

## TECHNICAL PROGRAM

### **The Nineteenth (2009) International Offshore and Polar Engineering Conference** Osaka, Japan, June 21–26, 2009

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**SUNDAY, June 21**

**Conference Reception**

**Sponsored by Tsuneishi Holdings Corporation**  
17:00 Sakura Room, Rihga Royal Hotel, 2F

**MONDAY 09:00**

#### **1. Opening General Session:**

##### **OFFSHORE AND ARCTIC REVIEW – 2009 (V. 1)**

**Monday June 22 09:00 Rm 1003, 10F**

**Chair:** Naito, S, Osaka Univ, Japan

**Co-Chair:** Jiang, X, China National Offshore Oil Corp., CNOOC, China

##### **Conference Opening Address**

Knapp, R H, President, ISOPE

##### **Sustainable Development and Marine Transport in the Arctic Ocean -- A Perspective and Cold Regions Technology**

Kitagawa, H, Ocean Policy Research Foundation, Japan

##### **Goes Deep, China Oil and Gas Industry**

Chen, W, Sr. Vice President, China National Offshore Oil Corp.,  
China

##### **Enabling Materials Technologies for Deepwater and Arctic Developments**

Wright, E J, ExxonMobil Development, USA

##### **Deepwater: Past, Present and Future**

Kapusta, S, Chief Scientist, Shell Global Solutions International  
BV, The Netherlands

## MONDAY 13:30

### 2. SLOSHING DYNAMICS: Reviews (V. 3)

Monday June 22 13:30 Room 1009

#### Plenary Presentation I (V. 3)

##### LNG Tank Sloshing Assessment Methodology - The New Generation

Kuo, J F, Hoie, S M, Issa, J A, Rinehart, A J, Sandström, R E, Yung, T W, ExxonMobil Upstream Research; Bray, W H, Greer, M N, Lokken, R T, Tredennick, O W, Zettlemoyer, N, ExxonMobil Development; Danaczko, M A, ExxonMobil Production, USA  
Introduction by Chung, Jin S, ISOPE, USA

#### Keynote Presentation I (V. 3)

##### Sloshing in Membrane LNG Carriers and Its Consequences from a Designer's Perspective

Gavory, T, de Sèze, P-E, GazTransport & Technigaz, France  
Introduction by Dias, F, Ecole Normale Supérieure de Cachan, France

### 3. HYDRODYNAMICS I: CFD 1 – Particle Method (V. 3)

Monday June 22 13:30 Room 1008

Chair: Kashiwagi, M, Osaka Univ, Japan

#### Wave Impact Calculations by Improved ISPH Methods

Khayyer, A, Gotoh, H, Kyoto Univ, Japan

#### Simulation of the Wave Run-up and Overtopping Using Particle Level Set Method and Immersed Boundary Method

Huang, C J, Lin, C Y, National Cheng Kung Univ, Taiwan, China

#### Numerical Parameters Influencing Two Dimensional Water Entry Simulations

Lee, H H, Hyundai Heavy Industries; Rhee, S H, Seoul National Univ, Korea

#### Two Phases Flows Unstructured Grid Solver: Application to Tsunami Wave Impact

Fraunie, P, Samba, A, Golay, F, Université du Sud Toulon-Var; Marcer, R, Principia; Sous, D, Université du Sud Toulon-Var; De Jouette, C, Principia; Rey, V, Université du Sud Toulon-Var, France

#### A Fast-Marching Semi-Lagrangian Level Set Method for Free Surface Flows

Gu, H B, Causon, D M, Mingham, C G, Qian, L, Manchester Metropolitan Univ, UK

#### Simulation of Armor Blocks in Front of Caisson Breakwater by DEM-MPS Hybrid Model

Gotoh, H, Kyoto Univ; Ikari, H, NEWJEC Inc., Yasuoka, T, Kansai Electric Power Company, Japan

#### Lagrangian Particle Method for Tracking of Buoy Moored by Chain

Ikari, H, NEWJEC Inc.; Gotoh, H, Kyoto Univ, Japan

#### Computational Method for Fluid-Forces Acting on Rigid and Elastic Objects

Nozomu, K, Satoru, U, Kyoto Univ, Japan

#### Jack-up Leg Hydrodynamic Load Study by CFD Simulations

Zhang, B, Kang, C W, Lou, J, Inst of High Performance Computing, Singapore; Lee, S K, American Bureau of Shipping, USA; Yan, D, ABS Pacific, Singapore

#### 4. ADVANCE IN ENERGY TECH I; General (V. 1)

Monday June 22 13:30 Room 1001

**Chair:** Ayer, R, ExxonMobil Research & Engineering Co., USA  
**Co-Chair:** Marshall, P W, MHP Systems Engineering, USA

##### **Technical Challenges for Heavy Oil Recovery in Deepwater and Arctic Environment**

Kim, D S; Shell Global Solutions, Malaysia; Patni, S, SIEP, USA

##### **Unique Perspectives on Tuning of EOS Models for Phase Behavior Prediction of Natural Gas and LPG Bearing Petroleum Reservoir Fluids**

Dandekar, A Y, Patil, S L, Univ of Alaska Fairbanks, USA

##### **Oil Sands Forming Model and Character in the Northwest Edge of the Jungar Basin, China**

Zhao, Q, He, L R, PetroChina, China

##### **Implications of Load versus Energy Methods on Requalification of Existing Platforms Susceptible to Seismic Loading**

Coombs, S, Carone Petroleum Corp; Capanoglu, C, I.D.E.A.S., USA

##### **Platform Life Extension by Inspection**

Marshall, P W, MHP Systems Engineering; Capanoglu, C, I.D.E.A.S., USA

##### **Load Patterns for Seismic Pushover**

Capanoglu, C, I.D.E.A.S.; Marshall, P W, MHP Systems Engineering, USA

##### **Pressure-Sinkage Model Based on Seabed Soft Sediments**

Wu, H, Chen, X, Gao, Y, Changsha Inst of Mining Research; He, J, Liu, S, Ding, L, Central South Univ, China

##### **Comparison of ISO and API Seismic Design Requirements for Offshore Structures**

Peng, B-F, J Ray McDermott Engineering; Ghoneim, G M, Det Norske Veritas (USA), USA

#### 5. SBD I: Material Modeling & Specifications (V. 4)

Monday June 22 13:30 Room 1002

**Chair:** Lillig, D B, ExxonMobil Development Co., USA

**Co-Chair:** Besson, J, MINES ParisTech, France

##### **Micromechanical Analysis on Deformation Behavior of Dual-phase Steels for Strain-based Design**

Ishikawa, N, Sueyoshi, H, Shikanai, N, JFE Steel, Japan

##### **Tensile Properties and Microstructure of Girth Welds for High Strength Linepipe**

Hamada, M, Hirata, H, Shitamoto, H, Sumitomo Metal Industries, Japan

##### **Anisotropic Strain Aging Behavior of High Strength UOE Linepipe**

Nagai, K, Sakamoto, S, Tsuru, E, Asahi, H, Hara, T, Nippon Steel, Japan

##### **Effects of Strain-Aging on the Mechanical Properties of High Grade Pipeline Steels**

Chen, H Y, Ji, L K, China National Petroleum, China

##### **Material Specifications for Strain-Based Design of Pipelines**

Wang, Y Y, Liu, M, CRES, USA; Gianetto, J, CANMET, Canada

##### **Weld and HAZ Microstructure and Property Analysis for Strain-Based Design**

Chen, Y S, Wang, Y Y, CRES, USA

#### 6. HPM I: Instrumented Indentation (V. 4)

Monday June 22 13:30 Room 1004

**Chair:** Kwon, D I, Seoul National Univ, Korea

**Application of the Instrumented Indentation Technique to Estimate Mechanical Properties**

Kim, Y C, Kim, K H, Kwon, D I, Seoul National Univ, Korea

**Assessment of Mechanical Properties in Thin Film Deposits by Instrumented Indentation**

Jin, H W, Bangaru, N R, Ayer, R, Ozekcin, A, ExxonMobil Research & Engineering Co., USA; Kwon, D I, Choi, M J, Seoul National Univ, Korea

**Evaluation of Residual Stress Directionality by Knoop Indentation Technique**

Choi, M J, Kang, S K, Kang, I G, Kwon, D I, Seoul National Univ, Korea

**Analysis of Plastic Characteristics of Nanocontacts through a Deformed Volume Measurement**

Lee, Y H, Park, J S, Nahm, S H, Korea Research Inst of Standards & Science; Yoon, K B, ChungAng Univ, Korea

**Stress-strain Relationship in Microstructural Region Using Triangular Pyramidal Indenter**

Mochizuki, M, Higuchi, R, Toyoda, M, Osaka Univ, Japan

**Aging Assessment Using Instrumented Indentation Technique for Heater Tubes of Power Plants**

Ro, D S, Frontics, Korea

**A Study for the Reliability Assessment of the Liner Products during Manufacturing Process on Type %1 Fuel Cylinders of CNG**

Lee, M H, Choi, S C, Ha, J C, Korea Gas Safety, Korea

**Fracture Toughness Measurement of 2.25Cr-1Mo Pipes using Instrumented Indentation Technique**

Jung, G H, Shell Global Solutions, USA; Lee, K W, Seoul National Univ, Korea

**7. COASTAL ENGINEERING I: Waves & Modeling 1 (V. 3)**

Monday June 22 13:30 Room 1006

Chair: Lalli, F, APAT, Italy

**Forecast of a Benthic Extreme Current Along a Pipeline Route**

McClimans, T A, Eidnes, G, SINTEF; Moshagen, H, BHM Engineering Services, Norway

**Sea Level Fluctuation at East Asia Coasts**

Doong, D J, National Taiwan Ocean Univ, Taiwan, China; Fröhle, P, Univ of Rostock, Germany; Lee, B C, Huafan Univ, Chuang, L Z H, Kao, C C, National Cheng Kung Univ, Taiwan, China

**Measurement of Coastal Waves Using Stereo Matched Image Sequences**

Arita, M, Deguchi, I, Osaka Univ, Japan

**Characteristics of Yorimawari-Nami, Peculiar Japan-Sea Low Frequency Swell, Observed by NOWPHAS Seabed Wave Gauge Network**

Nagai, T, Hiraishi, T, Kawai, H, Kawaguchi, K, Port and Airport Research Inst; Nihei, A, Ohkama, T, Ministry of Land, Infrastructure, Transport and Tourism, Japan

**Research of Wave Crest Height on Pillar Wharf**

Chen, H B, Tianjin Univ; Liu, H Y, Zheng, B Y, Tianjin Research Inst for Water Transportation Engineering, China

**Estimation of Wave Breaking in Gravel Beach Using Artificial Neural Network**

Lee, K H, Mizutani, N, Fujii, T, Nagoya Univ, Japan; Kim, D S, Korea Maritime Univ, Korea

**8. PIPELINES & RISERS I: Riser Multiphase Flow & Dynamics (V. 2)**  
Monday June 22 13:30 Room 1007

**Chair:** Paulsen, G Reinertsen Engineering, Norway  
**Co-Chair:** Brac, J, Institut Francais du Petrole, France

**A New Method for Location Leak in Long-Distance Pipeline and Study on Experiment**

Li, J H, Shanghai Maritime Univ; Sun, Z C, Cui, L, Dalian Univ of Tech, China

**Experiment and Improved Numerical Model for Hydraulic Hoist of Coarse Particles in a Vertical Pipe**

Li, P, China National Inst of Standardization; Han, W, Tsinghua Univ, China

**Influence of Fluid Transportation on Three-Dimensional Behaviour of an Extensible Marine Riser**

Athisakul, C, Chucheepsakul, S, King Mongkut's Univ of Tech Thonburi, Thailand

**Optimum Design for Fluid Flows in a Long Pipe with Respect of the Financial Cost**

Brac, J, Maisonnier, G, Institut Francais du Petrole, France

**An Experimental Investigation on Pressure Gradients in Horizontal Heavy Oil-Water Pipe Flows**

Yao, H Y, Li, Q P, Wang, T, China National Offshore Oil Corp; Gong, J, China Univ of Petroleum, China

**Experiments for Modeling Inner Fluid Effect on Hung-off Riser**

Namba, Y, Uto, S, Nimura, T, Kokubun, K, Kuroda, T, National Maritime Research Inst; Miyazaki, T, Okumura, Y, JAMSTEC; Ozaki, M, Univ of Tokyo, Japan

**9. RISK, SAFETY & RELIABILITY I: Offshore (V. 4)**

Monday June 22 13:30 Room 1005

**Chair:** Langen, I, Univ of Stavanger, Norway

**Risk Analysis and Assessment for a Complex of Mooring Hydraulic Facilities of Offshore Oil and Gas Production Objects**

Bellendir, E N, Finagenov, O M, Nikitina, N, The B.E. VEDENEEV VNIIG, Russia

**Risk Based Structural Engineering Activities on Offshore Projects in Shipyard as EPC**

Yeun, J H, Hwang, O J, Jun, S H, Kang, J K, Woo, J H, Daewoo Shipbuilding and Marine Engineering, Korea

**A Safety Assessment Method on Aging Offshore Platforms with Damages**

Bao, X, Li, H, Ocean Univ of China, China

**Reliability of Offshore Platform with Wind Energy Production to Dynamic Forces**

Kawano, K, Kimura, Y, Ito, K, Tanaka, N, Kagoshima Univ; Iida, T, Osakasangyou Univ, Japan

**Reliability of Mooring System**

Morandini, C R, AMOG Consulting, Australia; Legerstee, F, Bureau Veritas, Singapore

**A Method to Choose Wave Propagation Directions for Improving the Precision of Modal Identification for Offshore Platforms**

Shi, X, Ocean Univ of China; Gong, C, COOEC, China; Matsui, T, Meijo Univ, Japan; Yang, B, Ocean Univ of China, China

## 10. ENVIRONMENT I: Oil Spill (V. 1)

Monday June 22 13:30 Room 1102, 11F

**Chair:** Otsuka, K, Osaka Prefecture Univ, Japan  
**Co-Chair:** Pavlenko, V I, Arctic Research Center, Russia

**Oil Spill Modeling at Shuweihat Power & Desalination Plant**  
Mohamed, K A, Abu Dhabi Water & Electricity Authority, United Arab Emirates

**Field Experiment of a Spilled Oil Tracking Autonomous Buoy**  
Senga, H, Kato, N, Niou, H, Hiratsuka, M, Takagi, S, Osaka Univ;  
Yoshie, M, Fujita, I, Port and Airport Research Inst, Japan

**At-Sea Trial 1 Test of an Autonomous Buoy which Tracks Drifting Oil and Observation of In-Situ Data Tracking Drifting Markers on the Sea for Predicting Location of the Spilled Heavy Oil**  
Yoshie, M, Matsuzaki, Y, Fujita, I, Takezaki, K, Port and Airport Research Inst; Kato, N, Senga, H, Osaka Univ; Tanaka, T, Port and Airport Research Inst, Japan

**Hydrodynamics Analysis of Spilled Oil Tracking Buoy Based on Spilled Oil Model Improved**  
Wang, T L, Liu, Y D, Dalian Maritime Univ, China

**Fundamental Study on Shore Contamination by Polystyrene of Marine Debris - Investigations of Hachijo and Ogasawara Islands in Japan**  
Iwai, N, Sato, H, Saido, K, Makoto, K, Nihon Univ, Japan

**Parametric Study on Oil Spilling from Damaged Liquid Cargo Tank**  
Lu, J S, Wen, X F, Liu, Z C, Zhejiang Ocean Univ; Wu, W Q, Dalian Maritime Univ, China

## 11. AUV, ROBOTICS & COMMUNICATION I (V. 2)

Monday June 22 13:30 Room 1101, 11F

**Chair:** Marani, G, Univ of Hawaii, USA

**The Estimation and Correction of Sensor Bias Errors in the Inertial Navigation**  
Ishibashi, S, Yoshida, H, Hyaku, T, Sawa, T, JAMSTEC, Japan

**Iterative Scheme for Estimating Sensor Misalignments in a USBL Positioning System**  
Chen, H H, Chang, H K, Jang, J P, Wu, J Y, National Sun Yat-Sen Univ, Taiwan, China

**The Contribution of Hydrospheres Processes in Level of Microstrains of Earth Crust**  
Dolgikh, S G, V.I. Il'ichev Pacific Oceanological Inst, FEB Russian Academy of Sciences (RAS), Russia

**Benchmarking of Optimal Acoustic Search Path Planning**  
Cho, J H, Kim, J S, Korea Maritime Univ; Kim, S I, Agency for Defense Development, Korea

**Application of Laser-Interference Methods to Oceanologic and Hydroacoustic Research**  
Shvets, V A, V.I. Il'ichev Pacific Oceanological Inst, FEB RAS, Russia

**Sound Speed and Attenuation Measurements in Saturated Glass Beads**  
Park, E K, Lee, K H, Seong, W J, Seoul National Univ, Korea

## MONDAY 16:20

**12. SLOSHING I: - Sloshing Physics1 (V. 3)**  
Monday June 22 16:20 Room 1009

**Chair:** Brosset, L, GTT, France

**To What Extent can CFD be Reliably Used for Determining Impact Pressures Due to Sloshing?**

Braeunig, J P, INRIA; Brosset, L, GazTransport & Technigaz; Dias, F, Ghidaglia, J-M, Ecole Normale Supérieure de Cachan and CNRS, France

**An Experimental Investigation of Hydrodynamic Impact on 2-D LNGC Cargo Tank Models**

Kim, H I, Kwon, S H, Park, J S, Lee, K H, Pusan National Univ; Jeon, S S, Jung, J H, Hwang, Y S, Ryu, M C, Daewoo Shipbuilding & Marine Engineering, Korea

**Nonlinear Surface Waves in a Nearly Square Liquid Tank under Vertical Excitation**

Ikeda, T, Shimane Univ, Japan; Ibrahim, R A, Wayne State Univ, USA

**Experimental Investigation of Membrane Corrugation Effect in LNG Tanks**

Graczyk, M, MARINTEK, Norway; Allers, J, MARINTEK USA, USA; Berget, K, MARINTEK, Norway

**Investigation of Air Cavity Impacts in Sloshing Through Numerical/Analytical Models and Experiments**

Abrahamsen, B C, Faltinsen, O M, Norwegian Univ of Science and Tech, Norway

**13. HYDRODYNAMICS 2: CFD 2 – NWT (V. 3)**  
Monday June 22 16:20 Room 1008

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

**Numerical Wave Tank Study of a Wave Energy Converter in Heave**

Hu, Z Z, Causon, D M, Mingham, C G, Qian, L, Manchester Metropolitan Univ, UK

**Generation of Extreme Wave Composed of Ring Waves in a Circular Basin**

Minoura, M, Takahashi, R, Naito, S, Osaka Univ, Japan

**Wave Generation and Absorption Using Force-Controlled Wave Machines**

Spinneken, J, Swan, C, Imperial College London, UK

**Measurements of Regular and Irregular Wave in Circular Tank**

Martins, J A A, Univ of Sao Paulo, Brazil

**2D Finite Volume Algorithm to Develop a Wave Generator**

Shafieefar, M, Tarbiat Modares Univ; Panahi, R, Transportation Research Inst, Iran

**Computational Fluid Dynamic Simulations of Active Wave Makers**

Maguire, E, Ingram, D, Univ of Edinburgh, UK

**Nonlinear Solution for Vibration of Vertical Elastic Plate by Initial Elevation of Free Surface**

He, G H, Kyushu Univ; Kashiwagi, M, Osaka Univ, Japan

**Dynamic Responses of Moored Floating Dual Pontoon Structure in a Fully Nonlinear Numerical Wave Tank**

Huang, C C, Tang, H J, National Sun Yat-Sen Univ, Taiwan, China

**Wavelet Transform Analysis of Freak Waves and the Ringing Response of Vertical Cylinder in a Numerical Wave Tank**

Pang, H L, Shanghai Jiao Tong Univ; Zhang, Q H, Han, T, Qin, C G, Tianjin Univ, China

**14. ADVANCE IN ENERGY TECH I; Gas Hydrates (V. 1)**  
**Monday June 22 16:20 Room 1001**

**Chair:** Kim, D S; Shell Global Solutions, Malaysia  
**Co-Chair:** Komai, T, AIST, Japan

**A New Mathematical Model of Gas Hydrate Dissociation and its Application on a Hydrate Reservoir Underlain by a Gas Zone**  
Bai, Y H, Li, Q P, China National Offshore Oil Corp, China

**A Mathematical Model for Dissociation of Gas Hydrate**  
Lu, X B, Wang, S, Zhang, X, Inst of Mechanics, CAS, China

**Relation between Pore Size Distribution and Permeability of Sediment**  
Minagawa, H, Takahara, N, Sakamoto, Y, Komai, T, Yamaguchi, T, Narita, H, AIST; Mizutani, K, Ohga, K, Hokkaido Univ, Japan

