Japan

117. OMGH II: Gas Hydrates 2 (V. 1)

Thursday June 20 08:00 Room 6

Chair: Yutaek Seo, Seoul National Univ, Korea
Co-chair: Satoshi Hirobayashi, Tokai Univ, Japan

Development of Analysis and Transfer System of Seafloor Natural Gas Hydrate Pressure Core

Jiawang Chen, Qiaoling Gao, Peihao Zhang, Hai Zhuy, Ziqiang Ren, Xiaoling Le, Zhejiang Univ, China

Trajectory Optimization for Gas Hydrate Well in Deepwater: Wellbore Stability and Sand Control

Yue Gu, Deli Gao, Jina Yang, China Univ of Petroleum (Beijing), China

Application Verification of Natural Gas Hydrate Micro-experimental Study

Ye Chen, Yonghai Gao, Guizhen Xin, Dongzhi Gao, Litao Chen, Baojiang Sun, China Univ of Petroleum (East China), China

An Acoustic Approach to Identify the Shallow Gas and Evaluate the Drilling Risk in Deep Water Based on Simulation Experiments Study

Huanhuan Wang, Jin Yang, Lei Li, Jiajun Xu, Lingyu Meng, Jiayao Hong, Qiuxuan Zhao, China Univ. of Petroleum (Beijing), China

The Effect of Permeability on the Spatial Distribution of Hydrate Saturation and Gas Production Performance During Hydrate Dissociation by Depressurization

Didi Wu, Shuxia Li, China Univ of Petroleum (East China), China

118. MECHANICS, COLLISION, RELIABILITY I:

Hydroelasticity (V. 4)

Thursday June 20 08:00 Room 7

Chair: Ling Wan, Newcastle Univ, Singapore
Co-Chair: B-F Peng, J Ray McDermott, USA

Cost Effective Subsea Rock Removal Tool for Deepwater Applications

Trond Bråddland, Deep Blue Solutions; Ingvar Bjelland, Scanmudring AS; Jens-Olav Rundsag, Arne Ingvar Helland, Equinor ASA; Jarie Rygg, DeepOcean AS, Norway

3D Hydroelastic Study of a Trapezoidal Large Floating Structure

Guo-wei Zhang, Wei-qin Liu, Wei-guo Wu, Song-bo Wang, Wuhan Univ of Technology, China

Hydroelastic Response of VLFS with an Attached Submerged Horizontal Porous Plate

Mingwei Feng, Zhaochen Sun, Shuxiu Liang, Dalian Univ of Technology, China

Experimental Study of Slamming Impact on Elastic Models

Byoung Cheon Seo, Hyunkyoungh Shin, Univ of Ulsan, Korea

Numerical Study of Wave Slamming Force on Bottom Panels at Splash Zone Based on ALE Method

Yang Du, Menglan Duan, China Univ of Petroleum (Beijing), China

Introduction of an Autonomous Collision Avoidance Function on a Ship Handling Simulator

Eiko Saito, Yasuyuki Niwa, Junji Fukuto, Kenjiro Hikida, National Maritime Research Inst, Japan

119. ADVANCED SHIP TECH XII: Squat, Operation (V. 4)
Thursday June 20 08:00 Room 8

Chair: Suak Ho Van, KRISO, Korea

Co-Chair: Yucheng Wang, China Ship Dev & Design Center, China

Container Vessel Stowage Plan Problem in Case of the Last-minute Changes at the Future Ports

Mehmet Ali Yurtseven, Evangelos Boulougouris, Osman Turan, Univ of Strathclyde, UK

The Development of Route Decision Strategy Using Wave Added Resistance Estimation Based on Two Dimensional Wave Spectra Due to Operation Profile

Sewon Kim, Daewoo Shipbuilding & Marine Eng, Korea

Numerical Prediction of Large Patrol Boat in Shallow Water

Yucheng Wang, China Ship Development & Design Center; Hao Wang, Wuhan Univ of Technology; Wei Xie, China Ship Development & Design Center, China

Analysis of Impact of Environmental Wind on Motion Characteristics of Hovercraft

Chuanxu Yan, Marine Design & Research Inst of China, China

Numerical Calculation and Simulation Study of Squat on Very Large Ship

Xin Yang, Jingxian Liu, Huanhuan Li, Weihuang Wu, Guangxu Gao, Wuhan Univ of Technology, China

Study on the Squat Characteristics of Very Large Tanker and Container Ship in Shallow Water

Bokyeong Lee, Korea Maritime and Ocean Univ; Sangmin Lee, Kunsan National Univ, Korea

An Experimental Investigation of the Trim Effect on the Behaviour of a Containership in Shallow Water

Khaled Md Elsherbiny, Tahsin Tezdogan, Univ of Strathclyde, UK; Mohamed Kotb, Arab Academy for Sci & Tech, Egypt; Atilla Incecik, Sandy Day, Univ of Strathclyde, UK

Thursday **120. GEOTECH XII: Panel**
June 20 **08:00** Room 9

Chair: Yun Wook Choo, Kongju National Univ, Korea
Co-Chair: Chun Fai Leung, National Univ of Singapore, Singapore

Panelists

Thursday **121. ARCTIC VI: Ice Loads (V. 1)**
June 20 **08:00** Room 10

Chair: Quentin Hisette, Hamburg Ship Model Basin, Germany.

Local Ice Loads on Sloped Structures: Interplay between Ice Compressive and Flexural Failure

Rocky S Taylor, Ridwan Hossain, Memorial Univ of Newfoundland; Thomas Browne, Martin Richard, National Research Council Canada, Canada

Difference Analysis on Fatigue Life of Ice-resistant Jacket Structure in the Bohai Sea Affected by the Global Climate Change and Case Studies

Yuxian Ma, Ning Xu, National Marine Environmental Monitoring Center; Dayong Zhang, Dalian Univ of Technology; Xueqin Liu, Shuai Yuan, National Marine Environmental Monitoring Center, China

Evaluation of Ice Loads on Offshore Structure Using GPU-Event-Mechanics

Hyunwook Kim, Dalian Univ of Technology, China; Claude Daley, Memorial Univ of Newfoundland, Canada

An Experimental Study on Ice Load Signals Using Bow Side Shell Model and Ice Specimen

Tak-Kee Lee, Se-Jin Ahn, Tae-Hoon Bae, Gyeongsang National Univ, Korea

On the Nonlinear Dynamics of the Norströmsgrund Lighthouse in Frequency Lock-in Using Sparse Regression

Ersegun D Gedikli, Torodd S Nord, NTNU, Norway

Large-scale Ice Crushing Experiments with Icebreaker

Victor N Smirnov, Sergey M Kovalev, Alexey A Nubom, Leonid A Panoy, Egor V Shimanchuk, Alex V Chernov, Arctic and Antarctic Research Inst; Konstantin A Kornishin, Rosneft Oil Co; Yaroslav O Efimov, Arctic Research Centre; Dmitry A Tarasov, Rosneft Oil Co, Russia

Nonlinear Finite Element Analysis of Inland-Waterway Barge in Fresh Water Ice Conditions

Harsha Cheemakurthy, Meng Zhang, Karl Garne, Zuheir Barsoum, KTH Royal Inst of Technology, Sweden

