

# TECHNICAL PROGRAM

## ISOPE-2014 Busan The Twenty-fourth (2014) International Ocean and Polar Engineering Conference Busan, Korea, June 15–20, 2014



This 24th annual conference features **152** technical and opening general sessions, 7 plenary presentation and 3 keynote presentations with top experts from industry, academia and government. After peer review of the manuscripts selected from 1,150+ abstracts, some **650+** peer-reviewed-papers will be presented and discussed by researchers, engineers and managers from more than **48** countries.

The conference proceedings of peer-reviewed papers in PDF files will be available in a set of 4 volumes on CD-ROM (4,000 pp. est.) — paginated within each volume — during the conference and later for worldwide post-conference mail order from ISOPE: ISBN 978-1-880653-91-3; ISSN 1098-6189.

This program is an update upon peer-review as of **March 20, 2014**. Final update in the Conference Proceedings of peer-reviewed papers and the Final Program will be made based on the accepted papers. The number at end of the session title indicates the tentative number of the proceedings volume.

All ISOPE publications are indexed by Engineering Index (EI), SCOPUS and others.

FULL CONFERENCE PROGRAM WITH SESSION / PAPER  
LIST: Updated at

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<http://www.isopec.org/publications/publications.htm>

**SUNDAY, June 15**

**Welcome Reception**

**17:00**

BEXCO, Room m 301, 3F

**MONDAY 08:30**

**Session 1. Opening General Session:**

	<b>OCEAN AND ENERGY REVIEW (V. 1)</b>	
<b>Monday</b>	<b>June 16 08:30</b>	<b>301, 3F</b>

**Chair:** Han-Il Park, Korea Maritime and Ocean University, Korea  
**Co-Chair:** Jin S Chung, ISOPE, USA

**Introduction**

Jin S Chung, ISOPE-2014 Conference Chair, USA

**Conference Opening Address**

Soo-Sam Kim, ISOPE President (2013-14), Sungkyunkwan University, Korea

**Welcome to Busan**

Hur, Nam-sik, the honorable Mayor of Busan Metropolitan City, Korea

**Systematic Approach to Facilities Integrity Management [Oral presentation]**

William J Sisak, Senior Materials & Integrity Consultant, ExxonMobil Production Co, USA

**An Emerging Renewable Energy Solution: Photovoltaics [Oral presentation]**

Dongman Cho, Head, Performance Materials R&D Center, SK Innovation, Korea

**Technologies for Integrated Gas Value [Oral presentation]**

Sergio Kapusta, Chief Scientist, Shell International E&P, USA

**MONDAY 10:30**

**Session 2. SLOSHING I:  
LNG Sloshing Assessment (V. 3)**

**Monday June 16 10:30 Room 1**

**Chair:** Laurent Brosset, Gaztransport & Technigaz, France

**Co-Chair:** Yonghwan Kim, Seoul National Univ, Korea

**Review of ISOPE Sloshing Symposium**

J S Chung, ISOPE, USA and F Diaz, Univ of Dublin, Ireland

**Sloshing Assessment of LNG Vessels for Unrestricted Tank Filling Operation**

Jong Jin Park, Jang Hoon Seo, Chang Hun Jin, Ki Hun Joh, Byung Woo Kim, Yong Suk Suh, Samsung Heavy Industries; Yonghwan Kim, Seoul National Univ, Korea

**Sloshing Assessment Procedure of FLNG Cargo Containment System**

Min Han Oh, Jong Min Kim, Woo Seung Sim, Hyundai Heavy Industries, Korea

**Anti-slosh Devices for LNG Containment Systems and the Design Thereof**

Erik Eenkhoom, Accede BV, Netherlands

**Liquid Semi-Dynamics and Anti-Slosh Theories**

Erik Eenkhoom, Accede BV, Netherlands

**Sloshing in the Shipping Industry: Risk Modelling Through Multivariate Heavy-Tail Analysis**

A Dematteo, GTT; S Cl  men  on, Telecom ParisTech; N Vayatis, ENS Cachan, France

**Pump Tower – A Guideline for Mechanical Assessment**

M Champagnac, E Gervaise, R Gasmi, Gaztransport & Technigaz, France

**A Study on Shallow Water Sloshing in a Rectangular Tank**

Mi-An Xue, Hohai Univ, China

### 3. HYDRODYNAMICS I:

#### Wave Mechanics 1 (V. 3)

Monday June 16 10:30 Room 2

**Chair:** M. Minoura, Osaka University, Osaka, Japan

#### Variations of Water Particle Kinematics with Perforated Cylinder under Regular Waves: Numerical Studies

Chandrasekaran Srinivasan, Madhavi Natarajan, IIT Madras, India

#### Asymptotic Expansion of the Transient Capillary-Viscosity Green Function

Yuzhi Dai, Harbin Inst of Tech, China; Xiaobo Chen, Bureau Veritas, France

#### Interaction of Nonlinear Interfacial Wave and Surface Gravity Wave in Two-Layer Fluids

Meng-Syue Li, Hung-Chu Hsu, National Cheng Univ; Wen-Jer Tseng, Cheng Shiu Univ; Chia-Yan Cheng, National Cheng Kung Univ, Taiwan, China

#### Numerical Study on the Evolution of Internal Solitary Waves in a Two-Layer Fluid System over a Triangular Bottom Obstacle

Chih-Min Hsieh, National Kaohsiung Marine Univ; Ming-Hung Cheng, National Taiwan Ocean Univ; Robert R Hwang, Academia Sinica, Taiwan, China

#### Experimental Modeling of Breaking Wave Impingement on a Tension-Leg Platform

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

#### Comparison of Breaking Wave Loads on a Cylinder from Experiments and CFD Simulations

A Hildebrandt, Franzius Inst-Univ Hannover, Germany; V Sriram, IIT Madras, India

#### Effects of Poro-Elastic Structures on Water Waves

Jaw-Fang Lee, National Cheng Kung Univ; Chung-Ying Lee, Inst of Transportation, Taiwan, China

#### Overlapping MPS Method for 2D Free Surface Flows

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

### 4. RENEWABLE ENERGY I: Offshore Wind Foundation 2 1 (V. 1)

Monday June 16 10:30 Room 3

**Chair:** Kristoffer Skjolden Skau, Norwegian Geotechnical Inst/NTNU, Norway

#### The Effects of Pile Shape on the Lateral Capacity of Monopiles Used as Wind Turbines Embedded in Sand Deposits

Behrang Pedram, Univ of Western Australia, Australia

#### Comparison of Lateral Behavior of Rock-Socketed Large-Diameter Offshore Monopiles in Sands with Different Relative Densities

Dongwook Kim, Incheon National Univ; Yun Wook Choo, Kongju National Univ; Jae Hyun Park, Kiseok Kwak, Korea Inst of Construction Technology, Korea

#### Resistance Factor Calculation of Bored Steel Monopiles in Rock for Offshore Wind Turbine

Jae Hyun Park, Kiseok Kwak, Korea Inst of Construction Technology;  
Dongwook Kim, Incheon National Univ, Korea

**Design of Composite Pile Foundations for Offshore Wind Turbines**

Yunsoo Shin, Thomas Langford, Norwegian Geotechnical Inst, Norway;  
Kyunghwan Cho, Jongheon Park, GS E&C; Jaehyun Park, Korea Inst of  
Construction Technology, Korea

**Centrifuge Study on Bucket Assisted Gravity Support Structure for  
Offshore Wind**

Dong-Joon Kim, Jeseong Yoon, Sanghyu Lee, Jaehyung Choi, Hyundai  
Engineering & Construction; Jae-Hyun Kim, KAIST, Korea

**5. ADDITIVE MANUFACTURING & 3D PRINTING I:**

**Additive Manufacturing (V. 4)**

**Monday June 16 10:30 Room 4**

**Chair:** Ning Ma, ExxonMobil Research & Engineering, USA

**Co-Chair:** Jon Jennings, Edison Welding Inst., USA

**Additive Manufacturing and 3D Printing for Oil and Gas:  
Transformative Potential and Technology Constraints (Invited)**

Joseph A Camisa, ExxonMobil Research & Engineering; Vinit Verma,  
ExxonMobil Technical Computing Co, USA

**Additive Manufacturing of High Performance Materials: Integrating  
Materials, Modeling, and Performance**

B Hayes, T Ales, P Samimi, P C Collins, Univ of North Texas, USA

**Additive Manufacturing – Engineering Considerations for Moving  
Beyond 3D Printing**

S M Kelly, J Jennings, EWI, USA

**6. ASSET INTEGRITY I: Asset Integrity Management (V. 4)**

**Monday June 16 10:30 Room 5**

**Chair:** Cecilie Harrseth, ExxonMobil Development Co., USA

**Appraisal Well Data Collection Requirements for Materials &  
Corrosion Risk Assessment, Concept Selection and Asset Integrity**

Hongbin Wang, Parul Koul, Cecilie Haarseth, ExxonMobil Development,  
USA

**Current Performance and Future Practices in FPSO Hull Condition  
Assessments**

Mark D Tammer, HU Univ of Applied Sciences Utrecht ; Miroslaw L  
Kaminski, Delft Univ of Tech, Netherlands

**Integrated Offshore Pipeline and Riser Integrity, Life-Extension and  
Obsolescence Management System**

Ijong M Ikan, Fuat Kara, Cranfield Univ, UK

**A Review of Failure Modes in Ultimate Strength Assessments for Re-  
qualification and Life Extension of an Oil Field**

Abe Nezamian, Matthew Nezamian, Joshua Altmann, WorleyParsons,  
Australia

**Study on Calcium Phosphate Cement Slurries**

Jianguo Zeng, Fuquan Sun, Aiping Liu, Yonghui Gao, Pengxiao  
Li, China National Petroleum Offshore Engineering, China

## 7. VORTEX-INDUCED VIBRATION I (V. 3)

**Monday**                      **June 16**                      **10:30**                      Room 6

**Chair:** Stéphane Etienne, Ecole Polytechnique de Montreal, Canada

### **Vortex-Induced Vibration on Circular Cylinder with Offset Angle**

Hendrik Hans, Singapore-MIT Alliance for Research & Tech; Jianmin Miao, Nanyang Technological Univ, Singapore; Michael Triantafyllou, MIT, USA

### **Numerical Simulation of Vortex-Induced Motion of a 3D Circular Cylinder with Low Mass-Damping**

Xinxheng Qin, Decheng Wan, Shanghai Jiao Tong Univ, China

## 8. SBD I:

### **Numerical Modeling (V. 4)**

**Monday**                      **June 16**                      **10:30**                      Room 7

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

### **A Simplified Strain Demand Model for Frost Heave**

Qishi Chen, C-FER Technologies, Canada

### **Numerical Modelling of Steel Pipelines Subjected to Severe Monotonic and Cyclic Straining**

Tommaso Coppola, Andrea Fonzo, Luigi Di Vito, Centro Sviluppo Materiali, Italy; Geroge E Varelis, PDL Solutions (Europe), UK; Spyros A Karamanos, Univ of Thessaly, Greece

### **Numerical Simulation of SENT Tests for Welded X80 Line Pipes**

Yasuhiro Shinohara, Eiji Tsuru, Takuya Hara, Nippon Steel & Sumitomo Metal, Japan

## 9. FERT I: Gas Hydrates 1: (V. 1)

**Monday**                      **June 16**                      **10:30**                      Room 8

**Chair:** Huen Lee, KAIST, Korea

**Co-Chair:** Zhengquan Lu, China Geological Survey, China

### **KEYNOTE**

### **Status of Methane Hydrates Production R&D and Enhanced Recovery Technologies**

Takeshi Komai, Tohoku Univ, Japan

### **1-Dimensional Productivity Evaluation for Methane Hydrate Replacement Using Carbon Dioxide and Nitrogen**

Yun-Ho Ahn, Dong-Yeun Koh, Hyery Kang, Seongmin Park, KAIST; Jaehyoung Lee, Joo-Yong Lee, Se-Joon Kim, KIGAM; Huen Lee, KAIST, Korea

### **Gas-Hydrate-Associated Carbonates and their Implications in the Qilian Mountain Permafrost**

Zhengquan Lu, China Geological Survey; Junjun Cai, Inst of Geology CAS; Qing Sun, National Research Center for Geo-analysis; Hui Liu, China Geological Survey, China

### **Experimental Study on Methane Hydrate Accumulation from Dissolved Gas in Three-Dimensional Simulation Device**

Qinglan Ma, Xiaoyu Zhong, Kehua Su, Changyu Sun, Guangjin Chen, Lanying, Yang, Bei Liu, China Univ of Petroleum, China

### **Thermodynamic and Kinetic Effects of a Dual-Function Inhibitor on Gas Hydrate Formation**

Dongwook Lim, Seongmin Park, Hyeyoon Ro, KAIST; Jong-Won Lee, Kongju National Univ; Hyery Kang, Minchul Kwon, Huen Lee, KAIST, Korea

**10. ADVANCED SHIP TECH I: Hull Form Design (V. 4)**

**Monday June 16 10:30** Room 9

**Chair:** Chi Yang, George Mason Univ, USA,

**A Family of Ship Hulls for Drag-Optimization Studies**

Jiayi He, Chenliang Zhang, Francis Noblesse, Decheng Wan, Shanghai Jiao Tong Univ, China; Chi Yang, George Mason Univ, USA

**Development of Combatant Hull Form Generating Methods Using Logistic Function vs. Lamé Curve**

Xi, Chen, Jun Zhang, Zhiguo Zhang, Huazhong Univ of Science & Tech, China

**Performance Study on Optimized Shape of Underwater Revolution Body**

Lihua Song, Huazhong Univ of Science & Tech, China

**Development of Ship Hull Form Generating Methods**

Rui Luo, Jie Cheng, Zhiguo Zhang, Huazhong Univ of Science & Tech, China

**A Family of Ship Hulls for Drag-Optimization Studies**

Jiayi He, Chenliang Zhang, Francis Noblesse, Decheng Wan, Shanghai Jiao Tong Univ, China; Chi Yang, George Mason Univ, USA

**A Research to the Ship Hull Form Design Based on Parametric Method and Fairing Criteria [Proceedings only]**

Feng Dong, Shunhuai Chen, Wuhan Univ of Tech, China

**CFD-Based Hull Form Resistance and Flow Field Multi-Objective Optimization Research**

Suzhen Dong, Baiwei Feng, Chengsheng Zhan, Tong Shen, Wuhan Univ of Tech, China

**Research on the Optimization Design of Trimaran Side-Hulls Location**

Li-Na Sun, Cheng-Sheng Zhan, Bai-Wei Feng, Wuhan Univ of Tech, China

**A Hull Form Modification Method Based on Radial Basis Function and Its Application in Inverse Hull Optimization**

Tong Shen, Baiwei Feng, Zuyuan Liu, Wuhan Univ of Tech, China

**11. FERT VI: Drilling & Production 1 (V. 1)**

**Monday June 16 10:30** Room 10

**Chair:** R. Ayer, SK Innovation, Korea

**Co-Chair:** S J Cho, P.E. Moseley & Assoc., USA

**Differences of Shale Gas Accumulation Characteristics in Yangtze Region, China**

Qun Zhao, Petrochina, China

**Application of a Probabilistic Method to Forecast Production Rate Using Decline Curve Analysis of Shale Gas Play**

Jong-Se Lim, Ji-Su Kim, Hyo-Jin Shin, Korea Maritime & Ocean Univ, Korea

**Type Curves for Analyzing Production from Horizontal Wells with Multiple Hydraulic Fractures in Shale Gas Reservoirs**

Kunsang Lee, Taehong Kim, Kanghee Park, Hanyang Univ, Korea

**Impact of Fracture Design Parameters on the Production Performance in Hydraulically Fractured Shale Gas Reservoir**

Jeonghwan Lee, Hochang Jang, Chonnam National Univ, Korea

**Computing the Thermal Properties of a Ground Heat Exchanger**

Paul Christodoulides, Georgios Florides, Lazaris Lazaros, Messaritis Vassilios, Cyprus Univ of Tech, Cyprus

**MONDAY 13:00**

**PLENARY I**

**Monday**            **June 16**            **13:00**            Room 4

**Introduction:** Jin S Chung, ISOPE, USA

**China's Offshore Developments in South China Sea: Challenge and Opportunity**

Xiaojian Jin, General Manager, CNOOC Engineering Dept, China

**PLENARY II**

**Monday**            **June 16**            **13:00**            Room 10

**Introduction:** Ted Kokkinis, ExxonMobil Upstream Research, USA

**Arctic Stationkeeping, Past, Present and Future [Oral presentation]**

Robert Frederking, Ivana Kubat, James Millan, Mohamed Sayed, National Research Council Canada, Canada

**MONDAY 14:00**

**12. LNG SLOSHING II:  
Sloshing Loads & Structural Assessment (V. 3)**

**Monday**            **June 16**            **14:00**            Room 1

**Chair:** Sang-Gab Lee, Korea Maritime and Ocean University, Korea

**Co-Chair:** Yusong Cao, Marintek USA, USA

**Development of Practical Prescreening Method for Sloshing Severity**

Miaozi, Zheng, Yonghwan Kim, Sang-Yeob Kim, Seoul National Univ, Korea

**Statistical Post-Processing of the Structural Response for a Long-Duration Sloshing Test**

Bladine Fillon, Louis Diebold, Jerome de Lauzon, Quentin Derbanne, Bureau Veritas, France

**Numerical Model for Dynamic Behavior of PUF of Membrane Type LNG Cargo Containment System**

Dong Ju Lee, Sang Beom Shin, Hyundai Heavy Industries, Korea; Jong Hwan Suhr, Univ of Delaware, USA

**Assessing the Risk Induced by Sloshing Using Generalized Pareto Distributions**

A Dematteo, E Gervaise, Gaztransport & Technigaz, France

**Evolution of LNGC Membrane Due to Slamming Impact**

Di Ren, Kang-Su Ahn, Sang-Beom Lee, Jang-Young Chung, Sun-Hong Kwon, Pusan National Univ, Korea

**Structural Assessment under Sloshing Impact for the IMO Type-B Independent LNG Tank**

Dohyun Kim, Hangeol Jeong, Sihoon Choi, Youngchun Jo, Dongeon Kim, Teaseok Jung, STX Offshore & Shipbuilding, Korea

**Direct Assessment of Structural Capacity Against Sloshing Loads Using Dynamic Nonlinear FE Analysis**

Sangeon Chun, Jeongoh Hwang, Kihun Joh, Samsung Heavy Industries, Korea; Philippe Cambos, Louis Diebold, Bureau Veritas, France; Nigel White, Lloyd's Register EMEA, UK; Min-Soo Kim, Junbum Park, Lloyd's Register Asia; Jaemyung Lee, Pusan National Univ, Korea

**13. HYDRODYNAMICS II:  
Wave Mechanics 2 (V. 3)**

**Monday June 16 14:00** Room 2

**Chair:** Shigeru Naito, Osaka Univ., Osaka, Japan

**A Study of CUDA/MPI Parallel Computations for CADMAS-SURF/3D**

Hiroshi Okumura, Univ of Toyama; Taro Arikawa, Port and Airport Research Inst, Japan

**Statistical Onboard Wave Analysis Based on Ship Motions**

Numehiko Minoura, Tomoya Yamauchi, Osaka Univ, Japan

**Study on Spectral Width and Parameter Estimation of Wave Height in South China Sea**

Botao Xie, Fanghui Lei, Junqin Wang, Jiagang Li, Bigui Huang, CNOOC Research Inst, China

**Development and Application of the Platform Based Marine Environment Monitoring System**

Botao Xie, Fanghui Lei, Xuhe Ren, Jiagang Li, Junqin Wang, CNOOC Research Inst, China

**Experimental Investigation on Extreme Wave Propagation and Run-Up of Brine (Dead Sea Water) and Fresh Water**

V Sriram, IIT Madras, India; N Horstmann, T Schlurmann, Leibniz Univ Hannover, Germany

**Influence of Occurrence Probability of Highly Wave Heights on Long-Term Prediction of Ship Responses**

Seijiro Miyake, Technoyou; Munehiko Minoura, Osaka Univ, Japan

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

**Monday June 16 14:00** Room 3

**Chair:** Gudmund Eiksund, NTNU, Norway

**Challenges in Design of Bucket Foundations for Offshore Wind Turbines**

Kristoffer Skjolden Skau, Norwegian Geotechnical Inst/NTNU, Norway

**Hydrodynamic Motion of Composite Bucket Foundation for Offshore Wind Turbines**

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

**Suitability of Group Pile Foundation for Offshore Wind Turbine**

Khalid Abdel-Rahman, Martin Achmus, Leibniz Univ of Hannover, Germany; Y-S Kuo, W-C Lin, T-Y Huang, M-J Wu, National Cheng Kung Univ, Taiwan, China

**Numerical Simulation of CPT Tests in a Small Calibration Chamber**



Taisiya Biryaltseva, Fraunhofer IWES; Stefan Kreiter, Matthias Fleischer, Univ of Bremen MARUM; Jan Hebig, Fraunhofer IWES; Tobias Moerz, Univ of Bremen MARUM, Germany

**Numerical Modelling of Morphological Changes around Offshore Windfarm Foundations in Taiwan Western Coast**

Yun Chih Chiang, Tzu Chi Univ; Sung-Shan Hsiao, Hui-Ming Fang, Hsing-Yu Wang, National Taiwan Ocean Univ, Taiwan, China

**15. ADDITIVE MANUFACTURING & 3D PRINTING I:**

**Novel Functional Materials (V. 4)**

**Monday June 16 14:00 Room 4**

**Chair:** Ning Ma, ExxonMobil Research & Engineering, USA

**Co-Chair:** Jon Jennings, Edison Welding Inst., USA

**Novel Approach to Processing Nanostructured Metal-Base Materials [Oral presentation]**

George E Kim, Perpetual Technologies, Canada; Andres Rodela, Rice Univ, USA; Tony Addona, n-WERKZ, Canada; Victor K Champagne, US Army Research Lab, USA

**Cold Spray Forming of Nanostructured Metal-Base Powder [Oral presentation]**

George E Kim, Perpetual Technologies, Canada

**Three-Dimensional Singularity Analysis for a Magneto-Electro-Elastic Wedge**

C S Huang, C N Hu, National Chiao Tung Univ, Taiwan, China

**16. ASSET INTEGRITY II: Marine Integrity (V. 4)**

**Monday June 16 14:00 Room 5**

**Chair:** Rob E. Melchers, University of Newcastle, Newcastle, Australia

**Representative Operational Loading Conditions for Low Cycle Fatigue Assessment of FPSO**

Ahmed Megharbi, Mohammed Sarumi, Lloyd's Register Energy; Helena Polezhayeva, Manoj Kumar, Lloyd's Register EMEA, UK

**Effect of Ultrasonic Peening on Fatigue Strength of Welded Marine Structures - Lloyd's Register Research Programme**

Helena Polezhayeva, David Howarth, Manoj Kumar, Lloyd's Register, UK

**A Novel Lumping Block Method for Fatigue Damage Assessment of Mooring Chain**

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

**Possible Solutions for Climate Change Impact on Fatigue Assessment of Floating Structures**

Tao Zou, Xiaoli Jiang, Mirek Kaminski, Delft Univ of Tech, Netherlands

**Enhanced Damage Tolerance Assessment (DTA) for Chain Fracture Control**

Libang Zhang, Jim Yu, Chunfa Wu, INTECSEA, USA

**Identifying System Properties through Structural Inference using In-Service Measurements**

Remco Bastiaan Hageman, MARIN, Netherlands ; Bruno Vasconcelos de Garias, Petrobras, Brazil

**17. VORTEX-INDUCED VIBRATION II (V. 3)**

**Monday June 16 14:00** Room 6

**Chair:** H. Kajiwara, Kyushu University, Japan  
**Co-Chair:** Jin Wang, Shanghai Jiao Tong Univ, China

**Rotational Galloping of Square and Bundle Cylinders in Cross-flow at Low Reynolds Numbers**

Maryam Zabarjad, Stéphane Etienne, Ecole Polytechnique de Montreal, Canada; Bernard Molin, Ecole Centrale de Marseille; Guillaume Damblans, Principia, France

**Numerical Simulation of Vortex-Induced Vibration of Circle Cylinders Based on Reynolds Number Similarity**

Yang Zhou, Weiping Huang, Ocean Univ of China, China

**Numerical Simulation of Wake Induced By Flow Passing By Cylinders at High Reynolds Number Using Discrete Vortex Method**

L Sun, Z Zong, J H Pang, C F Liu, Dalian Univ of Tech, China

**Characterization of Self-Exciting and Self-Limiting VIV of Freely Oscillating Riser Pipes in Time Domain**

Gautam Chaudhury, Wood Group Kenny, USA

**18. SBD II:  
Strain Capacity (V. 4)**

**Monday June 16 14:00** Room 7

**Chair:** Andrea Fonzo, Centro Sviluppo Materiali, Italy  
**Co-Chair:** Nobuyuki Ishikawa, JFE Steel, Japan

**Longitudinal and Circumferential Strain Behavior in Pressurized Bending Pipe Tests**

H Tajika, S Igi, K Oi, J Kondo, JEF Steel, Japan

**Evaluation of Tensile Strain Capacity for Pipelines Using Strain-Based Design**

Goangseup Zi, Seung-Jung Lee, Jae Yoon Cha, Korea Univ; Woo-Sik Kim, Young-Pyo Kim, Korea Gas, Korea

**Evaluation of Tensile Strain Capacity of X80 Linepipe with CWPT and SENT Tests**

Ki-Seok Kim, Woo-Yeon Cho, Kwang-Il Cho, RIST; Woo-Hyeon Song, POSCO, Korea

**Development of Surface Flaw Interaction Rules for Strain-based Pipelines**

Huang Tang, Doug Fairchild, Wentao Cheng, ExxonMobil Upstream Research; Wan Kan, Mike Cook, Mario Macia, ExxonMobil Development, USA

**Updates to the ExxonMobil Model for Tensile Strain Capacity Prediction**

D P Fairchild, H Tang, S Y Shafrova, W Cheng, J M Crapps, ExxonMobil Upstream Research, USA

**19. FERT II: Gas Hydrates 2: (V. 1)**

**Monday June 16 14:00** Room 8

**Chair:** Takeshi Komai, Tohoku Univ, Japan

**Laboratory Study on Physical and Mechanical Properties of Gas Hydrate Sediment Samples**

Shuyun Wang, Xiaobing Lu, Xuhui Zhang, Inst of Mechanics CAS, China

**The Influence of Dissolution of Hydrate in Blocked BOP on Gas Volume Fraction in Deepwater Drilling**

Yonghai Gao, B J Sun, Yanli Guo, China Univ of Petroleum, China

**Modeling of Methane Hydrate Inhibition in the Presence of Green Solvent for Offshore Oil and Gas Pipeline**

Venkata Ramana Avula, Ramesh Gardas L, Jitendra Sangwai S, IIT Madras, India

**Sand Grain Size Dependence of Viscoelastic Properties of Artificial Methane-Hydrate-Bearing Sediment Sample**

Kuniyuki Miyazaki, National Inst of AIST; Yoshihiro Endo, Toho Univ; Norio Tenma, National Inst of AIST; Tsutomu Yamaguchi, Toho Univ, Japan

**The Reverse Circulation Drilling and Production Techniques for the Gas Hydrate in Ocean [Oral presentation]**

Yongqin Zhang, Institute of Exploration Techniques, China

**20. ADVANCED SHIP TECH II: Hydrodynamic load (V. 4)**

**Monday**                      **June 16**                      **14:00**                      Room 9

**Chair:** Shigenobu Okazawa, Hiroshima Univ., Japan

**Numerical and Experimental Investigation of Bow Flare Slamming Loads**

Xi-min Tian, Zao-jian Zou, Fu-hua Wang, Shanghai Jiao Tong Univ, China

**A CFD Study for Multi-Directional Extreme Wave Impact on Decks of Offshore Platforms**

Pankaj Kumar, Xin Lu, Inst of High Performance Computing; Yanling Wu, Lloyd's Register Global Technology Centre, Singapore

**Water Entry of Two-dimensional Sections of SWATH with Vertical Struts and Inclined Ones in Restricted Water**

Peng Qian, Yinghui Li, Hong Yi, Shanghai Jiao Tong Univ, China

**Computation of Propeller-Hull Interaction Using Simple Body-Force Distribution Model around Modified Series 60  $C_B = 0.6$  Hull with Hub**

Yan Naing Win, Emel Tokgoz, Ping-Chen Wu, Osaka Univ, Japan; Frederick Stern, Univ of Iowa, USA; Yasuyuki Toda, Osaka Univ, Japan

**Grid Generation on NURBS Surfaces Developed for Ship Hull Form Optimization**

Lije Wang, Chi Yang, George Mason Univ, USA

**Application of Quasi-Continuous Method to Open-Water Characteristics Predictions of Propellers with Energy Saving Ducts**

Akira Hanaoka, Yasutaka Kawanami, Munehiko Hinatsu, National Maritime Research Inst, Japan

**21. FERT VII: Drilling & Production 2 (V. 1)**

**Monday**                      **June 16**                      **14:00**                      Room 10

**Chair:** Linsong Song, China Oilfield Services Limited, China

**Multifunctional Ultrasound Imaging Logging Tool Design for Casing Wells of Offshore Oilfield in China**

Honghai Chen, Zhifeng Sun, Xien Liu, Ao Qiu, Aihua Tao, China Oilfield Service Limited, China

**A Practical and Innovative Application of OPEX Allocation Relating to Joint and Exclusive Operations in Indonesia Offshore Block**

Seungkyun Huh, Junghyun Yoo, Kwangseok Jeong, Kodeko Energy; Mark Schneider, Rose & Associates, Indonesia