**Experimental Investigation of Methane Hydrate Reformation under Dissociation Process**  
Ahn, T W, Seoul National Univ; Lee, J Y, Korea Inst of Geoscience & Mineral Resources; Park, C H, Kang, J M, Seoul National Univ, Korea

**Study on Mechanism of Methane Hydrate Replacement by Carbon Dioxide Injection**  
Seo, Y, Kang S P, Korea Inst of Energy Research, Korea

**Strain Rate Dependency of Peak and Residual Strength of Sediment Containing Synthetic Methane Hydrate in Triaxial Compression Test**  
Miyazaki, K, Masui, A, AIST; Yamaguchi, T, Toho Univ; Sakamoto, Y, Haneda, H, Ogata, Y, AIST, Japan; Aoki, K, Inst of Mining Science and Tech, Vietnam

**The Effects of Gas Hydrate Dissociation on the Stability of Pipeline in Seabed**  
Wang, S Y, Zheng, W, Lu, X B, Inst of Mechanics, CAS; Li Q, COOEC, China

**Gas Recovery from Gas Hydrate Bearing Sediments by Inhibitor or Steam Injection Combined with Depressurization**  
Kawamura, T, Ohtake, M, Sakamoto, Y, Yamamoto, Y, Haneda, H, Komai, T, National Inst of Advanced Industrial Science and Tech; Higuchi, S, Nihon Axis, Japan

**The Experimental Study of the Natural Gas Hydrate's Dynamic Control Method in Subsea Multiphase Flow Pipeline**  
Li, Q P, Yao, H Y, CNOOC; Yang, X J, Daqing Oilfield Construction Design & Research Inst, China

**15. SBD II: Material Developments (V. 4)**  
**Monday June 22 16:20 Room 1002**

**Chair:** Tsuru, E, Nippon Steel Co., Japan  
**Co-Chair:** Ishikawa, N, JFE Steel, Japan

**Introductory Remarks**  
Wang, Y-Y, Center for Reliable Energy Systems, USA  
Lillig, D B, ExxonMobil Development Co., USA  
Tsuru, E, Nippon Steel Co., Japan

**Developing the Plate and Pipe of X80/X100 Linepipe Steels for Strain Based Design Pipeline**  
Seo, D H, Yoo, J Y, Song, W H, Kang, K B, POSCO, Korea

**Material Design and Weldability of High Strength Seamless Pipe**  
Hirata, H, Hamada, M, Arai, Y, Kondo, K, Hisamune, N, Hitoshio, K, Murase, T, Sumitomo Metal Industries, Japan

**Development and Production of Heavy Gauge X80 High Strain Linepipe**



Okatsu, M, Ishikawa, N, Shikanai, N, Muraoka, R, JFE Steel, Japan

**Metallurgical Design and Development of High Deformable High Strength Line Pipe Suitable for Strain-based Design**

Hara, T, Shinohara, Y, Terada, Y, Asahi, H, Nippon Steel, Japan

**Development of High Strength and High Deformable Linepipe Steels for Strain Based Design Application**

Okaguchi, S, Nakamura, H, Hamada, M, Yamamoto, A, Takeuchi, I, Sumitomo Metal Industries, Japan

**Application of B-Added Low Carbon Bainite Steels to Heavier Wall X80 UOE Line Pipe**

Fujishiro, T, Hara, T, Terada, Y, Sakamoto, S, Asahi, H, Nippon Steel, Japan

**Establishment of Commercial Production for High Strength UOE Linepipe up to X120**

Yoshida, T, Asahi, H, Terada, Y, Morimoto, H, Murata, M, Ayukawa, N, Nippon Steel, Japan

**16. COASTAL ENGINEERING II: Waves & Modeling 2 (V. 3)**  
**Monday June 22 16:20 Room 1006**

**Chair:** Jeng, D S, Univ of Dundee, UK

**Co-Chair:** Loukogeorgaki, E, Aristotle Univ. of Thessaloniki, Greece

**Model Equation for Nonlinear Water Waves Propagating in Permeable Structure**

Hu, K C, Hsiao, S C, Hwung, H H, National Cheng Kung Univ, Taiwan, China

**A Nonlinear Ordinary Differential Equation for Ocean Gravity Wave**

Shin, J R, Daewoo Shipbldg & Marine Engineering; Choi, K S, Kang, S Y, Korea Maritime Univ, Korea

**Improvement of Partial Reflection Boundary on Boussinesq-Type Wave Transformation Model**

Hirayama, K, Port and Airport Research Institute, Japan

**DRBEM Solution of Extended Mild-slope Equation for Waves around a Circular Island on a Polynomial Shoal**

Hsiao, S S, National Taiwan Ocean Univ; Wen, C C, Hungkuang Univ; Chang, C M, National Taiwan Ocean Univ, Taiwan, China

**Hamiltonian Formulation for Water Waves over a Variable Bottom: Asymptotic Models and Numerical Simulations**

Guyenne, P, Univ of Delaware, USA; Craig, W, McMaster Univ; Sulem, C, Univ of Toronto, Canada

**Shock-Capturing Boussinesq Model for Wave Breaking Simulation**

Tonelli, M, Terri, M, Università degli Studi di Udine, Italy

**Solutions of Kinematic-Dynamic Elements for Short Edge Waves on a Plane Sloping Bottom**

Zhang, Y, Hong, G W, Feng, W B, Hohai Univ, China

**A Wave Equation Induced from Double Integral Method**

Kim, H S, Jung, B S, Jang, C H, Kookmin Univ, Korea; Hall, K R, Queen's Univ, Canada

**17. PIPELINES & RISERS II: Riser (V. 2)**  
**Monday June 22 16:20 Room 1007**

**Chair:** Saint Marcoux, J-F, Acergy, UK

**Co-Chair:** Srinil, N, Univ of Aberdeen; UK

**Reentry Control System for a Riser Pipe Experimental Model under a Steady Current**

Kajiwara, H, Uemura, K, Noridomi, K, Koterayama, W, Nakamura, M, Kyushu Univ, Japan

**A Review of Test Methods for Generating Fatigue Crack Growth Rate (FCGR) Data in a Sour Environment**  
Holtam, C M, Baxter, D P, TWI Ltd.; Ashcroft, I A, Loughbrough Univ, UK

**Recent Developments in the Critical Thermal, Corrosion and Material Issues of Flowline Pipe-in-Pipe (PIP) Systems**  
Jukes, P, J P Kenny; Singh, B, Garcia, J, Ionik Consulting, USA

**Impact of Reel Laying on Mechanical Pipeline Properties Investigated by Full and Small Scale Reeling Simulations**  
Meissner, A, Erdelen-Peppler, M, Salzgitter Mannesmann Forschung; Schmidt, T, V&M Deutschland, Germany

**Fatigue Analysis of Deepwater Risers Using a Hybrid Time/Frequency Domain Method**  
Low, Y M, Nanyang Technological Univ, Singapore

**18. RISK, SAFETY & RELIABILITY II: Operations 1 (V. 4)**  
Monday June 22 16:20 Room 1005

**Chair:** Shinoda, T, Kyushu Univ, Japan  
**Co-Chair:** Shoji, K, Tokyo Univ of Marine Science and Tech, Japan

**Consequence Analysis of an Oil Spill from a Tanker**  
Martins, M R, Natacci, B, Univ of Sao Paulo, Brazil

**Safety Assessment with Marine Casualty Data on Collision Accidents between Fishing Vessels and Cargo Vessels**  
Tamura, Y, Shinoda, T, Kyushu Univ, Japan

**General Model of Ship Technical Systems Safety Related to Their Operation Processes**  
Kolowrocki, K, Soszynska, J, Maritime Univ, Poland

**Reliability Analysis of Anti-Sliding Pile in Landslide Treatment**  
Gao, L X, Luan M T, Dalian Univ of Tech; Yang, X, Designing Inst of Municipal Engineering, China

**A Controller Design for Lightering Operations Using Relative Distance Sensor [Proceedings Only]**  
Shimizu, E, Tokyo Univ of Marine Science & Tech, Japan, Pedersen, E, Norwegian Univ of Science & Tech, Norway

**Study on Collision Avoidance in Busy Waterways by Using AIS Data**  
Mou, J M, Wuhan Univ of Tech, China; Ligteringen, H, Delft Univ of Tech; van der Tak, C, Maritime Research Inst Netherlands, The Netherlands

**19. ENVIRONMENT II: Resource & Energy in Ocean & Arctic (V. 1)**  
Monday June 22 16:20 Room 1102, 11F

**Chair:** Koterayama, W, Kyushu Univ, Japan

**Formation and Diffusion Models of CO<sub>2</sub> Hydrate**  
Sato, T, Nojiri, T, Univ of Tokyo; Ikegawa, Y, Central Research Inst of Electric Power Industry, Japan

**Environmental Opportunities and Risks, and Ecological Designs, of Offshore Renewable Energy Installations**  
Wilhelmsson, D A, Stockholm Univ, Sweden; Lundin, C G, World Conservation Union, Switzerland

**Forecasting of Environmental Parameters Changes Related to Hydrocarbon's Exploitation in Russian Arctic**  
Pavlenko, V I, Glukhareva, E K, Arctic Research Center, Russia

**Metamorphosis of Single Crystalline Hematite to Iron Sulfides Influenced by Sulfate-Reducing Bacteria**  
Zhao, X, Yang, J, Zhejiang Ocean Univ, China

**Distribution Characteristics of Chemosynthetic Community around Seafloor Massive Sulfide Deposit**

Yamazaki, T, Ikemoto, M, Nakatani, N, Osaka Prefecture Univ, Japan

**Material Properties of Ductile-Fiber-Reinforced Cementitious Composite Using Pyroclastic Flow Deposits**

Watanabe, K, Fujii, M, Asai, Y, Arai, J M, Tokai Univ, Japan

**20. AUV, ROBOTICS & COMMUNICATION II (V. 2)**

**Monday June 22 16:20** Room 1101

**Chair:** Patrikalakis, N.M., Massachusetts Inst of Technology, USA

**Multidisciplinary Design Optimization of Underwater Gliders Based on Surrogate Models**

Tao, G H, Qiang, H Z, Cheng, Y J, Yang, L, Shenyang Inst of Automation, CAS, China

**The Turning Simulation for an Underwater Glider Using CFD**

Choi, H S, Seo, D C, Lee, H, Seoul National Univ, Korea

**Energy Efficient Distributed Target Tracking Algorithm in Underwater Wireless Sensor Networks**

Yu, C H, Lee, K H, Choi, J W, Park, M K, Pusan National Univ; Song, T L, Hanyang Univ, Korea

**Modeling of Hovering AUV Testbed and Design of ACE/TAO RTES-Based Open Control Platform**

Binugroho, E H, Ha, T K, Seo, Y B, Choi, J W, Ko, N G, Pusan National Univ, Korea

**Development of an Underwater Vehicle that Has Functions of Acquisition and Tracking Target Objects Using Images Acquired by Itself**

Tanaka, T, Yoshie, M, Port and Airport Research Inst; Oosato, M, Ministry of Land, Infrastructure, Transport and Tourism, Japan

**TUESDAY 08:00**

**21. SLOSHING II: LNG Sloshing Mechanics (V. 3)**

**Tuesday June 23 08:00** Room 1009

**Chair:** Kim, Y H, Seoul National Univ, Korea

**Co-Chair:** Maguire, J, Lloyd's Register, UK

**Scaling Law for LNG Tank Sloshing and Characteristics of Impact Pressures**

Yung, T W, Ding, Z, He, H, Sandström, R E, ExxonMobil Upstream Resesarch, USA

**Coupled Tank Sloshing and LNG Carrier Motions**

Huang, Z J, Esenkov, O E, O'Donnell, B J, Yung, T W, ExxonMobil Upstream Research; Martin, C B, ExxonMobil Development; Danaczko, M A, ExxonMobil Production, USA

**Influence of Raised Invar Edges on Sloshing Impact Pressures**

He, H, Kuo, J F, Rinehart, A J, Yung, T W, ExxonMobil Upstream Resesarch, USA

**Structural Capacities of LNG Membrane Containment Systems**

Issa, J A, Garza-Rios, L O, Gioielli, P C, Lele, S P, Rinehart, A J, Taylor, R P, ExxonMobil Upstream Research; Bray, W H, Tredennick, O W, ExxonMobil Development, USA; Canler, G, Chapot, K, GazTransport & Technigaz, France

**22. HYDRODYNAMICS III: CFD 3 (V. 3)**

**Tuesday June 23 08:00** Room 1008

**Chair:** Ferrant, P, École Centrale de Nantes, France

**Co-Chair:** Kim, W J, Mokpo National Univ, Korea

**Parallel Finite Element Simulation of Flow around a Circular Cylinder**

Kakuda, K, Nihon Univ; Minura, S, Tokyo Metropolitan College of Technology, Japan

**Application of LES and DES Turbulence Models on Flow around Bluff Bodies Using Cartesian Cut Cell Grids**

Bai, W, Mingham, C G, Causon, D M, Qian, L, Manchester Metropolitan Univ, UK

**Numerical Study on Motion of Submerged Body in Waves**

Suzuki, H, Shimamura, T, Osaka Univ; Miura, K, Universal Shipbuilding; Kato, N, Osaka Univ, Japan

**Numerical Simulation of 3D Submarine Turbidity Currents**

La Rocca, M, Adduce, C, Mele, P, Sciortino, G, Univ RomaTRE, Italy

**Large Eddy Simulation of Particle-Laden Flow by Using Solid/Liquid Two-Phase Flow Model**

Harada, E, Gotoh, H, Kyoto Univ, Japan

**Two-Dimensional Flow Simulation of Bingham Fluid by Multiphase Flow Numerical Model**

Kawasaki, K, Osigo, K, Takasu, Y, Nagoya Univ, Japan

**RANS Simulations of Ship Motions in Regular and Irregular Head Seas Using the SWENSE Method**

Monroy, C, Ducrozet, G, Gentaz, L, Ferrant, P, Alessandrini, B, École Centrale de Nantes, France

**Applying Computational Fluid Dynamics to Simulate Bank Effects**

Lo, D C, Su, D T, Lin, I F, Chen, J M, National Kaohsiung Marine Univ, Taiwan, China

**23. GEOTECH I: Cyclic Loading & Liquefaction (V. 2)**

Tuesday June 23 08:00 Room 1001

Chair: Uchida, K, Kobe Univ, Japan

**Undrained Behavior of Surface Footings Subjected to Combined V-H-T Loading**

Yun, G J, Maconochie, A, Oliphant, J, Technip; Bransby, F, Univ of Dundee, UK

**Experimental Study on Dynamic Shear Modulus of Saturated Sands under Complex Initial Stress States**

Shi, D D, Shanghai Maritime Univ; Guo, Y, Luan, M T, Dalian Univ of Tech, China

**Role of Fines on Dynamic Shear Stiffness for a Volcanic Soil Shirasu**

Hyodo, T, Waseda Univ; Hyodo, M Yamaguchi Univ; Yamada, S, Univ of Tokyo, Japan

**Effective Stress Based Dynamic Analysis on the Interaction between Group-Pile Foundation and Liquefied Ground**

Yokawa, H, Tanabe, A, Yashima, A, Sawada, K, Gifu Univ, Japan

**Liquefaction and Its Influence to House Damage in the Niigataken Chuetsu-Oki Earthquake in 2007**

Ohtsuka, S, Isobe, K, Nagaoka Univ of Tech; Hayashi, K, Oyo Corp; Hirade, T, Building Research Inst, Japan

**A CPT-based Evaluation Method of Liquefaction Probability via Genetic Algorithms**

Lee, Y F, Chi, Y Y, Chang Jung Christian Univ, Taiwan, China

**Potential Risks of the Ground near Old River Alignments**

Okuda, M, Okuda Construction; Kani, Y, Nippon Concrete Industries; Nakane, Y, Showa Concrete Industries; Hayakawa, K, Ritsumeikan Univ, Japan

**Old Ridge Road Used as the Fail-safe Path**

Okuda, M, Okuda Construction; Kani, Y, Nippon Concrete Industries;  
Nakane, Y, Showa Concrete Industries; Hayakawa, K, Ritsumeikan Univ,  
Japan

**24. SBD III: Tensile Capacity & Fracture 1 (V. 4)**  
**Tuesday June 23 08:00** Room 1002

**Chair:** Wang, Y-Y, Center for Reliable Energy Systems, USA  
**Co-Chair:** Okaguchi, S, Sumitomo Metal Industries, Japan

**Measurement of J-R Curves Using Single-Specimen Technique with Clamped SE(T) Samples**

Shen, G, Gianetto, J A, Tyson, W R, MTL/CANMET, Canada

**A Non-Linear Fracture Assessment Procedure for Pipeline Materials with a Yield Plateau**

Tkaczyk, T, Technip UK; O'Dowd, N, Univ of Limerick; Nikbin, K, Imperial College London; Howard, B, Technip UK, UK

**Fracture Assessment of Elastic-Plastic Steel Pipelines Subject to Multi Cycle Bending**

Tkaczyk, T, Technip UK; O'Dowd, N, Univ of Limerick; Nikbin, K, Imperial College London; Howard, B, Technip UK, UK

**Evaluation of Post-Buckling Ductile Limit of Linepipe under Cyclic Loading**

Ohata, M, Yamaguchi, O, Minami, F, Osaka Univ, Japan

**The Influence of Internal Pressure on Ductile Fracture Behavior from the Surface Defect on the Pipe**

Sakimoto, T, Igi, S, Kubo, T, JFE Steel; Ohata, M, Minami, F, Osaka Univ, Japan

**25. HPM II: Composite Materials (V. 4)**  
**Tuesday June 23 08:00** Room 1004

**Chair:** Wheat, H G, Univ. of Texas at Austin, USA  
**Co-Chair:** Knapp, R H, Univ of Hawaii, USA

**Experimental Vibration Analysis of Visco-Elastically Damped Circular Cylindrical Shell**

Park, H I, Min, C H, Korea Maritime Univ, Korea

**Upgrading Corrosion Properties of Cement Mortar Applied to the Marine Environment**

Lee, H H, Yu, M S, National Sun Yat-Sen Univ, Taiwan, China

**Fatigue Capacity of Plain Concrete under Biaxial Fatigue Stresses with One Constant**

Song, Y, Wang, H L, Dalian Univ of Tech, China

**Compressive Dynamic and Damage Behaviors of Concrete at Different Strain Rates**

Xiao, S, Zhang, J, Dalian Univ of Tech, China

**Estimation of Carbonation Depth for Concrete structures in Coastal Area**

Han, S H, Park, W S, KORDI, Korea

**Corrosion Performance of Electroless Nickel-Plated Steel**

Lee, M G, Kan, Y C, Chaoyang Univ of Tech; Yang, T J, Feng Chia Univ, Taiwan, China

**26. COASTAL ENGINEERING III: Wave-Structure 1 (V. 3)**  
**Tuesday June 23 08:00** Room 1006

**Chair:** Chen, H-C, Texas A&M Univ, USA

**Study on the Wave Energy Decayed by Inclined Plates**

Chen, W J, Chien, K T, Dai, S Y, National Chiyi Univ, Taiwan, China

**Numerical Study of Regular and Irregular Wave Overtopping Including the Effect of Sea Level Rise**

Yan, S, Kojima, H, Kyushu Univ, Japan

**Jacket-Type Breakwaters with Water Chambers in Deep Sea**

Kouno, T, Nakamura, T, Ehime Univ, Japan

**Hydrodynamic Characteristics of Slit Caisson Quay Wall against the Oblique Wave Incidence**

Ko, K O, Kim, G W, Ji, H W, Park, K Y, Hyundai Development Inst of Construction Tech, Korea

**Spectral Analysis of Unidirectional Wave Slamming on the Three-Dimensional Structure in the Splash Zone**

Ding, Z, Ren, B, Wang, Y X, Dalian Univ of Tech, China

**An Experimental Study on the Wave Reducing Performance of the Flat Plate Type Wave Absorbing Structure**

Hadano, K, Koirala, P, Yamaguchi Univ; Ikehata, Y, Nippon Bunri Univ, Japan; Shin, M S, Kunsan National Univ, Korea; Sakatani, Y, Yamaguchi Univ, Japan

**Pro-Environmental Wave Barrier by N Porous Bottom-Mounted Vertical Circular Cylinders**

Cho, I H, Cheju National Univ, Korea; Kim, M H, Texas A&M Univ, USA

**Tuesday**

**June 23**

**08:00**

Room 1007

**Plenary Presentation II (V 2)**

**Progress in Modeling of Multiphase Flows and Thermodynamics in Oil and Gas Pipelines**

Hellan, Ø, Johansen, S T, Dijkhuizen, W, Mo, S, Meese, E, SINTEF, Norway; Bansal, K, Danielson, T, ConocoPhillips; Goldszal, A, Monsen, J I, Total