THURSDAY 10:30

122. HYDRODYNAMICS XIII: CCP-WSI Blind Tests 1(V. 1)
Thursday June 20 10:30 Room 1

Chair: Deborah Greaves, Univ of Plymouth, UK
Co-Chair: Shiqiang Yan, City, Univ of London, UK

Numerical Investigation of Focused Wave Impacts on Floating Wave Energy Convertors Using OpenFOAM

Scott Andrew Brown, Edward Jack Ransley, Pierre-Henri Musiedlak and Deborah Greaves, Univ of Plymouth, UK

Contribution to the CCP-WSI Blind Test Series 3: Numerical Modelling of a Moored Point-Absorber WEC in a CFD-based Numerical Wave Tank

Christian Windt, Josh Davidson, Maynooth Univ, Ireland; Pal Schmitt, Budapest Univ, Hungary; John V Ringwood, Queen's Univ Belfast, UK

A 3-D Hybrid Model Coupling SPH and QALE-FEM for Simulating Nonlinear Water Wave Interaction with Floating Structure

Ningbo Zhang, Harbin Engineering Univ, China; Shiqiang Yan, City, Univ of London, UK; Xing Zheng, Harbin Engineering Univ, China; Qingwei Ma, City, Univ of London, UK

Numerical Simulation of Focused Wave Interactions with Floating Structures Using FNPT-NS Solver

Junxian Wang, Shiqiang Yan, Qingwei Ma, City, Univ of London, UK

Numerical Simulation of Wave Interaction with a Point Absorber by Nonlinear HOBEM

Dezhi Ning, R Q Wang, Dalian Univ of Technology, China

CCP-WSI Blind Test Series 3: A Nonlinear Froude-Krylov Modelling Approach

Giuseppe Giorgi, Politecnico di Torino, Italy

Interaction of Floating Structure with Waves through Weakly Coupled FNPT and MLPG-R Models

Shagun Agarwal, V Sriram, IIT Madras, India

123. HYDRODYNAMICS XIX: Floating Tunnel, Bridge 1 (V. 1)

Thursday June 20 10:30 Room 2

Chair: Moo Hyun Kim, Texas A&M Univ, TX, USA

Tunnel-Mooring-Line-Vehicle Coupled Time-Domain Dynamic Analysis for a Submerged Floating Tunnel in Wave and Seismic Conditions

Chungkuk Jin, Moo-Hyun Kim, Texas A&M Univ, USA

Investigation of Internal loads in Submerged Floating Tunnels by Mooring Method

Deok Hee Won, Jihye Seo, Woo Sun park, Korea Inst of Ocean Sci & Tech; Seungjun Kim, Daejeon Univ, Korea

Numerical Study on the Behavior of Ground Surrounding the Interface between SFT and Subsea Bored Tunnel

Seok-Jun Kang, Jung-Tae Kim, Gye-Chun Cho, Korea Advanced Inst of Sci & Tech, Korea

On the Wave-Induced Motions of Floating Mega Islands – Design Optimizations in Draft and Shape
William Otto, MARIN, Netherlands

Structural Displacement Estimation by FIR Filter Based Fusion of Strain and Acceleration Measurements
Zhanxiong Ma, Hoon Sohn, Korea Advanced Inst of Sc. & Tech, Korea

Evaluation of Response Amplitude Operator for Scaled Model of Floating Bridge
Minwoo Chang, Korean Railroad Research Inst; Gulgi Choi, Taesung S&E; Phill-Seung Lee, KAIST; Sung Il Seo, Hyung Suk Mun, Korean Railroad Research Inst, Korea

124. RENEWABLE ENERGY XIII: Tidal & Current Energy (V. 1)
Thursday June 20 10:30 Room 3

Chair: Sa Young Hong, KRISO, Korea

Numerical Simulation of Tidal Stream Turbines Using Actuator Line Method
Xiangfeng Lin, Jisheng Zhang, Jing Zhang, Hohai Univ; Tiantian Zhang, China Three Gorges Corp, China

Test Study on Hydrodynamic Characteristics of Floating Tidal Current Power Stations
Guoqiang Li, Yonghe Xie, Wei Wang, Jiping Zhang, Zhejiang Ocean Univ; Xin Lu, CSSC Huangpu Wenchong Shipbuilding, China

Assessment of the Impacts of Density-induced Flow on Tidal Stream Power Generation in Sunda Strait, Indonesia
Kadir Orhan, Roberto Mayerle, Univ of Kiel, Germany

GEMSTAR: A Tethered System for Tapping Tidal Currents Energy
Domenico P Coiro, Univ of Naples Federico II; Giancarlo Troise, Nadia Bizzarrini, Seapower Scarl, Italy

Vertical Structure of the Turbulence Intensity and Power Density in an Asymmetrical Tidal Flow
Konstantin A Korotenko, Shirshov Inst of Oceanology, Russia; Alexei V Sentchev, Univ du Littoral, France

Study on the Tidal Flow around the Keelung Sill: A Test Site for Tidal Stream Power Generation
Yao-Tsai Lo, National Taiwan Ocean Univ, Taiwan, China

Ultimate Strength Evaluation of Kuroshio Current Turbine Blades
Chi-Fang Lee, Chien-Ting Sun, CR Classification Society; Ching-Yeh Hsin, National Taiwan Ocean Univ, Taiwan, China

Numerical Modelling of LCoE for Floating Tidal Platforms – Accounting for MetOcean Conditions in the Site Selection Methodology
John A McDowell, IDCORE & Sustainable Marine Energy; Penny Jeffcoate, Sustainable Marine Energy; Tom Bruce, Univ of Edinburgh; Lars Johanning, Univ of Exeter, UK

125. SUBSEA, PIPELINES, RISERS X: Subsea Installation

(V. 2)

Thursday June 20 10:30 Room 4

Chair: Mason Wu, Trafigura Trading LLC, TX, USA

Co-Chair: Arya Majed, IntecSea Inc., TX, USA

Lined Pipe Reeling Mechanics Design of Experiment & Machine Learning Model

Vincent Cocault-Duverger, Baptiste Fournier, Chen Shen, SAIPEM S.A., France

Prediction of Subsea Pipeline Out of Straightness by Machine Learning to Optimize Lateral Buckling Mitigations

Amandine Laye, Vincent Cocault-Duverger, Alexis Marchesi, SAIPEM SA, France

Non-uniform Contact Force Analysis of Rollers on the Deepwater Pipe-Laying Ship Stinger

Hongsheng Yan, Xiaobo Wang, Tianjin Univ, China

Numerical Calculation of Water Resistance of Immersed Tube Element in Towage

Weiqing Lu, Zongquan Ying, Xuegang Wang, CCCC Fourth Harbor Engineering; Hai-peng Guo, Shanghai Jiao Tong Univ, China

Research on Stress Characteristics in Pouring Deep-buried Superwide Steel Immersed Tube Tunnels with Big Siltation

Shenyong Song, Meimei Liu, Pingjie Li, CCCC Fourth Harbor Engineering, China

Development of Response Strategy for Fire and Flooding in Multi-utility Tunnel Construction