**Pool Boiling CHF's Depending on Subcooling and Pressure in Liquids**  
Jongdoc Park, Oshima National College of Maritime Tech; Katsuya Fukuda, Qiusheng Liu, Kobe Univ, Japan

**MONDAY 16:20**

**22. LNG SLOSHING III:  
Korean Sloshing Projects (V. 3)**

**Monday June 16 16:20 Room 1**

**Chair:** Louis Diebold, Bureau Veritas, France  
**Co-Chair:** Marcio M Tsukamoto, Univ of Sao Paulo, Brazil

**Comparative Study on the Structural Response due to Different Spatial Distribution of Impact Pressure**

Sung Chan Kim, Inha Technical College; In Sik Nho, Chungnam National Univ; Jang Hyun Lee, Inha Univ; Yong Hwan Kim, Seoul National Univ; Se Yun Hwang, Inha Univ, Korea

**Strength Assessment of LNG CCS Plate Using Progressive Damage Modeling**

Han Koo Jeong, Kunsan National Univ; Young Soon Yang, Seoul National Univ, Korea

**Effect of Gas Bubble on the Sloshing Pressure Simulated by a Multiphase Flow of Droplet and Liquid**

Se Yun Hwang, Jang Hyun Lee, Inha Univ; Sung Chan Kim, Inha Technical College, Korea

**Development of 3D PIV System for Sloshing Flows**

Yonghwan Kim, Jieung Kim, Seoul National Univ; Jae-Han Kim, Daewoo Shipbuilding & Marine Engineering, Korea

**Comparison of Sloshing Flows between CFD and PIV Measurement**

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

**Study on Scale Effects of 3D Sloshing Flows**

Yonghwan Kim, Sangyeob Kim, Jaehoon Lee, Seoul National Univ, Korea

**23. HYDRODYNAMICS III:**

**Metocean (V. 3)**

**Monday June 16 16:20 Room 2**

**Chair:** Sa Young Hong, KRISO, Korea

**Metocean Survey on Deepwater Area in the South China Sea to Prepared Basic Data for Construction of the Semi Submersible Drilling Platform [Oral presentation]**

Yongfeng Guo, Huimin Zeng, Qun Wan, Xiaojuan Wang, Ganghong Jin, Jianzhong Zhang, Zengwei Qiu, China Oilfield Service Limited, China

**Response Based Design Metocean Conditions for an FPSO by the Extremum Search within Joint Metocean PDF**

Yuriy Drobyshovski, Hema Wadhwa, James Whelan, INTECSEA, Australia

**Fast Generation of Ensemble Typhoon Wind Field and Its Application**

Yongping Chen, Xueling Ding, Xi Gu, Hohai Univ, China

**Numerical Simulation of Wave Run-up Due to Rogue Waves**

Ningbo Gao, Jianmin Yang, Xin Li, Tiebin Shan, Shanghai Jiao Tong Univ, China

**Numerical Modeling of the Baroclinic Circulation and Mixing in the Indian Coast**

Sajumon Scaria Vaikathuparambil, K Murali, P Shanmugam, IIT Madras, India

**Performance Comparison of the Buoy-mounted and Land-based Laser Wind Sensor in the Harbor**

Pei-Chi Chang, Jing-Bo Hung, Chung-Yao Hsuan, Ta-Hui Lin, National Cheng Kung Univ, Taiwan, China

**Determination of the Probable Maximum Tropical Cyclone for the Chinese Coast: Case of Nansha, Guangzhou**

Jiaai Tai, Hohai Univ, China; Zo Chu, Delft Univ of Tech, Netherlands; Changjuan hang, Hohai Univ, China

**24. RENEWABLE ENERGY III:  
Offshore Wind support Structure (V. 1)**

**Monday June 16 16:20 Room 3**

**Chair:** Goangseup Zi, Korea University, Korea

**Co-Chair:** Fabian Vorpahl, Fraunhofer IWES, Germany

**Reanalysis of Jacket Support Structure for Computer-Aided Optimization of Offshore Wind Turbines with a Genetic Algorithm**

Sebastian Schafhirt, Michael Muskulus, NTNU, Norway

**Robust Design Optimization for Supporting Structure of Offshore Wind Turbine Utilizing Approximate Model Technology**

Yun Zhu, Hexhen Yang, Shanghai Jiao Tong Univ, China

**Damage Detection for Tripod-Type Offshore Wind Turbine Structure Using Modal Strain Energy Methods**

Min Zhang, Weichen Ding, Shuqing Wang, Ocean Univ of China, China

**Numerical Analysis of an Anchor-Bolt Type Transition Piece for Concrete Substructures**

Goangseup Zi, Gukgwon Choi, Jihwan Kim, Korea Univ, Korea

**Conceptual Design of an Offshore Wind Tower (OWT) Support Structure Stable to Transport and Vertically Tethered on-Site**

Cuneyt Capanoglu, Robert W Copple, International Design, Engineering & Analysis Services, USA

**25. Risk Assessment and Reliability I (V. 4)**

**Monday June 16 16:20 Room 4**

**Chair:** T. Yao, Osaka University, Japan

**Co-Chair:** Ahmad Reza Mostafa Gharabaghi, Sahand Univ of Tech, Iran

**Piper Alpha Incident – 25 years (quarter century) and Carrying the Message Forward - Providing Renewal of Lessons Learned as a Keystone of Prevention**

Bob Wittkower, Adriana Botto, Jose Garcia, Paul Jukes, Wood Group Kenny, USA

**Operational Conditions Maintaining Technique for Aging MODUs**

Weiliang Dong, Jianjun Wang, Linsong Song, Jianbo Li, China Oilfield Services, China

**Methodical Approaches and Results of Safety Analysis of Offshore Transport-Technological Systems**

Nikolai A Valdman, Krylov State Research Centre, Russia

**Risk Profiles of Major Ship Types**

Fujio Kaneko, Tomohiro Yuzui, National Maritime Research Inst, Japan

**Characteristic and Integrated Management Strategies Analysis of Marine Disaster Risk in China**

Xueqin Liu, National Marine Environmental Monitoring Center; Ning Li, Beijing Normal Univ; Shuai Yuan, Ning Xu, Weibin Chen, National Marine Environmental Monitoring Center, China

**The Influence of Different Factors on the Dynamic Anti-sinking Capacity of Submarines**

Rui Luo, Jie Cheng, Zhiguo Zhang, Huazhong Univ of Science & Tech, China

**Process Evaluation Method for Off-Shore Process Selection with Different Technologies**

Sojung Kim, Hyundai Heavy Industries, Korea

**Application of Damage Detection Methods for a Typical GVA4000 Type Semisubmersible Platform under Excitation of Drilling Rig**

Fariborz Faeghi, Ahmad Reza Mostafa Gharabaghi, Habib Badri Ghavifekr, Sahand Univ of Tech, Iran

**Shock Response Analysis of Blast Hardened Bulkhead in Naval Ship under Internal Blast**

Sang-Gab Lee, Tuo Zhao, Korea Maritime and Ocean Univ; Yong Yook Kim, Young Sik Shin, KAIST, Korea

**26. ASSET INTEGRITY III:  
Pipeline, Flowline & Riser Integrity (V. 4)**

**Monday June 16 16:20 Room 5**

**Chair:** Mirek Kaminski Delft Univ. of Technology, Netherlands

**Deepwater Flowline Internal Corrosion Control - Safety by Design**

Hongbin Wang, Cecilie Haarseth, ExxonMobil Development, USA

**Optimisation of Flexible Riser Welding for Corrosion Robustness**

John G Rafferty, GE Oil and Gas, UK

**Influence of Gas Hydrates on the Internal Corrosion of Marine Pipelines**

Lubomyr Y Poberezhny, Myroslav P Mazur, Ivano-Frankivsk National Technical Univ of Oil & Gas; Pavlo O Maruschak, Ternopil National Tech Univ; Taras Y Pyrig, Ivano-Frankivsk National Technical Univ of Oil & Gas, Ukraine

**The Residual Strength Assessment of Offshore Corroded Riser Detected by Remote Field Technology**

Jiakun Fan, Xiaolan Luo, Menglan Duan, Donghong Zhao, Fei Peng, China Univ of Petroleum-Beijing; Xihong Wu, CNOOC, China

**Mooring Line Monitoring to Reduce Risk of Line Failure**

Steven Gauthier, Pulse Structural Monitoring, Singapore ; Edward Elletson, Pulse Structural Monitoring, UK

**27. VORTEX-INDUCED VIBRATION III (V. 3)**

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

**Chair:** Massimo Falchi, INSEAN-CNR, Italy

**Numerical Investigation of the Vortex Induced Motion of SPAR in Uniform Current**

Weiwen Zhao, Zhirong Shen, Decheng Wan, Jin Wang, Shanghai Jiao Tong Univ, China

**Parametric Study of S-N Curve on Fatigue Performance of Subsea SCRs under Voltex-Induced Vibration**

Do Kyun Kim, Han Suk Choi, Su Young Yu, Cheol Soon Shin, Kyu Sik Park, Pohang Univ of Science & Tech, Korea

**Vortex-induced Vibration of Single Pile in Marine Environment Considering Pile and Soil Interaction**

Lanya Hua, Qiang Li, Qian Shi, Zhejiang Ocean Univ, China

**Researches on Hydraulics of Surge Chamber and Flow-induced Vibration on Rapid Gate in Hydraulic Power Plant [Proceedings only]**

Genhua Yen, Jianping Zhao, Qulie Hu, Jia Dong, Nanjing Hydraulic Research Inst, China

**28. SBD III:**

**Material Development (V. 4)**

**Monday June 16 16:20 Room 7**

**Chair:** Doug Fairchild, ExxonMobil Upstream Research Company, USA

**Correlation between Microstructure and Properties of the Weld CGHAZ in High-Strain Pipeline Steel X80**

Meijuan Hu, Fang Yang, Lingkang Ji, Qiang Chi, CNPC Tubular Goods Research Inst, China

**Offshore In-Service Resistance of Double Joints under Strain-Based Conditions**

Giorgio Melis, Andrea Fonzo, Centro Sviluppo Materiali; Philippe Darcis, Tenaris Dalmine SpA, Italy; Hector Quintanilla, Israel Marines-Garcia, Tenaris Tamsa, Mexico; Furio Marchesani, Luigino Vitali, Saipem, Italy

**Microstructural Aspects of Bainite-MA Type Dual-Phase Steel for the Strain-Based Design in Terms of Deformation and Fracture**

Nobuyuki Ishikawa, Haruo Nakamichi, Naoki Takayama, Junji Shimamura, Shigeru Endo, JFE Steel, Japan

**Plastic Anisotropy in UOE Pipes and Fabrication Factors for Evaluating Buckling Resistance**

Eiji Tsuru, Yukinobu Nagata, Yasuhiro Shinohara, Nippon Steel & Sumitomo Metal, Japan

**Strain Based Design of Spirally Welded Pipes, Local Buckling in 4-Point Bending**

S H J van Es, A M Gresnigt, F S K Bijlaard, M H Kolstein, Delft Univ of Tech, Netherlands

**Monitoring of the Processes of Accumulation of Defects of Steel Structures over Time of Ships' Operation**

Michael V Voyloshnikov, Maritime State Univ; Victor A Kulesh, Far Eastern Federal Univ; Sergey A Ogay, Maritime State Univ, Russia

**29. FERT III:  
Deep-Ocean Minerals & Environment 3 (V. 1)**

**Monday                      June 16                      16:20                      Room 8**

**Chair:** Jin S Chung, ISOPE, USA  
**Co-Chair:** Pavel Vlasak, Inst of Hydrodynamics AS CR, Czech Republic

**ISA-UN Environmental Marine Program on International Deepsea Areas**

Sandor G Mulsow, International Seabed Authority, Jamaica

**The Outline of Environmental Impact Assessment for Mining Seafloor Massive Sulfides in Japan**

Teruyoshi Narita, Junya Oshika, Tetsuhiko Toyohara, Nobuyuki Okamoto, Japan Oil, Gas & Metals National Corp; Yoshihisa Shirayama, JAMSTEC, Japan

**Nonlinear Finite-Element Analysis of Flexible Marine Pipes for Deep-Sea Mining**

Yuxiang Chen, Ning Yang, Xing Jin, Changsha Research Inst of Mining & Metallurgy, China

**Effect of Concentration and Velocity on Conveying of Coarse Grained Mixtures in Pipe**

Pavel Vlasak, Zdenek Chara, Jan Krupicka, Jiri Konfrst, Inst of Hydrodynamics AS CR, Czech Republic

**Some Considerations about Image Analysis of Seafloor Photographs for Better Estimation of Parameters of Polymetallic Nodule Distribution**

Akira Tsune, Masatsugu Okazaki, Deep Ocean Resources Development, Japan

**Study on a New Type Deep-Sea Multi-joint Arm and Supporting Leg Mining Mechanism**

Zhijin Zhou, Zhi Yang, Xiong Chen, Hunan Univ of Science & Tech, China

**A Classification Society's Experience with Subsea Mining**

Marco Figoni, Sudheer Chand, American Bureau of Shipping, USA

**30. ADVANCED SHIP TECH III: Ship Hydrodynamics (V. 4)**

**Monday                      June 16                      16:20                      Room 9**

**Chair:** Francis Noblesse, Shanghai Jiao Tong Univ, China

**Hydrodynamic Design of a Fast Semi-SWATH Passenger Ship for Littoral Applications: An Automatic Parametric Optimization Approach**

Giuliano Vernengo, Stefano Brizzolara, MIT, USA; Dario Bruzzone, Univ of Genoa, Italy

**Phase-Averaged SPIV Flow Field Measurement for Ballast Condition of KVLCC2 Model in Waves**

Keisuke Akamatsu, Ho Kim, Hiroshi Okawa, Yasuyuki Toda, Osaka Univ, Japan

**Phase-Averaged SPIV Flow Field Measurement for KVLCC2 Propeller Plane in Waves**

Ho Kim, Yoshiki Hayashi, Syo Oshita, Keisuke Akamatsu, Yasuyuki Toda, Osaka Univ, Japan

**A Study on Ventilation Analyses of Confined Spaces in Ship Structures Using Network Simulation**



Jung-Min Seo, Young-Ho Ko, Jong-Wha No, Myung-Su Han, Daewoo Shipbuilding & Marine Engineering, Korea

**Representation for Characteristic Curves of Hull Form Using Immune Genetic Algorithm based on NURBS with Path Curve Parameterization Method**

Conghong Lu, Yanru Zhang, Yan Lin, Jiubin Jiang, Dalian Univ of Tech, China

**A Fully Nonlinear Semi-Lagrangian Potential Model for Ship Hydrodynamics Simulations Directly Interfaced with CAD Data Structures**

Andrea Mola, Antonio De Simone, Luca Heltai, SISSA, Italy

**A New Method for Ship Bulbous Bow Generation and Modification**

Fuxin Huang, George Mason Univ; Hyunyu Kim, NAVATEK; Chi Yang, George Mason Univ, USA

**The Assessment for Erosion Risk of Marine Propeller Using CFD Analysis**

Jaewook Hur, Younghun Jang, Daewoo Shipbuilding & Marine Engineering, Korea

**31. FERT VIII: EOR 1 (V. 1)**

**Monday June 16 16:20 Room 10**

**Chair:** Sam J. Cho, KEPS, USA

**Optimization and Uncertainty Assessment for Gel Treatment Based on Technical-Economical Model**

Kun Sang Lee, Ji Ho Lee, Hanyang Univ, Korea

**Steam Communication of Well Pad System under Steam Assisted Gravity Drainage in a Heterogeneous Oil-Sands Reservoir**

Changhyup Park, Jaehoon Yoo, Chulhwan Lee, Jiyeon Choi, Kangwon National Univ, Korea

**Evaluation of Real-Time Injection Performance for Polymer Flooding in Heterogeneous Reservoir**

Jeonghwan Lee, Youngmin Kim, Chonnam National Univ, Korea

**Sensitivity Analysis on the Design Parameters of Enhanced Oil Recovery by Polymer Flooding with Low Salinity Waterflooding**

Jeonghwan Lee, Banseok Han, Chonnam National Univ, Korea

**Optimized WAG Cycle and Well Pattern of CO<sub>2</sub> EOR Projects for Maximum NPV in Heterogeneous Reservoirs**

Kun Sang Lee, Moon Sik Jeong, Jinhyung Cho, Hanyang Univ, Korea

**Screening Criteria for Application of EOR Processes in Offshore Fields**

Jong-Se Lim, Pan-Sang Kang, Maritime & Ocean Univ, Korea; Chun Huh, Univ of Texas at Austin, USA

**A New Type of High Temperature Clean Fracturing Fluid to Enhance Oil Recovery on Bohai Bay, China**

Xingzun Wang, Wenhui Bao, Lei Chen, Yina Cai, Meng Li, Zhigao ShagnGuan; China Oilfield Services, China

**TUESDAY 08:00**

**32. LNG SLOSHING IV:  
Ship & Liquid Motion Coupling (V. 3)**

**Tuesday June 17 08:00 Room 1**

**Chair:** Masashi Kashiwagi, Osaka University, Japan

**Numerical Analysis of Coupled Motion of Floating Structures with Nonlinear Sloshing Effects**

Marcio M Tsukamoto, Liang-Yee Cheng, Fernando HP Luz, Kazuo Nishimoto, Univ of Sao Paulo, Brazil

**Extended Study on Effects of Liquid Motion in a Fully Filled Tank on Moment on Vessel**

Yusong Cao, Fuwei Zhang, Marintek USA, USA

**Cryogenic Slosh Modeling in LNG Ship Tanks and Spacecrafts**

Philipp Behruzi, Francesco de Rose, Guido Schwartz, EADS Astrium, Germany

**Sensitivity Investigation on Wave Dynamics in Thin-walled Moonpools Subjected to Waves**

S Yan, Q W Ma, City Univ London, UK

**Preliminary Chart of Drill Ship Operability Considering Moon-Pool Sloshing Effects**

Hiroshi Kawabe, Paula Michima, Univ Federal de Pernambuco, Brazil

**Structural Safety Assessment of LNGC MARK III Membrane Type CCS under Sloshing Impact Loading**

Sang-Gab Lee, Tuo Zhao, Qi Zhang, Korea Maritime and Ocean Univ, Korea

**33. HYDRODYNAMICS IV:**

**CFD 1 (V. 3)**

**Tuesday June 17 08:00 Room 2**

**Chair:** Decheng Wan, Shanghai Jiao Tong University, China

**Prediction of PMM Test Results for a KVLCC2 Using RaNS Based Fluid Dynamics Simulation**

Islam Hafizul, Hyunchul Kim, Hiromichi Akimoto, KAIST, Korea

**Research on the Hydrodynamic Characteristics of the Chamfered Cavity Based on CFD**

Juan Yi, Huazhong Univ of Science & Tech, China

**Flow Simulation for Submarine with Full Appendages Based on OpenFOAM**

Jun Zhang, Zhiguo Zhang, Huazhong Univ of Science & Tech, China

**Numerical Simulations of Ship Motions in Confined Water by Overset Grids Method**

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

**Prediction of Ship Maneuvering Characteristics Using CFD**

Seemontini Roychoudhury, Om Prakash Sha, Vishwanath Nagarajan, IIT Kharagpur, India

**Multiphase Flow Simulation of High Speed Underwater Vehicle Using Supercavitation**

Warn-Gyu Park, Dong-Hyun Kim, Duc-Thanh Vu, Pusan National Univ, Korea

**Prediction on Course Stability of Towed Offshore Structures by Computational Fluid Dynamics**

Chang Seop Kwon, Oh Joon Kwon, KAIST; Sung Wook Lee, Hee Taek Kim, Samsung Heavy Industries, Korea

**34. RENEWABLE ENERGY IV:  
Offshore Wind Floating Turbine 1 (V. 1)**

**Tuesday June 17 08:00** Room 3

**Chair:** Gerrit Wolken-Mählmann, WESFraunhofer, Germany

**Comparison of Wave-Induced Response of a TLP Wind Turbine Obtained by CFD Method and Potential Theory**

Ali Nematbakhsh, Erin Bachynski, Zhen Gao, Torgeir Moan, NTNU, Norway

**Towing Tests for the GICON®-TLP for Wind Turbines**

Daniel Hedwig, Thomas Myland, ESG Edelstahl & Umwelttechnik Stralsund; Frank Adam, Frank Dahlhaus, TU-Freiberg; Jochen Grossmann, GICON, Germany

**Time Domain Simulation of a Semi-submersible Type Floating Wind Turbine**

Yingyi Liu, Changhong Hu, Makoto Sueyoshi, Shigeo Yoshida, Yuichiro Honda, Yuji Ohya, Kyushu Univ, Japan

**35. Risk Assessment and Reliability II (V. 4)**

**Tuesday June 17 08:00** Room 4

**Chair:** Yong Bai, Zhejiang Univ, China

**Co-Chair:** Fujio Kaneko, National Maritime Research Inst, Japan

**USN-based Safety Monitoring of Ships with Smart Devices**

Dae Seok Kim, Kyung-Ho Lee, Jung-Min Lee, Qungi Lee, Inha Univ, Korea

**Risk-Based Inspection Plan Combined with Fatigue Failure Analysis of Jacket Platform**

Yitao Wang, Huilong Ren, Chenfeng Li, Guoqing Feng, Jiaju Yu, Harbin Engineering Univ, China

**Modal Parameters Identification Based on Noise Reduction for Jacket-Type Offshore Petroleum Platforms**

Xingxian Bao, Changlian Li, China Univ of Petroleum (East China); Culin Li, Inst of Oceanology CAS, China

**Component Failure Mode Identification of Lattice Pressure Vessel (LPV)**

Younseok Choi, KAIST, Korea

**Structural Damage Alarming of Offshore Platform Based on the Principal Components of the Acceleration Transmissibility Function**

Yansong Diao, Jiabao Chen, Hong Ren, Qingdao Technological Univ, China

**Structural Novelty Detection Based on Hilbert-Huang Transform and Principal Component Analysis**

Shuqing Wang, Jiewen Nier, Min Zhang, Ocean Univ of China, China

**Study on Structural Overall Safety of Jacket Platforms Based on Dynamic Failure Mechanism Analysis**

Che Xu, Yang Yang, Dalian Univ of Tech, China

**36. ASSET INTEGRITY IV:  
Structural Integrity (V. 4)**

**Tuesday June 17 08:00 Room 5**

**Chair:** Doug Hoyt, ExxonMobil Development Co., USA

**Study on Corrosion of Rebar Embedded in the Nanoclay Added Cement Concrete**

Yingfang Fan, Ningning Li, Shiyi Zhang, Qi Wang, Dalian Maritime Univ, China

**Research on Post-Weld Impact Treatments for High-Strength Steels**

Natalia Ermolaeva, Allseas Engineering, Netherlands

**Functional Plasma Electrolytic Oxidation Coatings for Offshore Structures**

Alexander Minaev, Far Eastern Federal Univ; Sergey Gnedenkov, Sergey Sinebryukhov, Dmitry Mashtalyar, Vladimir Egorkin, Andrey Gnedenkov, Inst of Chemistry RAS; Konstantine Nadaraia, Far Eastern Federal Univ, Russia

**Updating Fatigue Reliability of Uninspectable Joints using Structurally Correlated Inspection Data**

Mark D Tammer, HU Univ of Applied Sciences Utrecht; David A Van den Berg, Mirosław L Kaminski, Delft Univ of Tech, Netherlands

**37. ASSET INTEGRITY V:  
Integrity Assessment Methods (V. 4)**

**Tuesday June 17 08:00 Room 6**

**Chair:** Shervin Maleki, TWI Ltd, UK

**Evaluation of Welded Thick Plate Steel of Ocean Structure by a Compact Digital Radiography System**

Aramando Hideki Shinohara, Luiz Carlos Silva, Alexandre Monteiro, Bruno Fernandes, Federal Univ of Pernambuco; Segen Estefen, COPPE/UFRJ, Brazil

**Corrosion Assessment of Reinforced Concrete Structures**

H G Wheat, M J DeCoster, Univ of Texas at Austin, USA

**Assessment of Locally Thinned Areas (LTAs) in Pipe Structures Subject to Global Bending**

Payam Jamshidi, Shervin Maleki, Tyler London, Elvin Eren, TWI Ltd, UK

**Testing and Numerical Simulation of Magnetic Methods for Monitoring Fatigue Cracks**

Menno P van der Horst, Mirosław L Kaminski, Delft Univ of Tech; Erik Puik, DotDotFactory, Netherlands

**Inspection, Maintenance & Repair (IMR) Integrity Management for Non-Metallic Pipeline**

Wei Dai, Yong Bai, Zhejiang Univ, China

**38. SBD IV:  
Assessment (V. 4)**

**Tuesday June 17 08:00 Room 7**

**Chair:** Eiji E. Tsuru, Nippon Steel & Sumitomo Metal Corp., Japan

**Co-Chair:** C M Spinelli, ENI, Italy

**Failure Analysis on Fracture of Buried Gas Pipeline**

Ma Xiao Fang, Li Wei Wei, Qu Yi Xin, CNPC Tubular Goods Research Inst, China

**Strain Based Design of Spirally Welded Pipes, Evaluation of Test Results Local Buckling**

S H J van Es, A M Gresnigt, F S K Mijlaard, M H Kolstein, Delft Univ of Tech, Netherlands

**Engineering Critical Assessment of Offshore Pipes with Partially Overmatching Girth Welds during Reel Lay**

Daowu Zhou, T Sriskandarajah, Subsea 7, UK

**Deepwater Spool Bend Limit State Design and Analysis Methodology**

Shulong Liu, John Hooper, Emil Maschner, Wood Group Kenny, UK

**Observations on the Design, Execution, and Use of Full-Scale Testing for Strain-Based Design Pipelines**

D P Fairchild, S Y Shafrova, H Tang, W Cheng, J M Crapps, ExxonMobil Upstream Research, USA

**39. FERT IV: Clean Coal1 (V. 1)**

Tuesday

June 17

08:00

Room 8

**Chair:** Dong Sup Kim, SK Innovation, USA

**KIER Indirect Coal Liquefaction Technologies: Fundamentals and Scale-Up of Fischer-Tropsch Technologies [Oral presentation]**

Dong Hyun Chun, Ho-Tae Lee, Jung-Il Yang, Ho-Won Ra, Jung Hoon Yang, Ji Chan Park, SungJun Hong, Heon Jung, Korea Inst of Energy Research, Korea

**Design of Rheological Modifiers for Dispersion and Stability of Petroleum Coke Slurries**

Seong H Kim, David J Marchand, Pennsylvania State Univ, USA; Youngkwang Kim, Nanhee Ko, Juhoe Kim, SK Innovation, Korea; Yong L Joo, Cornell Univ, USA

**Gasification Characteristics of Mixed Fuel of Pulverized Coal and High Carbon Fly Ash in the Compact Gasifier within Short Residence Time [Oral presentation]**

Jin-Wook Lee, Seok-Woo Chung, Sang-Oh Yoo, Woo Hyun Jung, Yongsoo Byun, Sang-Yeon Hwang, Jin-Ho Kim, Yongseung Yun, Ajou Univ; Gyoo-Tae Kim, Jae-Wook Shin, SK Innovation Global Technology, Korea

**Continuous Operation Results of Pre-combustion CO<sub>2</sub> Capture Process Integrated with Coal Gasifier and Desulfurization Process**

Ho Jung Ryu, Dong Ho Lee, Seung-Yong Lee, Sung-Ho Jo, Young Cheol Park, Korea Inst of Energy Research, Korea

**Study on Coal Gasification Reaction Using Natural Mineral as a Catalyst at High Temperature [Oral presentation]**

Hyun Min Shim, Tae Wahn Kwon, Yong Woo Kim, Seong Ho Lee, Gyoo Tae Kim, Jae Wook Shin, SK Innovation, Korea

**40. ADVANCED SHIP TECH IV: Shipbuilding & Simulation (V. 4)**

Tuesday

June 17

08:00

Room 9

**Chair:** Ho-Jin Hwang, KRISO, Korea

**Co-Chair:** InHyuck Hwang, Seoul National Univ, Korea

**Program of Scenario Management for Simulation of Lifting Block Using Crane Considering Uncertainty of Environment**

Namkug Ku, So Ha, Kyu-Yeul Lee, Myoung-II Roh, Seoul National Univ; Ho-Jin Hwang, Korea Research Inst of Ships & Ocean Engineering, Korea

**Development of Production Plan Assessment System for Productivity Improvement Using AHP Method**

SeungHoon Nam, MyungGi Back, InHyuck Hwang, JongGye Shin, Seoul National Univ, Korea

**A Study of Data Qualification for Shipyard Manufacturing Scheduling Simulation**

Jong-Hak Lee, Korea Maritime & Ocean Univ; Philippe Lee, Xinnos Co; Jong-Ho Nam, Korea Maritime & Ocean Univ; Yang-Ryul Choi, Xinnos Co, Korea

**A Ship Berthing Model with Uncertain Factors for Shipyard [Proceedings only]**

Weiwei Tang, South China Univ of Tech; Kunrong Yang, Chengxi Shipyard (Guanzhou), China

**A Practical Use of the GIS in the Field of the Ship Production Simulation**

SonWun Ruy, Chungnam National Univ; SangYeop Lee, InfoGet Co; Ho-Jin Hwang, Korea Research Inst of Ships & Ocean Engineering, Korea

**Optimal Planning of Ship Block Transportation by Transporters Considering Arrangement in Stockyard**

Ju-Hwan Cha, Doo-Yeoun Cho, Mokpo National Univ; Ho-Jin Hwang, Korea Research Inst of Ships & Ocean Engineering, Korea