Introduction by Paulsen, G, Reinertsen Engineering, Norway

**Keynote Presentation II (V 2)**

**Technical Challenge in Sakhalin 1 Pipeline Project: Engineering and Construction of Offshore Pipeline, Orphan Erosion Protection and Cathodic Protection**

Tokiwa, Y, Nagahamaya, S, Sakamoto, T, Nippon Steel, Japan  
Introduction by Osawa, N, Osaka Univ, Japan

**28. RISK, SAFETY & RELIABILITY III: Operations 2 (V. 4)**

**Tuesday June 23 08:00 Room 1005**

**Chair:** Nishi, Y, Yokohama Univ, Japan

**Comparisons between the Deterministic and Probabilistic Methods in Assessing Marine Pipeline Corrosions**  
Mustaffa, Z, Van Gelder, P, Vrijling, H, Delft Univ of Tech, The Netherlands

**Construction of Risk Evaluation Model for Sediment Disasters Potential Area**  
Chen, Y R, Hsieh, S C, Chen, J W, Ni, P N, Hui, Y W, Chang Jung Christian Univ, Taiwan, China

**A Fuzzy Model for Application to Green Design of a Ship, by Evaluation of Safety of an Oil Tanker**  
Cai, W, Liao, W, Zhou C, F, Xi, L F, Dun, H, Wuhan Univ of Tech, China

**Uncertainty in Docking Projects**  
Modica, J E, Transpetro S/A; Martins, M R, Univ of Sao Paulo, Brazil

**Life-Cycle Based Risk Evaluation for Ship Project**  
Liu, Z J, Ji, Z S, Lin, Y, Dalian Univ of Tech, China

**29. ENVIRONMENT III: Numerical Modeling (V. 1)**

**Tuesday June 23 08:00 Room 1102**

**Chair:** Kyoizuka, Y, Kyushu Univ, Japan

**Application of Data Mining in Simulating Marine Algal Dynamics**  
Chau, K W, Hong Kong Polytechnic Univ, Hong Kong, China

**Study of Conceptual Model on Marine Aquaculture Ecosystem Health Assessment**  
Cai, H W, Zhao, S, Tang, Z, Ren Y H, Zhejiang Ocean Univ, China

**Hydrodynamic Modeling of Water Exchange in a Small Estuary of Haomeiliao Wetland, Chiayi, Taiwan**  
Hsu, HC, Liou, J Y, Huang, H Y, National Cheng Kung Univ, Taiwan, China

**Variability of Primary Production of the Okhotsk Sea in Late Pleistocene and Holocene**  
Bosin, A A, V.I. Il'ichev Pacific Oceanological Inst, FEB RAS, Russia

**Simulations of Currents, Temperature, and Salinity in Manila Bay by a Hydrodynamic Model**  
Olivares, R U, Tabeta, S, Hakuta, K, Univ of Tokyo, Japan

**SST Variation/Change in the Coastal Region of the East China Sea in the Last 50 Years**  
Zhang, J L, Chen, M C, National Marine Data and Information Service; Chen, M X, Ocean Univ of China; Zuo, J C, Hohai Univ, China

**30. AUV, ROBOTICS & COMMUNICATION III: AUV & Multiple Vehicle (V. 2)**

**Tuesday June 23 08:00 Room 1101**

**Chair:** Yu, S C, Pusan National Univ, Korea

**Autonomous Underwater Vehicle Engineering for Detailed Deep Seafloor Survey in JAMSTEC**  
Tsukioka, S, JAMSTEC, Japan

**Path Control of AUV "MR-X1" Using Thrusters**  
Nakamura, M, Kyushu Univ; Hyakudome, T, Yoshida, H, Aoki, T, JAMSTEC, Japan

**Design of Controller for Cruising AUV "URASHIMA"**  
Hyakudome, T, Nakamura, M, Tsukioka, S, Sawa, T, Watanabe, K, JAMSTEC, Japan

**Multi-Vehicle Oceanographic Feature Exploration**

Ooi, B H, Zheng, H, Cho, W, Singapore-MIT Alliance for Research and Tech; Dao, M H, Zemsky, P, Tkalich, P, National Univ of Singapore; Patrikalakis, N M, Singapore-MIT Alliance for Research and Tech, Singapore

**Development of 3D Visual Landmark Recognition Method for AUVs / Localization**

Yu, S C, Kang, D J, Choi, J W, Park, M K, Pusan National Univ, Korea

**TUESDAY 10:30**

**31. SLOSHING III: - SLOSHEL JIP (V. 3)**

Tuesday June 23 10:30 Room 1009

**Chair:** Kuo, J-F, ExxonMobil Upstream Research Co, USA

**Overview of Sloschel Project**

Brosset, L, GazTransport & Technigaz; Mravak, Z, Bureau Veritas, France; Kaminski, M, MARIN, The Netherlands; Collins, S, Shell, UK; Finnigan, T, Chevron, USA

**Full Scale Sloshing Impact Tests**

Kaminski, M L, Bogaert, MARIN, The Netherlands

**Coupled Fluid-Structure FE Analysis of LNG Containment Systems Based on Full-Scale Sloshing Impact Test**

Wang, B, Shin, Y S, American Bureau of Shipping, USA

**Semi-analytical Approach for Hydro Structure Interactions Analysis during the Sloshing Impacts**

Malenica, S, Bureau Veritas, France; Korobkin, A A, Univ of East Anglia, UK; Ten, I, Gazzola, T, Mravak, Z, De-Lauzon, J, Bureau Veritas; Scolan, Y M, Ecole Centrale de Marseille, France

**Sloshing Dynamics - Numerical Simulations in Support of the Sloschel Project**

Maguire, J R, Whitworth, S, Oguibe, C N, Radosavljevic, D, Carden, E P, Lloyd's Register, UK

**32. HYDRODYNAMICS IV: CFD 4 & MetOcean (V. 3)**

Tuesday June 23 10:30 Room 1008

**Chair:** Soukissian, T H, Hellenic Centre for Marine Research, Greece;

**Co-Chair:** Nagai, T, Port and Airport Research Inst, Japan

**Spatio-Temporal Behaviour of Wind and Sea States in the Hellenic Seas**

Soukissian, T H, Hellenic Centre for Marine Research, Greece; Tzortzi, E, Univ of Southampton, UK; Kokkali, A, Univ of Aegean, Greece

**A Numerical Simulation Method of Typhoon Waves**

Zhu, Z, Yang, Y, Zhou, K, Shanghai Jiao Tong Univ, China

**Wave Height Forecasting Using Self-Organization Algorithm Model**

Tsai, T M, Yen, P H, Huang, T J, National Cheng Kung Univ, Taiwan, China

**Characteristics of Infragravity Waves Observed Along Japanese Coasts**

Nakai, K, ECOH Corp; Noriaki, H, Kyushu Univ, Japan

**Experiment in Area of the Mouth of Izmenchivoe Lake**

Kovalev, P D, Inst of Marine Geology and Geophysics, RAS; Kurkin, A A, Novgorod State Technical Univ; Shevchenko, G V, Inst of Marine Geology and Geophysics, RAS; Chernov, A G, Nizhny Novgorod State Technical Univ; Kovalev, D P, Gorbunov, A O, Sakhalin State Univ, Russia

**Observed Tidal Currents and the Characteristics of Principal Tidal Constituents in the South China Sea Deep Basin in 1997-1999**

Zhang, T, First Inst of Oceanography; Li, P, Zhao, W, Zuo, J, Ocean Univ of China, China



**Decadal and Long-Term Sea Level Variations at Pacific Coast of Japan**  
Gu, X L, Li, P L, Ocean Univ of China, China

**Hydrodynamic and Thermohaline Circulation Model and Its Application**  
Abualtayef, M T, Kuroiwa, M, Khaled Seif, A, Matsubara, Y, Tottori Univ, Japan

**33. GEOTECH II: In-Situ Test (V. 2)**  
Tuesday June 23 10:30 Room 1001

**Chair:** Chien, L K, National Taiwan Ocean Univ, Taiwan, China  
**Co-Chair:** Hayakawa, K, Ritsumeikan Univ, Japan

**Direct Shear Test Modeling of Crushed Stone Material Using DEM Approach**  
Chō, N, Seoyeong Engineering; Lee, D, Korea Inst of Construction Tech; Yoo, C, Sungkyunkwan Univ, Korea

**Evaluation of the Lateral Behavior of Monopiles Based on Back Analysis of Full-Scale In-Situ Tests**  
Fakher, A, Sadeghi-Hokmabadi, A, Seyfi, H, Univ of Tehran, Iran

**Analyses of Compaction Efficiency of Sand with Water - Field Pilot Test and Numerical Analysis**  
Chun, B S, Hanyang Univ; Jang, Y S, DongGuk Univ; Do, J N, Hanyang Univ, Korea

**Disc Shear of Loose Sands in a Test Tank**  
Feng, T W, Huang, Y H, Chung Yuan Christian Univ, Taiwan, China

**Case Study of the Application of In-situ Geological Mapping and 2D-resistivity Image Exploration for the Colluviums Slope**  
Jeng, C J, Hung, C S, Shieh, C Y, Huafan Univ, Taiwan, China

**Qualitative Investigation of Train-Induced Ground Vibrations Using FEM and Field Experiments**  
Ju, S H, National Cheng Kung Univ, Taiwan, China

**Field Test on Lightweight Thrust Restraint for Buried Bend**  
Kawabata, T, Hanazawa, T, Sawada, Y, Izumi, A, Kashiwagi, A, Uchida, K, Kobe Univ; Shigenaka, A, Banno, I, Japan Water Agency, Japan

**The Effects of Horizontal Hardness on the Seismic Performance of Wooden Houses**  
Hayakawa, K, Edane, K, Honda, S, Koushige, N, Ritsumeikan Univ, Japan

**34. SBD IV: Tensile Capacity & Fracture 2 (V. 4)**  
Tuesday June 23 10:30 Room 1002

**Chair:** Ostby, E, SINTEF Materials and Chemistry, Norway  
**Co-Chair:** Hara, T, Nippon Steel, Japan

**Development of a Physics-Based Approach for the Prediction of Strain Capacity of Welded Pipelines**  
Minnaar, K, Cheng, W, Kibey, S, Wang, S, ExxonMobil Upstream Research, USA

**Anisotropic Plastic and Damage Behavior of a High Strength Pipeline Steel**  
Besson, J, Luu, T T, Tanguy, B, Pineau, A, MINES ParisTech, France

**Effect of Pre-Strain on Ductility and Toughness in High Strength Line Pipe Steels**  
Shinohara, Y, MINES ParisTech; Madi, Y, MINES ParisTech/EPF-École d'Ingenieurs; Besson, J, MINES ParisTech, France

**Numerical-Experimental Procedures to Identify the Ductile Fracture Strain Limits in Pipeline Steels**  
Coppola, T, Demofonti, G, Mannucci, G, Centro Sviluppo Materiali SpA, Italy

**Fracture Behavior in Circumferentially Cracked Pipes under Combined Load Conditions: Effects of Biaxiality on Crack Tip Constraint and J-R Resistance Curve**

Ernst, H A, Cravero, S, Bravo, R E, Tenaris, Argentina

**The Effects of Weld Metal Mismatch and Crack Position on the Strain Capacity in SENT Specimens in an X65 Material**

Ostby, E, SINTEF Materials and Chemistry; Sandvik, A, Levold, E, StatoilHydro ASA; Nyhus, Bard, SINTEF Materials and Chemistry; Thanulow, C, Norwegian Univ of Science and Engineering, Norway

**35. HPM III: Adv Materials & Structures 1 (V. 4)**

**Tuesday June 23 10:30 Room 1004**

**Chair:**

**Co-Chair:** Kim, K-Y, POSTECH, Korea

**Durability Evaluation of Marine and Offshore Structures**

Kovalenko, R G, Kim, L V, Far Eastern State Technical Univ, Russia

**Comparative Study on Estimation Techniques for Local Stress of Web Stiffened Cruciform Connections**

Osawa, N, Sawamura, J, Fujiwara, T, Nagai, H, Osaka Univ, Japan

**Stability Analysis of Planar Crack Front**

Lin, Y Y, Yang, C S, National Cheng Kung Univ, Taiwan, China

**The Investigation on the Loading Capacity of Cross-Shaped Cast Joints for Reticulated Shell**

Wang, Y Q, Xiong, J, Shi, Y J, Li, G X, Luo, Y, Tsinghua Univ, China

**Meshless Numerical Simulation of Crack Growth Induced by Stress-Assisted Corrosion in a Brittle Solid**

Tang, Z, Zhejiang Ocean Univ, China

**Fatigue Strength Assessment of Extra Thick Welded Joints in Offshore Structures**

Liu, G, Huang, Y, Wu, K, Dalian Univ of Tech, China

**A Case Study of Fatigue Cracks in Orthotropic Steel Bridge Decks**

Pan, P, Zhou, Y, Li, Y S, Wang, Y Q, Tsinghua Univ, China

**Stress Distribution of Orthotropic Steel Bridge Decks under Vehicle Wheel Loading**

Li, Y S, Shijiazhuang Railway Inst; Cui, C, Wang, Y Q, Pan, P, Tsinghua Univ, China

**36. COASTAL ENGINEERING IV: Wave-Structure 2 (V. 3)**

**Tuesday June 23 10:30 Room 1006**

**Chair:** Araki, S, Osaka Univ, Japan

**Co-Chair:** Yim, J.Z., National Taiwan Ocean Univ, Taiwan, China

**A Solution of the Mild-Slope Equations for Waves Scattering by a Circular Island on a Shoal**

Cheng, Y M, Lee, J A, National Cheng Kung Univ, Taiwan, China

**Response of a Layered Seabed to Ocean Waves around Breakwater Heads**

Ou, J, Jeng, D S, Univ of Dundee; Chan, A H C, Univ of Birmingham, UK

**On Studies of Wave Interaction with Porous Structures**

Hsieh, C M, National Kaohsiung Marine Univ; Hwang, R R, Academia Sinica, Taiwan, China

**Shallow Water Flow: Numerical Simulations, Laboratory and in-situ Measurements [Oral Presentation]**

Lalli, F, Bruschi, A, Lama, R, Liberti, L, Mandrone, S, Pesarino, V, ISPRA; Ciarravano, A, Miozzi, M, INSEAN; Romano, G P, Univ degli

Studi di Roma :La Sapienza; Verzicco, R, Univ degli Studi di Roma “Tor Vergata”, Italy

**Nonlinear Surface Waves Propagation on Sloping Bottoms in Lagrangian Coordinates**

Chen, Y Y, Li, M S, Hsu, H C, Yang, K S, National Sun Yat-Sen Univ, Taiwan, China

**Experimental Study of Turbulent Round Jet Discharged into Regular Waves**

Hsu, T W, Lin, J F, National Cheng Kung Univ, Taiwan, China

**37. PIPELINES & RISERS III: Risers & Mooring (V. 2)**

**Tuesday June 23 10:30 Room 1007**

**Chair:** Park, H I, Korea Maritime Univ, Korea

**Co-Chair:** Morandini, C, AMOG Consulting, Australia

**Clawloks™ - Development of a Bending Stiffener Latching Mechanism for Flexible Riser**

Gjersoe, N F, LICengineering; Thomsen, J R, NKT Flexibles, Vinther, J, LICengineering, Denmark

**Risk Analysis Carried Out on Old Unbonded Flexible Pipe Assets**

Balagué, B, Roques, J P, Furmanowski, Y, Total SA, France

**Effect of Pipe Thickness on the Behavior of Flexible Pipes with Equivalent Bending Ring Stiffness**

Kawabata, T, Nadamoto, Y, Izumi, A, Shimamoto, C, Inoue, K, Uchida, K, Kobe Univ, Mohri, Y, Ariyoshi, M, National Inst for Rural Engineering, Japan

**Fit-For-Purpose Tool in the Design Verification Process for Floating Structures: Design of Statically Equivalent Deepwater Mooring Systems**

Udoh, I I, Mercier, R, Texas A&M Univ, USA

**Tension-Twist Testing of EM Cables and Wire Rope**

Knapp, R H, Shimabukuro, T S, Structural Solutions, USA

**Semi-Empirical Modeling for Seawater Corrosion of Wire Rope**

Fontaine, E, Armstrong, R, Potts, A; AMOG Consulting; Melchers, R E, Univ of Newcastle, Australia; Chaplin, C R, Univ of Reading, UK; Francois, M, Bureau Veritas, France

**38. RISK, SAFETY & RELIABILITY IV: Human Element (V. 4)**

**Tuesday June 23 10:30 Room 1005**

**Chair:** Pedersen, E, Norwegian Univ of Science and Tech, Norway

**Co-Chair:** Arima, M, Osaka Pref. Univ, Japan

**Operational Aspects on Decision-Making in STS Lightering**

Husjord D, Pedersen, E, Norwegian Univ of Science and Tech, Norway

**Emergency Control Support System for Marine Accident on Passenger Ship**

Kang, H J, Lee, D K, KORDI, Shin J G, Seoul National Univ; Paik, B G, Park, B J, Choi, J, KORDI, Korea

**Development of a Human Monitoring System in Sea Transportation for the Preventative Safety**

Arima, M, Okabe, N, Wakimizu, T, Osaka Prefecture Univ, Japan

**Application of Bayesian Network in Human Reliability Analysis**

Martins, M R, Maturana, M C, Univ of Sao Paulo, Brazil

**Applied Chaos Theory to Evaluation for Walking Environment on Occupational Safety Management at Shipyard**

Tanaka, T, Shinoda, T, Kyushu Univ, Japan

### 39. ENVIRONMENT IV: Water Quality (V. 1)

Tuesday June 23 10:30 Room 1102

**Chair:** Kyojuka, Y, Kyushu Univ, Japan  
**Co-Chair:** Wilhelmsson, D A, Stockholm Univ, Sweden

#### **Analysis of Medium to Long Term Variation of Water Quality in Seto Inland Sea**

Uno, K, Tsujimoto, G, Kakinoki, T, Kobe City College of Tech, Japan

#### **Precipitation of Loads of Nutrients and Its Impact on Primary Production in the Osaka Bay**

Nakatani, Y, Nishida, S, Irie, M, Osaka Univ, Japan

#### **Diatoms in the Surface Sediments of the Amur River Estuary**

Obrezkova, M S, V.I. Il'ichev Pacific Oceanological Inst, FEB Russian Academy of Sciences (RAS), Russia

#### **Relative Merits of Seawater Exchange System Including Pipeline with Multi-Outlets**

Kim, H S, Jang, C H, Kim S T, Kookmin Univ; Song, M S, Kunhwa Co, Korea

#### **Field Observations and Numerical Simulation of Currents and Water Quality in Harbor of Osaka Bay**

Irie, M, Nishida, S, Nakatsuji, K, Osaka Univ, Japan

#### **Sea Level Rise Based on Tide Gauge and Satellite Altimeter**

Wu, L C, Hsu, T W, National Cheng Kung Univ, Taiwan, China

### 40. AUV, ROBOTICS & COMMUNICATION IV: AUV & Power (V. 2)

Tuesday June 23 10:30 Room 1101

**Chair:** Nakamura, M, Kyushu Univ, Japan

#### **Underwater Thruster Saturation Detection and Prevention Considering Battery Voltage Sag**

Hanai, A M, Rosa, K H, Marine Autonomous Systems Engineering; Marani, G, Choi, S K, Univ of Hawaii, USA

#### **Pump-Jet Thruster for AUV Docking with an Underwater Station**

Sawa, T, Aoki, T, Yoshida, H, Hyakudome, T, Isibasi, S, JAMSTEC; Sutou, A, Tokyo Univ of Marine Science and Tech, Japan

#### **Improvement of a High Energy Type Lithium-Ion Battery System for Unmanned Underwater Vehicle**

Yoshida, H, Hyakudome, T, JAMSTEC; Fujiya, N, Konno, S, Oomiya, M, Ozawa, K, ENAX Inc, Taro, A, JAMSTEC, Japan

#### **A Study on the Design Optimization of an AUV by Using CFD Analysis**

Joung, T H, Sammut, K, He, F P, Flinders Univ, Australia; Lee, S K, Pusan National Univ, Korea

#### **Evaluation of the Added Mass for a Spheroid-type UUV by VPMM Test**

Lee, S K, Cheon, T H, Joung, T H, Jang, T S, Lee, J H, Pusan National Univ, Korea

#### **A Practical Numerical Method to Forecast the Hydrodynamic Behavior of a Ducted Thruster in the Flow Field of a Tethered Underwater Robot**