Chang Geun Song, Incheon National Univ; Joo-Hyun Seong, Korea Infrastructure Safety Corp; Tae Soo Eom, Incheon National Univ, Korea

126. HPM XIII: EAC III: Carbon Steel; Sour Performance 1

(V. 4)

Thursday June 20 10:30 Room 5

Chair: Thirumalai Neeraj, ExxonMobil Research & Engineering, USA

Co-Chair: Hyun Jo Jun, ExxonMobil Research & Engineering, USA

Material Design for Grade X65 UOE Sour Linepipe Steels with SSC Resistant Property

Junji Shimamura, Daichi Izumi, Satoshi Igi, Nobuyuki Ishikawa, Satoshi Ueoka, Koichi Ihara, Joe Kondo, JFE Steel, Japan

Material Design of Sour Resistant Line Pipe for Mild Sour Environments

Takuya Hara, Yasuhiro Shinohara, Nobuaki Takahashi, Taro Muraki, Nippon Steel & Sumitomo Metal, Japan

Large OD Seamless Line Pipes for Low Temperature and Sour Service Applications

Alessandro Paggi, Emanuele Paravicini Bagliani, Philippe Darcis, Dalmine S.p.A., Italy

Developments of Heavy Gauge Linepipe Steel Plate for Sour Service

Donghoon Kang, Heewoong Lee, Minho Park, Kyutae Kim, Hyundai Steel, Korea

Hydrogen Permeation, Absorption and Trapping in Carbon Steels – A Comparison of Line Pipe and OCTG Steels

Thirumalai Neeraj, Julian Hallai, Hyun Jo Jun, Ning Ma, ExxonMobil Research and Engineering; David Baker, ExxonMobil Upstream Resesarch; Vikas Srivastava, Brown Univ, USA

127. OMGH III: OCEAN MINING 1: Exploration & Environment (V. 1)

Thursday June 20 10:30 Room 6

Chair: Akira Usui, Kochi Univ, Japan

Co-Chair: Igor V Egorov, FSBI VNIIOkeangeologia, Russia

Preservation Reference Area and Benthic Impact Experiment - Historical Backgrounds

Tomohiko Fukushima, JAMSTEC, Japan

Preliminary Results of Environmental Monitoring of Seafloor Massive Sulphide Excavation and Lifting Tests in the Okinawa Trough

Noboyuki Okamoto, Takaaki Matsui, Shogo Kato, Japan Oil, Gas & Metals National Corp, Japan

Small-scale Distribution Patterns of Hydrogenetic Ferromanganese Crusts in the NW Pacific Seamounts; A Reconnaissance Survey using ROVs and a Manned Submersible

Akira Usui, Koichi Univ; Katsuhiko Suzuki, JAMSTEC, Japan

Experimental Study to Assess the pH Effect on Metal Release from Fe-Mn Nodules and Pelagic Clays

Kyoko Yamaoka, Geological Survey of Japan, AIST; Quan Wang, Hodaka Kawahata, Univ of Tokyo; Atsushi Suzuki, Geological Survey of Japan, AIST, Japan

Preliminary Shipboard Observations of Nodule Fauna in a Polymetallic Nodule Area of the Western Part of the Clarion-Clipperton Fracture Zone

Akira Tsune, Chisato Murakami, Deep Ocean Resources Development, Japan

Continuous Observation of Turbulent Flow Near the Hydrothermal Venting Area in the Okinawa Trough, Japan

Yasuo Furushima, JAMSTEC; Hironori Higashi, National Inst for Environmental Studies; Tatsuo Fukuhara, KANSO Co; Shunsuke Kondo, JAMSTEC; Takeya Matsuda, Kokusai Kogyo Co; Naoki Furuichi, Japan Fisheries Research and Education Agency; Hiroyuki Yamamoto, Tomohiko Fukushima, JAMSTEC, Japan

Precise U-Th Concentration and ²³⁴U/²³⁸U Analysis of Seawater from the Okinawa Trough Using MC-ICPMS [Oral Presentation]

Lisheng Wang, Zhibang Ma, Inst of Geology and Environment, CAS; Zhilei Sun, Inst of Earth Science, CAS; Xuefeng Wang, Jule Xiao, Inst of Geology and Environment, CAS, China

128. MECHANICS, COLLISION, RELIABILITY II: Impact, Explosion (V. 4)

Thursday June 20 10:30 Room 7

Chair Yong Won Lee, Lloyd's Register, UK
Co-Chair: Yingchun Xie, Ocean Univ of China, China

Analysis of Impact Resistance Characteristics of Water-filled Tank Structure under Impact Load

Tao Zhang, Lin zhang, Huazhong Univ of Sci & Tech, China

The Influence of Modelling Weld Effects When Optimizing Thin-Walled Structures for Crashworthiness

Kennie Berntsson, Aalto Univ, Finland; Mihkei Kõrgesaar, TalTech Univ, Estonia; Jani Romanoff, Aalto Univ, Finland

On Dynamic Effects of Bulbous Bow Crushing

Jun Chen, Ling Zhu, Wuhan Univ of Technology, China; Preben T Pedersen, DTU, Denmark

Dynamic Responses of Bridge-Subsoil System Subjected to Barge Collision and Running Safety Analysis of High-Speed Train

Chaoyi Xia, Beijing Jiaotong Univ; Qin Ma, CCCC Highway Consultants; Jiacheng Huang, He Xia, Beijing Jiaotong Univ, China

Signal Analysis of Ship Hull Structure Response Subjected to Underwater Explosion Based on Modified Empirical Mode Decomposition Method

Fulin Yu, Lingling Ji, Lei Song, Fengguang Jia, Hongyuan Sun, Shandong Jiaotong Univ, China

Numerical Simulation of the Ship Multi-layer Container Structure Response Subjected to Blast Load with RKDG-FEM Method

Fulin Yu, Lingling Ji, Bo Gao, Zhuoyi Yang, Bingbing Liu, Shandong Jiaotong Univ, China

Modeling Research on Safety Distance of ship and Offshore Drilling Platform

Yujiang Guo, Yuan Zhuang, Yubo Jia, Wuhan Univ of Technology, China

129. ADVANCED SHIP TECH XIII: Stability & Safety (V. 4)

Thursday June 20 10:30 Room 8

Chair: Yong Won Lee, Lloyd's Register, Southampton, UK

Basis of the Digitization of International Regulations for Preventing Collisions Segmentation to Achieve Unmanned Ships

Xiupin Tong, Lei Zhang, Langxiong Gan, Wuhan Univ of Technology, China

Prediction of the Movement of Moored Vessels Due to Exceeded Mooring Load Limits

Michal Josten, Hamburg Univ of Technology, Germany

Comparison Study on Response Estimation of Mooring Lines Using Different Models

Zhou Lin, Muiyang Wang, Ocean Univ of China; Jinpin Luo, Powerchina Huadong Eng; Zhe Tian, Ocean Univ of China, China

Development of Paint Estimating Software for the Pipe Support of Ship and Offshore Structures Using 3D CAD Models

Doo Yeoun Cho, Eun Se Lee, Hye Yeong Cho, Geum Ju Lee, Jeong Wook Yang, Mokpo National Univ; Min Lee, SM Software; Yong Suk Park, Hyundai Samho Heavy Industries, Korea