**Design of a Robotic System for Inspection, Maintenance and Repair of LNG Cargo Tank**

Juyi Park, Jae Won Seo, Soo Ho Kim, Gil Whoan Chu, Jong-sik Woo, DSME, Korea

**Research on Seizing Method for Non-regular H&B Segments**

Langxiang Gan, Yuanzhou Zheng, Shuangxi Xu, Lei Zhang, Wuhan Univ of Tech, China

**Production Simulations with Integrated Framework for Ships and Offshore Plants**

Ho-Jin Hwang, Korea Research Inst of Ships & Ocean Engineering, Korea

**41. FERT IX: EOR 2 (V. 1)**  
**Tuesday June 17 08:00 Room 10**

**Chair:** Jong-Se Lim, Korea Maritime and Ocean Univ, Korea

**Multi-component Thermal Fluid Technology on Extra-heavy Oil to Enhance Oil Recovery on Bohai Bay of China**

Guimin Yu, Tao Lin, Yongtao Sun, Yubao Sun, China Oilfield Services, China

**Acidizing Technology of Carbonate Reservoir Used for Enhanced Oil Recovery in the Oilfield of Iraq**

Puyong Feng, Bo Cui, Xinming Rong, Yongqing Yang, China Oilfield Service Limited, China

**Study of Multi-component Thermal Fluid Recovery on Offshore Heavy Oilfield in Bohai Bay of China**

Hailin Yang, Yongtao Sun, China Oilfield Service Limited, China

**Foam Flooding Technology Used for Enhanced Oil Recovery to Apply on Offshore Oilfields in Bohai Bay of China**

Yunbao Zhang, Guorui Xu, Haijiang Bo, Xiang Li, China Oilfield Service Limited, China

**TUESDAY 10:30**

**42. LNG SLOSHING V:  
Breaking Wave Impacts (V. 3)**  
**Tuesday June 17 10:30 Room 1**

**Chair:** Frederic Dias, University College Dublin, Ireland/

**Co-Chair:** Decheng Wan, Shanghai Jiao Tong Univ, China

**Wave Impacts on a Rigid Ceiling: An Experimental Study in a Wave Canal with a Flat and Corrugated Ceiling**

O Kimmoun, Ecole Centrale Marseille; L Brosset, Gaztransport & Technigaz; G Dupont, Ecole Centrale Marseille, France

**2D Simulations of Breaking Wave Impacts on a Flat Rigid Wall by SPH-Flow and LSDYNA**

P-M Guilcher, N Couty, HydrOcean; L Brosset, Gaztransport & Technigaz; Y-M Scolan, ENSTA-Bretagne; D Le Touzé, Ecole Centrale de Nantes, France

**2D Simulations of Breaking Wave Impacts on a Flat Rigid Wall by SPH-Flow and LSDYNA: Comparison between Results at Scale 1 and Scale 1:6**

P-M Guilcher, Y Jus, N Couty, HydrOcean; L Brosset, Gaztransport & Technigaz; D Le Touzé, Ecole Centrale de Nantes, France

**2D Simulations of Breaking Wave Impacts by SPH-Flow and LSDYNA: Comparison between Impacts on a Rigid Wall and on a MarkIII Containment System for LNG Carriers**

P-M Guilcher, Y Jus, N Couty, HydrOcean; L Brosset, Gaztransport & Technigaz; D Le Touzé, Ecole Centrale de Nantes, France

**On the Simulation of Liquid Impacts on a Flat Rigid Wall by a 2D Parallel Finite Volume Solver**

J Costes, J-M Ghidaglia, A Mrabet, ENS-Cachan, France

### 43. HYDRODYNAMICS V:

#### CFD 2 (V. 3)

Tuesday June 17 10:30 Room 2

**Chair:** Hamn-Ching Chen, Texas A&M University, USA  
**Co-Chair:** Jong-Chun Park, Pusan National University, Korea

#### **On Unsteady Viscous Flows**

Jian-Jun Shu, Nanyang Technological Univ, Singapore

#### **Effect of Turbulence Modelling on the Flow Past a Circular Cylinder at a Subcritical Reynolds Number**

Sunghan Kim, Philip A Wilson, Zhi-Min Chen, Univ of Southampton, UK

#### **Improved SPH for Simulating Violent Flow and Fixed Body Interaction**

Xing Zheng, Harbin Engineering Univ, China; Qing-Wei Ma, City Univ London, UK; Wen-yang Duan, Harbin Engineering Univ, China

#### **Numerical Simulation of Wave Load on Seawalls Using Smoothed Particle Hydrodynamics**

Xingye Ni, Weibing Feng, Hohai Univ, China

#### **Application of Multiphase SPH to Fluid Structure Interaction Problems**

Ruben J Paredes, Len Imas, Stevens Inst of Tech, USA

#### **CFD Simulation of Extreme Slamming on a Containership in Random Waves**

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

#### **CFD-Based Analysis and Correlation of the VIM Characteristics of Deep Draft Column Stabilized Floaters [Oral presentation]**

Arun G Antony, Vimal Vinayan, Jun Zou, Philip B Poll, Houston Offshore Engineering; Samuel Holmes, Red Wing Engineering; Dusan Spornjak, Curtt Ammerman, Los Alamos National Lab, USA

### 44. RENEWABLE ENERGY V:

#### Offshore Wind Floating Turbine 2 (V. 1) (V. 1)

Tuesday June 17 10:30 Room 3

**Chair:** Tim A. Fischer, Rambøll Management Consulting, Germany

#### **Global Strength Analysis of a New Concept Vertically Installable Spar-type Floating Wind Turbine**

Yi Liu, Jin Wang, Zhiqiang Hu, Shanghai Jiao Tong Univ, China

#### **Wind Turbine Impacts on Its Semi-submersible Floating Supporting System for Phase II of OC4**

Wenchao Zhao, Hu Zhou, Decheng Wan, Shanghai Jiao Tong Univ, China

#### **The GICON-TLP for Wind Turbines - Wind and Wave Tank Test Results**

Frank Adam, TU-Freiberg; Thomas Myland, ESG Edelstahl & Umwelttechnik Stralsund; Frank Dahlhaus, TU-Freiberg; Jochen Grossmann, GICON, Germany

#### **Comparative Study of a FVAWT and a FHAWT with a Semi-Submersible Floater**

Kai Wang, Chenyu Luan, Torgeir Moan, NTNU, Norway; Martin O L Hansen, DTU Wind Energy, Denmark

#### **A Study on Characteristics of Darrieus-type Straight-bladed Vertical Axis Wind Turbine by Use of Ailerons**

Kazuhisa Naoi, Kentaro Tsuji, Mitsuhiro Shiono, Katsuyuki Suzuki, Nihon Univ, Japan



**The Dynamic Coupling Effects of a MUFOWT (Multiple Unit Floating Offshore Wind Turbine) with Partially Broken Blade**

Yoon Hyeok Bae, Moo-Hyun Kim, Texas A&M Univ; Qing Yu, American Bureau of Shipping, USA

**Passive Control of Pitch Motions of a Floating Wind Turbine Using Multi-Layer Tuned Liquid Dampers**

Cheolung Cheong, Minhoo Ha, Pusan National Univ, Korea

**CFD Simulation of a Floating Wind Turbine Platform in Rough Sea Conditions**

Cheng Liu, Changhong Hu, Kyushu Univ, Japan

**45. Strength and Risk (V. 4)**

**Tuesday**

**June 17**

**10:30**

Room 4

**Chair:** M. Fujikubo, Osaka University, Japan.

**Co-Chair:** Myung-Il Roh, Seoul National Univ, Korea

**Fatigue Strength Assessment of Typical Spots in Wave-Piercing Catamaran (WPC) Based on Spectral Method**

Jingxi Liu, Weiwei Wang, Huazhong Univ of Science & Tech; Kejin Jiang, Hudong-Zhonghua Shipbuilding; Ze Zhang, Yufeng Gong, Huazhong Univ of Science & Tech, China

**Evaluation on the Effect of Fabrication Tolerances on the Fatigue Performance of Critical Connections between Topsides and Hull Structure in Drillship**

Zhuo Chen, Wenping Wang, Ying Wei, Keppel Offshore & Marine Technology Centre, Singapore

**Nonlinear Dynamic Response and Strength Evaluation of a Ship in Extreme Waves Based on Hydroelasticity-plasticity Method**

Weiqin Liu, Katsuyuki Suzuki, Kazuki Shibanuma, Univ of Tokyo, Japan

**Design Modification of Damaged Free-Fall Lifeboat for FPSO through the Free-Fall Test**

John-Kyu Hwang, Hyundai Samho Heavy Industries; Myung-Il Roh, Seoul National Univ, Korea

**Safety Research on Fiber-Reinforced Composite Flexible Pipe Installation under the Effect of Wind, Wave and Current Load**

Yu Cao, Yong Bai, Zhejiang Univ; Liu Zi Yan, Ship Design & Research Inst; Qian Miao Hua, Zhejiang Univ, China

**Bending and Compressive Strength of Stiffened Panels with Crack Damage in Longitudinal Stiffeners**

Daisuke Yanagihara, Ehime Univ, Japan

**Numerical Modelling of the Boundary Conditions on Ship Structural Components under Accidental Loading Conditions**

Jin Pan, Min Zhang, Wuhan Univ of Tech, China; Mingcai Xu, Univ of Lisbon, Portugal

**Ultimate Strength Research on River-Sea-Going Ship with Large Hatch Opening**

Zhiyong Pei, Weiguo Wu, Wuhan Univ of Tech, China

**Freeboard Correction on Sea-river-going Vessels based on Damaged Stability and Residual Strength Numerical Simulation**

Wei Cai, Ying Chen, Wuhan Univ of Tech, China

**46. HMS I:  
Wear/Erosion Resistance (V. 4)**

**Tuesday June 17 10:30 Room 5**

**Chair:** Jongkyo Choi, POSCO, Korea

**Metallurgical Design of High Mn Steel Plates and Its Weldments for Erosion and Wear Resistant Applications**

HyunWoo Jin, ExxonMobil Research & Engineering, USA

**Development of Erosion and Wear Resistant High Mn Steel Plates and Its Properties**

Hakcheol Lee, POSCO, Korea

**Development of Welding Consumables for Erosion and Wear Resistant High Mn Steels**

Ilwook Han, POSCO, Korea

**Microstructure Evolution of High Mn Steels Under Erosion Atomic-scale Characterization**

ChanWoo Bang, Pohang Univ of Science & Tech, Korea

**Deformation Behavior of Nano-Structured High Mn Steels**

J Yoo, POSTECH, Korea; H W Jin, R Ayer, ExxonMobil Research & Engineering, USA; H S Kim, S Lee, Nack J Kim, POSTECH, Korea

**47. ADVANCED SHIP TECH VII:  
Transportation and Navigation (V. 4)**

**Tuesday June 17 10:30 Room 6**

**Chair:** Satoru Yamaguchi, Kyushu Univ; Japan

**Stern Skeg Effects on Course Stability of a Ship with Azimuthing Propellers**

Susumu Tanaka, Takuya Fukushima, Noritaka Hirata, Hironori Yasukawa, Hiroshima Univ, Japan

**An Analysis Method for Optimization of Ship's Comprehensive Navigation Performance**

Zhaolong Yang, Zaojian Zou, Shanghai Jiao Tong Univ, China

**Study on the Benefit of VTS in North Zhejiang**

Yan Du, Wuhan Univ of Tech, China

**Numerical Multi-scale Analysis of Turbulent Flow around Low-speed Ship with Energy Saving Pre-swirl Stator**

Sunho Park, Korea Maritime & Ocean Univ; Gwangho Oh, NEXTFoam Co, Korea

**Improve Appendage performance with the Aid of CFD and Model Test**

Shungai Gao, Ran He, Huazhong Univ of Science & Tech, China

**48. SUBSEA-PIPELINE-RISER- I:  
Conceptual Developments and Design (V. 2)**

**Tuesday June 17 10:30 Room 7**

**Chair:** Mason Wu, DMAR Engineering, USA

**Recent Trends and Future of Ultra Deepwater Oil Fields**

Jean-Francois Saint-Marcoux, Subsea 7, France

**Practical and Theoretical Assessments of the Subsea Installation Capacity for HYSY 201 Laybarge According to Recent Project Performances in South China Sea**

Facheng Wang, Yong Luo, COTEC Offshore Engineering Solutions;  
Shaohua Zhu, Yongxin Chen, China Offshore Oil Engineering; Mingchen  
Ni, Ming Gao, COTEC Offshore Engineering Solutions, China

**CO<sub>2</sub> Pipeline Transportation New Needs**

Carlo M Spinelli, ENI; Giuseppe Demofonti, Massimo Di Biagio, Antonio  
Lucci, CSM, Italy

**Global Design of Single Independent Riser for Deepwater Application  
in South China Sea**

Ying Li, Tianjin Univ, China

**Application of Composite Riser in Deep-water Offshore Engineering:  
Advantages and Technical Challenges**

Shengqing Zhu, McDermott, Singapore

**Numerical Analysis of Multi-nozzle Jet Flow Parameters of Trencher  
Design**

Ya Zhang, Chun Wang, Tong Ge, Shanghai Jiao Tong Univ, China

**Tuesday**                      **49. FERT V Clean Coal 2 (V. 1)**                      **Room 8**  
                                         **June 17**                      **10:30**

**Chair:** Gyoo Tae Kim, SK Innovation, Korea

**Chemical and Physical Properties of Petroleum Pitch**

Nader Nciri, Korea Univ of Technology and Education, Korea

**Experimental Investigation of Bed Agglomeration Behavior of Lignite  
Coal in the Transport Gasifier Environment [Oral presentation]**

Dong-Ju Kim, Hueon Namkung, Jin-Wook Lee, Hyung-Taek Kim, Ajou  
Univ, Korea

**Drying and Stabilization of Low Rank Coal [Oral presentation]**

Shiyun Lee, Sangdo Kim, Donghyuk Chun, Youngjun Rhim, Jiho Yoo,  
Hokyung Choi, Jeongwhan Lim, Korea Inst of Energy Research, Korea

**High Concentrated Pet-coke MRC (Micronized Refined Carbon)**

Juhoe Kim, Gyootae Kim, Jaewook Shin, Youngkwang Kim, Nanhee Ko,  
Cheonseong Lee, SK Innovation, Korea

**Correlations for the Coal-Gas Flow Inside Pipe in Pneumatic Coal-  
Conveying System**

Chan Lee, Univ of Suwon; Jing-Wook Lee, Ajou Univ; Gyoo-Tae Kim, Jae-  
Wook Shin, SK Innovation Global Technology, Korea

**Tuesday**                      **50. ADVANCED SHIP TECH V:**                      **Room 9**  
                                         **June 17**                      **Ultimate Strength (V. 4)**                      **10:30**

**Chair:** Beom Seon Jang, Seoul National University, Korea

**Strength Assessment of Ore Carrier Cross-Deck Structures**

Ling Zhu, Wuhan Univ of Tech, China; Fai Cheng, Lloyd's Register, UK

**Application of a Beam-Column Element Formulation for Ultimate  
Strength Analyses of Thin-Walled Structures**

Thomas Lindemann, Eldor Backhaus, Patrick Kaeding, Univ of Rostock,  
Germany

**A Study on Optimization the Structure of Ship in Consideration of  
Layout of the Stiffeners**

Ryota Nonami, Mitsuru Kitamura, Akihiro Takezawa, Hiroshima Univ;  
Shinichi Hirakawa, Japan Marine United, Japan

**Damage Detection Method by Topology Optimization Based on Eigenvalue Analysis**

Takafumi Nishizu, Akihiro Takezawa, Mitsuru Kitamura, Hiroshima Univ, Japan

**Investigation on Damping Model for Vibration Response Analysis Using Whole Ship Model**

Hiroyuki Takahashi, Japan Marine United; Yukitaka Yasuzawa, Kyushu Univ, Japan

**The Effect of Initial Imperfections and Lateral Loads on the Hull Girder Ultimate Strength of Intact and Damaged Ships**

Kimihito Toh, Masahiro Maeda, Takao Yoshikawa, Kyushu Univ, Japan

**Mathematical Model of the Shell with the Infill for Retaining Structures**

Alexander T Bekker, Nikita Ya. Tsimbelman, Far Eastern Federal Univ; Dmitriy A Potyanikhin, Inst of Automation & Control Processes FEB; Andrey I Mamontov, Tatiana I Chernova, Far Eastern Federal Univ, Russia

**Fatigue Strength Assessment by Hot Spot Stress Approach for Welded Aluminum Structures**

Kenta Morinaga, Tatsuya Imai, Toru Shiratsuchi, Naruyoshi Izumi, Kazuo Kada, Satoru Nishimoto, Kawasaki Heavy Industries, Japan

**Main Dimension Optimization for Scheme Design of Round-Bilge Craft**

Litong Mao, Yuanzhou Zheng, Wei He, Lanxiong Gan, Wuhan Univ of Tech, China

**51. UNDERWATER SYSTEMS I:  
AUV, Robotics and Communications 1 (V. 2)**

**Tuesday June 17 10:30 Room 10**

**Chair:** M. Nakamura, Kyushu University, Japan

**A Comb Spectrum Signal Detection Method Based on the Matching Search in Frequency Domain**

Yao Zhang, Lei Gao, Jian-guo Wu, Shenyang Inst of Automation CAS, China

**Study of Underwater Noise Attenuation through Balloon Arrays**

Chi-Fang Chen, Tien-Siang Ling, National Taiwan Univ; Sheng Fong Ling, Industrial Technology Research Inst; Wei-Chun Hu, National Taiwan Univ, Taiwan, China

**Advanced System Control for a Hybrid ROV to Underwater Structures Inspection**

Gerson Yuri Cagnani Conte, Cristiano Zacarias Ferreira, Juan Pablo Julca Avila, Thiago Moralis Ceratti Ribeiro, Juan Carlos Cutipa Luque, Federal Univ of ABC, Brazil

**Experimental Results of the Sparse Channel Estimation in Underwater Acoustic Communication**

Byung-Chul Gwun, Chang-Eun Lee, Hyung-Woo Lee, Ki-Man Kim, Korea Maritime & Ocean Univ, Korea

**An Image Processing Method of the Ship Wake Based on Image Sonar**

Lei Gao, Jian-Guo Wu, Shenyang Inst of Automation CAS, China

**TUESDAY 13:00**

**Jin S Chung Award Lecture**

**Tuesday June 17 13:00 Room 2**

**Introduction:** Soo-Sam Kim, ISOPE President, SungKyunKwan University, Korea

**An Ocean Engineering Researcher's Efforts toward Global Environmental Problems [Oral presentation and the paper in Journal of Offshore and Polar Engineering]**

Wataru Koterayama, Vice President, Open University of Japan, Japan

**TUESDAY 14:00**

**52. LNG SLOSHING VI:  
Numerical Simulations (V. 3)**

**Tuesday June 17 14:00 Room 1**

Chair: Jean-Michel Ghidaglia, ENS-Cachan; France

**Numerical Simulation of Wave Breaking Using a Two-Phase Flow Compressible Model**

Luc Lenain, Univ of California-Sa Diego, USA; Florian de Buyst, ENS-Cachan, France; W Kendall Melville, Univ of California-Sa Diego, USA

**CFD Applications for Sloshing Assessment**

Louis Diebold, Thomas Gazzola, Bureau Veritas, France

**A New Phenomenological Study of Liquid Impacts Through 2D Compressible Two-Fluid Numerical Simulations**

J-M Ghidaglia, ENS-Cachan; P-M Guilcher, HydrOcean; G Clair, Eurobios; L Brosset, Gaztransport & Technigaz, France

**Parallel MPS Method for Three-Dimensional Liquid Sloshing**

Yuxin Zhang, Yaqiang Yang, Decheng Wan, Shanghai Jiao Tong Univ, China

**Parametric Sensitivity Study on Liquid Sloshing in Partially Filled Tank by Numerical Simulation**

Liting Yu, Jinhai Zheng, Mi-An Xue, Hohai Univ, China

**53. HYDRODYNAMICS VI:  
CFD 3 & NWT (V. 3)**

**Tuesday June 17 14:00 Room 2**

**Chair:** K Tanizawa, National Maritime Research Inst, Japan

**Co-Chair:** Xing Zheng, Harbin Engineering Univ, China

**RANS Computations of Added Resistance of Advancing Modified Wigley Ships in Head Waves**

Ruosi Zha, Haixuan Ye, Zhirong Shen, Decheng Wan, Shanghai Jiao Tong Univ, China

**Maneuverability Assessment of a Container Ship Using Steady RANSE Method**

Sheeja Janardhanan, SCMS School of Engineering & Tech; Deepti Balakrishnan Poojari, Apurba Ranjan Kar, Indian Register of Shipping, India

**Fully Nonlinear Simulation of a Submerged Circular Cylinder Undergoing Large-amplitude Heave Motions**

Lixian Wang, Hui Tang, Nanyang Technological Univ, Singapore

**A Weakly Nonlinear Time-Domain Method for Predicting Large-Amplitude Motions of Ships Advancing in Waves**

Xin Wang, Masashi Kashiwagi, Osaka Univ, Japan

**Simulation of Numerical Wave Tanks for Generating Irregular Waves and Forward Speed Effects**

Jai Ram Saripilli, Ram Kumar Joga, Sharad S Dhavalikar, Apurva Ranjan Kar, Indian Register of Shipping, India

**No Reflection Numerical Wave Tank Based on OpenFOAM**

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

**54. RENEWABLE ENERGY VI:**

**Offshore Wind Analysis 1 (V. 1)**

**Tuesday**

**June 17**

**14:00**

**Room 3**

**Chair:** John D Sørensen, Aalborg Univ & DTU Wind Energy, Denmark

**Influence of Superelement Support Structure Modeling on the Loads on an Offshore Wind Turbine with a Jacket Support Structure**

Fabian Vorpahl, Ying Tu, Fraunhofer IWES, Germany

**Simulation Technique Research on the Aero-Hydro Elastic Model of the Offshore Wind Turbine**

Genhua Yan, Jianping Zhao, Hua Gu, Jia Dong, Fazhan Chen, Nanjing Hydraulic Research Inst, China

**Comparison of Wind Tunnel Test and CFD Simulation Results for Newly-Proposed Steel Wind Turbine Towers**

Jin-Wook Joung, Boo-Hyung Bang, Young-Min Kim, Daewoo Inst of Construction Tech; Min-Oh, Hwang, RIST, Korea

**Shape Design and Cavitation Analysis on a 1MW HATCT Rotor Blade by CFD**

Young-Do Choi, Patrick M Singh, Mokpo National Univ, Korea

**Analysis of Wind Turbine Tower Fastener Using Anti-Releasing Nuts**

Young Jong Kang, Junho Choi, Keesei Lee, Nimseo Jang, Korea Univ, Korea

**Effect of Outliers in Wind Speed Assessment**

Takvor H Soukissian, Flora E Karathanasi, Evangelos G Voukouvalas, Hellenic Centre for Marine Research, Greece

**55. OCEAN TECH I: SCS LIWAN 3 Deepwater Gas Development – Floatover Installation (V. 1)**

**Tuesday**

**June 17**

**14:00**

**Room 4**

**Chair:** Wan C. Kan, ExxonMobil Development Co., USA

**Co-Chair:** Alan Wang, COOEC, China

**Design Considerations for Very Challenging Floatover Installation of Liwan 3-1 Mega Topsides with a T-Shaped Barge**

Yun Yang, Alan M Wang, Ruhua Yuan, Huailiang Li, Weiwei Xie, Offshore Oil Engineering; Xiaojian Jin, CNOOC, China

**A Model Test Study and its Application for Very Challenging Floatover Installation of Liwan 3-1 Mega Topsides in South China Sea**

Xuezhong Zhou, Zhigang Li, Changsheng Yu, Alan M Wang, Offshore Oil Engineering; Xin Li, Jun Li, Shanghai Jiao Tong Univ, China

**Virtual Simulation Program and its Application for Very Challenging Floatover Installation of Liwan 3-1 Mega Topsides in South China Sea**

Alan M Wang, Ruhua Yuan, Huailiang Li, Weiwei Xie, Offshore Oil Engineering, China; Jan S Bakker, Hakob Pinkster, STC BV, Netherlands

**Parametric Sensitivity Studies for Floatover Installation Analyses of Liwan 3-1 Mega Topsides with a T-Shaped Launch Barge**

Ruhua Yuan, Min He, Wentai Yu, Alan M Wang, Offshore Oil Engineering, China; Daniel Merino, Tormod Bøe, Det Norske Veritas, Norway

**Environmental and Motion Monitoring Applications for Very Challenging Floatover Installation of Liwan 3-1 Mega Topsides in South China Sea**

Xiao Wu, Xin Li, Shanghai Jiao Tong Univ; Xinchao Li, Litao Li, Shangchen Yuan, Alan M Wang, Offshore Oil Engineering, China

**Research on Load Transference Technology of the Whole Large Topside**

Chao Liu, Shumin Li, Ting Li, Shengnan Lu, Yuexia She, Offshore Oil Engineering (Qingdao), China

**56. HMS II:**

**Phase Transformation & Deformation Mechanism (V. 4)**

**Tuesday June 17 14:00 Room 5**

**Chair:** Young-Kook Lee, Yonsei Univ, Korea

**Effect of Alloy Elements on Strengthening Mechanism of Austenitic High Mn Steels**

Yumi Ha, Il-Cheol Yi, POSTECH; Soon-Gi Lee, POSCO; Nack J Kim, POSTECH, Korea

**Carbide Formation Behavior of 20Mn-3Cr-0.6C Steel**

Inho Lee, Kwang Suk Son, Jun Young Oh, Dongyu Kim, Dong-A Univ, Korea

**Microstructure and Deformation Behavior of As-Quenched Fe-27Mn-12Al-0.8C Duplex Steel**

Si Woo Hwang, Hanbat National Univ; Jin-Mo Koo, Jae Kon Lee, POSCO; Kyung-Tae Park, Hanbat National Univ, Korea

**Effects of Alloying Elements on the Hot Ductility Behavior of Cryogenic High Manganese Steel Weld Metals**

Kyutae Han, Hanyang Univ; Bongkeun Lee, Ilwook Han, Jongkyo Choi, POSCO; Changhee Lee, Hanyang Univ, Korea

**Microstructural Changes and Hot Ductility Behavior of High Carbon/Manganese Austenitic Steel Slab**

Yongyoon Kim, Jaehong Yoo, Hanyang Univ; Hakcheol Lee, POSCO; Changhee Lee, Hanyang Univ, Korea

**Study on the Machining Mechanism of High Manganese Steel**

Kwang Soo Park, RIST, Korea

**57. COASTAL HYDRODYNAMICS I: Storm Surge (V. 3)**

**Tuesday June 17 14:00 Room 6**

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

**Co-Chair:** H. Kawai, Port and Airport Research Inst., Japan

**Modelling of Storm Surge for Typhoons Muifa and Damrey**

Xuelin Ding, Yongping Chen, Xi Gu, Hohai Univ, China

**Risk Assessment of Typhoon Disasters for Islands in China**

Defu Liu, Junguo Gao, Fengqing Wang, Ocean Univ of China, China

**Prediction of Storm Surge Simulations around Korean Coasts Using Climate Change Projection Data**

Soo Youl Kim, Tottori Univ, Japan; Ji Hee Oh, Kyung Duck Suh, Seoul National Univ, Korea; Tomohiro Yasuda, Hajime Mase, Kyoto Univ; Yoshiharu Matsumi, Tottori Univ, Japan

**ANN Applications to Storm Surge Predictions in Denglongshan, Guangdong**

Sudong Xu, Southeast Univ, China; Wenrui Huang, Florida State Univ, USA

**58. SUBSEA-PIPELINE-RISER- II:  
Subsea and Analysis (V. 2)**

**Tuesday June 17 14:00 Room 7**

**Chair:** E. Fontaine, AMOG Consulting, Australia

**Global Dynamic Response Analysis of Offshore Pipelines for Deepwater S-Lay Operation**

Pu Xu, Shunfeng Gong, Zhejiang Univ; Wenjun Zhong, Ning He, Hui Yan, Offshore Oil Engineering, China

**A Simulation Study of Wax Deposition in Subsea Oil Production System**

Jong-Se Lim, Sun-Young Jung, Dong-Gun Lee, Korea Maritime & Ocean Univ, Korea

**Status of Wax Mitigation Technologies in Offshore Oil Production Fields**

Jong-Se Lim, Pan-Sang Kang, Dong-Gun Lee, Korea Maritime & Ocean Univ, Korea

**Automated Insulation Optimization for Subsea Equipment**

Pavel Barta, FMC Technologies, Norway; Jaroslav Sindler, RCMT, Czech Republic; Halvard Hirsch Kopperdal, FMC Technologies, Norway

**Thermal Design Recommendations for Subsea Deadlegs, Part I: Model Verification, Layout and Flow Velocity**

Trine Jelstad Olsen, Morten Aaneland, Pavel Barta, FMC Technologies, Norway

**Hydrate Management of Jumpers By Electrical Heating**

Kristian Thinn Solheim, Jens Kristian Lervik, Harald Kulbotten, SINTEF Energy Research, Norway



**59. GEOTECH I: Suction Piles (V. 2)**

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

**Chair:** Sang Chul Bang, South Dakota School of Mines and Tech., USA

**Finite Element Modeling of Inclined Load Capacity of Suction Caisson in Sand with Abaqus/Explicit**

Sharif Ahmed, Bipul Hawlader, Memorial Univ, Canada

**Centrifuge Model Tests of Group Suction Anchors Subjected to Horizontal Load**

Surin Kim, KAIST; Yun Wook Choo, Kongju National Univ; Jae-Hyun Kim, Dong-Soo Kim, KAIST; Osoon Kwon, KIOST, Korea