Wu, J M, Lai, H W, Zhu, L S, South China Univ of Tech, China

#### **Hydrodynamic Analysis of a Tethered Underwater Robot System**

Wu, J M, Zhu, L L, Zhu, L S, South China Univ of Tech, China

**Student Forum**  
**(All Student Participants Are Invited)**

**Tuesday June 23 12:00 TBA**  
E-mail by **June 1** your intention of attending this meeting to [meetings@isope.org](mailto:meetings@isope.org).  
Advisors: Dr. Stefan Herion, Germany, Dr. Sung Tai Kee, Korea; and Prof. Harovel G. Wheat, USA

**TUESDAY 13:00**

**Jin S Chung Award Lecture 2009 (LJOPE)**

**Tuesday June 23 13:00 Room 1007**

**Green Growth: The Right Approach to Multiple Energy Sources**

Koo, Jay, President, SK Energy, Korea  
Introduction by Koterayama, W, Kyushu Univ, Japan

**41. SLOSHING IV: - Sloshing in LNG-Carrier Membrane (V. 3)**

**Tuesday June 23 14:00 Room 1009**

**Chair:** Dias, F, Ecole Normale Supérieure-Cachan, France  
**Co-Chair:** Kaminski, M, MARIN, The Netherlands

**Upstream R&D Program in GazTransport & Technigaz (GTT) for a Better Understanding of Sloshing Phenomenon**

Brosset, L, de Sèze, P-E, GazTransport & Technigaz, France

**Refinements in Sea-Keeping Analysis for Sloshing Investigations**

Marès, A, GazTransport & Technigaz, France

**Influence of Density Ratio between Liquid and Gas on Sloshing Model Test Results**

Maillard, S, Brosset, L, GazTransport & Technigaz, France

**Local Influence of NO96 Raised Edges and MarkIII Corrugations on Sloshing Pressures in Tanks of LNG Membrane Vessels**

Deschamps, G, Brosset, L, GazTransport & Technigaz, France

**Numerical Approach for Structural Assessment of LNG Containment Systems**

Pillon, B, Marhem, M, Leclère, G, Canler, G, GazTransport & Technigaz, France

**Reliability-Based Methodology for Sloshing Assessment of Membrane LNG Vessels**

Gervaise, E, de Sèze, P-E, GazTransport & Technigaz, France

**42. HYDRODYNAMICS V: CFD 5 & MetOcean (V. 3)**

**Tuesday June 23 14:00 Room 1008**

**Chair:** Zang, J, Univ of Bath, UK

**Numerical Study on Generation of Cnoidal Waves and Induced Viscous Flow over a Wavy Bed**

Li, T C, Tang, C J, National Cheng Kung Univ, Taiwan, China

**Evolution of Stokes Wave Side-Band Instability along a Super Tank: Experiments and Saturation Modification of Tulin & Landrini NLS Model**

Yang, R Y, Hwung, H H, Shugan, I V, Chiang, W S, National Cheng Kung Univ, Taiwan, China

**Application of Wavelet Transfer to Spectral Analysis of Surface Wave Method**

Ni, S H, Yang, Y Z, National Cheng Kung Univ, Taiwan, China

**Simulation of Internal Waves in Two-Layer Fluids by a Two-Domain Boundary Element Method**

Koo, W C, Univ of Ulsan, Korea

**Structure of the Head of Gravity Currents in a Long Channel**

Baba, N, Koue, J I, Osaka Prefecture Univ, Japan

**An Implicit Three-Dimensional Hydrodynamic Model for Free-Surface Flows**

Wang, K, Jin, S, Liu, G, Dalian Univ of Tech, China

**Analysis of Marine Accident and Freak Wave Prediction with an Operational Wave Model**

In, K, Waseda, T, Kiyomatsu, K, Univ of Tokyo; Tamura, H, JAMSTEC, Japan

**43. GEOTECH III: Seepage & Soil Improvement (V. 2)**

Tuesday June 23 14:00 Room 1001

Chair: Kim, S S, Hanyang Univ, Korea

**Evaluating Hazard of Land Cover Erosion Processes Observed in Tundra during Development of Gas Fields on the Yamal Peninsula**

Baranov, A V, Unanyan, K L, VNIIGAZ, Russia

**Effect of Grouting Procedure on Effectiveness of Compaction Grouting**

El-Kelesh, A M, Osaka Univ; Matsui, T, Fukui Univ of Tech; Tokida, K I, Osaka Univ, Japan

**Improving Effects of the Bearing Capacity of Soft Ground by Restricting Conditions of Reinforcement**

Ham, T G, Cho, S D, Korea Inst of Construction Tech; Yang, K S, Univ of Seoul; You, S K, Myongji College, Korea

**Shear Behavior of Stabilized Clays Mixed with Shredded Paper**

Nabeshima, Y, Tomohisa, S, Akashi National College of Tech, Japan

**Assessment of Critical Rainfall of Sediment Disasters due to Sloping Field Development**

Chen, Y R, Chen, J W, Hsieh, S C, Chen, Y S, Hui, Y W, Chang Jung Christian Univ, Taiwan, China

**Characteristics of Seepage Failure of Soil for Various Flow Conditions**

Tanaka, T, Kobe Univ; Kusaka, T, Uwajima Regional Office, Ehime Prefecture; Nagai, S, Dept of Construction, Osaka City; Hirose, D, Ehime Prefecture, Japan

**Evaluation of Permeability for Reinforced Ground with Geogrid**

Uchida, K, Matsuda, K, Kobe Univ; Matsukawa, T, NTT Data Corp; Kawabata, T, Inoue, K, Iwade, I, Miyakawa, T, Kobe Univ, Japan

**Bending Tests for Liquefied Stabilized Soil Reinforced with Steel Rebar**

Kawabata, T, Kobe Univ; Mohri, Y, National Inst for Rural Engineering; Shimura, K, Hokuriku Agricultural Admin Office; Hanazawa, T, Kashiwagi, A, Izumi, A, Kanda, M, Kobe Univ, Japan

**44. SBD V: Compressive Capacity (V. 4)**

Tuesday June 23 14:00 Room 1002

Chair: Igi, S, JFE Steel, Japan

Co-Chair: DeGeer, D, C-FER Technologies, Canada

**A Structural Reliability Assessment of the Strains Developed During Lateral Buckling**

Carr, M, Cosham, A, Bruton, D, Atkins Boreas, UK

**Compressive Strain Limits of Large Diameter X80 UOE Linepipe**

DeGeer, D, Timms, C, C-FER Technologies, Canada; Tsuru, E, Nippon Steel, Japan

**Compressive and Tensile Strain Limit and Integrity of X80 High Strain Pipelines**

Igi, S, JFE Steel; Suzuki, N, JFE R&D, Japan

**Strain Capacity of Large Diameter X80 Pipeline Including Hot Bend**  
Shitamoto, H, Sumitomo Metal Industries; Fujita, S, Sumitomo Metal Pipeline and Piping; Takahashi, N, Matsumura, M, Takeuchi, I, Sumitomo Metal Industries, Japan

**Buckling Resistance of Line Pipes with Girth Weld Evaluated by New Computational Simulation and Experimental Technology for Full-Scale Pipes**  
Tsuru, E, Agata, J, Nippon Steel, Japan

**Effects of Pressure on the Tensile and Compressive Strain Capacity of Pipelines**  
Liu, M, Wang, Y Y, CRES, USA

**45. HPM IV: Adv Materials & Structures 2 (V. 4)**

**Tuesday June 23 14:00 Room 1004**

**Chair:** Jin, H W, ExxonMobil Research & Engineering Co, USA

**Extension of Service Life and Considerations on Corrosion Problems of Offshore Wind Energy**  
Herion, S, Univ of Karlsruhe; Faber, T, Germanischer Lloyd Industrial Services; Hrabowski, J, Univ of Karlsruhe, Germany

**Hydrogen Diffusion and Trapping Behavior of Linepipe Steel under Dead Weight Test Condition**  
Park, G T, POSTECH; Jung, H G, Hoh, S U, POSCO; Kim, K Y, POSTECH, Korea

**Progress and Challenges in the Development of Smart Coatings for Steel Structures**  
Wheat, H G, Liu, G, Univ of Texas, USA

**Compressive Behavior of Aged API-X100 Linepipe**  
Cho, W Y, RIST; Seo, D H, Yoo, J Y, Kang, K B, POSCO, Korea

**Bending Deformation of X80 Cold Bend Pipe**  
Horikawa, H, Suzuki, N, JFE R&D Corp, Japan

**Circular Cylindrical Tubes under Extension, Torsion, Bending, Pressure and Temperature Change**  
Tarn, J Q, Chang, H H, National Cheng Kung Univ, Taiwan, China

**The Cavitation Erosion Resistance of the B2-Type Intermetallic FeAl Alloys**  
Jasinowski, R, Wojciech, P, Maritime Univ of Szczecin; Dariusz, Z, Military Univ of Tech, Poland

**Transformation-Induced Microscopic Residual Stress in Ferrite-Martensite Lamellar Steels and Its Influence on Fatigue Crack Propagation Paths**  
Mikami, Y, Inao, A, Osaka Univ; Nakashima K Shimanuki, Nippon Steel; Mochizuki, M, Toyoda, M, Osaka Univ, Japan

**Damage Detecting and Safety Appraisal of Steel Box Girder Viaduct on Service**  
Wang, Y Q, Yao, N, Zhang, T S, Shi, Y J, Tsinghua Univ, China

**46. VORTEX-INDUCED VIBRATIONS I (V. 3)**

**Tuesday June 23 14:00 1006**

**Chair:** Miksad, R W, Univ of Virginia, USA  
**Co-Chair:** Qiu, W, Memorial Univ of Newfoundland, Canada

**An Engineering Approach to VIV for Riser Interference**  
Saint-Marcoux, J-F, Acergy, UK; Blevins, R, Consultant; Wu, M, Acergy, USA

**Parameter Study of Simplified Assessment of Fatigue Damage for Deep Sea Riser VIV**

Zhang, Q, Zhang R, Dalian Univ of Tech, China

**Nonlinear Multi-Mode Interactions in Subsea Risers Undergoing Vortex-Induced Vibrations**

Srinil, N, Wiercigroch, M, Univ of Aberdeen; O'Brien, P, MCS International UK; Pavlovskaja, E, Univ of Aberdeen, UK

**The Viscous Flow Induced by an Arbitrary Moving Cylinder**

Chu, C C, Chen, B F, National Sun Yat-Sen Univ, Taiwan, China

**Vortex-Induced Vibration Analysis of the Tendon Considering the Effect of Hull's Motion**

Yan, G W, Xu, F, Harbin Inst of Tech; Ou, J P, Dalian Univ of Tech, China

**47. PIPELINES & RISERS IV: Riser & SCR (V. 2)**

**Tuesday June 23 14:00** Room 1007

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

**Bottom Weighted Riser – A Novel Approach to Deepwater Riser Design**

Lim, F, Tay, K Y, 2H Offshore Engineering, UK

**Innovative SCR Solution and Installation Feasibility on Turret-moored FPSO in Deepwater Application**

Wu, M, Branchut, J P, Huang, K, Bullock, J, Acergy, USA

**SAIPEM Novel Riser Concepts for Future Deep & Ultra-Deep Water Developments - RCS & SIR**

Mahoney, G P, Pionetti, F-R, SAIPEM, France

**PURE (Premium Upset Riser Ends): Expanding the Possibilities of SCR Application**

Chatterjee, A, Rohden, V, Vallourec & Mannesmann Tubes, Germany; Kumar, V, TWI Ltd., UK

**On the Assessment of Extreme Response of Steel Risers Using Long-Term Response Statistics and Environmental Contour Approaches**

Doria, A S, Martins, M A L, Silveira, E S S, Federal Univ of Alagoas, Brazil

**Bottom Weighted Riser - A Novel Approach to Deepwater Riser Design**

Lim, F, Tay, K Y, 2H Offshore Engineering, UK

**SAIPEM Novel Riser Concepts for Future Deep & Ultra-Deep Water Developments - RCS & SIR**

Mahoney, G P, Pionetti, F-R, SAIPEM, France

**Integrated Short and Long Terms Reliability Analysis Applied to Riser Design**

Perdrizet, T, Averbuch, D, IFP, France

**PURE (Premium Upset Riser Ends): Expanding the Possibilities of SCR Application**

Chatterjee, A, Rohden, V, Vallourec & Mannesmann Tubes, Germany; Kumar, V, TWI Ltd., UK

**On the Assessment of Extreme Response of Steel Risers Using Long-Term Response Statistics and Environmental Contour Approaches**

Doria, A S, Martins, M A L, Silveira, E S S, Federal Univ of Alagoas, Brazil

**48. EARTHQUAKE & ENGINEERING (V. 4)**

**Tuesday June 23 14:00** Room 1005

**Chair:** Kawano, K, Kagoshima Univ, Japan

**Shelf Waves and Their Interaction with the Elastic Medium**

Dolgikh, G I, V.I. Il'ichev Pacific Oceanological Inst, FEB RAS, Russia

**Principles of Transportation of Hydroacoustic Energy in Seismoacoustic Energy in the Sea of Variable Depth**

Chupin, V A, V.I. Il'ichev Pacific Oceanological Inst, FEB RAS, Russia



**A New Structural System with Self-Centering and Energy Dissipation Capabilities**

Pan, P, Pan, Z H, Qiu F, Tsinghua Univ, China

**Damage Survey and Disaster Wastes on the 2005 Fukuoka-ken Seiho-oki Earthquake**

Yamanaka, M, Kagawa Univ; Tomoaki, H, Japan Environmental Sanitation Center; Hasegawa, S, Kagawa Univ; Ohno, H, Kankyo Chishitu Co, Japan

**Site Investigation and Experimental Study on Slope Failure in Housing Complex Constructed by Cutting the Ground and Filling in 2004 Niigataken Chuetsu Earthquake**

Isobe, K, Ohtsuka, S, Nagaoka Univ of Tech; Takahara, T, Kanazawa Univ; Yoshii, K, Nagaoka Univ of Tech, Japan

**Studying of Amplitude-Frequency Dependence of Local Deformations and Global Processes of Planetary Scale**

Yakovenko, S V, V.I. Il'ichev Pacific Oceanological Inst, FEB RAS, Russia

**49. ENVIRONMENT V: Coastal Monitoring (V. 1)**

**Tuesday June 23 14:00 Room 1102**

**Chair:** Sayed, M, National Research Council, Canada

**Co-Chair:** Sato, T, Univ of Tokyo, Japan

**Application of Information Theory for Analyzing High-Frequency Environmental Monitoring Data from a Coastal Industrial Park**

Liu, T K, Yu, J L, Hwang, H H, National Cheng-Kung Univ, Taiwan, China

**Evaluation of Natural Remediation of the Tidal Mud in the Ariake Sea Due to the Tidal Effect and Temperature Effect**

Moqsud, M A, Hayashi, S, Bushra, Q S, Suetsugu, D, Saga Univ, Japan

**Vortex Formation and Waveform Inversion of an Internal Solitary Wave Propagating over a Shelf - Slope Topography**

Cheng, M H, Hsu, J R C, National Sun Yat-Sen Univ, Taiwan, China

**Distribution and Potential Impact of Metal Pollutants in the Coastal Environment: A Case Study with Special Reference to Coastal Aquaculture in Red River Delta of Viet Nam**

Bhakta, J N, Koichi Univ, Japan; Son, L T, Hanoi Univ of Science, Vietnam; Munekage, Y, Koichi Univ, Japan

**A Numerical Study on the Surface Discharge of Ocean Outfall in the Keelung City of Taiwan**

Yang, W C, Taiwan Ocean Research Inst; Shiau, B S, National Taiwan Ocean Univ; Hsu, C M, Taiwan Ocean Research Inst, Taiwan, China

**50. AUV, ROBOTICS & COMMUNICATION V: AUV & Robot (V. 2)**

**Tuesday June 23 14:00 Room 1101**

**Chair:** Yamaguchi, S, Kyushu Univ, Japan

**Study on Active Structural Acoustic Control in the Independent Modal Space**

Sun, C, Zhao, D, Dalian Univ of Tech, China

**Underwater Vehicle Motion Parameter Estimation Experiment Based on Low Cost Camera and Inertial Measurement Unit**

Li, Q, Zhang, Q, Wang, X H, Inst of Automation, CAS, China

**Integral Variable Structure Control and Simulation for Near-Surface Movement of AUV**

Yao, Z G, Qin, Y L, CNPC Research Inst of Engineering Tech; Zhang, L, Harbin Engineering Univ, China

**Buckling Modes of an Underwater Diagnostic Pressure Vessel**

Curry, R, Kahlen, F-J, Univ of Cape Town, South Africa

**Development of Motion Control System for a Fish Type Robot**

Yamaguchi, S, Sumoto, H, Terada, M, Kyushu Univ, Japan

**TUESDAY 16:20**

**51. SLOSHING V: CFD 1 (V. 3)**  
Tuesday June 23 16:20 Room 1009

**Chair:** Bunnik, T, MARIN, The Netherlands  
**Co-Chair:** Shin, Y, American Bureau of Shipping, USA

**A Comparative Study on the Numerical Simulation of 2-D Violent Sloshing Flows by VSAM3 and SPH**  
Yang, K K, Kim Y G, Seoul National Univ, Korea; Hu, C H, Kyushu Univ, Japan

**Experimental and Numerical Study of Sloshing Induced Pressures in a Two-Dimensional Tank**  
Graczyk, M, Pakozdi, C, MARINTEK, Norway

**A Validation Study of Applying the CIP Method and the MPS Method to 2-D Tank Sloshing**  
Hu, C H, Sueyoshi, M, Kyushu Univ; Miyake, R, Zhu, T Y, Dobashi, H, Nippon Kaiji Kyokai, Japan

**SPH Simulation of 2D Sloshing Flow in a Rectangular Tank**  
Rafiee, A, Thiagarajan, Univ of Western Australia; Monaghan, J J, Monash Univ, Australia

**SPH Modelling of Liquid Sloshing in an LNG Tank**  
Rudman, M, Prakash, M, Cleary, P W, CSIRO Mathematical and Information Sciences, Australia

**52. HYDRODYNAMICS VI: CFD 6 & MetOcean (V. 3)**  
Tuesday June 23 16:20 Room 1008

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

**Numerical Simulation of Current under Waves, Tides, and Typhoon**  
Zhang, J, Liang, B C, Li, H, Ocean Univ of China, China

**Application of the Statistics of Extreme Value Theory on Non-Linear Ocean Waves**  
Liu, J D, Fugro Seismic Imaging AS; Krogstad, H E, Norwegian Univ of Science and Tech, Norway

**Further Modification Practical Method for Estimating Directional Wave Spectrum by HF Radar**  
Lukijanto, Hashimoto, N, Yamashiro, M, Kyushu Univ, Japan

**Simulation and Analysis of Ocean Waves in the Northwest Pacific Ocean**  
Zhu, Z X, Zhou, K, Yang, Y, Shanghai Jiao Tong Univ, China

**Estimation of Sea Conditions in a Long Return Period around Japan**  
Ishida, S, Kokubun, K, National Maritime Research Inst, Japan

**Study Wave Regimes Southern Okhotsk Sea on Annual Results of Continuous Observations**  
Kuznetsov, K I, Chernov, A G, Kurkin, A A, Nizhny Novgorod State Technical Univ, Russia

**Comparisons between the Wind Wave Results from WAVEWATCH III and the Observed Data**  
Liu, S, Sun, J, Guan, C L, Ocean Univ of China, China

**Numerical Modelling of 3D Oblique Waves by L-Type Multiple Directional Wave Generator**  
Shih, R S, Tungnan Univ; Chou, C R, Weng, W K, National Taiwan Ocean Univ, Taiwan, China

**53. GEOTECH IV: Consolidation & Embankment (V. 2)**

**Tuesday June 23 16:20 Room 1001**

**Chair:** Tokida, K-I, Osaka Univ, Japan

**Co-Chair:** Shang, J Q, Univ of Western Ontario, Canada

**A Stability Analysis for Embankment Retaining Wall of Soil Gabions**

Tseng, K H, Fu, J J, National Kaohsiung First Univ of Science and Tech, Taiwan, China

**Construction of an Embankment with Dredged Sludge: Back Analysis**

Levacher, D R, Duah, Z, Universite de Caen; Pioline, M, CETE; Tison, E, DDE, France

**Geotechnical Behaviors of Dredged Clay Surface Improved by RM Method**

Ahn, D W, Hanyang Univ; Kang, M S, Samsung Engineering & Construction; Kim J Y, Kim, S S, Hanyang Univ, Korea

**Failure Mode in Embankments Supported by Piles with Geosynthetic**

Lee, J H, GS Engineering & Construction; Hong, W P, Chung-Ang Univ; Lee, K W, Korea Inst of Construction Tech; Yun, J M, Ansan College of Tech; Yea, G G, Sambu Construction; You, S K, Myong-Ji College, Korea

**Settling Process and Shock Wave of Cohesive Sediment**

Hsu, W Y, National Cheng Kung Univ; Liu, C M, Chienkuo Tech Univ; Hwung, H H, Yang, R Y, National Cheng Kung Univ, Taiwan, China