Self-righting Characteristic of Autonomous Surface Vehicle under Intact and Damage Conditions

Yanyun Yu, Yan Lin, Xingang Xu, Dalian Univ of Technology, China

On the Racking Assessment of Pure Car Truck Carrier Vessels

Gianmarco Vergassola, Dario Boote, Univ of Genoa, Italy

Numerical Study on Effectiveness of Cross-Flooding Device with Different Compartment Arrangements

Zhenghao Liu1, Shanghai Jiao Tong Univ; Jianing Li, Yue Ding, Shanghai Waigaoqiao Shipbuilding; Decheng Wan, Shanghai Jiao Tong Univ, China

Realization of Ship Damage Stability Calculation in CATIA by Application Development

Zongke Zhang, Marine Design & Research Inst of China; Shengjie Xu, Shanghai Jiao Tong Univ, China

130. OCEAN TECHNOLOGY XII:

Deepwater Drilling 1 (V. 1)

Thursday June 20 10:30 Room 9

Chair: Alan Wang, Offshore Oil Engineering Co, China

A Coming ISO Standard – Offshore Drilling Conductor Setting Depth Design and Operation Guideline

Renjun Xie, Zhong Li, Shujie Liu, CNOOC Research Inst, China

Intelligent Early Kick Detection in Ultra-deepwater High-Temperature High-Pressure (HPHT) Wells Based on Big Data Technology

Qishuai Yin, Jin Yang, China Univ of Petroleum (Beijing), China; Ali Takbiri Borujeni, West Virginia Univ, USA; , Shanshan Shi, Ting Sun, Yuming Yang, China Univ of Petroleum (Beijing); Yanan Geng, Qiang Xia, CNOOC Research Inst; Qiang Xia, Xiaodong Wu, Xin Zhao, China Univ of Petroleum (Beijing), China

Key Drilling Technique and Practice of Ultra-deepwater High-Temperature High-Pressure (HPHT) in LS25 of South China Sea

Yi Huang, Jin Yang, Qishuai Yin, China Univ of Petroleum (Beijing); Zhong Li, Hexing Liu, CNOOC, China; Ali Takbiri Borujeni, West Virginia Univ, USA; Ting Sun, Dongsheng Xu, Shanshan Shi, Yichi Zhang, China Univ of Petroleum (Beijing), China

Comparative Investigation of Dynamic Analysis Models for Subsea Wellhead System in Deepwater

Yuanjiang Chang, Zhenyu Nie, Jingqi Ji, Guoming Chen,
Xiuquan Liu, China Univ of Petroleum (East China); Liangbin
Xu, Weiguo Zhang, CNOOC Research Inst, China

Testing String Dynamics when Jarring Stuck Packer
Baokui Gao, Lisong Wang, Tianxiang Hu, China Univ of
Petroleum (Beijing), China

131. ARCTIC VII: Arctic Ship Design (V. 1)
Thursday June 20 10:30 Room 10

Chair: Vladimir Pavlenko, FCIARctic, RAS, Arkhangelsk, Russia
Co-chair: Rocky S Taylor, Memorial Univ of Newfoundland, Canada

An Analytical Model for Ice Impact Load Prediction
Meng Zhang, Harsha Cheemakurthy, Karl Garme, Zuheir
Barsoum, Magnus Burman, KTH Royal Inst of Technology,
Sweden

**A Structural Analysis Procedure Combining Linear and
Nonlinear FE Methods for Polar Ship**
Shifeng Ding, Li Zhou, Jiangsu Univ of Science & Technology;
Chenkang Zhong, Jing Cao, Shanghai Rules and Research Inst;
Qun Yin, Jian Zhang, Jiangsu Univ of Science & Technology,
China

**Design and Verification of Ship's Structural Safety and
Performance for the ARC7 Ice-class LNG Carrier**
Jae-Man Lee, Hyeok-Geun Ki, Young-Chun Jo, Joong-Hyo Choi,
Chang-Hwan Jang, Sung-Gun Park, Daewoo Shipbuilding &
Marine Eng, Korea

Study on the Water Drag Force on Sea Ice Ridge Keels
Peng Lu, Yongheng Zu, Xiaowei Cao, Yan Wu, Zhijun Li,
Dalian Univ of Technology, China

**Assurance of Load-carrying Capacity for Icebreaking
Propellers [Proceedings only]**
Ksenia Khlystova, Alexandr V Andryushin, Central Marine
Research and Design Inst, Russia

THURSDAY 13:10

Keynote

Thursday 13:10 S Pacific 2, 7F (Room 6)
**World's First Lifting Test for Seafloor Massive Sulphides in
the Okinawa Trough in the EEZ of Japan [Invited]**
Nobuyuki Okamoto, Satoshi Shiokawa, Seiya Kawano, Norihiro
Yamaji, Hironobu Sakurai and Masaomi Kurihara, Japan Oil, Gas
& Metals National Corp, Japan

THURSDAY 12:00

15th STUDENT FORUM

Refreshment served, Format TBA
Nautilus Suite, 6F

Advance Reservation required by **May 20:** isope-5@isope.org

132. HYDRODYNAMICS XIV: CCP-WSI Blind Tests 2(V. 1)
Thursday June 20 14:00 Room 1

Chair: Ling Qian, Manchester Metropolitan Univ, UK

Numerical Study on Focused Wave Interactions with Moored Floating Structures

Zhenghao Liu, Yuan Zhuang, Decheng Wan, Shanghai Jiao Tong Univ, China

Numerical Simulation of Focused Wave Interactions with Floating Structures Using FNPT Solver – QALE-FEM

Shiqiang Yan, Qingwei Ma, City, Univ of London, UK

CFD Simulation of Wave Energy Converters in Extreme Wave Conditions

Hao Chen, Ling Qian, Zhihua Ma, Wei Bai and Zaibin Lin, Manchester Metropolitan Univ, UK

Assessing the Performance of a Hybrid Particle-mesh Model on Simulating Offshore Floating Structures

Qiang Chen, Jun Zang, Univ of Bath, UK

Focused Wave Interaction with Floating Structures by In-house Codes

Lin Cheng, Jinhai Zheng, Hohai Univ; Hanbin Gu, Xiwu Gong, Zhejiang Ocean Univ, China

CCP-WSI Blind Test Series 3: Assessment of the Required Model Fidelity for Numerical Simulation of Wave Interactions with Floating Structures [Oral presentation]

E Ransley, Univ of Plymouth; Shiqiang Yan, City, Univ of London; D Greaves, Univ of Plymouth, UK

133. HYDRODYNAMICS XX: Floating Tunnel, Bridge 2 (V. 1)

Thursday June 20 14:00 Room 2

Chair: H K Lee, Korea Advanced Inst of Sci. & Tech, Korea

Co-Chair: HeonYong Kang, Texas A&M Univ, USA

Factors Affecting Microbial Viability and Self-healing Ability in Concrete: an Overview

H Y Kim, H M Son, H K Lee, Korea Advanced Inst of Sci. & Tech, Korea

Experimental Investigation on Corrosion Behavior of Steel in Submerged Floating Tunnels

Jae-Chan Park, Sang-Lyul Cha, Hyung-Jo Jung, Korea Advanced Inst of Sci & Tech, Korea