**Numerical Simulation of the Tensile Resistance of Suction Buckets in Sand**

Martin Achmus, Klaus Thieken, Leibniz Univ Hannover, Germany

**Design and Installation of Meteorological Towers with Tripod Suction Piles for Offshore Wind Farms**

Sangchul Bang, South Dakota School of Mines & Tech, USA; Daejin Kwag, AdvCT; Moosung Ryu, Korea Electric Power Research Inst; Osoon Kwon, Korea Inst of Ocean Science Technology, Korea

**Evaluation of Vertical Pullout Behavior of an Embedded Suction Anchor by Centrifuge Test**

Youseok Kim, Kyong-O Kim, JongPil Lee, Jinwoo Bak, Daewoo E&C, Korea

**Modeling the Capacity of Suction Caisson Anchors Based on Fuzzy Theory**

Jaehun Ahn, Pusan National Univ, Korea; Yeeseok Kim, Worcester Polytechnic Inst, USA

**Effect of Relative Density of Sand on the Penetration Characteristics of Suction Piles**

Jung-Sun Park, Jong-Ho Park, Duhee Park, Ho-Ki Ban, Hanyang Univ, Korea

**60. ADVANCED SHIP TECH VI:  
Structural Impact Response (V. 4)**

**Tuesday June 17 14:00 Room 9**

**Chair:** T. Shibue, Kinki University, Japan

**The Application of Finite Element Simulation of Ship Collision in the Maritime Investigation**

Langxiong Gan, Xiaobo Zhao, Yuanzhou Zheng, Lei Zhang, Wuhan Univ of Tech, China

**Effect of the Cross-Sectional Shape on the Buffering Effect of Hard Rubber**

Tadashi Shibue, Takeshi Kajiya, Ryohei Shiba, Takashi Hayami, Toru Sawai, Mitsushi Ohmasa, Noriyasu Hirokawa, Kazuyuki Kato, Kinki Univ, Japan

**Ship Collision Analysis for the 16,000 TEU CV LNG Fuel Tank**

Junghyun Kim, Byung-Won An, Jung-Hoon Kim, Sung-Ku Kang, Dong-Eon Kim, Tae-Seok Jeong, STX Offshore & Shipbuilding, Korea

**Advanced M&S System for Ship Collision, Grounding, Flooding and Sinking Simulation using FSI Analysis Technique**

Sang-Gab Lee, Tuo Zhao, Qi Zhang, Hwan-Soo Lee, Korea Maritime and Ocean Univ, Korea

**Experimental and Numerical Investigations on the Impact Response of Ring-Stiffened Cylindrical Shells**

Burak Can Cerik, Hyun-Kyoung Shin, Sang-Rai Cho, Univ of Ulsan, Korea

**Sensitivity Study of Dropped Object Assessment**

A Arswendy, Aker Engineering & Technology, Norway

**Development of Fishtail Rudder Sections with Higher Maximum Lift Coefficients**

Trieu Van Nguyen, Yoshiho Ikeda, Osaka Prefecture Univ, Japan

**61. UNDERWATER SYSTEMS II:  
AUV, Robotics and Communications 2 (V. 2)**

**Tuesday June 17 14:00 Room 10**

**Chair:** Son-Cheol Yu, Pohang University of Science & Technology, Korea

**Experimental Study on Water Jet Underwater Robot**

Jiaming Wu, Ying Xu, Zhijian Ye, Chengwei Zhang, South China Univ of Tech, China

**An Innovative Space Motion of Underwater Vehicle**

Yanqun Li, Dechen Xi, Wuhan Univ of Tech, China

**Propulsive Performance of an Underwater Soft Biomimetic Batoid Robot**

Pablo Valdivia Y Alvarado, Singapore-MIT Alliance for Research & Tech, Singapore; Audren Cloitre, Nicholas M Patrikalakis, Kamal Youcef-Toumi, Bruce Arensen, MIT, USA

**Quaternion-Based Least-Squares Method for Calibration of Transceiver Alignment for High-Precision Underwater Positioning**

Min Yu, Wuhan Univ of Tech, China

**Development of a Floatation Control System for a Fish Type Robot**

Hirofumi Sumoto, Kagoshima Univ; Shimpei Fujiwara, Satoru Yamaguchi, Kyushu Univ; Ritsuo Shigehiro, Kagoshima Univ, Japan

**Another Driving Method of SMA Caudal Fin Actuator**

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

**TUESDAY 16:20**

**62. LNG SLOSHING VII:  
Experiments (V. 3)**

**Tuesday June 17 16:20 Room 1**

**Chair:** Sun Hong Kwon, Pusan National Univ, Korea

**Co-Chair:** Eric Baudin, Bureau Veritas, France

**An Experimental Investigation of Liquid Sloshing Impact Load in a Large-scaled Prismatic Tank**

Zhijun Wei, Wenshou Zhang, Shilun Ruan, Xiaodong Chen, Song Luo, Qianjin Yue, Dalian Univ of Tech, China

**Sensitivity Study on the Influence of the Filling Height on the Liquid Sloshing Behavior in a Rectangular Tank**

Bernhard Mehl, Sebastian Schreier, Annika Puettmann, Univ of Rostock, Germany

**Experimental and Numerical Investigation of Single Impacts in a 2D Tank**

J Neugebauer, B O el Moctar, R Potthoff, Univ of Duisburg-Essen, Germany

**A Two Dimensional Experimental Investigation of Slamming of an Oscillating Wave Surge Converter**

Alan Henry, Aquamarine Power, UK; Olivier Kimmoun, Ecole Centrale Marseille, France; Jonathan Nicholson, Aquamarine Power, UK; Guillaume Dupont, Ecole Centrale Marseille, France; Yanji Wei, Frederic Dias, University College Dublin, Ireland

**Comparison of Sloshing Model Test Results at Scales 1:10, 1:20, and 1:40**

M Reza Karimi, Gaztransport & Technigaz, France; M Lech Kaminski, Delft Univ of Tech, Netherlands; Jean-Michel Ghidaglia, ENS-Cachan; L Brosset, Gaztransport & Technigaz, France

**A Note on Convergence in Sloshing Experiment**

Jitae Do, S H Kwon, Young Jun Yang, K H Lee, S B Lee, Pusan National Univ; J S Park, Kyungnam Univ, Korea

**63. HYDRODYNAMICS VII:  
Dynamic Positioning and Control (V. 3)**

**Tuesday**                      **June 17**                      **16:20**                      Room 2

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

**Co-Chair:** Heather Peng, Memorial Univ of Newfoundland, Canada

**Research and Application of Floatover Operations Using Dynamically Positioned Vessels in South China Sea**

Xueping Bai, Da Li, Mo Fan, Cong Yi, CNOOC Research Inst, China

**Research and Application of Floatover Operations Using Dynamically Positioned Vessels in South China Sea**

Xueping Bai, Da Li, Mo Fan, Cong Yi, CNOOC Research Inst, China

**L1 Adaptive Control Strategy Used in Coordinated Path Following of a Surface Ship**

Ruyi Ren, Zaojian Zou, Xuegang Wang, Shanghai Jiao Tong Univ, China

**Positioning Accuracy Analysis for a DP Platform with Roll and Pitch Motion Control**

Xin Jin, Lei Wang, Shengwen Xu, Lijun Yang, Shanghai Jiao Tong Univ, China

**Research on Thrust Allocation of Ship Dynamic Positioning System under Extreme Sea Environment**

Wenjuan Li, Wuhan Univ of Tech, China

**A Study on the Effects of Wind Load on the DP Capability**

Jin Woo Choi, Sang Hun Lee, Je Jun Park, DSME, Korea

**A Prediction Method of the Crabbing Capability using Penalty Method**

Youngjun You, Jin Woo Choi, Deok Su Kim, Young Bum Lee, Daewoo Shipbuilding & Marine Engineering, Korea

**64. RENEWABLE ENERGY VII:  
Offshore Wind Analysis 2 (V. 1)**

**Tuesday**                      **June 17**                      **16:20**                      Room 3

**Chair:** M Muskulus, NTNU, Norway

**Reliability-based Assessment of Offshore Wind Turbines Support Structures Incorporating Structural Health Monitoring Data**  
A J Kolios, A Rodriguez, F P Brennan, Cranfield Univ, UK

**The Reliability Analysis of the Offshore Wind Tower**  
JungSik Kong, WonWoo Lee, MinChul Jeong, Korea Univ, Korea

**Numerical Simulation of Transition Piece - Monopile Impact during Offshore Wind Turbine Installation [Proceedings only]**  
Cheng Li, Zhen Gao, Torgeir Moan, NTNU, Norway; Nianli Lu, Harbin Inst of Tech, China

**Dynamic Analysis of Compliant Space Frame Structure in Offshore Wind Application**  
K H Chew, K Tai, E Y K Ng, Nanyang Technological Univ, Singapore; M Muskulus, NTNU, Norway

**Global In-Place Analysis of WTIV Leg for Korean West-South Offshore Wind Zone**  
Tae Min Cho, Joo Shin Park, Yeong Su Ha, Bong Jae Kim, Ki Bok Jang, Samsung Heavy Industries, Korea

**Key Technologies of Suizhong Demonstration Offshore Wind Turbine Project in China**  
Jianhua Zhang, Harbin Engineering Univ; Jun Hao, Jinhong Shang, CNOOC; Liang Zhang, Harbin Engineering Univ, China

**Multi-criteria Decision Making of a Tension Leg Platform with Large-MW Offshore Wind Turbine at Deep Water**  
Xun Meng, Qi Lou, Ruifeng Shi, Ocean Univ of China, China

**65. OCEAN TECH II: SCS - Subsea Constructions and Developments (V. 1)**

**Tuesday**                      **June 17**                      **16:20**                      Room 4

**Chair:** Jin S Chung, ISOPE, USA  
**Co-Chair:** Alan Wang, COOEC, China

**Challenge and Solution of Panyu 35-2 Subsea Manifold Design Fabrication and Testing**  
Yongwei Gu, PengPeng Ju, Jiajun Qin, Changtao Wang, Huidong Wei, Offshore Oil Engineering, China

**The Significance of Stretch Bending Combination Four-Point Bending Test in Composite Pipe Laying**  
Mingxing Yu, Xiaohua Huang, Jinlong Qi, Offshore Oil Engineering, China

**Discussion on Welding Quality and Efficiency of Laying, Installation and Butt Welding Construction of Bimetal CRA Composite Pipe**  
Mingxing Yu, Bo Qu, Junhua Li, Jianwei Fang, Offshore Oil Engineering, China

**Analysis on Flow Assurance and Dynamic Simulation of Deepwater Subsea Processing System**  
Kai Zhou, Hao Ni, Dong Wang, Feng Su, Feilong Liu, Offshore Oil Engineering, China

**Study on Dewatering and Drying Techniques of the Shallow Water Pipeline in Liwan3-1 Gas Field Pre-commissioning**

Houkuan Xing, Mingxing Yu, Junhua Li, Offshore Oil Engineering, China

**Technical Challenges and Practice of SSIV Umbilical Project in South China Sea**

Huidong Wei, Ying Jiang, Xuaze Ju, Hui Liang, Wei Fang, Xiaoning Qi, Offshore Oil Engineering; Wentao Yan, Chunsheng Miao, Shenzhen Offshore Oil Engineering Subsea Technology, China

**A Study on Piping Stress Analysis of Subsea Riser Base for HYSY111 FPSO in South China Sea**

Ying Jiang, Xuanze Ju, Wei Fang, Hanjun Yin, Offshore Oil Engineering, China

**New Subsea Dynamic Riser Base Design for HYSY111 FPSO in South China Sea**

Xuanze Ju, Hanjun Yin, Ying Jiang, Wei Fang, Xiaowei Zhang, Fengyun Wang, Offshore Oil Engineering, China

**66. HMS III:**

**Corrosion & Hydrogen Cracking Resistance (V. 4)**

**Tuesday June 17 16:20 Room 5**

**Chair** HyunWoo Jin, ExxonMobil Research & Eng, USA

**Potential of High Manganese Steel Sheet for Transportation System and Ocean Engineering**

Kwang Geun Chin, Sung Kyu Kim, Tae Jin Song, Won Tae Cho, POSCO, Korea

**Hydrogen Delayed Fracture Properties of Copper-added High-Mn TWIP Steels**

Young Jin Kwon, Junmo Lee, Chong Soo Lee, POSTECH, Korea

**Effect of Al on Hydrogen Delayed Fracture in a High Mn Austenitic Steel**

Il-Jeong Park, Young-Kook Lee, Yonsei Univ, Korea

**Fatigue Crack Propagation Behavior of High Manganese Steels in Various Environments**

Daeho Jeong, Gyeongsang National Univ; Soon-gi Lee, Jang-yong Yoo, Jong-kyo Choi, POSCO; Sangshik Kim, Gyeongsang National Univ, Korea

**Electrochemical Corrosion Property of High Mn Steel in Sour and Sweet Environment**

Hyung Suk Seo, Jing Ho Park, Jun Young Park, Kyoo Young Kim, POSTECH, Korea

**67. COASTAL HYDRODYNAMICS II: Waves 1 (V. 3)**

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

**Chair:** Tingqiu Li, Wuhan Univ. of Technology, China

**Co-Chair:** Soo Youl, Kim, Tottori University, Japan

**Numerical Modeling of Breaking of Regular Waves on a Sloped Beach Profile by SPH Method**

Riccardo Angelini Rota, Stefano Brizzolara, MIT, USA; Roberto Guercio, Univ of Tome La Sapienza, Italy

**Numerical Simulation of Second Order Multidirectional Sea Wave Groups**

Si Liu, Yongliang Zhang, Tsinghua Univ, China

**Characteristics of Wave Reflection from Breakwater of Resonance Channels with Perforated Plates**

Jeong-Seok Kim, Ji-Hye Seo, JoongWoo Lee, Woo-Sun Park, Korea  
Maritime & Ocean Univ, Korea

**Application of Cloud Computing in Maintenance Management System for Harbor Facilities**

Sung-Shan Hsiao, Hui-Ming Fang, Shyh-Rong Kuo, Cheng-Tsen Lai,  
Hsing-Yu Wang, Suan-Yang Liao, National Taiwan Ocean Univ, Taiwan,  
China

**Generation of Random Waves for Distribution of Directional Spectra on Variable Bathymetry**

Katsuya Hirayama, Port and Airport Research Inst, Japan

**Numerical Modeling of Wind-Induced Surface Gravity Waves Using the HLLCS Solver with Hierarchical Grids**

Rodolfo Silva, Univ Nacional Autonoma de Mexico; Edgar Salazar,  
Instituto Mexicano del Petroleo, Mexico

**Measurement of the Scale Effect on Breaking Waves**

Matthew Harry, Hong Zhang, Charles Lemckert, Griffith Univ; Gildas Colleter, Aurecon, Australia

**Wave Behaviors on a Step-faced Slopping Dike**

Menghua An, Yao Wang, Qin Jiang, Hohai Univ; Xiaomin Wang, Nanjing Hydraulic Research Inst, China

**Annual-to-decadal Variations in Wave Power Statistics at NOWPHAS Stations around Japan**

Hiroyasu Kawai, Koji Kawaguchi, Katsumi Seki, Tsutomu Inomata, Port and Airport Research Inst, Japan

**68. SUBSEA-PIPELINE-RISER- III:**

**Advanced Engineering 1 (V. 2)**

**Tuesday June 17 16:20 Room 7**

**Chair:** A.M. Gresnigt, Delft Univ. of Technology, Netherlands

**Finite Element Analysis of UOE Pipes under Bending and External Pressure**

Giannoula Chatzopoulou, Univ of Thessaly, Greece; George E Varelis, PDL Solutions (Europe), UK; Spyros A Karamanos, Univ of Thessaly, Greece

**The Effect of Initial Imperfection on Buckling Strength for Straight and Curved Pipe under Pure Bending Load**

Hartono Yudo, Takao Yoshikawa, Kyushu Univ, Japan

**Integrate Pipe-Soil Interaction Model into the vector Form Intrinsic Finite Element Method#-Nonlinear Analysis of Free-Span**

Mian Lin, Leige Xu, Inst of Mechanics CAS, China

**Dynamic Analysis of a Free Span Offshore Pipeline**

Sofia Georgiadou, Eva Loukogeorgaki, Demos C Angelides, Aristotle Univ of Thessaloniki, Greece

**Interpretation of the South Stream Ring Collapse Test Program Results**

Ruud Selker, Pedro Ramos, INTECSEA, Netherlands

**Probabilistic Lateral Buckling Assessment**

Carlos Sicilia, Emilien Bonnet, Philip Cooper, INTEXSEA, UK

**Research on Lateral Buckling Analysis of Subsea Pipeline**

Kankan Ni, CNOOC Research Inst, China

**Evaluating Pipeline Design for Lateral Buckling in HP/HT Conditions**

Joon-Kyu Song, Bon-Yong Koo, American Bureau of Shipping, Korea

**69. GEOTECH II: Offshore Foundation (V. 2)**

**Tuesday June 17 16:20 Room 8**

**Chair:** H. Arslan, ExxonMobil Development Co., USA

**Advanced Continuum Modeling of Pile Response to Jack-up Spudcan Penetration**

Haydar Arslan, Patrick C Wong, ExxonMobil Development, USA

**Analysis of a Self-submersible Single-point Mooring Gravity Cage in Waves and Current**

Tiaojian Xu, Guohai Dong, Yucheng Li, Dalian Univ of Tech, China

**Comparison of Design Methods for Axially Loaded Buckets in Sand**

Evelina Vaitkunaite, Lars Bo Ibsen, Benjamin Nordahl Nielsen, Aalborg Univ, Denmark

**New Medium-Scale Laboratory Testing of Bucket Foundation Capacity in Sand**

Evelina Vaitkunaite, Lars Bo Ibsen, Benjamin Nordahl Nielsen, Aalborg Univ, Denmark

**Design of Deep Foundations in Marine Gas Hydrate-Bearing Sediments**

Xiaoyan Long, Ko Min Tjok, Fugro GeoConsulting, USA

**Relation between Slope of Plate and Reaction of Soil in a Spudcan for Jack-up Platform**

Dongseup Han, Dong-A Univ, Korea; Moo-Hyun Kim, Texas A&M Univ, USA

**Influences of Geostatic Stress and Geometric Characteristics on the Spudcan Extraction**

Jun Zhao, Seon Beom Jang, Seoul National Univ, Korea; Menglan Duan, China Univ of Petroleum-Beijing, China; Haibin Jin, Seoul National Univ, Korea

**Offshore Installation Challenges Posed by Extreme Ground and Environmental Conditions in Asia [Oral presentation]**

Jack Gilles, DNV GL Energy, China

**Evaluation of p-y Approaches for Large Diameter Monopiles in Sand**

Martin Achmus, Klaus Thieken, Katrin Lemke, Leibniz Univ Hannover, Germany

**70.TSUNAMI & SAFETY I: Generation to Inundation**

..1 (V. 3)

**Tuesday June 17 16:20 Room 9**

**Chair:** Qingwei. Ma, The City University London, UK

**Landslide-Generated Tsunamis around a Conical Island: the Edge Waves Role**

Alessandro Romano, Univ of Roma Tre, Italy

**Application of a GPU Based Hydrodynamic Model in Tsunami Simulations**

Reza Amouzgar, Qihua Liang, Newcastle Univ; UK

**Simulation of Inundation Disasters by Tsunami via Underground Drainage Channel Network**

Tomoyuki Takabatake, Takahide Honda, Yukinobu Oda, Kazunori Ito, Taisei Corp, Japan

**Tsunami Hazard Map with Virtual Tsunamis**

Ja-Hoon Lee, Yong-Sik Cho, Hanyang Univ, Korea

**A Multibeam Survey of Bottom Topography and Benthic Marine Debris in the Sendai Bay after the Tsunami on March 11, 2011**

Masayuki Nagao, National Inst of AIST, Japan

**71. UNDERWATER SYSTEMS III:  
AUV, Robotics and Communications 3 (V. 2)**

**Tuesday June 17 16:20 Room 10**

**Chair:** G. Marani, West Virginia University, USA

**Adaptive Power Supply and Auto Pin Define Multiplexer in Underwater Junction Box for Marine Observatory**

Kai-Ping Hsu, Hsiang-Chih Chan, Hung-Hsi Lin, Ming-En Fang, Ying-Chao Liao, Sheng-Hua Chen, Hsiao-Yu Hsu, Chan-Han Lin, Ship and Ocean Industries R&D Center; Ya-Chien Chung, Tzzy-Yih Yang, Taipei Chengshih Univ of Science & Tech; Feng-Yang Chung, Chao-Min Hsu, Hsien-Kuang Chou, Ship and Ocean Industries R&D Center, Taiwan China

**CFD Modelling and Validation of an AUV Undergoing Variable Accelerations**

Howan Kim, Zhi Quan Leong, Dev Ranmuthugala, Australian Maritime College, Australia

**Pitch Control Performance of an Underwater Glider for Long-term Virtual Mooring**

Kenichi Asakawa, Kensuke Watari, JAMSTEC; Masahiko Nakamura, Kyushu Univ; Tadahiro Hyakudome, JAMSTEC; Hisao Kanehara, Nagasaki Univ, Japan

**Identification of Hydrodynamic Parameters for a Hybrid ROV to Inspect Underwater Structures in a Free-Flying Movement and Crawler**

Cristiano Zacarias Ferreira, Gerson Yuri Cagnani Conte, Juan Pablo Julca Avila, Thiago Morais Ceratti Ribeiro, Renato Coelho Pereira, Federal Univ of ABC, Brazil

**Research and Development of User-Friendly ROV with High Maneuvering System**

Daisuke Kawabata, Ikuo Yamamoto, Nagasaki Univ; Naohiro Inagawa, Nippon Bunri Univ; Yo Ito, Univ of Kitakyushu, Japan

**Underwater Vehicle Motion Control Based on Information on Seawater and Sea Surface Parameters**

Sergei L Karlinskiy, Andrei V Efimov, PJSC Central Design Bureau for Marine Engineering "Rubin", Russia

**Motion Control Based on Sliding-Mode Theory for Underwater Vehicle-Manipulator Systems with Redundancy**

Donghee Kim, Joon-Young Kim, Hyeung-Sik Choi, Korea Maritime & Ocean Univ, Korea

**Development of an Ocean-Going Solar-Powered Underwater Glider**

Masakzau Arima, Hirofumi Tonai, Kana Yoshida, Osaka Prefecture Univ, Japan



**WEDNESDAY 08:00**

**72. LNG SLOSHING VIII:  
Classification Society Panel (V. 3)**

**Wednesday June 18 08:00** Room 1

**Chair:** Spyros Hirdaris, Lloyd's Register Asia, Korea  
**Co-Chair:** JunHyung Jung, DSME, Korea

**Panelists**

Spyros Hirdaris, Lloyd's Register, U.K.  
Louis Diebold, Bureau Veritas, France  
Olav Rongebakke, DNV-GL, Norway  
Kanghyun Song, Korea Register, Korea  
JunHyung Jung, DSME, Korea

**Presentations**

**The BV Sloshing Assessment**

Louis Diebold, Bureau Veritas, France

**The GTT Methodology for Sloshing Assessment**

Frederic Lormier, GTT, France

**The LR Sloshing Assessment Using Aquarius for the HHI MOSS Type LNG Ship**

Sung Jun Lee, Lloyd's Register Asia, Korea

**The DNV Sloshing Assessment Experience**

Olav Rongebakke, DNV-GL, Norway

**73. HYDRODYNAMICS VIII:  
Fluid-Structure Interactions 1 (V. 3)**

**Wednesday June 18 08:00** Room 2

**Chair** T. Mathai, The Glosten Assoc., USA

**Simulation of Floating Body by Vortex Method**

Shigeki Okubo, Hitachi Zosen; Shuichi Nagata, Yasutaka Imai, Saga Univ;  
Hideyuki Niizato, Hitachi Zosen, Japan

**Modelling Wave-Structure Interactions Using Smoothed Particle Hydrodynamics**

David F Gunn, Murray Rudman, Monash Univ; Raymond CZ Cohen, CSIRO, Australia

**Fast Integral Equation Methods for Fully Nonlinear Water Wave Modeling**

Jeffrey C Harris, Emmanuel Dombre, Michel Benoit, LHSV-EDF R&D, France; Stephan T Grilli, Univ of Rhode Island, USA

**Consistent State Space Modelling of Hydrodynamic Radiation Force**

Karl Erik Kaasen, Marintek, Norway

**Time-domain Numerical Study on a Three Dimensional Body Undergoing Large-Amplitude Motions in Waves**

Changfeng Liu, Bin Teng, Lei Sun, Dalian Univ of Tech, China

**Numerical study on the Motion Response of Floating Body under Extreme Wave Condition**

Hongjian Cao, Decheng Wan, Shanghai Jiao Tong Univ, China

**74. RENEWABLE ENERGY VIII:  
Offshore Wind Analysis 3 (V. 1)**

**Wednesday June 18 08:00** Room 3

**Chair:** Cuneyt Capanoglu, International Design, Engineering & Analysis Services, USA

**Comparison of Numerical and Experimental Analyses of Motion Response of a Spar-Type Floating Offshore Wind Turbine in Waves [Proceedings only]**

Xiaorong Ye, Zhen Gao, Torgeir Moan, NTNU, Norway; Liang Zhang, Harbin Engineering Univ, China

**Stress-Strain Analysis of Wind Turbines with Rotating Floater**

Victor V Cheboxarov, Far Eastern Federal Univ, Russia

**Parametric Analysis of a Cylinder-Like Shape Floating Platform Dedicated to Multi-Mega Watt**

Jean-Christophe Gilloteaux, Pauline Bozonnet, IFP Energies Nouvelles, France

**Coupled CFD - CSD Analysis for a Floating Offshore Wind Turbine**

Toan Thanh Tran, Hyun Dong Kim, Gyeongsang National Univ, Korea

**A Simulation Tool with an Optimal Controller for Offshore Floating Wind Turbines**

Lei Duan, Hiroyuki Kajiwara, Kyushu Univ, Japan

**Lifetime Cost of Energy Reductions for Offshore Wind**

James Dobbin, Andrew Cordle, DNV GL-Energy, UK

**75. OCEAN TECH III: SCS LIWAN 3 Deepwater Gas Development – Field Development(V. 1)**

**Wednesday June 18 08:00** Room 4

**Chair:** Alan Wang, COOEC, China

**Co-Chair:** Jean-Francois Saint-Marcoux, Subse7, France

**Design Considerations of Liwan3-1 Topside Float-over Mating Analysis**

Meng Yuan, Larry Chen, Yue Li, Dockwise Engineering Shanghai; Yu Liang, Xu Sun, CNOOC; Huailiang Li, Weiwei Xie, Offshore Oil Engineering, China

**A Challenging Loadout Operation of Liwan 3-1 Mega Jacket**

Weiwei Xie, Zhgnsheng Yum Ruhua Yuan, Shaohua Zhu, Huailiang Li, Alan M Wang, Offshore Oil Engineering, China

**The Safety Analysis of Hot Exhaust Gas to Helicopters on Platform in South China Sea Gas Field**

Ming Zhang, Xiaohong Zhou, Chunsheng Wang, Wei Zhou, Zhongqian Hu, CNOOC Research Inst, China

**Risk Assessment in Liwan Offshore Deepwater Gas Field Development Project in South China Sea**

Zhongqian Hu, Honghong Wang, Xiaohong Zhou, Zhongtao Li, Peiju Dou, CNOOC Research Inst, China

**Multi-Body Response Analysis of Subsea Umbilical Termination Assembly Installation**

Hui Liang, Hanjun Yin, Ying Jiang, Wei Fang, Xuanze Ju, Huidong Wei, Offshore Oil Engineering, China

**An Investigation on the Subsea Equipment Influenced by the Impact Loads**

Fengyun Wang, Meizhen Zhou, Wei Fang, Offshore Oil Engineering, China

**76. HPM I:  
Advanced Materials & Offshore Structures 1 (V. 4)**  
Wednesday      June 18      08:00      Room 5

**Chair:** S. Herion, Karlsruhe Institute of Technology, Germany  
**Co-Chair:** Sung Woo Im, RIST, Korea

**Comparison of Different Configurations of Thick-Walled K-joints with Gap made of RHS and CHS**

Stefan Herion, Oliver Fleischer, Darja Holz, KoRoH, Germany

**Stochastic Modeling of Elastic Large Deflection Analysis of Steel Plates Subject to Compressive Load**

Riddhideep Mandal, Yasumi Kawamura, Yokohama National Univ, Japan

**Heavy Wall Seamless Bends for Demanding Projects**

Stefano Fare, Emanuele Paravicini Bagliani, Claudio Tommas, Fabio Zana, Philippe Darcis, Dalmine SpA, Italy

**The Influence of Induced Residual Stress on Cylindrical Shell Structure Acoustic Radiation**

Luyun Chen, Leixin Li, Yufang Zhang, Shanghai Jiaotong Univ, China

**Energy Absorption Analysis of Metallic Corrugated Core Sandwich Panels under Air Blast Loading**

Yuansheng Cheng, Pan Zhang, Jun Liu, Huazhong Univ of Science & Tech, China

**Effects of Gravity on the Dynamic Characteristics and Fatigue Life Assessment of Offshore Structures**

Junbo Jia, Aker Solutions, Norway

**77. COASTAL HYDRODYNAMICS III: Waves 2(V. 3)**  
Wednesday      June 18      08:00      Room 6

**Chair:** Ray-Yeng Yang, National Cheng Kung University, Tainan, Taiwan-China

**Some New Enhanced 2D Green-Naghdi Equations for the Modeling of Waves Nearshore Transformations**

Fabien Marche, Univ Montpellier 2; David Lannes, Ecole Normale Supérieure, France