**54. SBD VI: Recent Developments (V. 4)**

**Tuesday June 23 16:20 Room 1002**

**Chair:** Takeuchi, I, Sumitomo Metal Industries, Japan

**Co-Chair:** Seo, D H, POSCO, Korea

**Application of Strain Based Design Procedures for Deepwater Subsea Tie-In Systems**

Casola, F, El-Chayeb, A, Delle Canne, A, Saipem SA, France

**Structural Integrity of Submarine Pipelines Subjected to Large Strains Caused by Trawl Impact**

Hval, M, Reinertsen AS; Olso, E, SINTEF; Brakstad, L L, Reinertsen; Knagenhjelm, H O, StatoilHydro, Norway

**Recent Development in Strain-Based Design in North America**

Wang, Y Y, Liu, M, CRES, USA; Stephens, M, C-FER Technologies; Horsley, D, BP, Canada

**An Experimental Basis for Improved Strain-Based Design Models**

Stephens, M, Petersen, R, C-FER Technologies, Canada; Wang, Y Y, CRES, USA; Horsley, D, BP, Canada

**The Response of Buried Pipeline Subjected to Landslides**

Liu, B, PetroChina Pipeline, China; Liu, X J, Liu Advanced Engineering, USA; Zhang, H, China Univ of Petroleum-Beijing, China

**55. VORTEX-INDUCED VIBRATIONS II (V. 3)**

**Tuesday June 23 16:20 1006**

**Chair:** Wu, Y X, Inst of Mechanics, CAS, China

**Co-Chair:** Etienne, S, École Polytechnique de Montréal, Canada

**The Effect of Wavy Surface on Vortex Shedding from an Inclined Cylinder in Turbulent Flow**

Lam, K, Lin, Y F, Hong Kong Polytechnic Univ; Zou, L, Wuhan Univ of Tech; Liu, Y, Hong Kong Polytechnic Univ, China

**Numerical Study of Fluid Force Reduction on a Square Cylinder**

Zhou, C Y, Wang, C, Harbin Inst of Tech, China

**VIV and Wake-Induced Vibrations of Two and Three Cylinders Arranged In-Line**

Etienne, S, École Polytechnique de Montréal, Canada; Fontaine, E, AMOG Consulting, Australia; Scolan, Y-M, École Centrale Marseille, France

**Vertical Pipe in Pipe Marine Riser - Tow Tank Tests and VIV Observations**

Derradji-Aouat, A, National Research Council of Canada, Canada

**The Viscous Flow Induced by an Oscillating Circular Cylinder**

Chu, C C, Chen, B F, National Sun Yat-Sen Univ, Taiwan, China

**Vertical Riser VIV Simulation in Sheared Current**

Huang, K, Chen, H C, Chen, C R, Texas A&M Univ, USA

**Numerical Simulation of Flexible Multi-Pipe Systems Subject to Outer and Inner Flow**

Chen, Z S, Kim W J, Mokpo National Univ, Korea; Yu, D Y, Ocean Univ of China, China

**56. IMPACT & COLLISION (V. 4)**

**Tuesday June 23 16:20 Room 1005**

**Chair:** Shibue, T, Kinki Univ, Japan

**Co-Chair:** Constantinescu, A, Univ of Liege, Belgium

**Time Prediction Enhancement for the Bottom Slamming Phenomenon**

Rahati, A, Hamoudi, B, Universiti des Sciences et la Technologie d'Oran, Algeria

**Numerical Simulation of Dynamic Behavior of a Passenger at Ship Collision**

Shibue, T, Hayami, T, Kinki Univ; Muramoto, I, JAIST, Japan

**Ship Grounding over "Rock" and "Shoal"**

Hong, L, Amdahl, J, Norwegian Univ of Science and Tech, Norway

**Numerical Study in Axial Impact of Thin-Walled Circular Tubes Made of High Strength Steel**

Tai, Y S, ROC Military Academy; Huang, M Y, Hu, H T, National Cheng Kung Univ, Taiwan, China

**Oblique Impact of Rogue Waves on a Floating Platform**

Rudman, M, Cleary, P W, CSIRO, Australia

**Flow Separation at the Initial Stage of Oblique Water Impact of Wedge-Shaped Bodies**

Yoon, B S, Semenov, Y A, Ulsan Univ, Korea

**Numerical and Experimental Studies of Simple Geometries in Slamming**

Constantinescu, A, Univ of Liege, Belgium; El Malki Alaoui, A, Neme, A, ENSIETA, France; Rigo, P, Univ of Liege, Belgium

**57. ARCTIC, ANTARCTIC & ICE I (V. 1)**

**Tuesday June 23 16:20 Room 1102**

**Chair:** Fissel, D B, ASL Environmental Sciences, Canada

**Co-Chair:** Buzin, I V, SI Arctic and Antarctic Research Inst, Russia

**Characteristics of Icebergs in Their Origin Sites in Russian Arctic: Results of Airborne and Direct Studies 2007-2008 IPY**

Kubyshkin, N V, Andreev, O M, Borodulin, V V, Arctic and Antarctic Research Inst, Glazovsky, A F, Inst of Geography, RAS; Gudoshnikov, Y P, Zubakin, G K, Arctic and Antarctic Research Inst, Macheret, Y Y, Inst of Geography, RAS; Skutin, A A, Arctic and Antarctic Research Inst, Russia

**Investigation of Arctic Sea Route Open Days using AMSR-E Satellite Microwave Data**

Shibata, H, Tateyama, K, Enomoto, H, Kitami Inst of Tech, Japan

**Iceberg Freshwater Sustainable Transportation**

Spandonide, B, Univ of Tasmania, Australia

**Temperature Properties of Snow on Sea Ice with Water Infiltration**

Kojima, S, Toyo Engineering Works; Nakamura, K, National Inst of AIST;  
Naoki, K, Chiba Univ; Enomoto, H, Kitami Inst of Technology, Japan

**An Experiment of EG/AD/S Model Ice Grown for Applying at the MOERI Ice Model Basin**

Cho, S R, Lee, C J, MOERI/KORDI, Kim, J H, Jeong, S Y, Choi, K S,  
Korea Maritime Univ, Korea

**WEDNESDAY 08:00**

**58. SLOSHING VI: - Load & Strength (V. 3)**

**Wednesday June 24 08:00** Room 1009

**Chair:** Malenica, S, Bureau Veritas, France

**Co-Chair:** Rinehart, A, ExxonMobil Upstream Research Co, USA

**Sloshing Impact Design Load Assessment**

Rognebakke, O, Opedal, J A, Ostvold, T K, Det Norske Veritas, Norway

**Sloshing Model Tests and Strength Assessment of No 96 Containment System**

Wang, B, American Bureau of Shipping, USA; Han, S K, Kim, Y S, Park, Y I, Daewoo Shipbuilding & Marine Engineering, Korea; Shin, Y, American Bureau of Shipping, USA

**Sloshing Load for LNG and FPSO Vessels**

Lin, F, Lloyd's Register of Shipping, Canada; Polezhayeva, H A, Lloyd's Register of Shipping, UK; Byers, R, Lloyd's Register of Shipping, Canada

**Sloshing Assessment of LNG-FPSOs for Partial Filling Operations**

Park, J J, Jeong, K L, Kim, M S, Ha, M K, Samsung Heavy Industries, Korea

**Semi-Empirical Methodology for Sloshing Load Assessment**

Opedal, J A, Ostvold, T K, Det Norske Veritas, Norway; Le Goff, S, Ratouis, A, GazTransport & Technigaz, France

**Sloshing Load Assessment for LNG Offshore Units with a Two-row Tank Arrangement**

Ryu, M C, Hwang, Y S, Park, Y I, Jung, J H, Jeon, S S, Han, S K, Kim, S Y, Lee, J H, Daewoo Shipbuilding & Marine Engineering; Korea

**Plenary Presentation III (V. 3)**

**Wednesday June 24 08:00** Room 1008

**Lagrangian Particle Method - Advanced Technology for Numerical Wave Flume**

Gotoh, H, Kyoto Univ, Japan  
Introduction by Kashiwagi, M, Osaka Univ, Japan

**59. HYDRODYNAMICS VII: CFD 7 -Nonlinear (V. 3)**

**Wednesday June 24 08:00** Room 1008

**Chair:** Ma, Q W, The City Univ, UK

**Extreme Loads Due to Wave Breaking Against Platform Column**

Suyuthi, A, NTNU; Haver, S K, StatoilHydro, Norway

**Numerical Simulation of Wind Effects on Breaking Solitary Waves**

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

**The Statistical Characteristics of Wave Forces on Vertical Cylinders in Shallow Water Area**

Gao, Y Y, Yu, D Y, Li, C L, Ocean Univ of China, China

**Numerical Simulation of Green Water Incident on Bow Deck**

Kang, B H, Lee, Y G, Kim, N C, Yu, J W, Inha Univ, Korea

**Numerical Investigation on Violent Wave Impact on Offshore Wind Energy Structures with Meshless Method**

Zhou, J T, Ma, Q W, City Univ, UK; Zhang, L, Harbin Engineering Univ, China

**Numerical Simulation of Wave Impact on the Structures Using Nested Grid**

Li, X, Ren, B, Wang, Y, Dalian Univ of Tech, China

**Refined Reproduction of a Plunging Breaking Wave and Resultant Splash-Up by 3D-CMPS Method**

Gotoh, H, Khayyer, A, Kyoto Univ; Ikari, H, NEWJEC Inc., Hori, C, Kyoto Univ, Japan

**Impulsive Wave Force due to Tsunamis Impinging and Overtopping an Impermeable Breakwater upon a Sloping Beach**

Lin, T C, Hsiao, S C, Hwang K S, National Cheng Kung Univ, Taiwan, China

**A Study on Practical Prediction Method for Disaster of Floating Vessels Induced by Tsunami and Development of Marine Tsunami Hazard Map**

Masuda, K, Ikoma T, Otsuka, F, Suzuki, Uta, S, Nihon Univ, Japan

**Plenary Presentation IV (V. 2)**

**Wednesday** June 24 08:00 Room 1001

**Rate Dependent Nature of Liquefied Sand Undergoing Large Flow-Deformation and its Interaction with Group Pile Foundation**

Towhata, I, Univ of Tokyo; Motamed, R, Tokyo Inst of Tech; Thi Lan Anh, T, Univ of Tokyo, Japan; Sesov, V, Univ of St. Cyril and Methodius, Macedonia  
Introduction by Uchida, K, Kobe Univ, Japan

**60. GEOTECH V: Soil Properties 1 (V. 2)**

**Wednesday** June 24 08:00 Room 1001

**Chair:** Bransby, F Bransby, F, Univ of Dundee, UK,  
**Co-Chair:** Nabeshima, Y, Akashi National College of Tech., Japan

**Compaction Control of Soils by Resistivity and Correction Procedure for Its Reference Value to Water Content Change**

Sawazaki, M, Fukui Univ of Tech; Ueno, N, Dai Nippon Construction; Matsui, T, Fukui Univ of Tech, Japan

**The Failure Criterion of  $K_0$ -Consolidated Saturated Clay under Combined Static and Cyclic Stresses**

Wang, J H, Tianjin Univ; Zhou, Y, China Oilfield Services Limited, China

**The Mechanical properties of High Strength Soil Material Made from Reservoir Mud**

Chen, J W, Chang, C F, National Cheng Kung Univ, Taiwan, China

**Shear Behavior of Normally and Overconsolidated Nakdong River Clayey Silt**

Tint, K S, Kim, Y S, Kyungpook National Univ, Korea

**Keynote Presentation II (V. 4)**

**Wednesday** June 24 08:00 Room 1002

**The Second (2008) ISOPE Strain-based Design Symposium - A Review**

Lillig, D B, Newbury, B D, Alstadt, S A, ExxonMobil Development, USA

Introduction by Wang, Y-Y, Center for Reliable Energy Systems, USA

**61. SBD VII: Panel Discussions (V. 4)**  
**Wednesday**      **June 24**      **08:00**      Room 1002

**Chair:** Wang, Y-Y, Center for Reliable Energy Systems, USA  
**Co-Chair** Ernst, H A, Tenaris, Argentina

#### **The State-of-the-Art in SBD**

**62. HPM V: Tubular Structures (V. 4)**  
**Wednesday**      **June 24**      **08:00**      Room 1004

**Chair:** Herion, S, Univ of Karlsruhe, Germany

#### **Effect of Reeling on Sour Service Performance of C-Mn Steel Linepipe and Girth Welds**

Noecker, F F, Pickens, G, Wilken, G, Dunn, G, Lillig, D, ExxonMobil Development; Jin, H W, Ayer, R, ExxonMobil Resesarch and Engineering, USA; Quintanilla, H, Izquierdo, A, Darcis, P, Richard, G, TenarisTamsa, Mexico

#### **Determination of Mixed-Mode Stress Intensity Factors for Load-Carrying Fillet Welded Cruciform Joints Using Digital Image Correlation Method**

Chung, H Y, Lin, R S, Lin, K J, National Cheng Kung Univ, Taiwan, China

#### **Numerical Parametric Study of Stress Concentration along the Intersection of Tubular KT-Joints Subjected to Balanced Axial Loading**

Lotfollahi-Yaghin, M A, Ahmadi, H, Univ of Tabriz, Iran

#### **Ultimate Strength Analysis of Grouted Tubular Joints Using Continuum Damage Mechanics Approach**

Chen, Z, Qian, X D, National Univ of Singapore, Singapore

#### **ECA of Pipeline Girth Weld in Sour Services**

Yang, Z M, Tronskar, J P, Kumar, S B, Det Norske Veritas, Singapore; Nair, S K, Ahern, K E, J Ray McDermott Middle East, United Arab Emirates

**63. COASTAL ENGINEERING V: Breakwaters (V. 3)**  
**Wednesday**      **June 24**      **08:00**      Room 1006

**Chair:** Deguchi, I, Osaka Univ, Japan

#### **Hydraulic Experiment for Development of a Cylindrical Slit Type Breakwater**

Lee, J W, Nam, K D, Korea Maritime Univ, Korea

#### **Examination of Wave Pressures on Breakwater over Steep Beach**

Tsai, C P, Lin, Y J, Hung, C W, National Chung Hsing Univ, Taiwan, China

#### **Prediction of Wave Run-up on Step Dike**

Juang, J T, Chienkuo Tech Univ; Lin, C F, You, J Y, Fen-Chia Univ, Taiwan, China

#### **Field Measurements of the Behavior of Caisson Type Breakwater with Suction Piles**

Jang, I, Park, W S, Kwon, O S, Jeong, W M, Korea Ocean Research and Development Inst, Korea

#### **Permeability Parameter of Perforated Wall with Vertical Slits**

Suh, K D, Kim, Y W, Ji, C H, Seoul National Univ, Korea

#### **Resonant Fluid Motions in Joint Gap of Caisson-Type Breakwater under Random Wave Attack**

Hiroyuki, H, Ishikawa Prefectural Office; Saitoh, T, Ishida, H, Kanazawa Univ, Japan

**Case History: Using Prefabricated Caissons to Construct Guide Dikes on Soft Clay**

Yan, S W, Feng, X W, Tianjin Univ, China; Chu, J, Nanyang Tech Univ, Singapore; Fan, Q J, Yangtze Estuary Waterway Construction, China

**64. PIPELINES & RISERS V: Riser & Dynamics (V. 2)**

Wednesday June 24 08:00 Room 1007

Chair: Lim, F, 2H Offshore Engineering, UK

**Hydrodynamic Aspects of Pipeline Overtrawling**

Teigen, P, Iltstad, H, Levold, E, StatoilHydro, Norway

**Design Analysis of a Weight Added Wave Configuration of a Flexible Riser in Shallow Water**

Tan, Z, Zhang, J, Ma, F, Hou, Y, Wellstream International, USA

**Influence of the Type of Geometrical Imperfection on the Response of Steel Pipes Subject to Pure Bending**

Arjomandi, K, Taheri, F, Dalhousie Univ, Canada

**Simulation of Active Heave Compensation System Based on Dynamic Vibration Absorber for Deep Sea Mining System**

Li, L J, Liu, S J, Central South Univ, China

**65. OFFSHORE SYSTEM I: LNG, FLNG & Offloading (V. 1)**

Wednesday June 24 08:00 Room 1005

Chair: Duggal, A, SOFEC, USA

**Wave Loading on a Stationary LNG Barge, Potential Flow Methods versus CFD**

Teigen, P, StatoilHydro; Hansen, E, Complex Flow Design, Norway

**Effect of Heading Control on LNG Offloading**

Voogt, A J, MARIN USA, USA

**FPSO with Gas to Liquid (GTL) Process Capability**

Kawase, M, Ide, S, MÓDEC, Japan

**Tandem Offloading from an FLNG in Harsh Environments**

Heyl, C, Liu, A, Duggal, A, SOFEC, USA

**Numerical and Experimental Investigation of Wave Forces and Wave Effects for Two Vessels in Side-By-Side Configuration**

Teigen, P, StatoilHydro, Norway; Niedzwecki, J M, Texas A&M Univ, USA

**66. ARCTIC, ANTARCTIC & ICE II (V. 1)**

Wednesday June 24 08:00 Room 1102

Chair: Prinsenber, S J, Bedford Inst of Oceanography, Canada

**Numerical Simulations of First Year Ice Ridges Interaction with Wide Structures**

Sayed, M, Timco, G, National Research Council, Canada

**Dynamic Response of an Ice-Covered Fluid to an Impulse Submerged Point Source**

Kozin, V M, Pogorelova, A V, Inst of Machining and Metallurgy, FEB RAS, Russia

**Ice-Induced Vibrations of Gravity Based Platforms**

Willemse, C A, Haverkamp, B, Delft Univ of Tech; Efthymiou, M, Kuiper, G, Shell International, The Netherlands

**Estimation of Limit Ice Loads on Engineering Offshore Structures in the Sea of Okhotsk**



Bekker, A T, Sabodash, O A, Shubin, O A, Far-Eastern National Tech Univ, Russia

**Ice Model Testing of Artificial Islands Protected by Rock Berms**  
Li, G, BP; Braun, K, Hudson, B, PND Engineers, USA

**A Review on Ice Resistance Prediction Formulas for Icebreaking Vessels**  
Choi, K S, Jeong, S Y, Korea Maritime Univ, Korea

**67. OCEAN & WIND ENERGY I: Biomass & Energy (V. 1)**  
Wednesday June 24 08:00 Room 1101, 11F

**Chair:** Ikegami, Y, Saga Univ, Japan

**A Feasibility Study of Marine Biomass Utilization System in Osaka Bay [Oral Presentation]**  
Otsuka, K, Yamakita, M, Osaka Prefecture Univ, Japan

**Conversion and Utilization of Salinity Gradient Energy**  
Knyazhev, V V, Inst of Marine Technology Problems, FEB RAS, Russia

**Effect of Operating Condition on the OTEC System Using Ammonia/Water Mixture as Working Fluid**  
Ikegami, Y, Asou, H, Inadomi, J, Goto, H, Saga Univ, Japan

**Treatment of Geothermal Water from Geothermal Plant Using Hydrotalcite for Removal of Harmful Anions**  
Wajima, T, Akita Univ; Yasuyuki, I, Saga Univ; Suagawara, K, Akita Univ, Japan

**New Opportunities in Construction of Local Energy Systems (LOES) in the North of Russia [Oral Presentation]**  
Bekker, A T, Solonitsyn, Far-Eastern National Tech Univ, Russia

## WEDNESDAY 10:30

**68. SLOSHING VII: - Sloshing Physics2 (V. 3)**  
Wednesday June 24 10:30 Room 1009

**Chair:** Kashiwagi, M, Osaka Univ, Japan  
**Co-Chair:** Huang, Z, ExxonMobil Upstream Research Co, USA

**Application of the Seakeeping/Sloshing Coupling for the LNG Terminals**  
Moiron, N, Diebold, L, Zalar, M, Bureau Veritas, France

**Coupling between Ship Motion and Sloshing Using Potential Flow Analysis Compared to Equivalent Pendulum System**  
Lee, Y, Godderidge, B, Temarel, P, Tan, M, Turnock, S R, Univ of Southampton, UK

**Three-Dimensional Sloshing of Liquid in a Rectangular Parallelepiped Container Due to Turning Motions**  
Chen, J H, Hu, C L, National Taiwan Ocean Univ, Taiwan, China

**Numerical Study on Impact Pressure Due to Violent Sloshing Waves**  
Ma, Q W, City Univ, UK; Dan, Q Y, Harbin Eng Univ, China; Zhou, J, Yan, S, City Univ, UK

**A Study on Coupling Effects of 3-D Sloshing in Rectangular Tanks and Ship Motion**  
Mitra, S, Hai, L V, Khoo, B C, National Univ of Singapore, Singapore