The Submerged Floating Tube Bridge for the Norwegian Fjords

Arianna Minoretti, Eidem Mathias Egeland, Norwegian Public Roads Administration, Norway

Coupled Hydroelastic Analysis of a Submerged Floating Tunnel

HeonYong Kang, Moo-Hyun Kim, Texas A&M Univ, USA

Improved Experimental Method to Measure Thermal Expansion of Concrete

Sang-Lyul Cha, Jae-Chan Park, Hyung-Jo Jung, Korea Advanced Inst of Sci & Tech, Korea

134. RENEWABLE ENERGY XIV: Energy Storage (V.1)
Thursday June 20 14:00 Room 3

Chair: Shuichi Nagata, Saga Univ, Japan

Design of Renewables-battery Combined Energy System for Energy Isolated Island

Daejun Chang, Wongwan Jung, Jinyeong Jeong, Korea
Advanced Inst of Sci & Tech (KAIST), Korea

Zirconium-Doped TiO₂(B) Anode for Advanced Li-ion Batteries

Sergey L. Sinebryukhov, Denis P. Opra, Alexander A. Sokolov,
Anatoly B. Podgorbunsky, Sergey V. Gnedenkov, Inst of
Chemistry, FEB RAS, Russia

Marine Renewable Energy Sources for Desalination, Generating Freshwater and Lithium

Jennifer Leijon, Sara Anttila, Anna E. Frost, Sofia Kontos, Jens
Engström, Mats Leijon, Cecilia Boström, Uppsala Univ, Sweden

135. SUBSEA, PIPELINES, RISERS XI: Subsea (V. 2)
Thursday June 20 14:00 Room 4

Chair: Frank K. Lim, 2H Offshore Engineering, UK

Numerical Study of Heat Transfer Characteristics in a Subsea Wet Oil Storage Tank

Dongxi Liu, Shanghai Maritime Univ; Jin Wang, COTEC Offshore
Engineering Solutions, China

Evaluation of the System Reliability and Production Reliability of a Direct Subsea-to-Shore Production System

Junkai Feng, Segen F Estefen, Frank Lim, China Univ of
Petroleum (Beijing), China

Influence of Gathering System Selection and Positioning on Flowline Costs and Production Rates

Philip Stape, Ronnymaxwell SG de Santana, Juliana S Baioco,
COPPE/UFRJ; Djalene Rocoha, Petrobras; Breno P Jacob,
COPPE/UFRJ, Brazil

Numerical Simulations of Sediment Transport and Scour around Monopile Using CFD and DEM Coupling

Seongjin Song, Sunho Park, Korea Maritime and Ocean Univ,
Korea

Development of Scour and Deposition Monitoring System

Jung-Doung Yu, Korea Univ; Myung-Ho Bae, Kyeongdo
Engineering; Jong-Sub Lee, Korea Univ; Hyung-Koo Yoon,
Korea Univ, Korea

Non-intrusive Identification of Offshore Sand Production in Water-gas Pipe Flow via Acoustic Sensing Method

Kai Wang, Gang Liu, China Univ. of Petroleum (East China);
Ziguo Liu, Beijing Normal Univ; Yichen Li, China Univ. of
Petroleum (East China), China

136. HPM XIV: EAC IV: Carbon Steel; Sour Performance 2
(V. 4)
Thursday June 20 14:00 Room 5

Chair: Takuya Hara, Nippon Steel & Sumitomo Metal, Japan
Co-Chair: Nobuyuki Ishikawa, JFE Steel, Japan

Sub-Critical Crack Growth in Line Pipe Steels for Offshore Applications

Ramgopal Thodla, Feng Gui, Xiaoji Li, Ashwini Chandra, DNV GL USA, USA

Sulfide Stress Crack Testing: Pit vs. Crack Determination [Oral presentation]

Timothy D Anderson, Weiji Huang, Doug P Fairchild, ExxonMobil Production; Neeraj Thirumalai, Garrett Wadsworth, Adnan Ozekcin, Hyun Jo Jun, ExxonMobil Corporate Strategic Research, USA

Investigation on Sulfide Stress Cracking of TMCP Pipeline Steels

Xin Yue, Andrew Wasson, David S Fischer, ExxonMobil Upstream Research; Timothy D Anderson, Brian D Newbury, Weiji Huang, ExxonMobil Production; Doug P Fairchild, ExxonMobil Upstream Research, USA

Measuring Crack Propagation Resistance of Line Pipe Steels in Sour Service – A Comparative Study of Test Methods and Materials Response

Hyun Jo Jun, Thirumalai Neeraj, ExxonMobil Research and Engineering; Vikas Srivastava, Brown Univ; Ning Ma, Peter Sarosi, ExxonMobil Research and Engineering, USA

Sulfide Stress Crack Testing: Study of Surface Damage Features Using Profilometry

Thirumalai Neeraj, Garrett Wadsworth, Hyun Jo Jun, Adnan Ozekcin, ExxonMobil Research and Engineering; Timothy Anderson, Weiji Huang, Doug Fairchild, ExxonMobil Production, USA

137. OMGH IV: OCEAN MINING 2: Environment & Mining System (V. 1)

Thursday June 20 14:00 Room 6

Chair: Gopkumar Kuttikrishnan, National Inst of Ocean Technology, India

Co-Chair: Nobuyuki Okamoto, Japan Oil, Gas & Metals National Corp, Japan

A Note on 3D Coupled Static and Transient Behaviors of 6,000-m-long Pipe-Buffer Gimballed at Surface Ship at Sea: At-sea Operation and Simulation [Oral Presentation; IJOPE, 2019]

Jin S Chung, ISOPE, USA

Prospects for Development of Deep-water Machinery for Exploration and Exploitation of Polymetallic Sulphides in Russian Exploration Area (the Mid-Atlantic Ridge)

Igor V Egorov, Anatolii Kondratenko, FSBI VNIIOkeangeologia; Artur Grigortsuk, HYCO, Russia

²³⁰Th/^U Chronology of a Carbonate Chimney from Area of Activity Fluid Venting in Okinawa Trough [Oral Presentation]

Zhibang Ma, Lisheng Wang, Inst of Geology and Environment, CAS; Zhilei Sun, Zhilei Sun, Inst of Earth Science, CAS;

Xuefeng Wang, Jule Xiao, Inst of Geology and Environment, CAS, China

System Preparations for Deep Water Locomotion Trials of Deep Sea Mining Crawler

C Janarthanan, V Chandran, V Sundaramoorthi, B O Vishwanath, S Rajesh, P Muthuvei, N R Ramesh, G A Ramadass, National Inst of Ocean Technology, India

Assessment of Potential Axial Resonance Due to VIV for Ultra-deep Risers

Richard Harrison, Frank Lim, 2H Offshore Engineering, UK

138. MECHANICS, COLLISION, RELIABILITY III: Risk (V. 4)

Thursday June 20 14:00 Room 7

Chair: Yong Won Lee, Lloyd's Register, UK

Chair: Fulin Yu, Shandong Jiaotong Univ, China

Risk Control for Innovative Deepwater Artificial Seabed System Through Barrier Management