**Change of Nearshore Significant Waves in Response to Sea Level Rise**

Se-Hyeon Cheon, Kyung-Duck Suh, Seoul National Univ, Korea

**Simulation of Short-Crested Waves in a Harbour with Variational Boussinesq Modelling**

Didit Adytia, LabMath Indonesia, Indonesia; E van Groesen, Univ of Twente, Netherlands

**A Regularization Procedure for the Lattice Boltzmann Shallow Water Model**

Pietro Prestininzi, Andrea Montessori, Michele La Rocca, Univ Roma Tre, Italy

**Hydrodynamic Impact Assessment of Artificial Island Project in Quanzhou Bay**

Jinhai Zheng, Chi Zhang, Yangbo Cai, Hohai Univ, China

**Transmission Coefficients for Middle-Rubble Mound Breakwaters in Busan Yacht Harbour**

Asgar Ahadpour Dodaran, Kookhyun Kim, O Young Park, Sang Kil Park, Pusan National Univ, Korea

**78. SUBSEA-PIPELINE-RISER- IV:  
Advanced Engineering 2 (V. 2)**

**Wednesday June 18 08:00 Room 7**

**Chair:** Carlo M Spinelli, Eni S.p.A., Italy

**The Numerically Exact 6 Degree of Freedom Procedure for Geometrically and Physically Nonlinear Saint-Venant's Problem for a Moderately Thick Shell**

Andrii Bogdan, Igor Orynyak, Sergil Radchenko, IPP-Centre; Sergii O Okhrimchuk, TECHDIAGAS Centre for Technical Inspection, Ukraine

**The Spring Splines Procedure with Prescribed Accuracy for Determination of the Pipe Centerline Geometry**

Andrii Bogdan, Igor Orynyak, Andrii Novikov, IPP-Centre; Igor Lokhman, SC Ukrtransgas, Ukraine

**Modeling of the Nonlinear Restoring Force of a Vertical Riser**

L Torres, Univ Nacional Autonoma de Mexico; A O Vazquez-Hernandez, Instituto Mexicano del Petroleo; C Verde, Univ Nacional Autonoma de Mexico, Mexico

**Modelling the Stress-Strain Properties of Synthetic Fiber Mooring Lines under Cyclic Loading**

Wei Huang, Hai-xiao Liu, Tianjin Univ, China

**79. GEOTECH III: Soil Improvement (V. 2)**

**Wednesday June 18 08:00 Room 8**

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

**Strength Mobilization Characteristic of Marine Clays Mixed with Low Quantity of Cement During Initial Curing Time**

Gyeongoo Kang, Takashi Tsuchida, Hiroyuki Wakioka, Hiroshima Univ, Japan

**Electrochemical Stabilization of Offshore and Onshore Soils: A Review**

Joon Kyu Lee, Yonsei Univ, Korea; Julie Q Shang, Univ of Western Ontario, Canada

**Applicability of Coal Combustion Products as Vertical Drain Method for Soft Ground Improvement**

Hyun Young Shin, Kyoung O Kim, Daewoo E&C; Byeong Il Kim, Sang Jae Han, Expert Group for Earth & Environment, Korea

**Influence of Vertical Pressure and Injection Type on the Effect of Ground Improvement by the Thixotropic Gel Compaction Method**

Takamitsu Sasaki, Kyokado Engineering; Naoaki Suemasa, Tokyo City Univ; Kenichi Tokida, Osaka Univ; Shunsuke Shimada, Kyokado Co; Tadao Oyama, Jatech Co, Japan

**Residual Settlement Behavior in PBD-Improved Soft Ground**

Tae-Hyung Kim, Korea Maritime and Ocean Univ; D W Kim, Kumho E&C; G C Kang, K-water; Choong Gi Jeong, Samsung E&C, Korea

**Volumetric Compressibility and Shear Properties of Fine Sand Improved by Microbial Carbonate Precipitation**

Kazuhiro Oda, Osaka Univ; Masayoshi Tsukamoto, Kawasaki Geological Engineering, Japan

**Net Channel Method for Shallow Layer Improvement of a Ground Reclaimed by Dredged Marine Clay**

Yeong-Mog Park, Je-Seok Jeon, Yeungnam Univ, Korea

**Calibration of Resistance Factor of Single Aggregate Pier Using Static Load Test Result**

Yeon-Soo Jang, Joon-Mo Park, Dongguk Univ; Yong-Bae Han, Saman Corp; Young-Seok Cho, Dongguk Univ, Korea

**80.TSUNAMI & SAFETY II: Forces 1**

..1 (V. 3)

**Wednesday June 18 08:00 Room 9**

**Chair:** Tso-Ren Wu, National Central University, Taiwan, China

**Damage to Port Facilities by the 2011 Off the Pacific Coast of Tohoku Earthquake Tsunami**

Kazuhiko Honda, Takashi Tomita, Port and Airport Research Inst, Japan

**Characteristics of Fluid Force and Impact Pressure on Large-Sized Tsunami Shelter**

Hidemi Mutsuda, Shunsuke Fujii, Masaya Kamata, Yasuaki Doi, Hiroshima Univ, Japan

**Comparative Studies on Numerical Simulation of Tsunami Wave Loads on Structures**

J T Zhou, S Yan, Q W Ma, City Univ London, UK

**Tsunami Bore Pressures Acting on Building with an Opening**

Hartana, Keisuke Murakami, Univ of Miyazaki, Japan

**Seismic Responses of Mono-Pile Foundation in Liquefiable Sandy Soil**

C J Lee, National Central Univ; W Y Hung, National Center for Research on Earthquake Engineering; Y C Tu, National Central Univ, Taiwan, China

**81. UNDERWATER SYSTEMS IV:**

**AUV, Robotics and Communications 4 (V. 2)**

**Wednesday June 18 08:00 Room 10**

**Chair:** S. Yamaguchi, Kyushu University, Japan

**Constant Acceleration Test and Motion Simulation of Underwater Glider "Tsukuyomi"**

Masahiko Nakamura, Tetsuya, Kawatani, Kyushu Univ; Kenichi Asakawa, Tadahiro Hyakudome, JAMSTEC; Aki Yoshida, Kyushu Univ, Japan

**Adaptive Backstepping Controller Design for Leveling Control of an Underwater Platform Based on Joint Space**

Guohua Xu, Zhilin Zeng, Yingkai Xia, Chuncheng Zhao, Huazhong Univ of Science & Tech, China

**Leveling Control of Underwater Platform Based on Sliding Mode Controller**

Guohua Xu, Yingkai Xia, Han Xu, Chuncheng Zhao, Han Xu, Huazhong Univ of Science & Tech, China

**Research on Numerical Simulation and Actualize for Experimental System of Hovering Control of Underwater Vehicle**

Yun Lu, Weijia Li, Xiao Wang, Kai Zhou, Huazhong Univ of Science & Tech, China

**Research for Control Parameters Optimization of 6-DOF Flight Simulator Based on Particle Swarm Optimization**

Yun Lu, Kai Zhou, Weijia Li, Huazhong Univ of Science & Tech; Wenzhuo Tian, China Shipbuilding Industry; Xiao Wang, Huazhong Univ of Science & Tech, China

**Critical Conditions of Hydrodynamic Diving and Surfacing for a Submersible High Speed Craft**

Cong Huo, Wencai Dong, Naval Univ of Engineering, China

**Course and Depth Control for a Biomimetic Underwater Vehicle – RobCutt-1**

Shuo Wang, Qingping Wei, Chao Zhou, Min Tan, Inst of Automation CAS, China

**Hydrodynamic Analysis of a Waterjet-Propelled Underwater Vehicle in Vertical Plane**

Chao Wang, Zhiqiang Hu, Shenyang Inst of Automation, China

**Design and Test of an Unmanned Semi-Submersible Vehicle with Blended-Wing Body**

Zhiqiang Hu, Chao Wang, Shenyang Inst of Automation, China

**Development of Oceanic Energy Harvesting Robotic Buoy for Persistent Operation**

Son-Cheol Yu, Han-Gil Joe, Minsung Kim, Juhyun Pyo, Seok-Min Wi, Hee-Seung Kwon, Pohang Univ of Science & Tech, Korea

**WEDNESDAY 10:30**

**82. LNG SLOSHING IX: Benchmark Test (V. 3)**

**Wednesday June 18 10:30** Room 1

**Chair:** Sebastian Schreier, University of Rostock, Germany

**Co-Chair:** Yonghwan Kim, Seoul National University, Korea

Key Presentation

Thibaut Loysel, GTT, France

**Bureau Veritas Contribution to ISOPE Sloshing Benchmark**

Eric Baudin, Thomas Gazzola, Louis Diebold, Bureau Veritas, France

Panelists:

Yonghwan Kim, Seoul National Univ, Korea

Tom Ostvold, DNV, Norway

Laurent Brosset, GTT, France

Eric Baudin, Bureau Veritas, France

**83. HYDRODYNAMICS IX:**

**Fluid-Structure Interactions 2 (V. 3)**

**Wednesday June 18 10:30** Room 2

**Chair:** B. Teng, Dalian University of Technology, China

**Application of New Body-Force Concept to the Free Surface Effect on the Hydrodynamic Force and Flow around a Rotating Propeller**

Emel Tokgoz, Ping-Chen Wu, Saori Yokota, Yasuyuki Toda, Osaka Univ, Japan

**Modeling Wave-Structure Interaction and its Implications in Offshore Structure Stability**

Alec Torres-Freyermuth, Leonardo Palemsn-Arcos, Univ Nacional Autonoma de Mexico, Mexico; Kuang-An Chang, Texas A&M Univ, USA; Daniel Pastrana, Paulo Salles, Univ Nacional Autonoma de Mexico, Mexico

**Motion Response of Hinged Multiple Floating Bodies on Local Seabed**

Bing Teng, Guibo Wang, Ying Gou, Guanglei Cao, Dalian Univ of Tech, China

**Berth Influence on Wave Loads on the Moored Ship Near It**

Konstantin K Semenov, St. Petersburg State Polytechnical Univ; Victor A Leontiev, Igor S Nudner, Baltic State Tech Univ; Leonid G Shchemelinin, Krylov State Research Centre, Russia

**Study of Hull Geometry on Wave Drift Load Reduction of Semi-Submersible**

Binbin Li, Xiaobo Chen, Bureau Veritas, Singapore

**Lift Force Optimization of Gravity Base Offshore Foundations Using CFD**

Daniel Markus, Andreas Kelder, Roland Wüchner, Kai-Uwe Bletzinger, TU München, Germany

**Numerical and Experimental Investigation on Hydrodynamic Characteristics of a 3000m Pipe-Lay Crane Vessel in Various Operation Conditions**

Chunlin Wu, Liping Sun, Linfeng Song, Guoqiang Fu, Harbin Engineering Univ, China

**84. RENEWABLE ENERGY IX:  
Offshore Wind General (V. 1)**

**Wednesday June 18 10:30 Room 3**

**Chair:** T. Soukissian, Hellenic Centre for Marine Research, Greece

**Development of an Electric Power Transformation and Energy Management System for Marine Renewable Energy Generation Plant**

Zhaochun Ping, Li Zhang, Fuqiang Hao, Che Wei, Qiang Li, CNOOC Research Inst, China

**A Conceptual Natural Period Active Control System for Fixed Offshore Wind Turbine Structure and Assessment of Consequential Impacts on Substructure Design**

Ho Young Cho, Joo Kyung Joo, Samsung Heavy Industries, Korea

**Development and Design Assessment of a Multi-Megawatt Class Wind Turbine**

Ji-Hwan Kim, Sanglae Lee, Seoul National Univ, Korea

**Semi-active Structural Control of a Spar-type Floating Wind Turbine**

Yulin Si, Hamid Reza Karimi, Univ of Agder, Norway

**85. OCEAN TECH IV: Installation and Operations 1 (V. 3)**

**Wednesday June 18 10:30 Room 4**

**Chair:** Weiliang Dong, China Oilfield Service Limited, China

**Co-Chair:** Ki-Young Yoon, Hyundai Heavy Industries, Korea

**Integrated Design, Analysis, and Optimization of Mooring-Floating Platform- Riser System**

Ijong M Ikan, Fuat Kara, Cranfield Univ, UK

**On the Dynamic Responses of Immersing Tunnel Element during Freeboard Elimination**

Guoxing Huang, Yuguo Pei, Xianying Shi, Ningchuan Zhang, Liyang, Lin, Dalian Univ of Tech, China

**Adaptable Analysis of Float Over Installation in Winter of Bohai Bay**

Cong Li, Xueping Bai, Da Li, Chao Zhang, Mo Fan, Jinghua Tao, CNOOC Research Inst, China

**Studies on Jacket Effective Stiffness Estimation for Float-over Mating Analysis**

Meng Yuan, Jiafei Wang, Larry Chen, Xiaofei Li, Yujun Liu, Dockwise Engineering Shanghai, China

**Motion and Structural Analysis of Floaters Float-Over during the Mating Operation**

Khaled A Geba, Yousri M A Welaya, Heba W Leheta, Yehia A Abdel-Nasser, Alexandria Univ, Egypt

**A Hydrodynamic Study of Deep-Water Mooring Characteristics**

Zi Lin, Philip Sayer, Univ of Strathclyde, UK

**Dynamic Analysis of the Manifold Launching Operation**

Ju Fan, Renchuan Zhu, Guoping Miao, Shanghai Jiao Tong Univ; Licheng Qin, Jingkuo Xu, Litao Li, Alan M. Wang, CNOOC, China

**Improve Method of Seismic Data Processing for Exploring Offshore Oil/Gas Field in the South China Sea**

Wei Wang, Xiang Zeng, China Oilfield Service Limited, China

**86. HPM II:**

**Advanced Materials & Offshore Structures 2 (V. 4)**

**Wednesday June 18 10:30** Room 5

**Chair:** Naoki. Osawa, Osaka Univ., Japan

**Co-Chair:**

**Onshore Pipeline High Grade Steel for Challenge Utilisation**

Jan Ferino, Andrea Fonzo, Massimo Di Biagio, Giuseppe Demofonti, CSM; Carlo Maria Spinelli, ENI, Italy

**The Influence of Induced Residual Stress on Cylindrical Shell Structure Acoustic Radiation**

Luyun Chen, Leixin Li, Yufang Zhang, Shanghai Jiaotong Univ, China

**Energy Absorption Analysis of Metallic Corrugated Core Sandwich Panels under Air Blast Loading**

Yuansheng Cheng, Pan Zhang, Jun Liu, Huazhong Univ of Science & Tech, China

**Grouted Joints in Monopiles – Analyses and Discussion of Earlier Design Approaches for Connections without Shear Keys**

Peter Schaumann, Stephan Lochte-Holtgreven, Anne Bechtel, Leibniz Univ Hannover, Germany

**Fast Prediction of Welding Distortion Using ISM and i-ISM with Validation by Experiment**

Hui Huang, Ninshu Ma, Hidekazu Murakawa, Osaka Univ, Japan

**A Boundary Condition to Exclude Chord Length's Effect on Axial Compressive T-joints**

Lei Zhu, Beijing Univ of Civil Engineering & Architecture; Ying Gao, Beijing Forestry Univ, China

**87. COASTAL HYDRODYNAMICS IV: Structures 1 (V. 3)**

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

**Chair:** Kyung-Duck Suh, Seoul National Univ; Korea

**Co-Chair:** Francesco Lalli, ISPRA, Italy

**Using FTIMEMES Model for Simulating Wave Propagation over Permeable and Impermeable Shoals with Measured Uncertainty**

Jen-Yi Chang, Tainan Univ of Tech, Taiwan, China

**3D Numerical Simulation of Breaking Wave Impact Forces on an Inclined Pile**



Sung-Jin Choi, Univ of Stavanger, Norway; Kwang-Ho Lee, Korea Research Inst of Ships & Ocean Engineering, Korea; Ove Tobias Gudmestad, Univ of Stavanger, Norway

**Experimental Study on Application of Counter-weight Block in Random Sea**

Tetsuya Hiraishi, Kyoto Univ, Japan

**Application of a Suction Rate Formula from the Lowest Edge of a Coastal Dike Using a VOF Method**

Masafumi Irooi, Yoshimichi Yamamoto, Tokai Univ, Japan

**Physical and Numerical Model Test for Pile-Supported Wave Dissipation Breakwater**

Myung Eun Lee, Kwang-Oh Ko, Chang Beom Park, Hyundai Engineering & Construction, Ko

**The Experimental Study on Stability of the Berm Breakwater**

Haiyuan Liu, Hanbao Chen, Longzai Ge, Zilong Zheng, Tianjin Research Inst for Water Transportation Engineering, China

**Wave Attenuation Properties of Composite Undulating Submerged Breakwaters**

Ruey-Syan Shih, Tunghai Univ; Wen-Kai Weng, Chung-Ren Chou, Taiwan Ocean Univ, Taiwan, China

**88. SUBSEA-PIPELINE-RISER V:**

**Pipelines 1 (V. 2)**

**Wednesday June 18 10:30 Room 7**

**Chair:** Wan C Kan, ExxonMobil Development Co., USA

**The Verification and Validation of Dynamic Lateral On-Bottom Stability Models for Submarine Pipelines**

Dean R Campbell, Bassem Youssef, Derek Scales, Dermot O'Brien, Eric Jas, Atteris, Australia

**Propagation Energy Distribution of PZT-based Ultrasonic Guided Waves in Laminated Pipeline**

Ying Li, Shi Yan, Yang Cheng, Yuan Xinzi, Wei Wang, Shenyang Jianzhu Univ, China

**89. GEOTECH IV: Soil Properties (V. 2)**

**Wednesday June 18 10:30 Room 8**

**Chair:** Sang Jae Han, Expert Group for Earth & Environment, Korea

**Statistical Consideration for Holocene Clay Properties which is Estimated by Artificial Neural Network in Kobe Airport, Japan**

Kazuhiro Oda, Ken-ichi Yokota, Osaka Univ, Japan

**A Prediction of Ground Temperature Distribution using N-factor and Convective Coefficient**

Changkyu Jang, Univ of Science & Tech; Changho Choi, Jangguen Lee, Chulho Lee, Korea Inst of Construction & Tech, Korea

**A New Model of Pore Pressure Generation for Seabed Soils Under Typhoon Wave Loading**

Lien-Kwei Chien, Wen-Chien Tseng, Shu-Yi Chiu, National Taiwan Ocean Univ; Chih-Hsin Chang, National Science and Technology Center for Disaster Reduction, Taiwan, China

**Investigation of the Criteria to Predict the Failure Time of Soft Rock Creep: The Gutingeng Mudstone in Taiwan as a Case Study**

Hung-Ming Lin, Jian-Hong Wu, Jiun-wei Yeh, National Cheng Kung Univ;  
Tsung-Lin Lee, Nan Jeon Univ of Science & Tech, Taiwan, China

**Shearing Characteristics of Artificial Soil Mixture with Reclaimed Coal Ash**

Hyun Young Shin, Kyoung O Kim, Daewoo E&C; Deok Ho Chae, Wan Jae Cho, Dankook Univ, Korea

**Experimental Study on the Erosive Characteristics of Coarse Grained Soil under Complex Stress Conditions**

Xianqi Luo, Hui Shen, Jinfeng Bi, Shanghai Jiao Tong Univ, China

**Wave-induced Progressive Liquefaction in a Poro-Elastoplastic Seabed: A Multiple-layer Model**

Haixia Xu, Huijie Zhang, Jiangsu Univ, China; Ping Dong, Univ of Dundee, UK; D S Jeng, Griffith Univ, Australia

**90. TSUNAMI & SAFETY III: Forces 2**

..1 (V. 3)

**Wednesday June 18 10:30 Room 9**

**Chair:** K. Murali, IIT Madras, India

**Co-Chair:** C J Lee, National Central Univ, Taiwan, China

**Application of Performance-Based Seismic Design Method for Existing Onshore Structures**

Ching-Wen Chien, E&C Engineering; Jing-Jong Jang, National Taiwan Ocean Univ; Yangting Chen, E&C Engineering, Taiwan, China

**Mechanical Properties of Tsunami Deposit Mixed with Concrete Rubble**

Yasuyuki Nabeshima, Akashi National College of Tech; Hiroo Tanaka, Okunokotoh Co, Japan

**Solitary Wave Propagation over a Submerged Structure: Reflection, Transmission, Energy Dissipation, and Soliton Fission**

Wei-ting Chao, Chih-Chieh Young, Chao-Lung Ting, National Taiwan Univ, Taiwan, China

**Hydraulic Experiments for Solitary Wave Force on Vertical Structures**

Yong-Sik Cho, Sejong Han, Hanyang Univ, Korea

**Geochemical and Statistical Analysis of Heavy Metals and Elements in Tsunami Deposits at Coastal Areas of Northeastern Japan**

Takeshi Komai, Tatsuo Kuwatani, Tohoku Univ; Yoshishige Kawabe, Junko Hara, AIST; Noriyoshi Tsuchiya, Tohoku Univ, Japan

**Three-Dimensional Simulation on the Developing of Local Scour Induced by Tsunamis**

Tso-Ren Wu, Mei-Hui Chuang, Yu-Ming Ko, Chung-Yue Wang, Chia-Ren Chu, National Central Univ, Taiwan, China

**91. UNDERWATER SYSTEMS V:**

**AUV, Robotics and Communications 5 (V. 2)**

**Wednesday June 18 10:30 Room 10**

**Chair:** N. Kato, Osaka University, Japan

**Autonomous Underwater Vehicle for Coastal Survey**

Phansak Iamraksa, Sarinya Sanitwong Na Ayutthaya, Yodchai Tiaple, Kla Laitongdee, Kasetsart Univ, Thailand

**The Preliminary Design and Optimization of an AUV System for the Long-term and Vertical Profile Oceanographic Survey**

Haitao Gu, Zhiqiang Hu, Xinghua Zhu, Delong Li, Shenyang Inst of Automation, China

**Navigation and Depth Control of an AUV with Mass Shifter Mechanism**

Ngoc-Huy Tran, Hyeung-Sik Choi, Se-Hoon Baek, Korea Maritime & Ocean Univ, Korea

**Development of a Morphing AUV for Course and Path Keeping in Complex Current Environments**

Andrea M Meneses, Bo Li, Manhar Dhanak, Tsung-chow Su, Florida Atlantic Univ, USA

**Optimal AUV Trajectories for Bearings-Only Tracking by Maximizing the Value of the Revenue Function**

Yan Yan Wang, Zhou Kai Liu, Sheng Xi Feng, Shenyang Inst of Automation CAS, China

**Formation Control of Multiple Autonomous Underwater Vehicles Based on State Feedback**

Shuxue Yan, Yiping Li, Shenyang Inst of Automation CAS, China

**Research on the Maneuverability of A Hybrid-driven Underwater Glider "PETREL" in the AUV Mode**

Jian-Guo wu, Lei Gao, Shenyang Inst of Automation CAS, China

**WEDNESDAY 13:15**

**PLENARY III**

**Wednesday June 18 13:15 Room 7**

**Introduction:** Mason Wu, DMAR Engineering, USA

**Recent Advances in Deepwater Subsea Flowline and Pipeline Technology**

Paul Jukes, Burak Ozturk, Wood Group Kenny, USA

**KEYNOTE IV**

**Wednesday June 18 13:15 Room 6**

**Introduction:** Qingwei Ma, City University London, UK

**Storm Surges in Leyte Gulf, Philippines Caused by 2013 Typhoon Haiyan and Major Typhoons with Similar Tracks**

Hiroyasu Kawai, Katsumi Seki, Takashi Fujiki, Port and Airport Research Inst, Japan

**WEDNESDAY 14:00**

**92. HPM IX:**

**Arctic Materials 1 (V. 4)**

**Wednesday June 18 14:00 Room 1**

**Chair:** Odd M Akselsen, SINTEF/NTNU, Norway

**Fundamental Aspects of Fatigue of Steel in Arctic Applications**

Antonio Alvaro, Odd M Akselsen, SINTEF Materials & Chemistry, Norway

**Development of Equipment for Fatigue Testing of Glass Fiber Reinforced Composites at Sub-Zero Temperatures and Some Preliminary Test Results**

Rune H Gaarder, SINTEF Materials & Nanotechnology, Norway

**Effect of Martensite-Austenite Constituents Behavior on Low Temperature Toughness and Microstructure in Simulated Welding Condition for SMYS 500MPa Class Offshore Structural Steel Plate**

In Kim, Seung Jae Jo, Soo Chal Jo, Ki Bong Kang, Dongkuk Steel; Nam Hyun Kang, Pusan National Univ, Korea

**A Multiscale DFT and Crystal Plasticity Model for Fracture Probability Calculation of Steel at Low Temperature**

Alexandre Kane, Afaf Saai, Robin Vacher, Jesper Friis, Ingeborg-Helene Svenum, SINTEF, Norway

**Numerical Modelling of Low Temperature Reeling of Pipes**

Frode Grytten, Virgile Delhaye, SINTEF; Trond Schjelderup, Bredero Shaw; Kjell Olafsen, SINTEF, Norway

**93. HYDRODYNAMICS X:**

**Fluid-Structure Interactions 3 - Multibody (V. 3)**

**Wednesday June 18 14:00 Room 2**

**Chair:** Moo Hyun Kim, Texas A&M University, USA

**Hydrodynamic Coefficients for Array of Tubular Cylinders**

John V Kurian, Ahmad M AL-Yacouby, Shahir M Lew, Universiti Teknologi PETRONAS, Malaysia

**Three-Dimensional Simulations of Bistable Flow past Two Side-by-Side Circular Cylinders in Close Proximity**

Jitendra Thapa, Ming Zhao, Univ of Western Sydney; Liang Cheng, Tongming Zhou, Univ of Western Australia, Australia

**Numerical Simulation of Gap Resonance between Twin Boxes under Forced Heave Motion**

Lin Lu, Sheng-chao Jiang, Bin Teng, Dalian Univ of Tech, China

**Numerical Confirmation of Cloaking Phenomenon on an Array of Floating Bodies by an Accurate Calculation Method**

Masashi Kashiwagi, Takahito Iida, Guanghua He, Osaka Univ, Japan

**Numerical Simulation of the Effects of a Moving Mutibody by a Two-Phase Solver**

Junjie Ye, Tingqiu Li, Wuhan Univ of Tech, China

**94. RENEWABLE ENERGY X:**

**OCEAN Energy OTEC (V. 1)**

**Wednesday June 18 14:00 Room 3**

**Chair:** Hyeon Ju Kim, Korea Research Inst of Ships & Ocean Eng., Korea

**The Future for OTEC: Hope is Not a Strategy**

R Kerry Kehoe, NOAA, USA

**Environmental Impacts Issue from Thermal Energy Conversion**

Marziah Zahar, Azran A Noor Azmi, Sheikh A Z Shaikh Salim, Md Nor Musa, Abu Bakar Jaafar, Universiti Teknologi Malaysia, Malaysia

**Heat Transfer Characteristics of Working Fluids for Closed OTEC Power Plants**

Myung-Gyu Park, Joo-Hyung Kim, Songsoo Jung, Inha Univ, Korea

**Heat Transfer and Pressure Drop Characteristics of Plate Heat Exchanger**

YoungKwon Jung, Hyeon Ju Kim, Ho Saeng Lee, Yong Sung Lee, Korea Inst of Ocean Science & Tech, Korea

**Performance Characteristics of Ocean Thermal Energy Conversion Cycle According to Various Composition Ratios of R32/R152a**

Sang-Won Cha, Ho-Saeng Lee, Hyeon-Ju Kim, Seung-Won Lee, Korea Inst of Ocean Science & Tech, Korea

**Performance Characteristics of Seawater Heat Pump Using R32/R152a Mixed Refrigerant**

Ho-Saeng Lee, Hyeon-Ju Kim, Sang-Won Cha, Deok-Soo Moon, Korea Inst of Ocean Science & Tech, Korea

**Numerical Modeling Approach of an OTEC Thermal Discharges in Coastal Waters of Kosrae, Micronesia**

Jong Yoon Mun, Chonnam National Univ; Hyeon-Ju Kim, KIOST; Jongkyu Kim, Chonnam National Univ, Korea

**95. OCEAN TECH V: Installation and Operations 2 (V. 3)**

**Wednesday June 18 14:00 Room 4**

**Chair:** H G Sung, Korea Research Inst of Ships & Ocean Engineering (KRISO), Korea

**Co-Chair:** Xin Li, Shanghai Jiao Tong Univ, China

**A Comparative Study on Motion Monitoring and Numerical Simulation of T-Shaped Launch Barge with PY34-1 Jacket during Transportation**

Huailiang Li, Offshore Oil Engineering; Hanbing Luo, Xin Liu, Jingjian Wu, Tianjin Univ; Licheng Qin, Alan Wang, Offshore Oil Engineering, China

**Acceleration Monitoring, Benchmarking and Environmental Correlating in Module Ocean Transportation**

Yaochen Sun, Yinguo Cheng, Bechtel Offshore, USA

**Numerical Modeling of Load Transfer Unit of the Float-Over Installation**

Y M Choi, B W Nam, S Y Hong, Korea Research Inst of Ships & Ocean Engineering, Korea

**Model Testing Capabilities for Verification of Floatover Operations**

Allan Magee, Technip Geoproduction; Nur Zaidah Mohd Yunos, John V Kurian, Universiti Teknologi PETRONAS, Malaysia