**69. GEOTECH VI: Soil Properties & Centrifuge 2 (V. 2)**  
Wednesday June 24 10:30 Room 1001

**Chair:** Matsui, T, Fukui Univ of Tech, Japan

**Effects of Acidic Contamination on the Geotechnical Properties of Marine Soils in Japan**

Gratchev, I B, Towhata, I, Univ of Tokyo, Japan

**Shear Strength Characteristics of Landslide Soils, Asato Landslide, Okinawa, Japan**

Kimura, S, Kagoshima Univ; Gibo, S, Vithana, S B, Nakamura, S, Vithana, S B, Univ of the Ryukyus, Japan

**Evaluation of Deformation Modulus of Cemented Sands Using Cone Tip Resistance**

Lee, M J, Lee, W J, Choi, S K, Choo, H W, Korea Univ, Korea

**Electrical Resistivity and Cone Tip Resistance Monitoring by Using Cone Resistivity Penetrometer**

Lee, J S, Kim, R H, Lee, W J, An, S W, Yoon, H K, Korea Univ, Korea

**Temperature-Compensated Micro Cone Penetrometer by Using FBG Sensor**

Kim, R H, Lee, W J, An, S W, Yoon, H K, Lee, J S, Korea Univ, Korea

**Experimental Study about the Influence of Water Content in Wet Tamping Method on Static Tri-Axial Test Results of Silt**

Guo, Y, Wang, Y, Dalian Univ of Tech, China

**Biaxial Testing on the Properties of Pre-Cracked Partially Saturated Clay**

Fauziah, M, Nikraz, H R, Curtin Univ of Tech, Australia

**Centrifuge Experiments Investigating Use of Jetting in Spudcan Extraction**

Gaudin, C, Bienen, B, Cassidy M J, Univ of Western Australia, Australia

**Centrifuge Model Tests on Suction Piles in Sand under Inclined Loading**

Kim, K O, Kim, Y S, Cho, Y, Daewoo Engineering & Construction, Korea; Bang, S, Jones, K, South Dakota School of Mines and Tech, USA

**70. HPM VI: NDE (V. 4)**

Wednesday June 24 10:30 Room 1004

**Chair**: Tsakalagos, T, Rutgers Univ, USA

**Co-Chair**: Nitschke-Pagel, T N, Univ of Braunschweig, Germany

**Residual Stress Relaxation in Welded High Strength Steels under Static and Cyclic Loading**

Nitschke-Pagel, T N, Dilger, K, Farajian-Sohi, M, Univ of Braunschweig, Germany

**Characterization of Residual Stresses and Hardness Condition in Welded Joints Using Micromagnetic Parameters**

Nitschke-Pagel, T N, Dilger, K, Univ of Braunschweig, Germany

**Influence of Initial Residual Stress by Rolling Process on Welding Distortion of Stiffened Plate**

Itoh, S, Okano, S, Mochizuki, M, Murakawa, Osaka Univ, Japan

**Study on Visualization of Ultrasonic Wave Propagation and Identification of Defect Size and Location**

Maeda, M, Kyushu Univ; Maeda, S, Mitsubishi Heavy Industries; Yoshikawa, T, Kyushu Univ, Japan

**Non-Destructive Evaluation of Residual Stress**

Tskalagos, T, Rutgers Univ, USA

**71. COASTAL ENGINEERING VI: Floating Breakwaters (V. 3)**

Wednesday June 24 10:30 Room 1006

**Chair**: Angelides, D C, Aristotle Univ of Thessaloniki, Greece

**Co-Chair**: Yauchi, E, Chiba Inst of Technology, Japan

**Three-Dimensional Formulation of Multiple Pile-Restrained Floating Breakwaters Connected by Hinges**

Diamantoulaki, I, Angelides, D C, Aristotle Univ of Thessaloniki, Greece

**Influence of Connectors' Stiffness on Effectiveness of Floating Breakwaters**

Michailides, C, Loukogeorgaki, E, Angelides, D C, Aristotle Univ of Thessaloniki, Greece

**Dynamic Response of Bridge Tower by Wave Loads**

Liu, G, Chen, S Y, Liu, T C, Wu, H B, Li, Y, China Highway Planning and Design Inst Consultants, China

**Effect of Ship-Tugboat Hydrodynamic Interaction on Braking Force of Tugboats**

Yang, L, Hong, B, Dalian Maritime Univ, China; Inoue, K, Sadakane, H, Kobe Univ, Japan

**Numerical Simulation of Ship Motions Moored to Quay Walls in Long-Period Waves and Proposal of Allowable Wave Heights for Cargo Handling in a Port**

Shiraishi, S, Hokkaido Inst of Tech, Japan

**Development of a Reduction System for Low-Frequency Ship Motions and Its Field Experiments by Using a Large Ship**

Yoneyama, H, Port and Airport Research Inst; Asakura, K, Tohoku Regional Bureau, Ministry of Land, Infrastructure, Transport and Tourism; Negi, T, Okinawa General Bureau Cabinet Office; Otake, Y, M.O. Marine Consulting, Japan

**Motion Suppression of the Floating Pontoon with Side Porous Keels**

Kee, S T, Seoul National Univ of Tech; Yoon, J S, Inje Univ, Korea

**Fundamental Model Experiments on Response Characteristics of a Moored Ship and Mooring Facilities by Tsunami Flow**

Ogaki, K, Toa Corp; Yoneyama, H, Port and Airport Research Inst; Tsuda, M, Toa Corp; Hiraishi, T, Port and Airport Research Inst; Kurihara, A, Toa Corp, Japan

**72. PIPELINES & RISERS VI: Pipe-Soil Interactions 1 (V. 2)**

Wednesday June 24 10:30 Room 1007

Chair: Moshagen, H, BHM Engineering Services, Norway

**Displacement and Inner Force Analysis of Span Pipeline Based on the Interaction between Pipe and Soil**

Cao, X F, Qin, Y L, CNPC Research Inst of Engineering Tech, China

**Effect of the Liquefaction of Buried Pipe on Structure Safety during Earthquake**

Hsiao, D H, Lin, M D, National Kaohsiung Univ of Applied Science, Taiwan, China

**Pile Foundation Design in Deepwater**

Zhang, H, Lim, F, Jewell, G, 2H Offshore Engineering, UK

**Pipe Strain and Soil Pressure Development in Frozen Lightweight Backfill**

Christ, M, Kim, Y C, Korea Inst of Construction Tech; Park, J B, Seoul National Univ, Korea

**Pipe-Soil Interaction Analysis with a 3D Macroelement Model**

Tian, Y H, Cassidy, M J, Univ of Western Australia, Australia

**Vertical Bearing Capacity of a Partially-Embedded Pipe on Tresca Soil**

Zhao, B, Gao, F P, Inst of Mechanics, CAS; Liu, J M, China National Petroleum Offshore Engineering; Wu, Y X, Inst of Mechanics, CAS, China

**A Numerical Study of Ice-Soil-Pipeline Interaction**

Abdalla, B A, Pike, K, Eltaher, A, Jukes, P, Duron, B, J P Kenny, USA

**73. OFFSHORE SYSTEM II: Installation & Operations (V. 1)**

**Wednesday      June 24      08:00      Room 1005**

**Chair:** Capanoglu, C, I.D.E.A.S., USA  
**Co-Chair:** Park, R S, Univ of Ulsan, Korea

**Development of Artificial Seabed Technology and Conduct of Pre-Trial Well in South China Sea**

Guo, Y F, Ji, S J, Tang, C Q, China Oilfield Services Ltd (COSL), China

**Evaluating the Impact Load on the Offshore Platform during Topside Installation Using Float-Over Method**

Jung, J J, Kim, Y H, Lee, W S, Shin, H S, Hyundai Heavy Industries, Korea

**Development Mode and Structure Type for Shallow Water Oilfield**

Zhang, A, Liu, J, China National Petroleum Offshore Engineering; Duan, M, China Univ of Petroleum, China

**Construction Techniques for Deep Water Immersed Tunnel in Bosphorus Strait**

Ito, K, Oda, Y, Honda, T, Koyama, F, Taisei Corp, Japan

**A Study on the Helical Flow of Non-Newtonian Fluids in an Annulus**

Hwang, Y K, Han, S M, Sungkyunkwan Univ; Kim Y J, Korea Inst of Geoscience and Mineral Resources; Woo, N S, Sungkyunkwan Univ, Korea

**A Novel Oil-Water Separation System for Offshore Platforms**

Wu, Y X, Wang, L Y, Xu, J Y, Zhong, X F, Inst of Mechanics, CAS, China

**74. ARCTIC, ANTARCTIC & ICE III (V. 1)**

**Wednesday      June 24      10:30      Room 1102**

**Chair:** Bekker, A.T., Far Eastern State Tech. Univ., Russia  
**Co-Chair:** Sayed, M, National Research Council, Canada

**Full-Scale Ice Impact Study of Icebreaker**

Likhomanov, V A, Gudoshnikov, Y P, Chernov, A V, Krupina, N A, Arctic and Antarctic Research Inst, Russia

**Numerical Simulation of Breaking Pattern for Ship and Level Ice**

Sawamura, J, Osaka Univ, Japan; Kaj, R, ILS Oy, Finland; Torgeir, M, NTNU, Norway

**The Nature of the Process Pressure-Area Relation from CCGS Terry Fox Bergy Bit Impacts**

Frederking, R, National Research Council; Ritch, R, Avron Ritch Consulting, Canada

**Results of Measuring Global Ice Forces during the Full-Scale Ice Impact Study of Icebreaker "Kapitan Nikolaev"**

Krupina, N A, Gudoshnikov, Y P, Likhomanov, V A, Chernov, A V, Arctic and Antarctic Research Inst, Russia

**A Consideration on Bow Design of Arctic Tanker Transiting in Thin Level Ice and in Broken Ice Channel**

Nozawa, K, Osaka Univ, Japan

**Study on Improvement in Ramming Performance of Antarctic Icebreaker**

Yamauchi, Y, Mizuno, S, Tsukuda, H, Universal Shipbuilding, Japan

**75. OCEAN & WIND ENERGY II: Waves 1 (V. 1)**

**Wednesday      June 24      10:30      Room 1101, 11F**

**Chair:** Hong, S W, Maritime and Ocean Engineering Res Inst (MOERI), Korea

**Assessing and Improving the Edinburgh Curved Wave Tank**

Pascal, R C R, Lucas, J, Ingram, D, Bryden, I G, Univ of Edinburgh, UK

**CFD Analysis on the Performance and Internal Flow Characteristics of a Savonius Type Direct Drive Turbine for Wave Energy Converter**  
Choi, Y D, Cho, Y J, Lee, Y H, Korea Maritime Univ, Korea

**Investigation on Integrated System of Chamber and Turbine for OWC Wave Energy Converter**  
Liu, Z, Ocean Univ of China, China; Hyun, B S, Korea Maritime Univ; Hong, K Y, Lee, Y Y, MOERI/KORDI, Korea

**Development of a New Radial Impulse Turbine Design for OWC**  
Pereiras, B, Castro, F, Rodriguez, M A, Univ of Valladolid, Spain

**Tip Clearance Effect on the Flow Pattern of a Radial Impulse Turbine for Wave Energy Conversion**  
Pereiras, B, Castro, F, Rodriguez, M A, Univ of Valladolid, Spain

**Numerical Simulation for Evaluation of Primary Energy Conversion of Floating OWC-type Wave Energy Converter**  
Imai, Y, Toyota, K, Nagata, S, Setoguchi, T, Oda, J, Matsunaga, N, Manago, Y, Shimozono, T, Saga Univ, Japan

## WEDNESDAY 13:30

**76. SLOSHING VIII: CFD 2 (V. 3)**  
Wednesday June 24 14:00 Room 1009

**Chair:** Causon, D, Manchester Metropolitan Univ, UK  
**Co-Chair:** Dias, F, Ecole Normale Supérieure de Cachan, France

**Numerical Simulation of Liquid Sloshing in LNG Tanks Using Compressible Two-fluid Flow Model**  
Chen, Y G, Temarel, P, Price, W G, Univ of Southampton, UK

**Simulation of Sloshing Dynamics in a Tank by an Improved Volume of Fluid Method**  
Wemmenhove, R, Iwanowski, B, Lefranc, M, FORCE Technology, Norway; Veldman, A E P, Luppens, R, Univ of Groningen; Bunnik, T, MARIN, The Netherlands

**Sloshing Comparative Study: Simulation of Lateral Sloshing with Multiphase CFD**  
Godderidge, B, Turnock, S, Univ of Southampton; Cowlan, N, BMT SeaTech; Tan, M Y, Univ of Southampton, UK

**Modelling 3D Fluid Sloshing Using a Semi-Lagrangian Level Set Method**  
Gu, H B, Causon, D M, Mingham, C G, Qian, L, Manchester Metropolitan Univ, UK

**77. HYDRODYNAMICS VIII: CFD 8 -Wave Forces (V. 3)**  
Wednesday June 24 14:00 Room 1008

**Chair:** Choi, H S, Seoul National Univ, Korea  
**Co-Chair:** Ng, C O, The Univ of Hong Kong, Hong Kong, China

**Wave Pressure Distributions of an Elastic Floating Structure Model Subjected to Harmonic Waves**  
Kawakami, Y, Endo, R, Polytechnic Univ, Japan

**Numerical Analysis of the Forces Exerted on a Truncated Cylinder by Ship Waves**  
Sun, L, Dong, G H, Zong, Z, Dalian Univ of Tech, China

**Jack-up Leg Hydrodynamic Load Prediction - a Comparative Study of Industry Practice with CFD and Model Test Results**  
Lee, S K, American Bureau of Shipping, USA; Yan, D, American Bureau of Shipping, Singapore; Zhang, B, Kang, C W, Inst of High Performance Computing, Singapore

**The Reciprocal Form of Mean Wave Drift Force and Yaw Moment**  
Tsubogo, T, Osaka Prefecture Univ, Japan

**Validation of Nonlinear Wave Load Prediction Method Using Segmented Model Tests for Large Container Carrier**  
Kim, S G, American Bureau of Shipping, USA; Hong, S Y, KORDI, Korea; Yu, H C, American Bureau of Shipping, USA

**Experimental Investigation of Wind Forces Acting on Container Ships**  
Fujiwara, T Tsukada, Y, Kitamura, F, Sawada, H, National Maritime Research Inst, Japan

**A Study on Wind Pressure Characteristics of Ships with Large Superstructures**  
Momoki, T, Onishi, S, Katayama, T, Ikeda, Y, Osaka Prefecture Univ, Japan

**78. GEOTECH VII: Anchor & Caisson(V. 2)**

**Wednesday June 24 14:00 Room 1001**

**Chair:** Wong, P C, ExxonMobil Development Co, USA

**Keying of Plate Anchors: Approach Based on Plasticity and Yield Envelopes for Combined Loading**  
O'Loughlin, C D, Inst of Tech Sligo, Ireland; Gaudin, C, Randolph, M F, Univ of Western Australia, Australia; Lowmass, A C, Shell, UK; Elkhatib, S, Arup, Australia

**Shear Wave Velocity Profiles in Offshore Soils by Using Field Velocity Probe**  
Yoon, H K, Lee, J S, Korea Univ; Choi, Y K, Kyungsoong Univ, Korea

**Experimental Study on the Bearing Capacity of Suction Caissons in Saturated Sand**  
Jiao, B T, Lu, X B, Inst of Mechanics, CAS; Zhi Z M, China Ocean Oil, China

**A New Method to Predict the Kinematic Trajectory of Drag Anchors**  
Liu, H X, Tianjin Univ, China

**79. OFFSHORE SYSTEM III: Jacket & Jackup (V. 1)**

Wednesday June 24 14:00 Room 1002

**Chair:** Boswell, L, The City Univ, London, UK  
**Co-Chair:** Yang, X, CNOOC-COOEC, China

**Some Shallow Water Jacket Platforms Need Doing Detailed Fatigue Analysis**

Liu, J M China National Petroleum Offshore Engineering Co, China

**System Identification of Offshore Jack-up Platform**

Wang, X M, Koh, C G, National Univ of Singapore, Singapore

**Modal Parameters Identification of Offshore Platform Structures Using HHT Method**

Liu, J F, COOEC; Li, H J, Ocean Univ of China; Wang, Y, Hu, X T, COOEC, China

**Behavior, Design, and Observations of Wood Piles Used in Coastal Residential Construction**

Wheat, D L, Univ of Texas at Austin, USA

**Substructural Identification Method for Fixity of Jack-up Spudcan Foundations**

Thanh, T N, Wang, X M, Koh, C G, National Univ of Singapore, Singapore

**80. HPM VII: Shipbuilding Steel (V. 4)**

Wednesday June 24 14:00 Room 1004

**Chair:** Kang, K B, POSCO, Korea

**Effect of Welding Variables on Crack Arrest Toughness for Thick Steel Plate**

Park, J S, An, G B, Ryu, K M, Kang, K B, POSCO, Korea

**Crack Arrest Concept of Thick Steel Plate Welds**

An, G B, Park, J S, Ryu, K M, Kang, K B, POSCO, Korea

**New Line Heating Algorithm including the Non-Linearity of "Heating and Deformation" - Fluctuation Factor of Inherent Deformation by Line Heating**

Tango, Y, IHI Marine United; Ishiyama, M, IHI Engineering, Marine; Nagahara, S, Uchusen, Inc, Japan

**Fatigue Performance of EH40-TM Steel Plate of 80mm for Containership**

Im, S W, Chang, I H, RIST, Korea

**Effect of Plate Thickness on Fatigue Strength of Base Material and Butt Welded Specimens Made from EH40 Steel Thick Plates: Phase 1**

Polezhayeva, H, Badger, C, Lloyd's Register, UK

**Effect of Plate Thickness and Corner Machining on Fatigue Strength of EH40 Steel Thick Plates: Phase 2**

Polezhayeva, H, Howarth, D, Badger, C, Dickin, M, Lloyd's Register, UK

**Mechanical Properties of YS 460MPa TMCP Steel Plate for Large Container Ships**

Kim, W G, Um, K K, Park, Y H, Lee, C S, POSCO, Korea

**Evaluation of Fracture Toughness Depends on Thickness of High Heat Input EH36 Grade Steel**

Kim, H J, Lee, D W, Shin, Y T, Jang, T W, Samsung Heavy Industries, Korea

**Effect of Welded Joint and Thickness of Ultra Thick Plate on Crack Initiation, Propagation and Arrest**

Lee, Y S, Jang, Y C, Chung-Ang Univ; An, G B, Park, J S, POSCO, Korea

**81. COASTAL ENGINEERING VII: Rubble- Breakwater (V. 3)**  
Wednesday June 24 14:00 Room 1006

**Chair:** Mizutani, N, Nagoya Univ, Japan

**3-D Stability of Rubble Mound Breakwaters Relative to Shallow Water Characteristics**

Kim, H J, Pukyong National Univ; Kang, Y K, Samsung Corp; Ryu, C R, Pukyong National Univ, Korea

**Stability Change of Wave-Dissipating Blocks due to the Repair with Larger Blocks**

Arimitsu, T, Kansai Electric Power, Japan

**Pressure Exerted by a Solitary Wave on the Rubble Mound Foundation of an Armoured Caisson Breakwater**

Esteban, M, United Nations Univ, Japan; Nguyen Danh, T, Ho Chi Minh City Univ of Tech, Vietnam; Takagi, H, Shibayama, T, Yokohama National Univ, Japan

**A Rational Design of Armor Block and Foot-Protection Block Covering Rubble Mound of Composite Breakwaters**

Kubota, S, Fudo Tetra Corp; Shimosako, K, Port and Airport Research Inst; Hamaguchi, M, Matsumoto, A, Hanzawa, M, Yamamoto, M, Fudo Tetra Corp, Japan

**Estimation of Repair Cost for Caisson Breakwaters Covered with Wave-Dissipating Blocks**

Araki, S, Deguchi, I, Osaka Univ, Japan

**Plenary Presentation V (V. 2)**  
Wednesday June 24 14:00 Room 1007, 10F

**The Hughes Glomar Explorer and a 5,100-m-long Heavy-Lift Pipe: Coupled Ship and Pipe Motions Measured in the North Pacific Ocean**

Chung, J S, ISOPE, USA  
Introduction by Knapp, R H, Univ of Hawaii, USA

**82. MECHANICS & STRENGTH I: Computational Methods (V. 4)**  
Wednesday June 24 14:00 Room 1005

**Chair:** Yao, T, Osaka Univ, Japan

**Co-Chair:** Kitamura, M, Hiroshima Univ, Japan

**A Research on Highly-Efficient FEA Modeling for Complicated Marine Structure**

Li, K, Chen, M, Lin, Y, Ji, Z S, Dalian Univ of Tech, China

**Development of Hierarchical Multi-Grid Method and Its Application to Iterative Substructure Method**

Itoh, S, Osaka Univ; Shibahara, M, Osaka Prefecture Univ; Serizawa, H, Murakawa, H, Osaka Univ, Japan