Xingwei Zhen, Dalian Univ of Technology, China; Jan E Vinnem, NTNU, Norway; Yi Huang, Dalian Univ of Technology, China

Wind Barrier Selection for a HSR S-S Box Girder Bridge Based on Train Running Safety

Weiwei Guo, He Xia, Beijing Jiaotong Univ, China; Raid Karoumi, KTH Royal Inst of Technology, Sweden

Study on Risk Reduction Performance of Offshore Platform Firewall Subjected to Fire and Explosion Hazards

Qun Yin, Jian Zhang, Yan-jie Sun, Ai-ming Cai, Jiangsu Univ of Science & Technology, China

Hydrodynamic Analysis of a Semi-submersible Radar Platform

Yingchun Xie, Xuyan Liu, Yuanfang Sun, Yucheng Xiao, Guijie Liu, Xiaojie Tian, Dingxin Leng, Ocean Univ of China, China

Study on the Risk Analysis and Safety Evaluation for Crude Oil Offshore Lightering in Qinzhou Gulf

Jian Deng, Xinpei Hua, Cheng Xie, Rui Wang, Hui Sheng, Yuming Zhang, Wuhan Univ of Technology, China

Optimization Solution to the Multibody System of Anchor Chain and Comparison Analysis

Zhaobing Jiang, Xiaoqin Chen, Sanjiang Univ; Junyi Liu, Univ of PLA; Qingquan Yu, Sanjiang Univ, China

139. OCEAN TECHNOLOGY X: Structural Health Monitoring 1 (V. 1)

Thursday June 20 14:00 Room 8

Chair: Xavier P J Ficquet, VEQTER Ltd, UK

Dynamic Analysis of Longline Aquaculture Systems by a Coupled 3D Numerical Model

Longhuan Zhu, Kimberly Huguenard, Univ of Maine; David W Fredriksson, US Naval Academy, USA

The Effect of Short-term Variability of Cross-Spectral Analysis on Wave Buoy Analogy

Toshio Iseki, Yanfei Hong, Tokyo Univ of Marine Science & Tech, Japan; Ulrik Dam Nielsen, Technical Univ of Denmark, Denmark

The Influence Study of Inlet System in Recirculating Aquaculture Tank on Flow Field Characteristics

Qian Zhang, Xiaozhong Ren, Changfeng Liu, Xianying Shi, Jinsong Gui, Boru Xue, Dalian Ocean Univ, China

The Influence Investigate of Bottom Structure in Recirculating Aquaculture Tank on Flow Field Characteristics

Boru Xue, Xiaozhong Ren, Xianying Shi, Changfeng Liu, Linping Yu, Qian Zhang, Dalian Ocean Univ, China

Troubleshooting Exhaust Silencer Catalyst Vibration Failures Using Calibrated FEA and Test Data

Agron E Gjinolli, Paul Liang, Rob Evans, Jeffrey Morgan, Dürr Universal, USA

Application of a Non-linear Hydrostatic Model to Improve the Floating Bodies' Behavior in Time-Domain Coupled Analysis of Offshore Oil Exploitation Systems

Fabrcio N Corrêa, Jhonathan Jefferson, Breno P Jacob, COPPE-UFRJ, Brazil

140. OCEAN TECHNOLOGY XIII:

Deepwater Drilling 2 (V. 1)

Thursday

June 20

14:00

Room 9

Chair: Alan Wang, Offshore Oil Engineering Co, China

Advanced Real-time Gas Kick Detection Using Machine Learning Technology

Jin Yang, Ting Sun, Ying Zhao, China Univ. of Petroleum (Beijing), China; Ali Takbiri Borujeni, Univ of West Virginia, USA; Haidong Shi, China Univ of Petroleum (Beijing), China

Digital Root Cause Analysis for Investigating the Potential Risk of Subsea XMT Leaks

A Primozic, Wood; RM Chandima Ratnayake, Univ of Stavanger; A Barre, Wood, Norway

Determination of Safe Mud Temperature Window for Drilling Operation in Hydrate Deposits in Shenhu Area, Northern South China Sea

Qingchao Li, Yuanfang Cheng, Guihua Wang, jia Wei, Jiping Ding, Chuanliang Yan, Zhongying Han, China Univ of Petroleum (East China), China

Calculation of Extending Limit of Horizontal Well Drilled in Offshore Hydrate Bearing Sediments

Wenlong Li, Deli Gao, Jin Yang, Wenjun Huang, Zhiqiang Hu, Xin Li, Leichuan Tan, Zhengxu Wang, China Univ of Petroleum (Beijing), China

Silicate and Aluminum-based Drilling Fluids for Stabilizing the Wellbore in Deepwater Drilling

Xin Zhao, Zhengsong Qiu, China Univ of Petroleum (East China); Mingliang Wang, CNOOC Energy Technology&Services; Jiagen Xu, Hanyi Zhong, Ganghua Chen, China Univ of Petroleum (East China), China

Study on Safety Control Technology of Surface Catheter Injection in Ultra-Deep Water Soft Formation Drilling
Hongshu Wei, CNOOC; Jin Yang, China Univ of Petroleum;
Zhengli Liu, Jihua Ye; Junbin Zhang; De Yan, CNOOC; Shuzhan Li; Kang Zhang; Wenxing Wang, China Univ of Petroleum, China

141. ARCTIC VIII: Arctic Shipping (V. 1)
Thursday June 20 14:00 Room 10

Chair: Nataly A Marchenko, Univ Centre in Svalbard, Svalbard, Norway.

The Need for Icebreaker Assistance of EEDI-compliant Vessels in the Northern Baltic Sea
Teemu J Heinonen, Aker Arctic Technology, Finland

Shipping LNG from the Arctic: A True Story
Frederic J-L Hannon, TOTAL, France

Arctic Sea Route Planning Based on POLARIS Rule
Hye-Won Lee, Myung-Il Roh, Ki-Su Kim, Seoul National Univ;
Kuk-Jin Kang, Seong-Yeob Jung, KRISO, Korea

Assessment of Prospects for Using Meteorological Satellite Data to Plan Vessel's Route in the Arctic Waters
Denis A Akmaykin, Maritime State Univ; Victor M Grinyak, Vladivostok State Univ of Economics & Service, Russia

New Method of Finding the Optimal Ship Route in Ice based on Vector Polygons
Ruslan I May, Valery Fedyakov, Sergey Frolov, O V Tarovic, A G Topaj, Arctic and Antarctic Research Inst, Russia

Comparison between Full-scale Measurements and Theoretical Fuel Consumption Model in a Real Arctic Ship Navigation
Xiao Lang, Chalmers Univ of Technology, Sweden; Chi Zhang, Wuhan Univ of Technology, China; Lars Jonasson, Wengang Mao, Leif Eriksson, Chalmers Univ of Technology, Sweden; Di Zhang, Wuhan Univ of Technology, China

THURSDAY 16:20

142. HYDRODYNAMICS XV: CFD Modeling on FPSO (V. 1)
Thursday June 20 16:20 Room 1

Chair: Sa Young Hong, KRISO, Korea

State of the Art of Application of CFD to Offshore Hydrodynamics [Oral Presentation]
J W Kim, TechnipFMC, USA