**Effect of Lifting Heavy Object on Construction Vessel Motion**

Van Tuyen Luong, Natthaphong Hiranchaiyaphreuk, Eng Bin Ng, EMAS-AMC, Singapore

**Structural Design Analysis of J-Lay Tower on Deepwater Semi-submersible Lifting and Pipe Laying Vessel**

Wenjun Zhong, Ning Hei, Wei Yang, Offshore Oil Engineering, China

**96. HPM III:**

**Advances in Welding Technology (V. 4)**

**Wednesday June 18 14:00 Room 5**

**Chair:** H. Murakawa, Osaka University, Japan

**Progress in Welding Consumables for High Tensile Strength Steels in Japan**

Masayuki Nagami, Hiroyuki Kawasaki, Yoshihiko Kitagawa, Kobe Steel, Japan

**Methods for Measurement and Prediction of Residual Stresses in Pipe Girth Welds in Clad Pipes**

Maartje Joosten, Liwu Wei, Martin Gallegillo, TWI Ltd, UK

**Design of Technological Parameters for Electromagnetic Force Assisted Line Heating Based on Numerical Simulation**

Ji Wang, Jiangtao Wu, Yujun Liu, Qiang Liu, Dalian Univ of Tech; Lijin Zhang, COSCO Shipyard Group, China

**Predictive Method for the Angular Distortion of Line Heating Process with High Frequency Induction Heating**

Hyung Kook Jin, Deuk Jae Jeon, Soung Sig Park, Sang Beom Shin, Hyundai Heavy Industries, Korea

**Mechanical Properties of Welds after Micro-Jet Cooling**

Tomasz Wegrzyn, Silesian Univ of Tech; Jan Piwnik, Bialystok Technology Univ, Poland; Abilio Silva, Univ of Beira Interior, Portugal; Wojciech Majewski, AH-HP Enterprise, Poland

**Effect of High Frequency Hammer Peening at Welded Ultra High Strength Steels**

Joern Berg, Natalie Stranghoener, Univ of Duisburg-Essen, Germany

**Hydrogen Absorption Capability of High Strength Weld Metal For Line Pipe**

Takuya Hara, Masaki Sugiyama, Yasuhiro Shinohara, Masahiko Hamada, Nippon Steel & Sumitomo Metal, Japan

**97. COASTAL HYDRODYNAMICS V: Structures 2 (V. 3)**

**Wednesday                  June 18                  14:00                  Room 6**

**Chair:** E. Loukogeorgaki, Aristotle Univ. of Thessaloniki, Greece

**Co-Chair:** Ching-Piao Tsai, National Chung Hsing Univ., Taiwan, China

**Stability Formula for Rakuna-IV Armoring a Rubble Mound Breakwater**

Kyung-Duck Suh, Seoul National Univ; Taehoon Lee, Halla E&C; Se-Hyeon Cheon, Seoul National Univ, Korea; Hiroshi Matsushita, Nikken Kogaku Co, Japan

**Numerical Simulation of Total Horizontal Forces on Partial Perforated Caisson Breakwater**

Feng Jiang, Xiaocheng Tang, Zhao Jin, Hongzhou Chen, Li Zhang, Dalian Univ of Tech, China

**Improvement of Ship Performance Based on Sensitivity Study to the Added Resistance**

Muhdar Tasrief, Masashi Kashiwagi, Osaka Univ, Japan

**Hydrodynamic Performance of the H-Type Floating Breakwater**

Hee Min Teh, V J Kurian, M D M Tan, A KA Awg Yusuf, Universiti Teknologi PETRONAS, Malaysia

**Numerical Simulations of Wave Variations between a Submerged Breakwater and a Seawall**

Chun-Han Ko, Ching-Piao Tsai, Ying-Chi Chen, National Chung Hsing Univ, Taiwan, China

**Evaluation Method of Suction Rate of Back-filling Materials from a Coastal Dike or a Seawall**

Yoshimichi Yamamoto, Tokai Univ, Japan; Wirayut Kuisorn, Nunthawath Charusrojthanadech, King Mongkut's Inst of Tech, Thailand

**A Research of Breaker Characteristics**

Wen-Jer Tseng, Cheng-Shiu Univ, Taiwan, China

**98. SUBSEA-PIPELINE-RISER- VI:  
Pipelines 2 (V. 2)**

**Wednesday      June 18                      14:00                      Room 7**

**Chair:** Jean-Francois Saint-Marcoux, Subse7, France

**Structural Integrity and Further Seabed Intervention Requirement Assessment for Subsea Pipelines Subjected to Upgraded Pressure/Temperature Loading**

Yihan Xing, Zhenguo Tu, Samson Katuramu, IKM Ocean Design, Norway

**Eliminating the Precommissioning Hydrotest for Deepwater Gas Pipelines**

Peter Carr, Peritus International, USA; Ian F Nash, Peritus International, UK

**Calibration of Verley and Sotberg Soil Resistance Model for Pipelines Placed on Calcareous Soils**

Bassem S Youssef, Atteris Pty Ltd; Mark J Cassidy, Univ of Western Australia , Australia

**Middle East India Deepwater Pipeline (MEIDP) - Geohazard Features, Assessment and Intervention**

Christopher J Burnett, Simon G Parry, Ian F J Nash, Peritus International, UK

**Contribution of Liner Strength in CRA-Lined Pipelines**

Venu Rao, Turairajah Sriskandarajah, Pasupathy Ragupathy, Subsea 7, UK

**99. GEOTECH V: Stability and Seepage (V. 2)**

**Wednesday      June 18                      14:00                      Room 8**

**Chair:** Tamotsu Matsui, Osaka University, Japan

**Consideration of Seepage of Rainwater in a Full Scale Model Experiment through Numerical Simulation**

Kyohei Umemura, Kazuhiro Oda, Keigo Koizumi, Kazuma Murakami, Takayuki Ohnishi, Osaka Univ, Japan

**Effect of Consolidation on Breakout Behaviour of Partially Embedded Seabed Pipelines**

Santiram Chatterjee, Susan Gourvenec, Univ of Western Australia, Australia

**Proposal of Methods for Risk Assessment to Deep-Seated Catastrophic Landslides due to Heavy Rain based on Both Artificial Intelligence and Mathematical Statics**

Shinichi Ito, Kazuhiro Oda, Keigo Koizumi, Osaka Univ, Japan

**Shear Characteristics of Undisturbed and Remolded Peat Consolidated under Cyclic Loading**

Masaki Tsushima, Akita National College of Tech; Hiroshi Oikawa, Akita Univ, Japan

**New Techniques for Measuring Groundwater level and Permeability in Small House Ground**

Chul-Ho Kim, Hokoku Engineering; Mamoru Fujii, Tokai Univ; Masahiro Ogawa, Hokoku Engineering, Japan

**Research Studies of Means Efficiency for Protection of Sea Bed Soil from Erosion Caused by External Factors Near Offshore Structures**

Leonid G Shchemelinin, Kirill E Sazonov, Alexander I Malikov, Krylov State Research Centre; Alexander V Utin, TWELL; Igor S Nudner, Vladimir

V Lebedev, Konstantin K Semenov, State Marine Design Inst; Nikolay D Belyaev, St. Petersburg State Polytechnical Univ, Russia

**Preliminary Study on Effects of Heightened Core Structure of Inclined type according to Seepage and Dynamic Characteristics of Heightened Reservoir Dam**

Younghak Lee, Ken-ichi Tokida, Yoshiya Hata, Jin Kawaguchi, Masaki Uotani, Osaka Univ, Japan

**100.TSUNAMI & SAFETY IV: Remote Sensing (V. 3)**

**Wednesday June 18 14:00** Room 9

**Chair:** H. Kawai, Port and Airport Research Inst., Japan

**Co-Chair:** T Komai, Tohoku Univ, Japan

**Tsunami Wave Parameters Calculation before the Wave Approaches Coastal Line**

Mikhail M Lavrentiev, Alexey A Romanenko, Novosibirsk State Univ, Russia

**Mapping Surface Sediment Types by Weakening Moisture Influence in Intertidal Zone Using Remote Sensing**

Changkuan Zhang, Huan Li, Hohai Univ, China

**Subsurface Objects Detection with HF-waveband Ground-Penetrating Radar**

Michael V Potipak, Vladimir T Lobatch, Southern Federal Univ, Russia

**Three-Dimensional Simulation on the Developing of Local Scour Induced by Tsunamis**

Tso-Ren Wu, Mei-Hui Chuang, Yu-Ming Ko, Chung-Yue Wang, Chia-Ren Chu, National Central Univ, Taiwan, China

**Seismic Source Characterization and Tsunami Analysis for the Tsunamigenic Earthquakes in the Makran Subduction Zone**

Ali Fatehi, Richard C Quittmeyer, Arash Zandieh, Jemie A Dababneh, Daniel J Barton, Paul C Rizzo Associates, USA

**101. ARCTIC SCI & TECH I:**

**Arctic (NSR) Shipping I (V. 1)**

**Wednesday June 18 14:00** Room 10

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

**Co-Chair:** Natsuhiko Otsuka, North Japan Port Consultants Co, Japan

**Keynote**

**Yamal ARC7 LNGC: Beyond the Heavy Ice Ridge**

Oh-Yig Kwon, Daewoo Shipbuilding & Marine Engineering, Korea

**Short-term Sea Ice Prediction Method for the Northern Sea Route**

L W A De Silva, Hajime Yamaguchi, Jun Ono, Univ of Tokyo, Japan

**Improvement of Sea Ice Prediction on Northern Sea Route**

Genki Sagawa, Weathernews Inc, Japan

**Field Observation of the Summer Sea Ice Conditions along the Northwest Passage and the Canada Basin in 2012 and 2013**

Yuya Nakano, Univ of Tokyo; Kazutaka Tateyama, Kitami Inst of Tech; Genki Sagawa, Weathernews Inc; Yasuhiro Tanaka, Kitami Inst of Tech, Kitami Inst of Tech; Hajime Yamaguchi, Univ of Tokyo, Japan

**Characterization of Ice Cover for Calculation of Ice Loads for Maritime Structures**

Mikhail Mironov, B E Vedenev VNIIG, Russia



**Ice Plate Deflections during Aircraft Take-Off and Landing**

Alexandra V Pogorelova, Victor M Kozin, Inst of Machining & Metallurgy FEB RAS; Anna A Matyushina, Amur State Univ of Humanities & Pedagogy, Russia

**WEDNESDAY 16:20**

**102. HPM X:  
Arctic Materials 2 (V. 4)**

**Wednesday June 18 16:20 Room 1**

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

**Evaluation of Welding Consumables for Application Down to -60°C**

Odd M Akselsen, SINTEF/NTNU; Erling Østby, DNV, Norway

**Ice Load Analysis Comparison between Arctic Standard and Bohai Bay Standard**

X P Shen, CNOOC Research Inst, China

**Review of Laser and Hybrid Laser-Arc Welding**

Odd M Akselsen, SINTEF/NTNU; Xiaobo Ren, SINTEF; Norway; Sigmund K Aaas, SINTEF do Brasil, Brazil

**Use of Current S355 and S690 Steels for Arctic Applications**

Carey Leroy Walters, Roelof Cornelis Dragt, TNO; Eric Romeijn, Huisman Equipment; Gerard van der Weijde, TNO, Netherlands

**Extended Use of Aluminium in Arctic Conditions: Advantages and Challenges**

Hakon Nordhagen, Bard Nyhus, Stephane Dumoulin, SINTEF Materials and Chemistry, Norway

**Impact Bending Tests and Simulations of a High Strength Steel FH32 for Arctic Marine Structures**

Joonmo Choung, Woongshik Nam, Inha Univ; Myung-Hyun Noh, RIST; Jae-Yik Lee, Inha Univ; Sanghoon Shim, RIST, Korea

**103. HYDRODYNAMICS XI:**

**Fluid-Structure Interactions 4 – Multibody & Green Ship (V. 3)**

**Wednesday June 18 16:20 Room 2**

**Chair:** Suak Ho Van, Korea Research Inst of Ships & Ocean Engineering, Korea

**Comparative Analysis of the Hydrodynamic Performance of Conventional and Twisted Rudders Using a Hybrid RANSE/BEM Model**

Danilo Calcagni, Flavia Bellotto, Riccardo Broglia, Francesco Salvatore, CNR-INSEAN, Italy; Rickard Bensow, Chalmers Univ of Tech, Sweden

**On the Effect of Vortex Generators on the Flow Field around a Tanker Model Scale: A Stereo-PIV Investigation**

Massimo Falchi, Giovanni Aliosio, Silvano Grizzi, INSEAN-CNR, Italy

**Development of an Experimental Methodology for Self-Propulsion Test with a Marine Diesel Engine Simulator, The Third Report - Auxiliary Thruster System**

Yasushi Kitagawa, Katsuji Tanizawa, Yoshiaki Tsukada, National Maritime Research Inst, Japan

**Coupled Dynamics of Towing Line and Vessels in Towage**

Ivan Catipovic, Nastia Degiuli, Veceslav Coric, Andreja Werner, Jadranka Radanovic, Univ of Zagreb, Croatia,

**Nonlinear Free Surface and Body Interaction Computations Using Rankine Source Method**

Aichun Feng, Zhimin Chen, Jing Tang Xing, Univ of Southampton, UK

**Study on the Hydrodynamic Characteristics of Contra-Rotating Propeller System**

Semyun Oh, Jinsuk Lee, Kwang-Jun Paik, Soonho Choi, Hyoung-Gil Park, Tetsuji Hoshino, Samsung Heavy industries, Korea

**104. RENEWABLE ENERGY XI:  
Ocean Energy OTEC& Biomass (V. 1)**

**Wednesday June 18 16:20 Room 3**

**Chair:** Seok-Won Hong, KRISO (Korea Research Inst of Ships & Ocean Eng), Korea

**Commercializing and Financing OTEC**

Ted G Johnson, Ocean Thermal Energy, USA

**Performance Indicator on OTEC Power System for Selected Working Fluids**

Patricia Kwakye-Boateng, Jung-In Yoon, Kwang-Hwan Choi, Chang-Hyo Son, Pukyong National Univ; Hyeon-Ju Kim, Ho-Saeng Lee, Korea Inst of Ocean Science & Tech, Korea

**Hybrid OTEC Power Plants with Solar Energy**

Myung-Gyu Park, Joo-Hyung Kim, Dongsoo Jung, Inha Univ, Korea

**Experimental Study on Enhancement of Heat Transfer Rate for Solar Collection System by Using Nanofluids**

Ji-joon Son, Jung-Yeul Jung, Ho-Saeng Lee, Hyeon-Ju Kim, Korea Inst of Ocean Science & Tech, Korea

**20kW ORC Turbine Off-Design Performance**

S Han, JongBeom Seo, Seoul National Univ of Science & Tech; Bum-Seog Choi, Korea Inst of Machinery & Materials, Korea

**An Analysis of Biomass in Higher Trophic Level of Coastal Ecosystem for Sustainable and Effective System of Biomass Application**

Yohei Tsukahara, Naoki Nakatani, Osaka Prefecture Univ, Japan

**Effect of Couplers on Structural Responses of Subsea Risers in Water Flows**

Won-Bae Na, Hajung Hwang, Pukyong National Univ; Hyeon-Ju Kim, Korea Research Inst of Ships and Ocean Engineering, Korea

**105. OCEAN TECH VII: -  
Offshore Systems 1 (V. 1)**

**Wednesday June 18 16:20 Room 4**

**Chair:** Songlin Song, China Oil Services Ltd, China

**Co-Chair:** Yong Soo Kim, DSME, Korea

**A Study on Towing Stability of a Transportation Barge during Multi-Tug Operation**

B W Nam, S Y Hong, Y M Choi, J H Kim, Korea Research Inst of Ships & Ocean Engineering, Korea

**An Introduction to Foundation Design of Steel Gravity Substructure**

Hyun-Wook Cho, Hae-Jung Jung, Gwang-Gi Min, Hyeong-Seung Nam, Daewoo Shipbuilding & Marine Engineering, Korea

**Design Implementation of Offshore Skid in Compliance with DNV Regulations**

Atul B Bokane, Halliburton Technology India, India; Micah Lee Stewart, Halliburton Energy Services, USA; Mitinkumar P Katke, Siddharth Jain, Halliburton Technology India, India

**Performance-Based Seismic Design of Fixed Offshore Platforms and Comparison with ISO and API Seismic Design Guidelines**

Abe Nezamian, Patrick Morgan, WorleyParsons, Australia

**Vertical Wave-in-Deck Loading and Pressure Distribution on Fixed Horizontal Decks of Offshore Platforms**

Nagi Abdussamie, Giles Thomas, Walid Amin, Roberto Ojeda, Australian Maritime College; Yuriy Drobyshevski, INTECSEA, Australia;

**The Turbine Parameter Study of Down-hole Turbine Generator of Logging-while Drilling for Exploring of China Sea**

Zhiming Wang, Zhijun Jiang, Yun Guo, Weihong Zhu, Hongliang Wang, China Oilfield Services, China

**A New Equipment for Measuring the Setting Precision of Flood Hole and Air Hole Open/Close Devices**

Yun Lu, Weijia Li, Xiao Wang, Huazhong Univ of Science & Tech, China

**The Design of Hydraulic Simulating Apparatus for Active Heave Compensation Systems**

Sungil Shin, Jong-kun Lee, Sang-jun Kim, Daewoo Shipbuilding & Marine Engineering, Korea

**Study on Operation Capability for a 3000 Meters Pipe-Lay Vessel**

Jianwei Wang, Liping Sun, Shangmao Ai, Shaoheng Sun, Harbin Engineering Univ, China

**Model Testing Capabilities for Verification of Floatover Operations**

Allan Magee, Technip Geoproduction; Nur Zaidah Mohd Yunus, John V Kurian, Universiti Teknologi PETRONAS, Malaysia

**106. HPM IV:**

**Advances in Shipbuilding Steels (V. 4)**

Wednesday June 18 16:20 Room 5

**Chair:** Ki Bong Kang, Dongkuk Steel Mill Co.,Korea

**Development of YP390MPa Steel Plate for Shipbuilding with Superior Low Temperature Toughness for Large Heat Input Welding**

Koichi Nakashima, Kazukuni Hase, Shigeru Endo, Taiki Eto, Hideaki Fukai, Hiroshi Shiomi, JFE Steel, Japan

**Numerical Simulation of Brittle Crack Propagation and Arrest in Steels Considering Shear-Lip Formation**

Shuji Aihara, Univ of Tokyo; Tetsuya Namegawa, Nippon Steel & Sumitomo Metal; Kazuki Shibamura, Univ of Tokyo, Japan

**Proposal of Test Method for Brittle Crack Arrest Toughness,  $K_{ca}$  - Study on Standard Test Method for Crack Arrest Toughness,  $K_{ca}$ -1-**

Tomoya Kawabata, Takehiro Inoue, Yusuke Shimada, Nippon Steel & Sumitomo Metal; Tsunehisa Handa, JFE Steel; Masahito Kaneko, Kobe Steel; Kei Sugimoto, Nippon Kaiji Kyokai, Shuji Arihara, Kazuki, Shibamura, Univ of Tokyo, Japan

**Effect of Specimen Size and Applied Stress on Brittle Crack Arrest Toughness - Study on Standard Test Method for Crack Arrest Toughness,  $K_{ca}$ -2 -**

Takehiro Inoue, Tomoya Kawabata, Yusuke Shimada, Nippon Steel & Sumitomo Metal; Tsunehisa Handa, JFE Steel; Masahito Kaneko, Kobe

Steel; Kei Sugimoto, Nippon Kaiji Kyokai; Shuji Aihara, Kazuki Shibanuma, Univ of Tokyo, Japan

**Effect of Impact Energy on Brittle Crack Propagation Behavior of Crack Arrest Toughness Specimen - Study on Standard Test Method for Crack Arrest Toughness,  $K_{ca}$  -3-**

Masahito Kaneko, Kobe Steel; Shuji Aihara, Kazuki Shibanuma, Univ of Tokyo; Kei Sugimoto, Nippon Kaiji Kyokai; Takehiro Inoue, Tomoya Kawabata, Yusuke Shimada, Nippon Steel & Sumitomo Metal; Tsunehisa Handa, JFE Steel, Japan

**Effect of Stress Reflection on Dynamic Stress Intensity Factor of Crack Arrest Toughness Specimen - Study on Standard Test Method for Crack Arrest Toughness,  $K_{ca}$  -4-**

Tsunehisa Handa, JFE Steel; Yusuke Shimada, Tomoya Kawabata, Takehiro Inoue, Nippon Steel & Sumitomo Metal; Masahito Kaneko, Kobe Steel; Kei Sugimoto, Nippon Kaiji Kyokai; Suji Aihara, Kazuki Shibanuma, Univ of Tokyo, Japan

**A Study on Evaluation of Residual Stress Redistribution of Ultra-thick YP47 FCA Butt Weld under Tensile Cyclic Load**

Bong Gook Kang, Dong Ju Lee, Sang Beom Shin, Hyundai Heavy Industries, Korea

**107. COASTAL HYDRODYNAMICS VI: Current 1 (V. 3)**

**Wednesday June 18 16:20 Room 6**

**Chair:** Sang Kil Park, Pusan National University, Korea

**Co-Chair:** Victor Rosales-Sierra, Instituto Mexicano del Petroleo, Mexico

**Variation of the Amplitude of the Dominant Tidal Constituent along the Coast of China Seas under Sea Level Change**

Meixiang Chen, Yinglei Dai, Juncheng Zuo, Qing Xu, Hohai Univ, China

**Effects of the Submesoscale Anticyclonic Eddies Induced by Kuroshio in East China Sea**

Yuki Kamidaira, Yusuke Uchiyama, Kobe Univ; Satoshi Mitarai, Taichiro Sakagami, Okinawa Inst of Science & Tech, Japan

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

F Lalli, A Burschi, M L Cassese, V Pesarino, ISPRA, Italy

**Coupled 1D-2D Hydrodynamic Modelling, with Application to the Pearl River Delta**

Yanfen Geng, Southeast Univ; Zhili Wang, Nanjing Hydraulic Research Inst, China

**Artificial Neural Network Apply to Predict the Sea-Level Change around Taiwan by Using Satellite Data**

T L Lee, Nan Jeon Univ of Science & Tech; Y P Sung, C J Huang, National Cheng Kung Univ; C C Wen, Hungkuang Univ; H M Lin, National Cheng Kung Univ, Taiwan, China

**The Response of Salt Intrusion Length to Changes in River Discharge of the Three Gorges Reservoir in the Yangtze Estuary, China**

Fei Gong, Wei Zhang, Hohai Univ; Kaimin Chen, Nanjing Hydraulic Research Inst; Jing Du, Shujie Lyu, Hohai Univ, China

**Data Assimilation of Hourly Vertical Current Profiles Using 4D-Var in Stratified Coastal Area**

Teruhisa Okada, Masayasu Irie, Shuzo Nishida, Osaka Univ, Japan

**Analysis of Tidal Current Characteristics in Maoming Port Jida Port Area**

Wendan Li, Mengguo Li, Zhiyuan Han, Tianjin Research Inst for Water Transport Engineering, China

**108. SUBSEA-PIPELINE-RISER- VII:  
Subsea Installation (V. 2)**

**Wednesday June 18 16:20** Room 7

**Chair:** G Paulsen, Statoil, Norway

**Quasi-static Analysis Of Mooring Line Tension under Combined Impact of Wave, Current and Soil**

Jun Zhang, Xiang-Lian Zhou, Jun-Jie Guo, Jian-Hua Wang, Shanghai Jiao Tong Univ, China

**Deepwater Installation of Pipe-in-Pipe Flowline - The Locked-in Load Assessment**

Jason Sun, Paul Jukes, MCS Kenny, USA

**Installation of Vertical Jumpers without Spreader Bar**

Nikolaos Gazis, Robert Clark, Wood Group Kenny, USA

**A Novel Installation Methodology for Ultra-Large Diameter Sea Water Intake Pipelines**

Hodjat Shiri, Mohammad Banae, Valia Arabi, Delta Offshore Technology, Iran

**Investigation on the Dynamic Performance of Offshore Pipeline Plough**

Hanyang Gong, Harbin Engineering Univ; Ruhua Yuan, China Offshore Oil Engineering; Liqun Wang, Harbin Engineering Univ; Xiaoli Song, China Offshore Oil Engineering, China

**Photonic Lantern with Tapered Multi-Core Fiber**

Chan Ki Lee, Man Joo Huh, DSME; Byeong Ha Lee, GIST, Korea

**Main Challenges in the Design and Installation of Deepwater Subsea PLET and ILT Structures**

Mason Wu, Lizhong Chen, DMAR, USA

**109. GEOTECH VI: Piles and Foundation (V. 2)**

**Wednesday June 18 16:20** Room 8

**Chair:** Yunsup Shin, Norwegian Geotechnical Institute, Norway

**Breakout Behaviour of Partially Embedded Pipes in Uniform Clay Using Limit Analysis**

Santiram Chatterjee, Univ of Western Australia, Australia; Chris M Martin, Oxford Univ, UK; David J White, Univ of Western Australia, Australia

**Numerical Investigation of Bearing Capacity on Sand Overlying Clay Soils**

Jun Zhao, Beom Seon Jang, Haibin Jin, Seoul National Univ, Korea

**Study on Applicability for Circumference Fixation Liquid and Foot Protection Liquid of Pile Using Eco-Cement**

Naoto Okuzumi, Mamoru Fujii, Ken Watanabe, Tokai Univ; Yoshinobu Kiya, Yutaka Nishimura, Concrete Pile Installation Technology Association, Japan

**Suction Bucket Foundations in Liquefiable Soil under Cyclic Lateral Loadings**

Amin Barari, Aalborg Univ, Denmark

**Comparison Research on Negative Skin Friction on Pile in Sand and in Clay**

Ting Huang, Hohai Univ, China

**New Guidelines for the Estimation of the Offshore Platform Piles' Stability**

Vladimir V Lalin, Daria A Kushova, St. Petersburg State Polytechnical Univ, Russia

**Prediction of Long Term Capacity using Dynamic Testing for Underwater Skirt Pile Foundation**

Liqun Liang, Pile Dynamics; Scott Webster, GRL Engineers, USA; Ruhua Yuan, Hongxing Tian, Yanbo Han, Chao Wang, Liang Yu, Offshore Oil Engineering, China

**A Case Study on the Bridge Damage in Marine Soft Clay**

JooHyun Seong, YongSoo Kim, SiHyun Park, KwangSoon Park, KISTEC, Korea

**110.TSUNAMI & SAFETY 5:  
Panel**

**Wednesday June 18 16:20 Room 9**

**Chair:** H. Kawai, Port and Airport Research Inst., Japan

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

Panelists to be announced.