**A System for Progressive Collapse Analysis of Ship's Hull Girder in Waves with Combined ISUME/FEM and Wave Response Analyses**

Yao, T, Tsuneishi Shipbuilding; Masahiko, F, Kazuhiro, I, Osaka Univ; Pei, Z Y, Tsuneishi Shipbuilding, Japan

**Development of Shape Optimization System of Ship Structure with Recognizing Structure Members for Finite Element Analysis**

Kitamura, M, Hiroshima Univ; Uedera, T, Kure National College of Tech; Hamada, K, Takezawa, A, Hiroshima Univ, Japan

**Vibration Assessment of Ship Structures**

Constantinescu, A, Univ of Liege, Belgium; Neme, A, ENSIETA, France; Rigo, P, Univ of Liege, Belgium

**Dynamic Analysis of Thin-Walled Cylindrical Structures Subjected to Shock Waves in Marine Environment**



Iakovlev, S, Williston, K, Mitchell, M, Murray, R, Dalhousie Univ, Canada

**83. ARCTIC, ANTARCTIC & ICE IV (V. 1)**

**Wednesday June 24 14:00** Room 1102

**Chair:** Frederking, R, National Research Council, Canada,  
**Co-Chair:** Nozawa, K, Osaka Univ, Japan

**The Changing Met-Ocean and Ice Conditions in the Beaufort Sea: Implications for Offshore Oil and Gas**

Fissel, D B, Marko, J R, ASL Environmental Sciences, Canada

**On Spreading of the Multiyear Ice in the Barents Sea**

Buzin, I V, SI Arctic and Antarctic Research Inst, Russia

**Hydrological Characteristics of a Narrow and Shallow Part of Van Mijen Fjord on Spitsbergen**

Marchenko, A, Univ Centre in Svalbard/NTNU; Langen, I, Univ of Stavanger; Shestov, A, Univ Centre in Svalbard, Norway

**Integration of a Helicopter-Based Ground Penetrating Radar (GPR)**

Lalumiere, L, Sensors by Design; Prinsenber, S J, Bedford Inst of Oceanography, Canada

**Ice Thickness Measurements with a Miniature Electromagnetic Sensor Sled**

Prinsenber, S J, Bedford Institute of Oceanography; Holladay, S J, Geosensors Inc, Canada

**Sea Ice Observation Using Ship-Borne Microwave Radiometer**

Kojima, S, Toyo Engineering Works; Enomoto, H, Tateyama, K, Kitami Inst of Technology; Yamamoto, A, Tanaka, K, Tanida, H, Mitsubishi Electric Tokki System Corp, Japan

**Characteristics of Icebergs in Their Origin Sites in Russian Arctic:**

**Results of Airborne and Direct Studies 2007-2008 IPY**

Kubyshekin, N V, Andreev, O M, Borodulin, V V, Arctic and Antarctic Research Inst, Glazovsky, A F, Inst of Geography, RAS; Gudoshnikov, Y P, Zubakin, G K, Arctic and Antarctic Research Inst, Macheret, Y Y, Inst of Geography, RAS; Skutin, A A, Arctic and Antarctic Research Inst, Russia

**84. OCEAN & WIND ENERGY III: Waves 2 (V. 1)**

**Wednesday June 24 14:00** Room 1101, 11F

**Chair:** Nagata, S, Saga Univ, Japan

**Effect of Liquid Metal Characteristics on Performance of LMMHD Wave Energy Conversion System**

Zhao, L Z, Peng, Y, Sha, C, Li, R, Xu, Y, Liu, B L, Li, J, Inst of Electrical Eng, Chinese Academy of Sciences, China

**Performance of a Direct Drive Turbine for Wave Energy Converter**

Lee, Y H, Choi, Y D, Kim, C G, Korea Maritime Univ, Hwang, Y H, Shinhan Precision, Korea

**Force Reacting Principle Applied to a Heave Point Absorber Wave Energy Converter**

Soulard, T, Alves, M, Sarmento, A, Wave Energy Centre, Portugal

**Development of the New, Wave Power Generation System**

Kanki, H, Kobe Univ; Arii, S, Tottori Univ; Furusawa, T, Alpha Technical Research, Japan

**A Fundamental Study on Energy Absorption Performance of OWC Type Absorbers of Wave Energy with an Artificial Harbor**

Ikoma, T, Nihon Univ; Osawa, H, JAMSTEC; Tomizawa, Y, Nihon Univ; Ito, K, JAMSTEC; Masuda, K, Nihon Univ, Japan

**Experimental Study on Wave Energy Absorption Efficiency of OWC Chamber Using Orifice for Turbine Effect**

Hong, K Y, Shin, S H, Ryu, H J, Hong, D C, Kim, S H, MOERI/KORDI, Korea

## WEDNESDAY 16:20

### 85. SLOSHING IX: Hydroelasticity (V. 3)

Wednesday June 24 16:20 Room 1009

**Chair:** Ryu, M, Daewoo Shipbuilding and Marine Engineering, Korea  
**Co-Chair:** Kuo, J-F, ExxonMobil Upstream Research Co, USA

**Experimental Investigations into the Hydroelasticity and Three-Dimensional Flow Effects on the Determination of Sloshing Loads for Membrane LNG Carriers**

Choi, J H, Park, T H, Lee H H, Lee, Y W, Hyundai Heavy Industries, Korea

**Numerical Simulation of Tank Sloshing with Thin Plate Structures by Using a Particle Method**

Sueyoshi, M, Kyushu Univ, Japan

**Fluid Structure Interactions Occurring at a Flexible Vertical Wall Impacted by a Breaking Wave**

Kimmoun, O, École Centrale Marseille; Malenica, S, Bureau Veritas; Scolan, Y-M, École Centrale Marseille, France

**Simulations of Hydro-Elastic Impacts Using a Parallel SPH Model**

Oger, G, HydrOcean; Deuff, J-B, École Centrale de Nantes; Brosset, L, GazTransport & Technigaz, France

**Application of Hamilton-Dirichlet's Principle to Analysis of Hydroelastic Behavior of a Floating Plate in Waves**

Niizato, H, Hitachi Zosen; Nagata, S, Toyota, K, Saga Univ; Shimazaki, K, Universal Shipbuilding, Japan

### 86. HYDRODYNAMICS IX: Tsunami (V. 3)

Wednesday June 24 16:20 Room 1008

**Chair:** Hiraishi, T, Port and Airport Research Inst, Japan

**Analytical Estimation of the Maximum Wave Height and the Inundation Distance in East Sri-Lanka Induced During the 2004 Indian Ocean Tsunami**

Lin, C H, National Sun Yat-Sen Univ; Cheng, C Y, Fisheries Research Inst; Liu, J C, Chen, G Y, National Sun Yat-Sen Univ, Taiwan, China

**Investigation of Tsunami Wave Runup over Vegetated Slopes**

Chen, H L, National Univ of Singapore, Singapore; Lin, P, Sichuan Univ, China; Chan, E S, National Univ of Singapore, Singapore

**Micro Uidic Study of the Triggering of Underwater Tsunamiogenic Landslides**

El Bettah, M, TU Braunschweig, Germany; Grilli, S T, Univ of Rhode Island, USA; Krafczyk, M, TU Braunschweig, Germany; Baxter C D P, Bollinger, K A, Univ of Rhode Island, USA

**Field Survey on Effect of Coastal Vegetation to Reduce Tsunami Force in 2007 Solomon Island Earthquake**

Hiraishi, T, Port and Airport Research Inst, Japan

**Real-Time Probabilistic Prediction of Storm Water Level at Japanese Ports**

Kawai, H, Port and Airport Research Inst; Hashimoto, N, Yamashiro, M, Kyushu Univ, Japan

**Recording of Simushir and Nevelsk Tsunamis in the Kholmok Port**

Kovalev, P D, Shevchenko, G V, Kovalev, D P, Inst of Marine Geology and Geophysics, RAS; Chernov, A G, Nizhny Novgorod State Technical Univ, Russia

**Tsunami Registration in the Harbors of Shikotan Island**  
Shevchenko, G, Shishkin, A, Bogdanov, G, Loskutov, A, Inst of Marine  
Geology and Geophysics, RAS, Russia

**87. GEOTECH VIII: Foundation & Pile (V. 2)**

**Wednesday June 24 16:20 Room 1001**

**Chair:** Bang, S, South Dakota School of Mines and Tech, USA

**Capacity Prediction of Auger-drilled Piles Using Instrumented SPT**

**Rod**  
Nam, M S, Park, Y H, Korea Expressway Corp, Korea

**Upheaval Characteristics of Gravel Compaction Piles with Low  
Replacement Ratio**

Park, K H, Kim, S K, Yea, G G, Kim, G S, Choi, Y K, Sambu  
Construction, Korea

**An Improvement Method of Head-Butt-Joint at Cast-In-Place-Pile in  
Rigid-Frame-Viaducts**

Kondou, M, JR West Japan Consultants; Tokita, K, Osaka Univ; Nakamura,  
T, Okumura-gumi Technical Research Center; Tanimura Y, Railway  
Technical Research Inst, Japan

**Simplified Model for Pile Driveability**

Dean, E T R, Soil Models Ltd, UK

**A Case History on Investigation of Ground Vibration Caused by  
Monorail Traffic**

Tanaka, K, Nippon Concrete Industries; Nakata, S, Hayakawa, K, Matsui, T,  
Ritsumeikan Univ, Japan

**Study on the Horizontal Bearing Capacity of Multi-Bucket Foundation  
in Soft Ground**

Sun, X, Luan, M, Tang, X, Dalian Univ of Tech, China

**Investigation of the Behaviour of Piled Raft Foundations in Sand by  
Numerical Modelling**

Oh, E Y N, Bui, Q M, Surarak, C, Balasurbamaniam, Griffith School of  
Engineering, Australia

**Screw Plate Loading Test's Characteristics and Its Development**

Lee, Y S, Hwang, W K, Korea Maritime Univ; Choi, Y, Kyungsoong Univ;  
Kim, T H, Korea Maritime Univ, Korea

**88. OFFSHORE SYSTEM IV: TLP/SPAR/FPSO 1 (V. 1)**

**Wednesday June 24 16:20 Room 1002**

**Chair:** Inoue, Y, Yokohama National Univ, Japan

**Numerical and Model Test Results for Truss Spar Platform**

Kurian, V J, Montasir, O A, Narayanan, S P, Universiti Teknologi  
PETRONAS, Malaysia

**Effect of Additional Deck Load and Mooring Configuration on the  
Response of Tension Leg Platform (TLP) Model**

Malleswararao, P, Madhav Babu, M G, Andhara Univ, India

**Numerical Simulation on the Hydrodynamic and Kinetic Performance  
of a New Deep Draft Platform**

Li, B B, Harbin Inst of Tech; Ou, J P, Harbin Inst of Tech/Dalian Univ of  
Tech, China

**Environmental Load and Motion of Semi-Submersible Platform in  
Deepwater Ocean**

Wang, S P, Qin, Y L, China National Petroleum Offshore Engineering; Sun,  
Z C, Liang, S X, Dalian Univ of Tech, China

**Influence of Cable Stiffness on ALT-Tanker Motion and Dynamic Cable  
Tension**

Li, H, Huang, Y, Dalian Univ of Tech; Tang, Y G, Tianjin Univ, China

**89. COASTAL ENGINEERING VIII: Submerged Structures (V. 3)**  
Wednesday June 24 16:20 Room 1006

Chair: Kee, S T, Seoul National Univ of Tech, Korea

**Hydrodynamic Characteristics around the Steel Artificial Reef at a Fishing Ground**

Tawaret, A, Ryu, C R, Pukyong National Univ, Korea

**Wave Transformations over a Submerged Obstacle**

Hsu, C M, National Applied Research Labs; Lin, M C, National Taiwan Univ; Yang, W C, National Applied Research Labs, Taiwan, China

**Wave Scattering by a Submerged Porous Plate Wave Absorber**

Yueh, C-Y, Chuang, S H, National Taiwan Ocean Univ, Taiwan, China

**Effectiveness of Seafloor Mounted Structures for Upwelling in Deep Seas**

Kida, H, Nippon Steel Engineering; Inouchi, K, Nakamura, T, Ehime Univ; Deguchi, I, Osaka Univ, Japan

**Reflection of Directional Random Waves Propagating over Various Shapes of Trench**

Cho, Y S, Hanyang Univ; Jung, T W, Korea Inst of Construction and Tech; Lee J W, Hanyang Univ; Lee, J I, Korea Inst of Construction and Tech, Korea

**A Numerical Study of Solitary Waves Propagating over Permeable and Impermeable Submerged Plates**

Hsiao, S C, Wu, Y T, Lin, T C, National Cheng Kung Univ, Taiwan, China

**RANS Modeling on Bragg Scattering under Cnoidal Waves over Artificial Bars: Permeable and Impermeable Effects**

Hsiao, S C, Yang, T Y, Lin, T C, National Cheng Kung Univ, Taiwan, China

**A Study on Change of Wave and Current Characteristics according to Constructing the Submerged Breakwater on Busan Songdo Beach, Korea**

Yoon, J S, Kim, M G, Inje Univ; Kee, S T, Seoul National Univ of Tech; Hur, D S, Gyeongsang National Univ, Korea

**Bragg Scattering of Waves Propagating over a Series of Poro-Elastic Submerged Breakwaters**

Lan, Y J, Hsu, T W, Lai, J W, Chang, C C, Ting, C H, National Cheng Kung Univ, Taiwan, China

**90. PIPELINES & RISERS VII: Pipe-Soil Interactions 2 (V. 2)**  
Wednesday June 24 16:20 Room 1007

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

**The Use of Advanced Finite Element Analysis Tools for the Design and Simulation of LNG and LPG Subsea Pipelines and Risers**

Jukes, P, Sun, J, Chen, J, Brown, T S, J P Kenny, USA

**Uplift Resistance of Buried Pipelines in Blocky Clay Backfill**

Wang, J K, Haight S H, Univ of Cambridge; Thusyanthan, I, KW Ltd, UK

**Soil Characterization of Deep Sea West African Clay: Is Biology a Source of Mechanical Strength?**

Kuo, M Y, Bolton, M D, Univ of Cambridge, UK

**Evaluation of Lateral Resistance for Buried Conditions around Pipe with Horizontal Loading**

Kashiwagi, A, Kawabata, T, Kobe Univ; Mohri, Y, National Inst for Rural Engineering; Okuno, S, Kobe Univ; Shimura, K, Hokuriku Agricultural Administration Office; Uchida, K, Kobe Univ, Japan

**Sweeping Simulation of Unburied Offshore Pipeline during Cyclic Lateral Movement**

Takatani, T, Maizuru National College of Tech, Japan

**Use of Thermal Imaging in Study of Heat Loss from Buried Pipelines**  
Thusyanthan, I, KW Ltd, UK

**91. MECHANICS & STRENGTH II: Ultimate Strength (V. 4)**

**Wednesday June 24 16:20 Room 1005**

**Chair:** Fujikubo, M, Osaka Univ, Japan

**Ultimate Strength Test Study of SWATH Ships**  
Liu, B, Wu, W, Huang Y L, Gan, J, Wuhan Univ of Technology, China

**Structural Reliability Analysis for the Assessment of Ultimate Limit State of Ship's Hull**  
Harada, M, Zhu, T Y, Yamamoto, N, Nippon Kaiji Kyokai Research Inst, Japan

**Prediction of Shear Capacities of Girders with Web Openings in Ship Structures**  
Dong, G, Moan, T, NTNU, Norway

**Prediction of Ultimate Shear Strength of Girders with Web Openings in Ship Structures**  
Gang, D, Moan, T, NTNU, Norway

**Prediction of the Secondary Buckling Strength and Ultimate Strength of Cylindrically Curved Plate under Axial Compression**  
Fujikubo, M, Park, J S, Iijima, K, Yao, T, Osaka Univ, Japan

**Longitudinal Strength of Container Ships under Combined Torsional and Bending Moments**  
Tanaka, Y, Ando, T, Anai, Y, National Maritime Research Inst; Yao, T, Fujikubo, M, Iijima, K, Osaka Univ, Japan

**Precision of Measured Strain in Simple Tension Test**  
Katsuki, G, Akiyama, M, Kyoto Inst of Tech, Japan

**92. OCEAN & WIND ENERGY IV: Waves 3 (V. 1)**

**Wednesday June 24 16:20 Room 1101, 11F**

**Chair:** Aoki, T, JAMSTEC, Japan

**Numerical Investigation of a Surging Point-Absorber Wave Energy Converter**  
Bhinder, M A, Mingham, C G, Causon, D M, Manchester Metropolitan Univ; Rahmati, M T, Aggidis, G A, Chaplin, R V, Lancaster Univ, UK

**On the Resonance Characteristics of the Float Type Wave Power Generation Device**  
Taneura, K, Hadano, K, Koirala, P, Yamaguchi Univ; Nakano, K, Univ of Tokyo, Japan

**Dynamics Model of the Float-Counterweight Wave Energy Converter Considering Vertical and Horizontal Motions of the Float**  
Kesayoshi, H, Koirala, P, Yamaguchi Univ; Nakano, K, Univ of Tokyo; Taneura, K, Yamaguchi Univ, Japan

**The Analysis of the Negative Drift Force Acting on a Floating OWC "Backward Bent Duct Buoy"**  
Nagata, S, Toyota, K, Imai, Y, Setoguchi, T, Saga Univ, Japan

**Geometrical Optimization for Improved Power Capture of Multi-Level Overtopping Based Wave Energy Converters**  
Largheritini, L, Aalborg Univ, Denmark; Victor, L, Ghent Univ, Belgium; Kofoed, J P, Aalborg Univ, Denmark; Troch, P, Ghent Univ, Belgium

**19:00** **Event Hall ABC, 3F**  
**Annual Conference Banquet**  
**Cultural Event, Best Paper, Scholarships and Awards**  
*Don't forget the banquet ticket.*

**THURSDAY 08:00**

**93. SLOSHING X: Cargo Design (V. 3)**

**Thursday June 25 08:00** Room 1009

**Chair:** Scolan, Y, Ecole Normale Supérieure-Marseille, France  
**Co-Chair:** Kim, Y H, Seoul National Univ, Korea

**Analysis of LNG Containment System under Pressure Loads**  
Arswendy, A, Moan, T, NTNU, Norway

**Optimization of LNG Tank Shape in Terms of Sloshing Impact Pressure**  
Baeten, A, MBDA Missile Systems, Germany

**A Numerical Simulation Method for Sloshing Phenomena in a SPB Type LNG Cargo Tank**  
Jeong, K L, Park, J J, Kim, B W, Ha, M K, Samsung Heavy Industries, Korea

**A Numerical Study on Sloshing Inside Tanks with Non-conventional Geometry**  
Cheng, L Y, Univ of Sao Paulo, Brazil; Makoto, A, Yokohama National Univ, Japan

**TLD Vibration Reduction Analysis of Offshore Platform with Oil Storage Tank Including Fluid-Structure Interaction**  
Jin, Q, Wang, H P, Li, X, Zhou, J, Dalian Univ of Tech, China

**Experimental Investigation on Transient Flooding and Sloshing in Internal Compartments of an ITTC Damaged Ro-Ro-Passenger Ferry**  
Khaddaj-Mallat, C, Rousset, J-M, Alessandrini, B, Ferrant, P, École Centrale de Nantes, France

**94. HYDRODYNAMICS X: CFD 9 & Dynamics 1 (V. 3)**

**Thursday June 25 08:00** Room 1008

**Chair:** Noblesse, F, NSWC-CD, USA  
**Co-Chair:** Kahlen, F-J, Univ of Cape Town, South Africa

**Numerical Simulation of Floating Body Motions in Finite Water Depth Using the 3D Transient Green Function**  
Liu, C F, Teng, B, Gou, Y, Dalian Univ of Tech, China

**Time-Domain Computations of Ship Motion with Constant Forward Speed Using Finite Element Method**  
Nam, B W, Sung, H G, Hong, S Y, Maritime & Ocean Engineering Research Inst, Korea

**Time-Domain Analysis of Nonlinear Ship Motion Responses Based on Weak-Scatterer Hypothesis**  
Kim, K H, Kim Y H, Seoul National Univ, Korea

**Numerical Solutions of Hydrodynamic Interaction of Ships in the Time Domain**  
Qiu, W, Peng, H X, Memorial Univ of Newfoundland, Canada

**Algorithm for Finding Extreme Motions of Forward Speed Vessels**  
Dhavalikar, S, Negi, A, Indian Register of Shipping, India