Numerical Analysis for Wave Impact Loads Caused by Green Waters along the Sidewall on a Ship-Shaped FPSO
Sung-Chul Hwang, Bo Woo Nam, Yoon-Jin Ha, Kyung-Hwan Kim, Sa Young Hong, Seok-Kyo Cho, Korea Research Inst of Ships & Ocean Eng; H J Kim, Samsung Heavy Industries, Korea

Numerical Study of Wave Impact Loads on Bow Flare of a FPSO by Irregular Waves

Yoon-Jin Ha, Bo Woo Nam, Kyong-Hwan Kim, Sung-Chul Hwang, Sa Young Hong, Korea Research Inst of Ships & Ocean Eng, Korea

CFD Simulation Modeling Practice Verification for FPSO Hull Current Load

Yih Jeng Teng, Jaime Hui Choo Tan, TechnipFMC, Malaysia; Hyun Chul Jang, Jang Whan Kim, Technip FMC, USA; Chang Seop Kwon, Seong Mo Yeon, Samsung Heavy Industries; Sung Chul Hwang, Bo Woo Nam, KRISO, Korea; Zhen Jia Huang, ExxonMobil Upstream Research, USA

CFD Modeling Practice on Numerical Simulation for Green Water Problem of a FPSO in Irregular Waves

Bo Woo Nam, Shung-Chul Hwang, Yoon-Jin Ha, Kyong-Hwan Kim, Sa Young Hong, Korea Research Inst of Ships & Ocean Eng; J W Kim, TechnipFMC; J Huang, ExxonMobil Upstream Research, USA; H J Kim, Samsung Heavy Industries, Korea

Model Test of Slamming and Green Water Loads on FPSO for Validation of Numerical Tools

Kyong-Hwan Kim, Yoon-Jin Ha, Bo Woo Nam, Sa Young Hong, Korea Research Inst of Ships & Ocean Eng, Korea

CFD Modeling Practice for Evaluation of Wave Impact Loads on a FPSO Bow by Focusing Waves

Sa Young Hong, Yoon-Jin Ha, Sung-Chul Hwang, Bo Woo Nam, Kyong-Hwan Kim, Korea Research Inst of Ships & Ocean Eng, Korea; J W Kim, TechnipFMC; J Huang, ExxonMobil Upstream Research, USA; H J Kim, Samsung Heavy Industries, Korea

A CFD Modeling Practice and Validation on Roll Damping for a Tanker-shaped FPSO

Changseop Kwon, Samsung Heavy Industries, Korea; Yih Jeng Teng, Hui Choo Jaime, TechnipFMC, Malaysia; Jangwhan Kim, Hyunchul Jang, TechnipFMC, USA; Hyun Joe Kim, Samsung Heavy Industries, Korea; Jerry Huang, ExxonMobil Upstream Research, USA; Sa Young Hong, KRISO, Korea; Jim O'Sullivan, TechnipFMC, USA

143. HYDRODYNAMICS XXI: Floating Tunnel, Bridge 3

Panel

Thursday June 20 16:20 Room 2

Chair: HeonYong Kang, Texas A&M Univ, USA

Current Progresses in Floating Tunnel, Bridge, and City

Panelists:

Mathias Egeland Eidem, Norwegian Public Roads Administration, Norway
Tina Vejrum, COWI, Denmark
William Otto, MARIN, Netherlands
Heang-Ki Lee, KAIST, Korea
Moo-Hyun Kim, Texas A&M Univ, USA

144. Renewable Energy XV: Panel

Thursday June 20 16:20 Room 3

Chair: Eva Loukogeorgaki, Aristotle Univ. of Thessaloniki, Greece

Panelists

145. SUBSEA, PIPELINES, RISERS XII: Pipeline Mechanics
(V. 2)
Thursday June 20 16:20 Room 4

Chair: Yijun Shen, DOET, Newcastle upon Tyne, UK

Pipe Walking for Onshore Pipelines
Thomas Jurca, TransCanada Corporation, Canada

One Strengthening Method to Protect Pipelines against Various External Loads: A Review
Mojtaba Mokhtari, Aurecon, Australia

Design Analysis for Pipeline and Riser with Repair Clamp
M Liu, C Cross, Aker Solutions, UK

Influence of Bulkhead on Impact of Pipe-in-Pipe
Chenggong Sun, Menglan Duan, China Univ of Petroleum (Beijing); Bing Dai, China Petroleum Tech & Development; Yi Wang, Miaozi Zheng, Naeemullah Anmol, China Univ of Petroleum (Beijing), China

Numerical Analysis for Buried Pipe Bends Subjected to Lateral Load by 3-Dimensional Discrete Element Method
Makoto Hirokawa, Kobe Univ, Japan

Effects of Angle and Interface Friction of Buried Pipe Bend on Lateral Resistance Force
Mina Kawamura, Kobe Univ, Japan

Model Experiments on Influence of Sheet-pile Extraction on Mechanical Behavior of Twin Buried Flexible Pipes
Mayu Toda, Kobe Univ, Japan

146. HPM XV: Panel
Thursday June 20 16:20 Room 5

Chair: Hyun Jo Jun, ExxonMobil Research & Engineering, NJ, USA

Panelists

147. OMGH V: OCEAN MINING 3: Mining System (V. 1)
Thursday June 20 16:20 Room 6

Chair: Nobuyuki Okamoto, Japan Oil, Gas & Metals National Corp, Japan
Co-Chair Gopkumar Kuttikrishnan, National Inst of Ocean Technology

Experimental Investigation of Dynamic Response of Flexible Riser and Suspended System During Sea Trials
Aravind Gnanaraj Anbu, Rajesh Siva, Amudha Krishnan, Chandran Vasu, Sundaramoorthi Veluchamy, Viswanathana B O, Jayanthi K, Muthuvei Panayan, Ramech NR, National Inst of Ocean Technology, India

Investigation on Characteristics of Forces and Motions of Spherical Particles in Deep Sea Hydraulic Collecting
Guocheng Zhaok Longfei Xiao, Ziyu Yue, Weijie Zhao, Shanghai Jiao Tong Univ, China

Scaling Experiment of Skip Lifting System for Deep-sea Mining

Jianyu Xiao, Ning Yang, Hong Sup, Yuxiang Chen, Hong Xiong, Jun Liu, Chunliang Yu, Inst of Deep-sea Science & Eng, CAS, China

Study of Experimental Data of Riser-Umbilical Dynamics Deployed for Deep Sea Mining Trials

Gopkumar Kuttikrishnan, Gnanaraj Anbu, Janarthanan Chinnapaiyan, National Inst of Ocean Technology; Murali Kantharaj, Vijaykumar R, Deepak Kumar, IIT Madras; Ramadass Giddugu, National Inst of Ocean Technology, India

A Free Standing Vertical Transportation System for Mining Seafloor Massive Sulphides [Oral Presentation]

Frank Lim, 2H Offshore Engineering, UK

**148. MECHANICS, COLLISION, RELIABILITY IV:
Risk & Strength (V. 4)**

Thursday June 20 16:20 Room 7

Chair: Myung-II Roh, Seoul National Univ, Korea

Co-chair: Xujie Wang, Ocean Univ of China, China

Buckling Numerical Analysis of Stiffened Cylindrical Structures

Gianmarco Vergassola, Dario Boote, Chiara Manca, Univ of Genova, Italy

Tripping Buckling Strength of Ring-stiffener in Stiffened Cylindrical Shells under External Pressure