**111. ARCTIC SCI & TECH II:  
Arctic Mechanics (V. 1)**

**Wednesday June 18 16:20 Room 10**

**Chair:** R.M.W. Frederking, National Research Council, Ottawa, Canada

**Co-Chair:** Koh Izumiyama, North Japan Port Consultants, Japan

**On the Estimation of the Distribution of Massive Marine Ice Features Derived from Moored Upward Looking Sonar Instruments**

David B Fissel, Edward Ross, Anudeep Kanwar, Glenda Wyatt, ASL Environmental Sciences, Canada

**Comparison of Ice Load Development on Non-Planar Surface**

Hyunwook Kim, Claude Daley, Bruce Colbourne, Memorial Univ of Newfoundland, Canada

**Development of the Eco-Friendly Model Ice Applying at Ice Tank**

Junghyun Kim, STX Offshore & Shipbuilding; Kyungsik Choi, Korea Maritime & Ocean Univ; Dong-Eon Kim, STX Offshore & Shipbuilding, Korea

**Review and Research Physical and Mechanical Properties of Sea Ice**

N A Taranukha, S V Koshkin, Komsomolsk-na-Amure State Technical Univ, Russia

**Movement of Two Loadings on the Ice Cover**

Alexandra V Pogorelova, Victor M Kozin, Inst of Machining & Metallurgy FEB RAS; Elena G Rogozhnikova, Amur State Univ of Humanities & Pedagogy, Russia

**A Model of Ice Friction for Skeleton Runner Blades**

Edward Lozowski, Univ of Alberta; Alexis Morris, Sean Maw, Mount Royal Univ, Canada

**Creep Behavior of Frozen Sands**

Wanjei Cho, Deokho Chae, Dankook Univ; Yougn Seok Kim, Korea Inst of Construction Technology; Bumsik Hwang, Dankook Univ, Korea

**THURSDAY 08:00**

**112. OCEAN TECH VI:  
Jackup and Bottom-fixed Structures (V. 1)**

**Thursday June 19 08:00 Room 1**

**Chair:** L F Boswell, City Univ London, UK

**Research on the Operation Capability of Big-foot Jack-up in China's Offshore**

Weiliang Dong, Jianjun Wang, Jianbo Li, Linsong Song, China Oilfield Services; Menglan Duan, China Univ of Petroleum, China

**Behaviour and Analysis of Grouted Connections in Offshore Mono Pile Wind Turbine Structures Subjected to Bending Moment Loading**

Alwan Al-Amir, L F Boswell, City Univ London, UK

**Parametric Study of Allowable Stress Design and Load & Resistance Factor Design for Jack-up Rig**

Jooshin Park, Yeongsu Ha, Jeongbon Koo, Kibok Jang, Yongsuk Suh, Samsung Heavy Industries, Korea

**Spudcan Stable Analysis of a Jack-up Unit for Multi-Layered Soil**

Xiangang Ren, Xuetao Yan, Shanghai Jiao Tong Univ, China

**The Structural Vibration Behavior Analysis of Jack-up Unit in Deeper Water**

Xiangang Ren, Shanghai Jiao Tong Univ, China

**113. HYDRODYNAMICS XII:  
Fluid-Structure Interactions 5 - Impact (V. 3)**

**Thursday June 19 08:00 Room 2**

**Chair:** Tsung-Chow Su, Florida Atlantic University, USA

**Aeration Effects on Impact: Drop Test of a Flat Plate**

Tri Mai, Deborah Greaves, Alison Raby, Plymouth Univ, UK

**Experimental Study on the Water Impact Load on Symmetric and Asymmetric Wedges**

Kyong-Hwan Kim, Sa Young Hong, Byoung Wan Kim, Young Shik Kim, Bo Woo Nam, Korea Research Inst of Ships & Ocean Engineering, Korea

**Study of Greenwater on a Fixed Platform in OTRC Wave Basin**

Youn Kyung Song, Kuang-An Chang, Richard Mercier, Texas A&M Univ, USA

**Impact Analysis between Rigid Body and Fluid with SPH**

Heeje Chae, Bumsang Yoon, Hyunkyung Shin, Univ of Ulsan; Jongchun Park, Pusan National Univ, Korea

**Numerical Simulation of Damaged Ship Motion in Waves**

Zhai-Liu Hao, Zu-Yuan Liu, Cheng-Sheng Zhan, Xi-De Cheng, Wuhan Univ of Tech, China

**114. RENEWABLE ENERGY XII:  
Ocean Energy OWC 1 (V. 1)**

**Thursday June 19 08:00 Room 3**

**Chair:** S. Nagata, Saga University, Japan

**Interactions between an Oscillating Wave Surge Converter and a Heaving Point Absorber**

Dripta Sarkar, Emiliano Renzi, Frederic Dias, University College Dublin, Ireland

**Point Absorbers Tailored for the Italian Wave Climate**

Silvia Bozzi, Francesca Scarpa, Giambattista Gruosso, Giuseppe Passoni, Politecnico di Milano, Italy

**Evaluation of Energy Gain of Float Type Wave Energy Converters**

Kesayoshi Hadano, Pallav Koirala, Yamaguchi Univ; Keisuke Taneura, CTI Engineering; Toshiaki Ohnishi, Ministry of Land, Infrastructure, Transport & Tourism, Japan

**Study on the Static/Dynamic Structural Analysis of the Primary Transduction System of a Floating Pendulum Wave Energy Converter**

H J Cheon, J M Sohn, S H Shin, K Y Hong, Korea Research Inst of Ships & Ocean Engineering, Korea

**Comparative Study on Wave-Induced Motion for Two Types of Floating Pendulum Wave Energy Converters**

J Y Park, B W Nam, S H Shin, S Y Hong, Korea Research Inst of Ships & Ocean Engineering, Korea

**115. OCEAN TECH VIII: -  
Offshore Systems 2 (V. 1)**

**Thursday June 19 08:00 Room 4**

**Chair:** J.V. Kurian, Universiti Teknologi Petronas, Malaysia

**Forward Distance Performance of Free Fall Lifeboat in a Sea Way**

Jingzhe Jin, Edvard Ringen, MARINTEK, Norway

**Design of the Fiber and Gyro Azimuth Logging Tool for Open Hole or Casing Wells of Offshore Oilfield of China**

Ao Qiu, China Oilfield Service Limited, China

**Application of the Ahead Fluid System in the Moxi16 Liner Cementing**

Chong Wang, Jianlong Zou, Eriyan Xie, Baohui Zhao, CNPC Tianjin Boxing Engineering Science & Tech, China

**Coupled Analysis of a Feeder-cage System for Offshore Aquaculture**

Cristian A Cifuentes, M H Kim, Texas A&M Univ; Neil A Sims, Gavin Key, Kampachi Farms, USA

**Modeling the Forces and Motions of a Single Point Mooring Marine Aquaculture Cage**

Vishwanath Nagarajan, Mohd A Siddiqui, Chanchal K Mukherjee, IIT Kharagpur, India

**Artificial Reef Design for Wake Region Establishment**

Won-Bae Na, Dongha Kim, Jinho Woo, Han-Sam Yoon, Pukyong National Univ; Ho-Sang Kim, Kyung-Seon Lee, Korea Fisheries Resources Agency, Korea



**116. HPM V:  
Fatigue & Fracture 1 (V. 4)**

**Thursday June 19 08:00 Room 5**

**Chair:** Doug. P. Fairchild, ExxonMobil Upstream Research Company, USA

**Effect of Gap Size on the Fatigue Performance of non- Load-Carrying Fillet Welded Joint**

Abdullah Ezzarhan, Koji Gotoh, Kyushu Univ, Japan

**Numerical Simulation of Fatigue Crack Propagation and Crack Opening and Closing Model by Considering the Strain Hardening Effect of Materials**

Kohei Yamashita, Koji Gotoh, Kyushu Univ, Japan

**Low Cycle Fatigue of Post Weld Treated Butt Welds Made of High-Strength Steels**

Jennifer Hrabowski, Stefan Herion, Thomas Ummenhofer, Karlsruhe Inst of Tech, Germany

**Investigation of Residual Stress Effects on the Crack Opening and Propagation Using in situ Neutron Diffraction Method**

Wanchuck Woo, Korea Atomic Energy Research Inst; Gyu Baek An, POSCO; Jeong-Ung Park, Chosun Univ, Korea

**Thermo-Mechanical Simulations of Residual Stresses and Hydrogen Diffusion in a Part-Size Sleeve-on-Pipe Mock-Up for Remote Pipeline Repair Welding**

Dag Lindholm, Hallvard G Fjar, Inst for Energy Technology, Norway; Neil Woodward, Isotek Oil & Gas, UK

**Fatigue Assessment of Structures by the FEA-based Simulation of Damage Accumulation**

S V Petinov, R V Guczinsky, St. Petersburg Polytechnic Univ, Russia

**117. COASTAL HYDRODYNAMICS VII: Current 2 (V. 3)**

**Thursday June 19 08:00 Room 6**

**Chair:** Jinhai Zheng, Hohai University, China

**Co-Chair:** Qihua Liang, Newcastle University, UK

**Numerical Simulations of Deep Currents on Steep Bathymetry**

Victor Rosales-Sierra, Coral Garcia-Govea, Instituto Mexicano del Petroleo, Mexico

**Tidal Current Numerical Modeling of Chengmai Bay**

Mengguo Li, Tianjin Research Inst for Water Transport Engineering, China

**Analysis of Erosion Protection Plans of Muddy Coastline in Thailand in Terms of Coastal Structure Effectiveness and Acceptance of Communities**

Sarinya Sanitwong\_Na\_Ayutthaya, Kasetsart Univ, Thailand

**Numerical Study on Surface Wave and Near-shore Current Interaction**

Jun Tang, Dalian Univ of Tech, China

**Development of Real-Time Current Simulator for Osaka Bay**

Yusuke Tamaki, Shuzo Nishida, Masayasu Irie, Osaka Univ; Masahiro Mizutani, Kinki Regional Development Bureau; Takeshi Ono, IDEA Consultants; Teruhisa Okada, Osaka Univ, Japan

**118. SUBSEA-PIPELINE-RISER-VIII:  
Riser - SCR (V. 2)**

**Thursday June 19 08:00** Room 7

**Chair:** Yijun Shen, MCS Kenny International, UK  
**Co-Chair:** Jiasong Wang, Shanghai Jiao Tong Univ, China

**Investigation on Flexible Pipe Tensile Armour Bending Curvature Equations and Associated Bending Stress**

Yijun Shen, Colin Russell, Keith Anderson, Wood Group Kenny, UK

**Experimental and Numerical Studies on SCR Vertical Pipe Soil Interaction**

Yi Wang, Menglan Duan, Xianguang Zeng, China Univ of Petroleum, China

**Nonlinear Free Vibration of a Steel Catenary Riser Transporting Fluid**

Chainarong Athisakul, Karun Klaycham, Somchai Chucheepsakul, King Mongkut's Univ of Tech, Thailand

**Structural Performance of Deepwater Lazy-Wave Steel Catenary Risers for FPSOs**

Seungjun Kim, Moo-Hyun Kim, Texas A&M Univ, USA; Sanghoon Shim, RIST, Korea

**119. GEOTECH VII: Cyclic Loading (V. 2)**

**Thursday June 19 08:00** Room 8

**Chair:** Osoon Kwon, Korea Inst of Ocean Science Technology, Korea

**Probabilistic Assessment of Soil Liquefaction**

Gokhan Saygili, Norwegian Geotechnical Inst, USA

**Castor Project: Can the Injection of Natural Gas under the Seabed Cause Earthquakes?**

David Incertis, Port Inst for Studies & Cooperation, Spain

**The Effect of a Random Wave Field on Wave Induced Liquefaction**

Piet Meijers, Tim Raaijmakers, Dirk Luger, Deltares, Netherlands

**An Elastoplastic Model Describing Cyclic Accumulative Strains of Soft Clays**

Jianhua Wang, Xinglei Cheng, Tianjin Univ; Yang Yang, Tianjin Xince Electronics & Instrument, China

**Evaluation of Soil Liquefaction Potential by Screw Driving Sounding Test**

Tsuyoshi Tanaka, Naoaki Suemasa, Tokyo City Univ; Yamato Yamato, Inspection Organization; Toshiyuki Katada, Tokyo City Univ, Japan

**A Case Study of the Performance-based Seismic Design for Sheet Pile Type Wharf in Taiwan**

Cheng-Yu Ku, Wei-Fan Tseng, National Taiwan Ocean Univ; Jui-Ying Lai, Ministry of Transportation & Communications, Taiwan, China

**120. ENVIRONMENT I:  
CCS (Carbon Capture and Storage) (V. 1)**

**Thursday June 19 08:00** Room 9

**Chair:** Cheol Huh, KRISO, Korea

**Economic Evaluation of CO<sub>2</sub> Liquefaction Processes for Ship-based Carbon Capture and Storage (CCS) Chain**

Youngkyun Seo, Daejun Chang, Hwalong You, KAIST; Cheol Huh, Korea Research Inst of Ships & Ocean Engineering, Korea

**CO<sub>2</sub> Injection System with CO<sub>2</sub> Cold Energy Recovery**

Hwalong You, Daejun Chang, Youngkyun Seo, KAIST; Cheol Huh, Korea Research Inst of Ships & Ocean Engineering, Korea

**Offshore Carbon Storage and Ocean Monitoring in Korea**

Young-Gyu Park, Jae-Hun Park, Korea Inst of Ocean Science & Tech; Jung-Suk Lee, NeoEnBiz Co; Dongseon Kim, Jae Seong Lee, Korea Inst of Ocean Science & Tech, Korea

**Feasibility Study of Low Temperature CO<sub>2</sub> Transport and Injection for Geological Sequestration**

Cheol Huh, Kwan-Gu Kang, Mang-Il Cho, Jung-Yeul Jung, Seong-Gil Kang, Korea Research Inst of Ships and Ocean Engineering, Korea

**The Cost Estimation of CO<sub>2</sub> Pipeline Transport for the Offshore CCS in Korea by Using Engineering-Economic Model**

Kwangu Kang, Cheol Huh, Seong-Gil Kang, Korea Research Inst of Ships & Ocean Engineering, Korea

**Characteristics of Boil-Off Gas in CO<sub>2</sub> Carrier: A Pilot Study**

Gun Young Park, Minsu Ko, Junhee Han, Hobyung Yoon, Jaewoong Choi, Samsung Heavy Industries, Korea

**Offshore Geophysical Monitoring of Subsurface CO<sub>2</sub>**

Dong-Joo Min, Ju-Won Oh, Won-Ki Kim, Woodon Jeong, Shinwoong Kim, Youngjae Shin, Seoul National Univ, Korea

**121. ARCTIC SCI & TECH III:  
Arctic (NSR) Shipping 2(V. 1)**

**Thursday                  June 19                  08:00                  Room 10**

**Chair:** T. Kokkinis, ExxonMobil Upstream Research Co., USA  
**Co-Chair:** Elena K Glukhareva, Arctic Research Centre, RAS, Russia

**Simulation of Ice Management Operations**

Quentin Hissette, Peter Jochmann, HSV, Germany

**Design and Power Management of a Wind-Solar Powered Polar Rover**

Jiao Chen, Jianhong Liang, Tianmiao Wang, Taoyi Zhang, Yao Wu, Xuanxia Linghu, Beihang Univ, China

**Fundamental Study of Navigation Simulation on the Northern Sea Route during the Sea Ice Decrease Period**

Yoichi Shimada, Kobe Univ, Japan

**A New Hub-Port Concept of Tomakomai in Anticipation of the Era of Arctic Shipping**

Natsuhiko Otsuka, North Japan Port Consultants; Hiromitsu Kitagawa, Ocean Policy Research Foundation, Japan

**Organization and Evaluation of Effectiveness of Container Traffic on Northern Sea Route**

N A Taranukha, A D Burmenskiy, Komsomolsk-na-Amure State Technical Univ, Russia

**THURSDAY 10:30**

**122. RENEWABLE ENERGY XVI:  
Ocean Energy OWC 5 (V. 1)**

**Thursday June 19 10:30** Room 1

**Chair:** Keyyong Hong, KRISO, Korea

**Wave Energy Assessment and Wind Correlation for the North Region of Scotland, Identifying Resource and Investigating for Temporal Correlation**

George Lavidas, Vengatesen Venugopal, Daniel Friedrich, Univ of Edinburgh, UK

**Simulation of Wave Energy Converter "Backward Bent Duct Buoy" by Vortex Method**

Shigeki Okubo, Hitachi Zosen; Shuichi Nagata, Yasutaka Imai, Saga Univ; Hideyuki Niizato, Hitachi Zosen, Japan

**Numerical Simulations of (WEC) Wave Energy Conversion Device Used for Oceanic Data Buoys**

Yongseok Lee, Hyunseong Min, Mindo Choi, Jun Zhang, Texas A&M Univ, USA

**3D Frequency Domain Analysis on Primary Conversion Efficiency of Floating OWC-type Wave Energy Converter "Backward Bent Duct Buoy"**

Shuichi Nagata, Yasutaka Imai, Tengen Murakami, Toshiaki Setoguchi, Saga Univ, Japan

**Introduction of an Innovative Wave Energy Converter: SPA-OWC**

Seung Kwan Song, Jin Bae Park, Yonsei Univ, Korea

**123. HYDRODYNAMICS XIII:  
Fluid-Structure Interactions 6 - Ships (V. 3)**

**Thursday June 19 10:30** Room 2

**Chair:** Wataru Koterayama, Open University of Japan, Japan

**Numerical Prediction of Ship's Hydrodynamic Derivatives**

Jie Cheng, Rui Luo, Zhiguo Zhang, Huazhong Univ of Science & Tech, China

**Study on Oscillation Mode of Cavity Water Flow**

Huan Li, Cong-wei Liu, Fang-liang Wu, Can Chen, China Ship Development & Design Center, China

**Effects of Bottom Slope on the Flow Noise of Cavity**

Fang-liang Wu, Cong-wei Liu, Huan Li, Ya-ling Peng, China Ship Development & Design Center, China

**Numerical Study on the  $Re$  and  $Fr_h$  Effects on Hydrodynamics of a Ship Sailing in Restricted Waters**

Shao-jun Ma, Zao-jian Zou, Shanghai Jiao Tong Univ, China

**Numerical Simulations to Compute Rate of Water Ingress into Open Hold due to Green Waters**

Ram Kumar Joga, Jai Ram Saripilli, Sharad S Dhavalikar, Apurva Ranjan Kar, Indian Register of Shipping, India

**A Comparison of Seakeeping Predictions for Wave-Piercing Catamarans Using STF and URANSE Methods**

Qingwei Ma, City Univ London, UK; Zhiqun Guo, Zhuang Lin, Harbin Engineering Univ, China

**A Study on Second-Order Roll Motion of a Semi-Submersible Platform in Head Sea**

N W Kim, B W Nam, Y M Choi, S Y Hong, Korea Research Inst of Ships & Ocean Engineering, Korea

**Parametric Rolling Analysis in Oblique Wave**

Hong-xia Li, Dalian Univ of Tech; Jiang Lu, Min Gu, China Ship Scientific Research Center; Dong-sheng Peng, Dalian Univ of Tech, China

**Research on the Influence of T-foil on the Hydrodynamic Performance of Trimaran**

Rui Deng, Bode Huang, Liguang Zhou, Weihua Sun, Harbin Engineering Univ, China

**124. RENEWABLE ENERGY XIII:  
Ocean Energy OWC 2 (V. 1)**

**Thursday June 19 10:30 Room 3**

**Chair:** A.J.N.A. Sarmiento, IST, UTL, Lisbon, Portugal

**Techno-Economic Optimization of an Array of a Novel Wave Energy Device**

Ronan P Costello, Davide Padeletti, Jochem Weber, John V Ringwood, NUI Maynooth, Ireland

**Wave Power Extracting System with Multi-Resonators Attached to an Existing Vertical Breakwater**

JiHye Seo, Woo-Sun Park, School of Ocean Science & Tech, Korea

**Effectiveness of a New Double-Water-Chamber Type Sea Wall for Long Wave Dissipations and Wave Energy Extractions**

Firman Husain, Takayuki Nakamura, Shintaroh Kagimoto, Ehime Univ, Japan

**Generation Efficiency due to Wave Overtopping on Floating-Overflow Type Wave Energy Converter**

Dongsoo Hur, Woodong Lee, Gyeongsang National Univ; Wonchul Cho, Chung-Ang Univ, Korea

**125. OCEAN TECH IX:  
FPSO/FLNG/FSRU 1 (V. 1)**

**Thursday June 19 10:30 Room 4**

**Chair:** Bor-Feng Peng, McDermott Engineering, USA

**Study of Deepwater Octagon FDPSO Concept Design**

Shisheng Wang, CNOOC Research Institute, China

**Disconnectable Riser System for a Turret Moored FPSO in the South China Sea**

Jing Cao, CNOOC Research Inst, China

**Research and Design on Internal Turret Mooring System of FPSO in South China Sea**

Huaxiang Liu, Da Li, Xueping Bai, Jianping Wang, Baolei Zhang, CNOOC Research Inst, China

**Scenario Research and Design of FPSO in South China Sea**

Da Li, Cong Yi, Zhenghai Xu, Xueping Bai, CNOOC Research Inst, China

**A Challenging Removal Operation of Yoke Arms for a VLCC Class FPSO and SYMS in Bohai Bay**

Jingkuo Xu, Alan M. Wang, Min He, Licheng Qin, Litao Li, Shangcheng Yuan, Offshore Oil Engineering, China

**Maldistribution and Performance Analysis of Liquefaction Process Equipment Due to the Ship Motion for LNG FPSO Pre-FEED**  
Sol Ha, Namkug Ku, Yung-Il Roh, Kyu-Yeul Lee, Seoul National Univ, Korea

**Investigation of Wind-induced Heel and Roll Motion of a New Generation Weathervaning FPSO in a Harsh Environment**  
Chuks N Ojeh, Lloyd's Register, UK

**126. HPM VI:  
Fatigue & Fracture 2 (V. 4)**

**Thursday June 19 10:30 Room 5**

**Chair:** T. Hara, Nippon Steel and Sumitomo Metals Corp, Japan

**Design Impact of Fracture Mechanics Properties of High Toughness YP47 Welds**  
Olaf Doerk, DNV GL Advisory, Germany; Sang-Beom Shin, Hyundai Heavy Industries; Gyu Baek An, POSCO, Korea

**Numerical Simulations of Cracked Metallic Plates Repaired with Composite Patches**  
Emma Tomaso, Univ of Genova; Giovanni Risso, CETENA SpA; Marco Gaiotti, Cesare Mario Rizzo, Univ of Genova, Italy

**Numerical Simulation of Fracture Propagation Control in Modern Pipelines for CO<sub>2</sub> Transportation**  
Kyu Jung Yeom, Kyu Hwan Oh, Seoul National Univ; Ho Yeon Kim, Woo Sik Kim, Korea Gas, Korea

**Effect of Plastic Deformation on the Hydrogen Induced Cracking Susceptibility of a Linepipe Steel**  
Joon Ho Sung, Yun-Kyu Kim, Ki-Bong Kang, Dongkuk Steel; Kyung-Mox Cho, Pusan National Univ, Korea

**CO<sub>2</sub> Decompression Modeling for Ductile Fracture Propagation Control on Deepwater Pipelines**  
Andrea Meleddu, Marco Bertoli, Massimo Di Biagio, Centro Sviluppo Materiali, Italy

**Fatigue Assessment on Cast Integral of Semi-Submersible Rig**  
Seung Min Park, Dong Yun Yeun, Seock Hee Jun, Myung Ki Lee, Je Hyouk Woo, DSME, Korea

**127. COASTAL HYDRODYNAMICS VIII: Beach and Estuary 1 (V. 3)**

**Thursday June 19 10:30 Room 6**

**Chair:** Riccardi Angekubu Ritam, MIT, USA  
**Co-Chair:** Yusuke Uchiyama, Kobe Univ, Japan

**Impact of Climate Change on Shoreline Retreat in Tainan Coast**  
Wen-Juinn Chen, National Chiayi Univ; Ching-Ton Kuo, National Cheng Kung Univ, Taiwan, China

**Determination of Constituent Models for Process-Based Morphological Model of the Yangtze Estuary**  
Ao Chu, Delft Univ of Tech, Netherlands; Jiaai Tai, Hohai Univ, China

**Response of Hydrodynamic on Abrupt Changes of Bathymetry in the Pearl River Delta**

Jing Du, Wei Zhang, Shousheng Mu, Shujie Lyu, Fei Gong, Hohai Univ, China

**Comparison of Soil Surface Process on Tidal Flats with and Without Salt Marshes in the Jiangsu Coast**

Zheng Gong, Huan Li, Changkuan Zhang, Chuang Jin, Pei Xin, Hohai Univ, China

**Investigation of Sediment Characteristics by X-Ray Fluorescence Analysis and Its Applicability in Coastal Survey**

Shigeru Kato, Takumi Okabe, Hidenori Mitsuyama, Mitsuhiko Murata, Toyohashi Univ of Tech, Japan

**Method of Constructing High Resolution and Accuracy Digital Elevation Models over Large-scale Tidal Flats Using Satellite and in Situ Data as well as Hydrodynamic Modeling**

Yanyan Kang, Xianrong Ding, Changkuan Zhang, Juan Xia, Hohai Univ, China

**128. SUBSEA-PIPELINE-RISER IX:**

**Riser - TTR (V. 2)**

**Thursday June 19 10:30 Room 7**

**Chair:** Junbo Jia, Aker Solutions, Norway,

**Feasibility Study of Top-Tensioned Production Riser System in South China Sea**

Yun Shi, Jing Cao, Chunsheng Wang, Yue Tan, Guolong Chen, Xingdong Zhou, CNOOC Research Inst, China

**Investigation on the Stability of a Top-tensioned Riser in Irregular Waves**

Fei Xiao, Hezhen Yang, Shanghai Jiao Tong Univ, China

**Dynamical Analysis on Drilling Riser Evacuated in Hard Hang-off Mode**

Wenbo Wu, Jiasong Wang, Zhongxu Tian, Shixiao Fu, Shanghai Jiao Tong Univ; Zhengli Liu, Junfeng Luo, Rongyao Wang, CNOOC; Leijian Song, Juanjuan Qi, Shanghai Jiao Tong Univ, China

**Generalized-A Method Application to the Dynamic Simulation of Free Hanging Riser in Re-Entry Operation**

Gangqiang Li, Xuesong Xu, Lian Lian, Shanghai Jiao Tong Univ, China

**Flow Structures around Vertical Riser in Ocean Current**

Sungsu Lee, Joo Yong Lee, Chang Hee Won, Chungbuk National Univ, Korea; Albert S Kim, Univ of Hawaii, USA; Hyeon Ju Kim, Korea Research Inst of Ships & Ocean Engineering, Korea

**Key Challenges in the Design of the Papa Terra TLP Risers**

Mason Wu, DMAR; John Miranda, FloaTec; Mike Campbell, 2H Offshore; Jin Kaculi, Dril-Quip, USA

**129. GEOTECH VIII: Numerical Analysis (V. 2)**

**Thursday June 19 10:30 Room 8**

**Chair:** Yunsup Shin, Norwegian Geotechnical Institute, Norway

**Numerical Modelling of Dynamic Installation of a Torpedo Anchor in Calcareous Silt**

Y Kim, M S Hossain, D Wang, Univ of Western Australia, Australia

**Numerical Simulation of Dike Breach Process Using MPS Method**

Takayuki Shuku, Shin-ichi Nishimura, Toshifumi Shibata, Shizuka Hirayama, Okayama Univ, Japan

**A Numerical Method to Calculate the Cyclic Accumulative Deformation of Suction Anchor in Soft Clay**

Jianhua Wang, Shuzhao Li, Tianjin Univ; Yang Yang, Tianjin Xince Electronics & Instrument, China

**Three Dimensional FEA for Subsea Pile Drivability and Fatigue Analysis**

Chengye Fan, Yu-Hsuan S Huang, Jorge Alba, Woodgroup Kenny, USA

**Large Deformation FE Analysis of End-Bearing Piles Installing in Sands**

H Ma, M Zhou, Y Hu, M S Hossain, Univ of Western Australia, Australia

**Finite Element Analyses on Mechanical Behavior of Inner Rehabilitated Pipes Affected by Outer Aging Pipes**

Toshinori Kawabata, Kazuya Inoue, Yutaka Sawada, Akira Izumi, Yusuke Sonoda, Kohei Ono, Kohei Ono, Taiki Miki, Kobe Univ; Yoshiyuki Mohri, National Inst of Rural Engineering, Japan; Hoe I Ling, Liming Li, Columbia Univ, USA, Japan

**130. ENVIRONMENT II: Oil Spill and Containment (V. 1)**

**Thursday June 19 10:30 Room 9**

**Chair:** Tsung-chow Su, Florida Atlantic Univ, USA

**Co-Chair:** Moonjin Lee, Korea Research Institute of Ships & Ocean Eng. (KRISO), Korea

**Collision Risk Analysis for Preventing and Minimizing the Marine Environmental Pollution**

Seung-Gi Gug, Gen Fukuda, Hye-Ri Park, Korea Maritime and Ocean Univ, Korea

**Modeling the 2010 Deepwater Oil Spill in the Gulf of Mexico**

Konstantin A Korotenko, P P Shirshov Inst of Oceanology, Russia; David E Dietrich, San Diego State Univ, USA

**A Study of Detection and Prediction of Oil Spill in Ice Seasons of Bohai Bay**

Shasta Song, Wei An, Yupeng Zhao, China Offshore Environmental Services, China

**Numerical Simulation and Structural Analysis of Oceanic Oil Containment Booms**

Ruifeng Shi, Xun Meng, Ocean Univ of China, China

**Numerical Simulation of Accidental Oil Spill Diffusion in Xiamen Sea Area**

Ting Xu, Bing Yan, Liancheng Sun, Tianjin Research Inst for Water Transport Engineering, China

**Preliminary Numerical Study on Oil Spilling from a DHT**

Hao Yang, Jinshu Lu, Zhejiang Ocean Univ, China; S Yan, City Univ London, UK

**Effects of Initial Water Layer Thickness on Oil Leakage from Damaged DHTs**

Jinshu Lu, Fengchen Liu, Zheyue Zhu, Zhejiang Ocean Univ, China



**131. ARCTIC SCI & TECH IV:  
Arctic Ships and Structures 1 (V. 1)**

**Thursday June 19 10:30 Room 10**

**Chair:** Hiromitsu Kitagawa, Ocean Policy Research Foundation, Japan  
**Co-Chair:** Joonmo Choung, Inha Univ, Korea

**Structural Design for the Ice-Resistant Platform**

Jinlin Hou, Weidong Shao, CNOOC Research Inst, China

**On the Measurement of Submersion Ice Resistance of Ships, Using Artificial Ice**

Jurrit Bergsma, Coen Bouhuys, Tobias Schaap, Floor Spaargaren, Max van der Zalm, Delft Univ of Tech, Netherlands

**Parameter Relationships of Ice-Structure Interaction Process**

Vladimir G Tsuprik, Lev V Kim, Far Eastern Federal Univ, Russia

**Influence of Peculiarities of the Form of a Submarine Vessel on the Parameters of Generated Waves in the Ice Motion**

Vitaliy L Zemlyak, Sholom-Aleichem Priamursky State Univ; Victor M Kozin, Inst of Machine Science & Metallurgy, Russia

**Motorway Structures Reinforced with Geosynthetic Materials in Polar Regions of Russia**

Sergei Kudriavtcev, Iurii Berestianyi, Elena Goncharova, Tatyana Valtseva, Roman Mihailin, Far Eastern State Transport Univ, Russia

**THURSDAY 14:00**

**132. RENEWABLE ENERGY XVII:  
Tidal & Current Energy (V. 1)**

**Thursday June 19 14:00 Room 1**

**Chair:** Beom Soo Hyun, Korea Maritime & Ocean Univ., Korea  
**Co-Chair:** Daniel Markus, Technical University Munich, Germany

**Dynamic Analysis of a Single-point-mooring Floating Platform for Current Power**

Chai-Cheng Huang, Daw-Chi Lai, Ming-Feng Lee, National Sun Yat-sen Univ, Taiwan, China

**Field Test of Twin-Darreus Tidal Turbines in Kanmon Strait**

Koju Hiraki, Kyushu Inst of Tech; Keichi Yoshino, Kitakyushu National College of Technology, Japan

**Study on the Gear Ratio for a Tidal Current Power Generation System Using the MPPT Control Method**

Kentaro Tsuji, Kazuhisa Naoi, Mitsuhiro Shiono, Katsuyuki Suzuki, Nihon Univ, Japan

**Performance Investigation of a Counter-Rotating Tidal Current Turbine by Front and Rear Blade Angle by CFD and Model Experimentation**

Nak Joong Lee, In Chul Kim, Beom Soo Hyun, Young Ho Lee, Korea Maritime & Ocean Univ, Korea