Daisuke Shiomitsu, Kimihiro Toh, Daisuke Yanagihara, Kyushu Univ, Japan

A Method of Dynamic Response Analysis Based on Laplace Transform for Fully Symmetric Floating Platform

Xujie Wang, Ruimin Wang, Ocean Univ of China; Wei Li, Powerchina Huadong Eng, China

Behavior of Slip-resistant Connections under Long-term Sustained Loads and Recent Experiences with the Determination of the Slip Factor

Andreas Ebert, Fraunhofer IGP; Ralf Glienke, HS Wismar Univ of Applied Sci Tech; Maik Dörre, Fraunhofer IGP; Knut-Michael Henkel, Univ of Rostock, Germany

An Experimental Research on the Vibration of a Ship Propulsion Model Excited by Dynamic Excitations

Zhe Tian, Ocean Univ of China; Yinlong Shao, Powerchina Huadong Engineering; Lin Zhou, Yingchun Xie, Ocean Univ of China

Experimental Investigation on Flood-resistant Performance of Soaked Masonry Structure

Shuguang Liu, Qi Fang, Guihui Zhong, Hong Zhang, Sha Lou, Tongji Univ, China

Status of Research and Testing Facilities for Offshore Structural Engineering Primarily in Europe

Thomas Kabel, Aarhus Univ; Evangelos Katsanos, Technical Univ of Denmark; Christos Georgakis, Aarhus Univ, Denmark

**149. OFFSHORE MECHANICS XI:
Structural Health Monitoring 2 (V. 1)**

Thursday June 20 16:20 Room 8

Chair: Constantine Michailides, Cyprus Univ of Technology, Cyprus
Co-chair: Sudath C Siriwardane, Univ of Stavanger, Norway

**Identification of Friction-Coupled Offshore Platforms by
Output-Only Method**

Tobias Friis, Technical Univ of Denmark; Karsten Vesterholm,
Univ of Southern Denmark; Evangelos Katsanos, Technical Univ
of Denmark; Anders Brandt, Univ of Southern Denmark;
Brincker Rune, Technical Univ of Denmark, Denmark

**A PCA-based Damage Detecting Method for Jacket Platform
under Random Wave Excitations**

Wei Li, Yan Huang, Yufeng Tian, Tianjin Univ, China

**Structural Health Monitoring on a Girth Welded Pipe with
Residual Stress Measurements**

Xavier P J Ficquet, Ed Kinston, VEQTER Ltd, UK

**Validation of a Bayesian Belief Network (BBN) Model of an
Offshore Decommissioning Operation**

Mei Ling Fam, Nanyang Technical Univ, Singapore; Xuhong He,
Lloyd's Register Consulting, Sweden; Dimitrios Konovessis,
Singapore Inst of Technology; Lin Seng Ong, Nanyang Technical
Univ; Hoon Kiang Tan, Lloyd's Register Singapore, Singapore

**Underwater Noise Generated by Offshore Pile Driving: A Pile-
Soil-Water Vibroacoustic Model Based on a Mode Matching
Method**

Apostolos Tsouvalas, Yaxi Peng, Andrei Metrikine, Delft Univ
of Technology, Netherlands

Riser Structural Health Monitoring with Numerical Sensors

W.C. Chung, H.Y. Kang, M.H. Kim, Texas A&M Univ, USA;
Rafael G. Pestana, Petrobras R&D, Brazil

**Monitoring of Structural Degradation of Ageing Bridges in
Marine Environment: A Framework Based on Model
Flexibility**

Sudath C Siriwardane, Univ of Stavanger, Norway

**SHM-Device for Underwater Deformation Measurements on
Grouted Joints**

Patrick Rzczkowski, Ludger Lohaus, Leibniz Univ Hannover,
Germany

**150. OCEAN TECHNOLOGY XIV:
Deepwater Drilling 3 (V. 1)**

Thursday June 20 16:20 Room 9

Chair: Alan Wang, Offshore Oil Engineering Co, China
Co-Chair: Bo Woo Nam, KRISO, Korea

Latest Review of DP Floatover Projects and Technologies

Ding Zhang, Dong Lin, Chungun Cho, Yan Zu, Minyan Zhang,
Chun Yiu Chiu, Ei Pa Pa Chaw, Hezhen Qiu, DNV GL
Singapore

**Fully Coupled Drift-off Analysis of Platform/Riser/Inner Pipe
System for Deepwater Drilling**

Xiuquan Liu, Shenyan Zhang, Guoming Chen, Yuanjiang Chang, Liangbin Xu, Leixiang Sheng, China Univ of Petroleum (East China), China

Mechanic Analysis on the 10 3/4" Casing Coupling Section under Non-symmetrical Extrusion

Li Bai, Gang Liu, Bowen Wang, Dou Mei, China Univ of Petroleum (Huadong), China

Experimental Study and Modeling of Methane Hydrate Dissociation by Depressurization and Chemical Injection

Tingji Ding, Jiafang Xu, Xiaopu Wang, Zhenglian Yu, Yuanfang Cheng, Zhiyuan Wang, Ruihe Wang, China Univ of Petroleum (East China), China

Mechanical Analysis of Subsea Wellhead in Deepwater Wells

Lisong Wang, Baokui Gao, Tianxiang Hu, Chao Ma, Jieli Wang, China Univ of Petroleum (Beijing), China

151. ARCTIC IX: Emergency & Remote Sensing (V. 1)

Thursday June 20 16:20 Room 10

Chair: Ivana Kubat, National Research Council Canada, Canada

"Marine Emergencies in the Arctic" – GIS Online for Preparedness, Response and Education

Nataliya Marchenko, University Centre in Svalbard, Norway

Joint Emergency Organization in Mass Rescue Operations in Complex Environments - Developing a Model for an Evacuation Situation Scenario in Svalbard

Natalia Andreassen, Odd Jarl Borch, Nord Univ; Natalya Marchenko, The University Centre in Svalbard; Are Kristoffer Sydnes, UIT, Norway

Anomalies of Bohai Sea Ice Cover and Potential Climate Driving Factors

Li Ning, Yan Yu, Beijing Normal Univ, China

Reassessing the Bohai Sea Ice in China Using High-resolution Geostationary Ocean Color Imager (GOCI) Data

Wei Gu, Beijing Normal Univ, China

Performance Study of Miniature Near-infrared Spectrometer Used in Cold Polar Environments

Hangzhou Wang, Liwen Nam, Xiaoping Wang, YingChen, Zhiwei Xu, Zhejiang Univ, China

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Prospective authors are invited to submit abstracts to:

ISOPE–2020 Shanghai, China

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Ocean Engineering	FPSO, TLP, SPAR	Risers, Pipelines, Cables
Arctic Scient & Tech	Advanced Ship Tech	Subsea & Umbilicals
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Structural Health SHM	Nonlinear Waves	Tubular & Linepipe
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Gas Hydrates, Minerals	Geotech, Environ Eng	Emerging Topics

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