**133. HYDRODYNAMICS XIV:  
Springing & Whipping (V. 3)**

**Thursday**                      **June 19**                      **13:30**                      Room 2

**Chair:** Sa-Young Hong, KRISO, Korea  
**Co-Chair:** Spyros Hirdaris, Lloyds Register, UK

**Comparisons of Experimental and Numerical Results for Global Hydro-Elastic Response of Container Ship within the WILS Project**  
E Tiphine, F Bigot, J de Lauzon, F X Sireta, S Malenica, Bureau Veritas, France

**Whipping Investigations Based on Large-Scale Long-Term Stress Measurements and Experimental Fatigue Testing**  
Hubertus von Selle, Adrian Kahl, Germanischer Lloyd SE; Wolfgang Fricke, Hans Paetzold, Hamburg Uni of Tech, Germany

**Torsion Moment Conversion Methods in Model Test with U-Shape Backbone**  
Byoung Wan Kim, Kyong Hwan Kim, Young Shik Kim, Sa Young Hong, Korea Research Inst of Ships & Ocean Engineering, Korea

**Numerical Prediction of Hull Girder Vibration Due to Ship Springing**  
Weoncheol Koo, Jun-Dong Kim, In-Kyu Park, Jungsoo Ryue, Univ of Ulsan, Korea

**Springing Loads and Fatigue Assessment on Large Container Ships**  
Yongwon Lee, Nigel White, Zhenhong Wang, Ying Xiao, Jimmy Tong, Lloyd's Register, UK

**Towards a Pragmatic Method for Prediction of Whipping: Wedge Impact Simulations using OpenFOAM**  
Neil Shouthall, Yongwon Lee, Mike Johnson, Lloyd's Register, UK; Spyros E Hirdaris, Lloyd's Register, Korea; Nigel White, Lloyd's Register, UK

**Experimental Study on the Bow-Flare Slamming of a 10000 TEU Containership**  
Sa Young Hong, Kyong-Hwan Kim, Byoung Wan Kim, Young-Shik Kim, Korea Research Inst of Ships & Ocean Engineering, Korea

**Wet Damping Estimation of the Scaled Segmented Hull Model Using the Random Decrement Technique**  
Yooil Kim, Inha Univ; Sung-Gun Park, Daewoo Shipbuilding & Marine Engineering, Korea

**134. RENEWABLE ENERGY XIV:  
Ocean Energy OWC 3 (V. 1)**

**Thursday**                      **June 19**                      **14:00**                      Room 3

**Chair:** F. Dias, University College Dublin, Ireland

**Ultimate Bending Strength Behavior of Tubular Connections of Floating Type Wave Energy Converter**  
Simon Ambuehl, Jens Peter Kofoed, John Dalsgaard Sørensen, Aalborg Univ, Denmark

**Structural Behavior of Tubular Connections of Floating Type Wave Energy Converter**  
Jung Min Soh, Ho Jeong Cheon, Seung Ho Shin, Key Yong Hong, Korea Resesarch Inst of Ships & Ocean Engineering, Korea

**Numerical Study of an Oscillating Wave Energy Converter with Nonlinear Snap-Through Power-Take-Off Systems in Regular Waves**  
Xiantao Zhang, Jianmin Yang, Longfei Xiao, Shanghai Jiao Tong Univ, China

**Validity of Orifices Used to Simulate the Turbine Effect in OWC Wave Energy Converters**

Jiyuan Jin, Keyyong Hong, Korea Research Inst of Ships & Ocean Engineering; Sang-Ho Kim, Korea Ocean Engineering & Consultants; Seung-Ho Shin, Young-Duk Kim, Korea Research Inst of Ships & Ocean Engineering, Korea

**135. OCEAN TECH XI:  
FPSO/FLNG/FSRU 2 (V. 1)**

**Thursday June 19 14:00** Room 4

**Chair** Weiliang Dong, China Oilfield Services Ltd, China  
**Co-Chair:** Won Cheol Koo, Univ of Ulsan, Korea

**Numerical Study on the Behavior of a Floating Structure with Internal Turret and Catenary Mooring**

Yun Ho Kim, Bo Woo Nam, Seok Kyu Cho, Sa Y Hong, Hong G Sung, Korea Research Inst of Ships & Ocean Engineering, Korea

**Dynamic Coupled Analysis of FSRU with Broken Mooring Line**

Byoung Wan Kim, Hong Gun Sung, Sa Young Hong, Seok Won Hong, Korea Research Inst of Ships & Ocean Engineering, Korea

**A New Approach to Ensuring Safety during Berthing Operation in side-by-side formation of FSRU and LNGC**

Young-Shik Kim, Hong-Gun Sung, Jinwhan Kim, Jin-Ha Kim, Korea Research Inst of Ships & Ocean Engineering, Korea

**Nonlinear Structural Response Analysis for Aluminum Helideck**

Jeongbon Koo, Jooshin Park, Yeongsu Ha, Kibok Jang, Yongsuk Suh, Samsung Heavy Industries, Korea

**Development of Structural Modeling and Estimation Method for Design of Very Large Floating Stockyard for Mineral Resources**

Yukitaka Yasuzawa, Keita Yuasa, Kyushu Univ, Japan

**Roll Damping and Global Motion Computation for FPSO**

Xinshu Zhang, GVA, USA

**136. HPM VII:  
Adv Concretes and Composites 1 (V. 4)**

**Thursday June 19 14:00** Room 5

**Chair:** H.G. Wheat, Univ. of Texas at Austin, USA

**Study of the Stressedly-Deformed Status of the Flexural Concrete Units Reinforced by the Basaltic-and-Plastic Accessories**

Alexander T Bekker, Andrey M Umansky, Alexey V Zavgorodnev, Egor S Ivanov, Far Eastern Federal Univ, Russia

**Estimation Method of Compressive Fracture Zone Length of Ductile-Fiber-Reinforced Cementitious Composite**

Ryuichi Takahashi, Ken Watanabe, Yuichiro Matsuki, Mamoru Fujii, Tokai Univ; Mauricio Jun Arai, System Measure, Japan

**Mathematical Model of the Failure Process for Concrete as Multicomponent Structure**

Vladimir G Tsuprik, Far Eastern Federal Univ, Russia

**The Failure Simulation and 3D Reconstruction for Concrete under Acid-Corrosion-Based on Computerized Tomography**

Haiyang Luan, Yingfang Fan, Dalian Maritime Univ, China

**137. COASTAL HYDRODYNAMICS IX: Beach and Estuary 2 (V. 3)**  
**Thursday June 19 14:00 Room 6**

**Chair:** Dong-Sheng Jeng, Griffith University, Australia  
**Co-Chair:** Jing-Jong Jang, National Taiwan Ocean Univ; Taiwan, China

**Hydrodynamic Response to a Groin System at Longfengtou Beach, China**

Bin-yu Wang, Cui-ping Kuang, Yu-chi Shan, Tongji Univ; Ji-xiang Zheng, State Oceanic Administration, China

**Bathymetric Changes Related to Wave and Flood in the Tenryu River Delta-Front, Japan**

Takumi Okabe, Shigeru Kato, Kakeru Takaoka, Toyohashi Univ of Tech, Japan

**A Coupled Model Based on Hydrodynamics Simulation of the Pearl River Networks and its Estuary**

Shujie Lyu, Wei Zhang, Jing Du, Fei Gong, Hohai Univ, China

**Effects of Beach Nourishment on Sediments Transport at Laohushi Beach in Qinhuangdao, China**

Xiaodan Mao, Cuiping Kuang, Tongji Univ; Jiabo Zhang, Ruofeng Qiu, Hebei Geological Prospecting Bureau, China

**Ship's Propeller Jet-Induced Seabed Scour in Malaysian Ports**

Wei-Haur Lam, Cindy Kong Seet Soon, Univ of Malaya, Malaysia

**Coastline Evolution and Stability Analysis of Huangcheng Headland-Bay Sandy Coasts in Xiangshan County**

Xiaoling Tong, Lianqiang Shi, Xiaoming Xia, Second Inst of Oceanography, China

**138. SUBSEA-PIPELINE-RISER X:  
Fatigue Assessment 1 (V. 2)**

**Thursday June 19 14:00 Room 7**

**Chair:** Mason Wu, DMAR Engineering, USA  
**Co-Chair:** Jiasong Wang, Shanghai Jiao Tong Univ, China

**Fatigue Life Prediction for Flexible Joint of Deepwater Riser in Liwan Gasfield of the South China Sea**

Xin Jin, Jingan Zhang, Frank Lim, Chenggang Li, Yongzhen Xu, Zhuo Wei, China Oilfield Service Limited, China

**Free Span Fatigue Assessments: Room for Improvement?**

Graeme Roberts, Thurairajah Sriskandarajah, Parapathy Ragupathy, Carlos Charnaux, Pradeep Hegde, Liaqat Ali, Subsea 7, UK

**Assessment of Fatigue Damage from Variable Amplitude Loads in Risers**

Fengjie Yin, Mark Cerkovnik, 2H Offshore, USA

**Internal Friction Effects on Fatigue Life of Steel Tube Umbilical**

Howard Wang, ExxonMobil Development; Knut Ivar Ekeberg, Ultra Deep, USA

**Investigation of Anti-wear Tapes' Influence on Fatigue of One Flexible Riser**

Naiquan Ye, MARINTEK; Chongyao Zhou, NTNU, Norway

**139. GEOTECH IX: Testing and Instrumentation (V. 2)**  
**Thursday June 19 14:00** Room 8

**Chair:** C F Leung, National Univ of Singapore, Singapore

**Geological and Geotechnical Characteristics for Deepwater Sediments in Offshore Japan**

Xiaoyan Long, Komin Tjok, Aurelian Trandfir, Fugro GeoConsulting, USA;  
Ryosuke Sato, Koji Yamamoto, Japan Oil, Gas & Metals National Corp, Japan

**Estimation of Fine Fraction Content in Soil by Electrical Resistivity**

Yuanhao Gao, Mamoru Fujii, Tokai Univ, Japan

**Fiber Optic Sensing Technologies for Monitoring the Performance of Geotechnical Structures [Oral presentation]**

Jianhua Yin, Hong Kong Polytechnic Univ, China

**Small-Scale Testing of Cyclic Laterally Loaded Monopiles in Dense Saturated Sand**

Giulio Nicolai, Lars Bo Ibsen, Aalborg Univ, Denmark

**Assessment of Shear Behavior in Cohesive Soils by Plane Strain Test with Digital Image Analysis**

Tae-Young Kwak, Joon-Young Kim, Seoul National Univ; Yoon-Sik Choo, Samsung C&T; Choong-Ki Chung, Seoul National Univ, Korea

**3D Geostatistical Integration with Borehole Data and Geophysical Survey Data Considering Site-Specific Geotechnical Variability**

Min-Gi Kim, Han-saem Kim, Choong-ki Chung, Seoul National Univ, Korea

**Geomechanics Magnetic Model Test and its Application on the Stability Research of Submarine Formation**

Xianqi Luo, Jinfeng Bi, Hui Shen, Shanghai Jiaotong Univ, China

**Estimation of Volume Water Content Using an Electrical Resistivity Survey for Monitoring of Shallow Landslides**

Takayuki Onishi, Keigo Koizumi, Kazuhiro Oda, Shinichi Ito, Osaka Univ; Sadayuki Kamide, West Nippon Expressway Engineering Kansai, Japan

**Robust Complex Geophysical Subsurface Survey with Controlled Complex Wireless System of Missing Measurement**

Danny Chan, Jong Hae Kim, Sun Moon Univ, Korea

**A Case Study of Deep Excavation in the Weak Ground near Shore Area**

Yeon-Soo Jang, Dongguk Univ; Seungmock Shin, Sae Gil E&C; Yong-Bae Han, Saman Corp, Korea

**140. ENVIRONMENT III: Ocean Environment (V. 1)**  
**Thursday June 19 14:00** Room 9

**Chair:** Shasta Song, China Offshore Environmental Services, China

**Co-Chair:** Rho-Taek Jung, Univ of Ulsan, Korea

**Displacement of Solution and Hydrates Formation in Cooled Glass Beads**

Mingjun Yang, Yongchen Song, Lanlan Jiang, Shanrong, Wang, Yuechao, Zhao, Dalian Univ of Tech, China

**A New Eco-Friendly Concrete Block and Verification of Its Effectiveness from Field Observations**

Norikazu Hirose, Sanae Shibata, Ichiro Nishiwaki, Satoshi Noboru, Eisuke Nakamura, Jun Mitsui, Fudo Tetra Corp, Japan

**Which Parameter Affects the Exchange of N<sub>2</sub>O between the Air and the Sea?**

Mitsuru Hayashi, Kobe Univ; Mitsuki Ohya, Sankyu Inc; Kentaro Sakamoto, Public Library of Kobe City; Eiji Yamashita, Okayama Univ of Science, Japan

**Applying Comprehensive Evaluation Method and Satellite Ocean Color Chlorophyll Analysis to Assess Coastal Eutrophication in Taiwan**

Ta-Kang Liu, National Cheng Kung Univ, Taiwan, China

**Design of a Lagrange Drifter for Monitoring Ocean Surface Current and Wave Environment**

Ruben Abreu, Burt Adams, Tsung-chow Su, Florida Atlantic Univ, USA

**141. ARCTIC SCI & TECH V:  
Arctic Ships and Structures 2 (V. 1)**

**Thursday June 19 14:00** Room 10

**Chair:** Mike D Prins, ExxonMobil Development Co., USA

**Co-Chair:** Kees A. Willemsse, SBM Offshore, Netherlands

**Initial Concept Design for Icebreaking Container Vessel in Ice-covered Water Region**

Shao Peng Ji, Li-Zi Lin, Wang-Ying Hui, Tian-Yu Kui, China Ship Scientific Research Center, China

**Operational Monitoring of Vessel's Vibration Parameters when Operating in Ice**

Nikolai Spiridonov, Roman Repin, Krylov State Research Centre, Russia

**Study on Influence of Ship Speed on Local Ice Loads on Bow of the IBRV ARAON**

Ha-Na Kim, Tae-Wook Kim, Gyeongsang National Univ; Kyungsik Choi, Korea Maritime & Ocean Univ; Tak-Kee Lee, Gyeongsang National Univ, Korea

**THURSDAY 16:20**

**142. RENEWABLE ENERGY XVIII:  
Ocean and Offshore Wind Panel**

**Thursday June 19 16:20** Room 1

**Chair:** Fabian Vorpahl, Fraunhofer-IWES, Germany

**Co-Chair:** SW Hong, KRISO, Korea

Panelists to be announced.

**143. HYDRODYNAMICS XV:  
Comparative Studies (V. 3)**

**Thursday June 19 16:20** Room 2

**Chair:** K. Murali, IIT Madras, India

**Co-Chair:** Ma, Qingwei, City University, UK

**Review of Numerical Models [Oral presentation]**

Qingwei Ma, The City Univ London, UK

**Computation of Steady Viscous Flows around Ship with Free Surface by Overset Grids Techniques in OpenFOAM**

Zhirong Shen, Decheng Wan, Shanghai Jiao Tong Univ, China

**Experimental and Numerical Investigation on Wave Interaction with Fixed and Moving Cylinder**

V Sriram, IIT Madras, India; S Yan, City Univ London, UK; T Schlurmann, Leibniz Univ of Hannover, Germany; Q W Ma, City Univ London, UK

**Analysis of multi-body hydrodynamic interactions using a Higher-Order Boundary Element Method [Oral presentation]**

Sa Young Hong, KRISO, Korea

**Numerical Simulation of Hydrodynamic Forces by Time-Domain Hybrid Method**

Wei Sun, Xiaowang Tong, Huilong Ren, Harbin Engineering Univ, China

**Seakeeping Analysis for Ships and Offshore Structures by Using Panel Free Methods [Oral presentation]**

Heather Peng, Memorial Univ of Newfoundland, Canada

**A Study on Wave Overtopping and Sea Wall Stability using SPH Schemes**

S De Chowdhury, S A Sannasiraj, IIT Madras, India

**144. RENEWABLE ENERGY XV:  
Ocean Energy OWC 4 (V. 1)**

**Thursday June 19 16:20 Room 3**

**Chair:** Cheol Huh, KRISO, Korea

**Wave Energy Absorption in Irregular Waves by a Floating Body Equipped with Interior Rotating Electric-Power Generator**

Masashi Kashiwagi, Riku Takamoto, Katsuhiro Sakai, Osaka Univ, Japan

**Experimental Study on Electrode Potential Drop in Liquid Metal MHD Generator Driven by Wave Energy**

Ran Li, Inst of Electrical Engineering CAS, China

**An Experimental Study of Wave Power Generation Using Flexible Piezoelectric Device**

Yoshikazu Tanaka, Takuya Oko, Hidemi Mutsuda, Hiroshima Univ, Japan; Rupesh Patel, Stewart McWilliam, Atanas Popov, Univ of Nottingham, UK

**Performance Study of Magneto-hydrodynamic Generator for Wave Energy**

Baolin Liu, Jian Li, Yan Peng, Lingzhi Zhao, Ran Li, Qi Xia, Ciwen Sha, Inst of Electrical Engineering CAS, China

**Study on Unsteady Characteristics of Impulse Turbine of OWC Wave Energy Converter under Sinusoidal Flow**

Jiyuan Jin, Korea Research Inst of Ships & Ocean Engineering; Geonggi Lee, Beom-soo Hyun, Korea Maritime & Ocean Univ; Keyyong Hong, Korea Research Inst of Ships & Ocean Engineering, Korea; Zhen Liu, Ocean Univ of China, China

**145. OCEAN TECH XII: -  
Semisubmersibles/SPAR/TLP (V. 1)**

**Thursday June 19 16:20 Room 4**

**Chair:** Sa Young Hong, KRISO, Korea

**Model Test and Simulation of a New Dry-Tree Semi-Submersible Concept**

Xiaoliang Qi, Guosen Lv, Yong Luo, Weiyan Zhu, Yigong Zhang, COTEC Offshore Engineering Solutions, China

**Coupled Analysis of a Semi-Submersible Platform with Two Types of Hybrid Mooring Systems**

Dongsheng Qiao, Jinping Ou, Fei Wu, Dalian Univ of Tech, China

**Global Structural Analysis for Semi-submersible Drill Rig**

Chang-hyun Lee, Chang-hwan Jang, Seock-hee Jun, Yeong-tae Oh, Daewoo Shipbuilding & Marine Engineering, Korea

**A Weight Comparison Study on Deck Box and Truss Deck Semisubmersible Production Units**

Bing Deng, GVA North America, USA

**Analysis on Effects of Varying Parameters and Hull Shapes on Parametric Resonance of SPAR**

Peiji Xu, Hezhen Yang, Shanghai Jiao Tong Univ, China

**Study on the Nonlinear Dynamic Characteristics of a Truss Spar [Proceedings only]**

Wenjun Shen, Tianjin Research Inst for Water Transport Engineering; Yougang Tang, Jianjin Univ, China

**Effect of Tendons' Material on the Dynamic Behaviour of a TLP Analyzed in Frequency and Time Domain**

Lazaros Theodoridis, Eva Loukogeorgaki, Demos C Angelides, Aristotle Univ of Thessaloniki, Greece

**Coupled Dynamic Responses of a Tension Leg Platform with Different Mooring Systems**

Gongwei Yan, Jinping Ou, Dalian Univ of Tech, China

**Study on the Transient Dynamic Characteristics of TLP under Impact Load**

Jia-yang Gu, Wei-min Liu, Jiangsu Univ of Science & Tech, China

**146. HPM VIII:**

**Adv Concretes and Composites 2 (V. 4)**

**Thursday June 19 16:20 Room 5**

**Chair:** HyunWoo Jin, ExxonMobil Research & Eng, USA

**Numerical Study on Cyclic Crystalline Slip Deformation of Polycrystalline Metallic Material by Homogenization Method**

Noritaka Saito, Naoki Osawa, Osaka Univ, Japan

**A Test System to Simulate the Influence of Early Age Cycling on the Properties of Grout Material**

Ludger Lohaus, Dario Cotardo, Michael Werner, Leibniz Univ Hannover, Germany

**Influence of Nanosilica from Hydrothermal Solution on Mechanical Properties of Concrete**

Natalya V Makarova, Far Eastern Federal Univ; Vadim V Potapov, Scientific Research Geotechnological Center FEB-RAS; Evgeni A Chusovitin, Inst of Automation & Control Processes, FEB RAS; Andrey V Kozin, Aleksey S Lipovoy, Far Eastern Federal Univ; Andrey B Amosov, Inst of Automation & Control Processes, FEB RAS, Russia

**Free Vibration Analysis of Submerged Composite Sandwich Cylindrical Shell with Flexible FGM Core**

Yuansheng Cheng, Ming Liu, Jun Liu, Huazhong Univ of Science & Tech, China



**147. COASTAL HYDRODYNAMICS X: Beach and Estuary 3 (V. 3)**  
**Thursday June 19 16:20 Room 6**

**Chair:** Y. Yamamoto, Tokai University, Japan  
**Co-Chair:** Joong-Woo Lee, Korea Maritime University, Korea

**Coastal Dispersal of Urban Treated Wastewater in Semi-Enclosed Estuaries**

Yusuke Uchiyama, Ryosuke Kanki, Akihiko Nakayama, Kobe Univ, Japan

**Numerical Simulation of Heavy Metal (Copper) in the Oujiang Estuary**

Shasha Lu, Second Inst of Oceanography; Jun Zheng, National Marine Environment Monitoring Center; Ruijie Li, Hohai Univ; Xiaoming, Xia, Second Inst of Oceanography, China

**Numerical Analysis of Contaminant Release from Suspended Sediment in the Benthic Boundary Layer under Combined Action of Waves and Currents**

Bo Xia, Xiaoyun Huang, Lu Xia, Changsha Univ of Science & Tech, China

**A Generic Model for the Turbulent Jet in Various Coastal Environments**

Zhenshan Xu, Yongping Chen, Fei Hu, Changkuan Zhang, Hohai Univ, China

**Tide-induced Geomorphological Change of Sea Area Near Northern Breakwater of Taichung Port**

Chih-Chung Wen, HungKuang Univ; Li-Hung Tsai, Inst of Transportation; Yong-Jun Lin, National Taiwan Univ; Tsung-Lin Lee, Nan Jeon Tech Univ, Taiwan, China

**Wave Induced Stress Variation in Seabed with Fine-Grained Soil**

Yuchen Wang, Erwin Oh, Griffith Univ, Australia

**148. SUBSEA-PIPELINE-RISER XI**  
**Flow Assurance (V. 2)**

**Thursday June 19 16:20 Room 7**

**Chair:** Mason Wu, DMAR Engineering, USA

**Design of DEH Systems for Hydrate Management**

Jens K Lervik, SINTEF Power Technology; Arne Nysveen, NTNU, Norway

**Novel Thermal Insulation Systems for Deepwater and Arctic Pipelines Based on Styrenic Alloys**

Shiwei Guan, Bredero Shaw, Singapore; Adam Jackson, Bredero Shaw Norway, Norway; Tony Bacon, Bredero Shaw, Singapore

**Hydrocarbon Hydrate-Containing Suspension for Associated Petroleum Gas Pipeline Transport**

V D Lapshin, A N Gulkov, A N Minaev, A A Morozov, A M Bobylo, Far Eastern Federal Univ, Russia

**Reliability Evaluation for Subsea X-mas Tree Control System Based on Bayesian Networks**

Songsong Lyu, Menglan Duan, Wei Liang, Jinzhi Chen, Zhe Xie, China Univ of Petroleum-Beijing, China

**Formation Mechanism of Seafloor Instability in the Modern Yellow River Delta**

Wei Gao, First Inst of Oceanography SOA; Guangxue Li, Lihua Cao, Ocean Univ of China, China

**Slurry-based Fluid Rate Optimization for Large ID Manifolds using CFD**

Atul B Bokane, Yogesh K Deshpande, Halliburton Technology India, India; Brad Bull, Halliburton Energy Services, USA; Siddharth Jain, Halliburton Technology India, India

**Structural Integrity Assessment and Associated Key Design Considerations of Subsea "Wye" Connection Structures**

Zhenguo Tu, Samson Katuramu, IKM Ocean Design, Norway

**Stability Design for Concrete Mattresses**

Jol Godbold, Nikki Sackmann, Atteris Pty Ltd; Liang Cheng, Univ of Western Australia, Australia

**149. GEOTECH X: Construction and Materials (V. 2)**

**Thursday June 19 16:20** Room 8

**Chair:** Soo-Sam Kim, Sungkyunkwan University, Suwon, Korea

**Identifying Problematic Soil Layers in Surfers Paradise, Australia**

Haider Al-Ani, Erwin Oh, Gary Chai, Griffith Univ, Australia

**'HiLo Pile Driving': Reductions in Pile Fatigue and Noise Emission**

Justin Stam, IHC Hydrohammer, Netherlands

**An Eco-Friendly Design Method for Geotechnical Structures Based on CVM**

Yasuhisa Shimokado, Takayuki Shuku, Shin-ichi Nishimura, Toshifumi Shibata, Okayama Univ, Japan

**Trial Construction of Ground Reclamation Using Dredged Soil Mixed with Coal Combustion Products**

Hyun Young Shin, Kyoung O Kim, Young Jin Kim, Daewoo E&C; Byung Yoon Kang, Korea Rural Community Corp; Young Kweon Cho, Expert Group for Earth & Environment, Korea

**Geotechnical Feature and Safe Human Activities at the Kakamigahara Plateau**

Katsuhiro Nishimura, Museum of History and Folklore; Masao Okuda, Okuda Construction; Yukihiko Kani, Eiton Co; Yoji Nakane, Showa Concrete Industries; Kiyoshi Hayakawa, Ritsumeikan Univ, Japan

**Deformation of Retaining Walls Caused by Construction of Soil-Cement Column**

Masahiro Ogawa, Hokoku Engineering; Mamoru Fujii, Tokai Univ; Chol-Ho Kim, Hokoku Engineering, Japan

**150. ENVIRONMENT IV: Oil Development and Ecology (V. 1)**

**Thursday June 19 16:20** Room 9

**Chair:** Vladimir I Pavlenko, Arkhangelsk Scientific Centre, Russia

**Co-Chair:** Jinshu Lu, Zhejiang Ocean Univ, China

**Structure of Control System of SOTAB-I for Autonomous Spilled Oil Tracking and its Collision Avoidance Maneuver**

Mahdi Choyekh, Kimura Ryota, Masahiro Ukita, Yasuaki Yamaguchi, Hidetaka Senga, Naomi Kato, Osaka Univ; Muneeo Yoshie, Toshinari Tanaka, Port and Airport Research Inst; Norimitsu Sakagami, Tokai Univ, Japan

**Modelling and Control Design of Spill Oil Tracking Autonomous Buoy**

Swarn Singh Rathour, Tatsuya Akamatsu, Naomi Kato, Hidetaka Senga, Naoto Tanabe, Osaka Univ; Muneeo Yoshie, Toshinari Tanaka, Port and Airport Research Inst, Japan

**Investigation on Effect of Fuel Injection Variation Strategies on Emission Performance of Large Marine Diesel Engine [Proceedings only]**

Haiqiang Liu, Lin Lu, Zhongjun Wang, Wuhan Univ of Tech, China

**Proposal of a Water Quality Measurement Method by Spectrophotometer**

Kohji Uno, Kobe City College of Tech; Tozawa Natsuha, Nishinomiya City Office; Gozo Tsujimoto, Kakinoki Tetsuya, Kobe City College of Tech, Japan

**Behaviour and Fate of Trace Metal Elements in Deep Sea Water: A Review**

Noor Fazreen Dzulkafli, Azran Azhim Nor Azmi, Md Nor Musa, Norazizi Othman, Abu Bakar Jaafar, Marziah Zahar, Universiti Teknologi Malaysia, Malaysia

**The Role of Oil and Gas Companies in Ensuring the Ecological Security in Arctic**

Elena K Glukhareva, Arctic Research Centre; Vladimir I Pavlenko, Svetlana Yu Kutsenko, Arkhangelsk Scientific Centre, Russia

**Recuperation Vapors of Crude for Reducing Polluting Emissions**

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

**151. ARCTIC SCI & TECH VI:  
Arctic Ships and Structures 3 (V. 1)**

**Thursday**

**June 19**

**16:20**

Room 10

**Chair:** Alexandr T. Bekker, Far Eastern Federal Univ., Russia

**Co-Chair:** Alexandra V Pogorelova, Inst of Machining & Metallurgy FEB RAS; Russia

**Analysis and Comparison of Ice-Induced Vibrations of Three Minimal Platforms in Liaodong Bay**

Zhigang Lan, CNOOC Energy Tech & Services; Xinzhong Li, Jianmin Li, Jian Xing, CNOOC, China

**Numerical Calculation of Floating Objects Behaviour under Level Ice Influence**

Alexander Bolshev, Karl Shkhinek, Sergey Frolov, St Petersburg State Polytechnical Univ, Russia

**Comparison and Cause Analysis of Ice-Induced Structural Vibration when Sea Ice Acting on Upwards and Downwards Cone**

Ning Xu, National Marine Environmental Monitoring Center; Qianjin Yue, Dalian Univ of Tech, China; Yan Qu, Ausenco, Canada

**Different Technologies for Making a Wider Channel in Ice for Large-Size Ships**

Aleksey A Dobrodeev, Kirill E Sazonov, Krylov State Research Center, Russia

**Global Path Planning Method of Maritime Unmanned Vehicle Based on Real-time Environment Information**

Man Zhu, Yuan-qiao Wen, Chang-shi Xiao, Chun-hui Zhou, Bo Wu, Wuhan Univ of Tech, China

**FRIDAY 09:00**

**Friday**                    **152. LNG SLOSHING WORKSHOP**  
**June 20**                    **09:00**                    Room 252  
**Chair:** Frederic Dias, University College Dublin, Ireland

Details to be announced at Sloshing sessions.