**An Experimental Research on the Prediction of the Ship Motions Using Time-Series Analysis**

Zhang, X, Ye, J, South China Univ of Tech, China

**Numerical Simulation of Nonlinear High-Speed Planing Craft Motions in Waves**

Peng, H X, Qiu, W, Memorial Univ of Newfoundland, Canada

**Transfer of Non-Linear Seakeeping Loads to FEM Models Using Quasi Static Approach**

Tuitman, J, Delft Univ of Tech, The Netherlands; Sireta, F-X, Malenica, S, Bureau Veritas, France; Bosman, T, Delft Univ of Tech, The Netherlands

**95. GEOTECH IX: Landslide & Stability (V. 2)**

**Thursday June 25 08:00 Room 1001**

**Chair:** Uchida, K, Kobe Univ, Japan

**TDR as Geo-Nerve: A Slope Monitoring System Example**

Lin, C P, National Chiao Tung Univ, Taiwan, China

**Monitoring and Modeling of Rainfall-Induced Landslide Response to Climate Changes: A Case Study of Song-Mao Landslide in Central Taiwan**

Chung, M C, Tan, C H, Chi, S Y, Sinotech Engineering Consultants; Ku, C Y, National Taiwan Ocean Univ; Su, T W, Lee, J F, Fei, L Y, Central Geological Survey, MOEA, Taiwan, China

**Influence of Overconsolidation Ratio on Residual Shear Strength of Miaowan & Kamenose Landslide Soils under Laboratory Conditions**

Nakamura, S, Vithana, S B, Gibo, S, Kimura, S, Univ of the Ryukyus, Japan

**Large Scale Rainfall-Induced Landslide Hazard Assessment Using Remote Sensing, GPS, and GIS Framework**

Ku, C Y, National Taiwan Ocean Univ; Tan, C H, Sinotech Engineering Consultants; Fei, L Y, Lee, J F, Su, T W, Central Geological Survey, Taiwan, China

**Monitoring on Higashi-Yokoyama Landslide and Its Countermeasure in Gifu, Japan**

Iwata, M, Yashima, A, Sawada, K, Gifu Univ; Murata, Y, NPO; Kawai, S, Suzuki, T, Gifu Prefecture, Japan

**Environmentally Friendly Material for Earth Slope Protection**

Hossain, M Z, Mie Univ, Japan

**Development of Hybrid Pseudo-Static Seismic Slope Stability Analysis Method**

Park, D, Yun, S, Hanyang Univ, Seoul; Lee, S H, Hwang, Y C, Sangji Univ, Wonju, Korea

**96. OFFSHORE SYSTEM V: TLP/SPAR/FPSO 2 (V. 1)**

**Thursday June 25 08:00 Room 1002**

**Chair:** Mathai, T, The Glosten Assoc., USA

**Co-Chair:** Surkein, M B, ExxonMobil Development, USA

**Ice-Resistant FPSO Weather-Vaning Capability Assessment**

Chernetsov, V A, Karlinsky, S L, Shushkova, O A, RUBIN Central Design Bureau for Marine Engineering, Russia

**Direct Time Domain Downtime Assessment for LNG Operations Using Computer Clusters**

de Wilde, J J, van Dijk, A, van den Berg, A J, Dekker, J, MARIN, The Netherlands

**Application of an Integrated FEED Basic Process Engineering Solution to Generic LNG FPSO Topsides**

Hwang, J Y, Ahn, Y J, Min, J H, Jeong, H, Lee G N, Kim, M Y, Kim, H C, Samsung Heavy Industries; Roh, M I, Univ of Ulsan; Lee, K Y, Seoul National Univ, Korea

**Establishment of Offshore Process FEED (Front End Engineering Design) Method for Oil-Based FPSO Topsides Systems**

Hwang, J, Lee, K Y, Cha, J W, Seoul National Univ; Roh, M I, Univ of Ulsan; Cha, J W, Ham, S H, Kim, B, Seoul National Univ, Korea

**Detailed Design and Construction of the Hull of an FPSO (Floating, Production Storage and Off-Loading Unit)**

Hwang, J K, Hyundai Samho Heavy Industries; Bang, G J, Hyundai Heavy Industries; Roh, M I, Ulsan Univ; Lee, K Y, Seoul National Univ, Korea

**Structural Analytical Execution on Hull Appurtenances of a FPSO System**

Jung, S R, Daewoo Shipbuilding & Marine Engineering, Korea

**97. HPM VIII: Fatigue & Fracture 1 (V. 4)**

**Thursday June 25 08:00** Room 1004

**Chair:** Osawa, N, Osaka Univ, Japan

**Development of Toughness and Quality Requirements for YP47 Steel Welds Based on Fracture Mechanics**

Doerk, O, Rvrup, J, Germanischer Lloyd, Germany

**Fatigue Assessment of Aluminum Rectangular Hollow Section T-Joints by Hot-Spot Stress Approach**

Tveiten, B W, Aas, S K, SINTEF Materials and Chemistry; Fjeldstad, A, Det Norske Veritas, Norway

**Investigations to the Fatigue Behaviour of Butt Welded Plates Made of High-Strength Steels**

Hrabowski, J, Herion, S, Univ of Karlsruhe, Germany

**High Frequency Hammer Peening – Maximize the Lifetime of Fatigue Loaded Steel Structures**

Ummenhofer, T, Univ of Karlsruhe; Weich, I, IPU; Herion, S, Univ of Karlsruhe, Germany

**A Comparative Study of Multiaxial Fatigue Criteria for Aluminum Drill Pipe Life Prediction**

Silva, N S, Petrobras; Netto T A, Lourenço, M I, COPPE/UF RJ; Plácido, J C R, Petrobras, Brazil

**Three Dimensional Fracture Mechanics Analyses for Welded Joint Structures Using Virtual Crack Closure-integral Method**

Tanaka, S, Hiroshima Univ; Okada, H, Kagoshima Univ; Okazawa, S, Hiroshima Univ, Japan

**98. COASTAL ENGINEERING IX: Estuary & Waves (V. 3)**

**Thursday June 25 08:00** Room 1006

**Chair:** Hong, K Y, Maritime and Ocean Eng Res Inst (MOERI), Korea

**The Study of Seawater Intrusion in Pearl River Estuary Area by a River Network-Estuary-Coastal Ocean Coupled Numerical Simulation System**

Zou, H, Pearl River Hydraulic Research Inst; Li, H J, Ocean Univ of China, China

**Effect of Intensity and pH of Rain on the Dissolution of Limestone**

Adham, A K M, Kobayashi, A, Kyoto Univ, Japan

**Simulating Morphological Changes at Yangtze Estuary**

Zhou, X Y, Zanke, U, Darmstadt Univ of Tech, Germany; Yan, Y X Hohai Univ, China

**Hydrodynamic Condition Changes of Large-Scale Reclamation in Xuanmen Bay, China**

Yao, J, Tan, Y, Tao, J F, Hohai Univ, China

**A Study of the Characteristics of the Wave Field near Taipei Harbour**



Yim, J Z, Chou, C R, Weng, W K, National Taiwan Ocean Univ, Taiwan, China

**Study of Harbor Resonance in Future Expansion Deployment of Taipei Harbor**

Lee, J F, National Cheng Kung Univ; Chiu, Y F, Ho, L S, Ministry of Transportation and Communications; Kao, J H, National Cheng Kung Univ, Taiwan, China

**Monitoring of the Post-construction Coastal Structure Project in Namae Beach, South Korea**

Widayati, A Y W, Kim, K H, Kwandong Univ, Korea

**Reduction of Wave Penetration into Harbors by V-Shaped Approach Channel**

Yuhi, M, Kanazawa Univ; Kanemaki, F, Fuki Prefecture; Kunita, O, Oversea Coastal Area Development Inst of Japan; Ishida, H, Kanazawa Univ, Japan

**Numerical Modeling of Oyster Larval Transport at Yunlin Coastal Area, Taiwan**

Liou, J Y, Hsu, H C, Chang, Y, Huang, H Y, National Cheng Kung Univ, Taiwan, China

**99. PIPELINES & RISERS VIII: Pipeline 1 (V. 2)**

**Thursday June 25 08:00 Room 1007**

**Chair:** Wu, M, Acergy Group, USA

**Geometrically Adjusted Residual Life of Corroded Pipeline under Cyclic Loading**

Yukhymets, P. E. O. Paton Electric Welding Inst, Ukraine

**Burst Tests on Pipeline Containing Corrosion in the Seam Weld**

Benjamin, A C, Petrobras, Brazil

**Ultimate Bending Capacity of Steel Pipes Considering Strain Hardening Effect**

Li, X, Chen, Y, Zhu, T, Zhou, J, Dalian Univ of Tech, China

**Experimental Investigation of Fatigue Strength for Subsea Pipelines Subjected to Combined Stresses**

Xiao, Z G, Zhao, X L, Monash Univ, Australia

**Dynamic Characteristics of Pipes with a Straight Front Crack**

Zhou, J, Feng, X, H, J S, Zhu, T, Dalian Univ of Tech, China

**Bending Capacity and Seismic Integrity of X65 ERW Line Pipe**

Tajika, H, Suzuki, N, Horikawa, H, JFE R&D Corp, Japan

**Fatigue Performances of Machined Pipe Outer Surface**

Darcis, P P, Marines-Garcia, I, Tenaris Tamsa, Mexico; Di Vito, L F, Centro Sviluppo Materiali, Italy; Marques, E C, Dell'Erba, D, Tenaris, Tamsa, Mexico; Tintori, F, Armengol, M, Tenaris Dalmine, Italy; Quintanilla, H, Tenaris Tamsa, Mexico

**100. ADVANCED SHIP I: System and Design (V. 4)**

**Thursday June 25 08:00 Room 1008**

**Chair:** Shiotani, S, Kobe Univ, Japan

**Co-Chair:** Dhanak, M R, Florida Atlantic Univ, USA

**On Mathematical Logic for the Ship Design through the Axiomatic Approach**

Shinkai, A, Yamaguchi, S, Kyushu Univ; Kuchiki, Y, Mitsubishi Heavy Industry; Kumamoto, N, Kyushu Univ, Japan

**Time-Dependent Engineering Behavior of a Battleship Deployed off Hai-Kou Ping-Dong County**

Tian, W M, National Sun Yat-Sen Univ, Taiwan, China

**Prediction of Wave Loading on an Air Cushion Vehicle Skirt during Encounters with Shoaling Waves**

Dhanak, M R, Florida Atlantic Univ, USA

**A Study on a Performance Database of a Small High-Speed Boat**

Yamaguchi, S, Toda, T, Takiguchi, H, Kumamoto, N, Shinkai, A, Kyushu Univ, Japan

**Technical Characteristics of SMRT07 New Friction Type Top Bracing Developed by SHI**

Kim, J H, Eom, J K, Samsung Heavy Industries, Korea

**101. HYDRODYNAMICS XIII: Roll & Damping (V. 3)**

Thursday June 25 08:00 1102, 11F

Chair: Ikeda, Y, Osaka Pref Univ, Japan

**Experimental and Numerical Analysis of the Roll Decay Motion for a Patrol Boat**

Broglia, R, Boucasse, B, Di Mascio, A, Lugni, C, INSEAN, Italy

**Parametric Roll of ONR Tumblehome in Head Seas**

Hashimoto, H, Umeda, N, Sogawa, Y, Osaka Univ, Japan

**Study on Assessment of Comfort and Roll Stabilization for Passenger Ships**

Kim, J H, Kim, H Y, Seoul National Univ; Kim, D W, Kim, Y S, Daewoo Shipbuilding & Marine Engineering, Korea

**Study on Nonlinear Roll Motion of Containerships in Waves**

Kim, T Y, Song, K H, Kim, Y H, Seoul National Univ, Korea

**Numerical Simulations of Viscous Flows with Induced Moving Discs in a Periodic Lid-Driven Cavity**

Wan, D C, Shanghai Jiao Tong Univ, China

**Analysis and Hydrodynamic Performances of High-speed Catamarans by Viscous Flow Solver**

Broglia, R, Di Mascio, A, Zaghi, S, INSEAN, Italy

**102. OCEAN & WIND ENERGY V: Tidal (V. 1)**

Thursday June 25 08:00 Room 1101, 11F

Chair: Jo, C H, Inha Univ, Korea

**Tidal Power Engineering of Russia in the Arctic**

Usachev, I N, Shpolyanskiy, Y B, Istorik, B L, Tidal Power Center, JSC, Russia

**Multi-Arrayed Tidal Current Power Interaction Study**

Jo, C H, Inha Univ; Park, R S, Univ of Ulsan; Hee, L K, Young, Y J, Inha Univ, Korea

**Measurement of Turbulence of Tidal Current and its Effect on the Performance of a Tidal Current Power Generator**

Kyozuka, Y, Duan, D, Li, Z, Kyushu Univ, Japan

**Reversible Counter-Rotating Type Hydroelectric Unit for Tidal Power Station**

Kasai, T, Nakamura, Y, Toshiaki, K, Kyushu Inst of Tech; Oba, S, DMW Corp, Japan

**Conceptual Design of 100kW Energy Integrated Type Bi-Directional Tidal Current Turbine**

Kim, K P, Choi, Y D, Lee, Y H, Korea Maritime Univ, Korea

**Ocean Energy Converter Certification [Oral Presentation]**

Argyriadis, K, Germanischer Lloyd Industrial Services, Germany

## THURSDAY 10:30

### 103. SLOSHING XI: - Panel Sloshing Dynamics – State of Industry, Research and Future

Thursday June 25 10:30 Room 1009

**Chair:** Kuo, J-F, ExxonMobil Upstream Research Co, USA  
**Co-Chair:** Kim, Y H, Seoul National Univ, Korea

**Comparative Study [Oral Presentation]**  
Kim, Y H, Seoul National Univ, Korea

#### Sloshing Dynamics Panelists

Brosset, L, Gaztransport & Technigaz, France  
Maguire, J, Lloyd's Register of Shipping, UK  
Shin, Y, American Bureau of Shipping, USA  
Valsgard, S, Det Norske Veritas, Norway  
Yung, T W, ExxonMobil Upstream Research Co, , USA

### 104. HYDRODYNAMICS XI: CFD 10 & Dynamics 2 (V. 3)

Thursday June 25 10:30 Room 1008

**Chair:** Li, L, American Bureau of Shipping, USA  
**Co-Chair:** Tsubogo, T, Osaka Prefecture Univ, Japan

**Numerical Calculation of Wave-Making Resistance Generated by Submerged Moving Object**  
Shen, L, WorleyParsons, Singapore

**Numerical Studies on Resistance Prediction Methods for Submerged Bodies**  
Fu, H P, Zhang, Y, Shanghai Jiao Tong Univ, China

**Practical Green Function for Steady Flow about a Ship**  
Noblesse, F, NSWCCD, USA; Delhommeau, G, École-Centrale de Nantes, France; Yang, C, George Mason Univ, USA

**Kelvin Ship Wake Modification Due to Wind Waves**  
Shugan I V, Hwung, H H, Yang, R Y, National Cheng Kung Univ, Taiwan, China

**Pure Loss of Stability of ONR Tumblehome in Following Seas**  
Hashimoto, H, Osaka Univ, Japan

**An Experimental Study on Viscous Effects on Longitudinal Motion of Drifting Buoy**  
Katayama, T, Momoki, T, Osaka Prefecture Univ; Higuchi, Y, Kawasaki Shipbuilding; Tarao, Y, Osaka Prefecture Univ; Aso, H, Zeni Lite Buoy, Japan

### 105. GEOTECH X: Modeling & Simulation (V. 2)

Thursday June 25 10:30 Room 1001

**Chair:** Chen, J W, National Cheng Kung Univ, Taiwan, China

**Microscale Numerical Simulation for Estimating Permeability of Gas-Water and Solid-Water Phases in Sand Sediment**  
Sato, T, Univ of Tokyo; Sugita, T, Modec Inc, Fiyono, F, National Inst of AIST, Japan

**Effect of Geometric Non-Linearity on the Deformation Behavior of Linear Elastic Ground**  
Shuku, T, Ohmoto Corp, Japan

**A Modified ALPHA Model Based on Subloading Surface Theory**

Zhan, Y, Jiangsu Univ of Science and Tech, Yuan, F, Inst of Rock and Soil Mechanics, CAS, China

**Optimizing Pile Group Design Using Real Genetic Algorithm**

Huang, J H, National Central Univ, Taiwan, China

**Numerical Analysis for the Bearing Capacity of Footings on Layered Clays**

Yuan, F F, Wei, C F, Inst of Rock and Soil Mechanics, CAS; Zhan, Y G, Jiangsu Univ of Science and Tech; Luan, M T, Dalian Univ of Tech, China

**Discrete Element Analysis for Group Piles Subjected to Vertical Loading**

Shoda, D, Kawabata, T, Kobe Univ; Numata, A, Tobishima Corp; Uchida, K, Kobe Univ; Motoyama, H, Tobishima Corp, Japan

**Development of FE-numerical Analysis Program for Suction Drain Method**

Yoon, M S; Kim, S S, Hanyang Univ; Han, S J, Expert Group for Earth & Environment; Kim, K N, Korea Rural Community & Agriculture, Korea

**A Kinematic Model for the Variation in Porosity in Dry Granular Flows**

Fang, C, National Cheng Kung Univ, Taiwan, China

**106. OFFSHORE SYSTEM VI: TLP/SPAR/FPSO 3 (V. 1)**

Thursday June 25 10:30 Room 1002

**Chair:** Teigen, P, StatoilHydro, Norway

**Co-Chair:** Soemantri, S, Bandung Inst of Tech, Indonesia

**Corrosion Protection of Deep Water Permanently Moored Floating Production Systems Using Cathodic Protection**

Surkein, M B, LaFontaine, J, Tanner, R E, ExxonMobil Development, USA

**Low Cycle Fatigue Assessment of Side Shell Details of an FPSO**

Rahi, H O, Incecik, A, Barltrop, N, Univ of Glasgow and Strathclyde, UK

**Effect of Hydrodynamic Interaction on the Dynamic Behavior of Two Ships in Tandem**

Souza Junior, J R, Morishita, H M, Ragazzo, C G, Univ of Sao Paulo, Brazil

**An Experimental and Numerical Study on the Motion Characteristics of Side-By-Side Moored Two Vessels**

Hong, Y P, Choi, Y H, Kim S E, Samsung Heavy Industries, Korea

**Course Weather-Vaning FPSO Mathieu Instability Consideration**

Chernetsov, V A, Karlinsky, S L, RUBIN Central Design Bureau for Marine Engineering, Russia

**107. HPM IX: Fatigue & Fracture 2 (V. 4)**

Thursday June 25 10:30 Room 1004

**Chair:** Rashed, S, Osaka Univ, Japan

**Development of a Simple Estimation Method for Fatigue Crack Growth Rate**

Osawa, N, Sawamura, J, Asai, H, Kuwahara, M, Osaka Univ, Japan

**Cyclic Plasticity Model Extended for Macroscopically Elastic Stress Condition**

Tsutsumi, S, Kyushu Univ, Japan; Dunne, F, Univ of Oxford, UK; Gotoh, K, Toyosada, M, Kyoto Univ, Japan

**A Study for the Fatigue Strength Improvement of Steel Casting Weld Joints**

Jeong, K S, Kim, M H, Kang, S W, Pusan National Univ; Chun, M S, Suh, Y S, Ito, H, Samsung Heavy Industries, Korea

**Numerical Study of Enhancement of Fatigue Crack Propagation Life by Grain Refinement**

Gotoh, K, Harada, K, Kyushu Univ, Japan

**Research of the Fatigue Life of Corrosion Damaged Component under Wave Force**

Liu, M, Qingdao Technological Univ; Mei, N, Wang, Y B, Ocean Univ of China, China

**108. COASTAL ENGINEERING X: Tsunami & Long Waves (V. 3)**  
**Thursday June 25 10:30 Room 1006**

**Chair:** Hwung, H.H, National Cheng-Kung Univ, Taiwan, China  
**Co-Chair:** Vicinanza, D, Second Univ of Naples, Italy

**Experimental Study on the Effect of Varying Pycnocline Thickness on Internal Solitary Wave Evolution**

Chen, C Y, Yung-Ta Inst of Tech and Commerce, Taiwan, China

**Preliminary Study on Statistical Characteristics of Wave and Surge over Taiwan Waters**

Lee, B C, Huafan Univ, Jao, K C, Cheng, C W, Wu, L C, National Cheng Kung Univ, Taiwan, China

**Impacts of Wind Stress on the Surface Tidal Current on the Northern Portuguese Shelf**

Chen, C, Ocean Univ of China; Zuo, J C, Hohai Univ; Chen, M, Ocean Univ of China, China

**Numerical Simulation of Tides and Tidal Currents in Jiangsu Offshore Areas, China**

Tao, J F, Zhang, C K, Yao, J, Gong, Z, Hohai Univ, China

**Numerical Simulation of Coastal Town Planning against Tsunami by DEM-Base Human Behavior Simulator**

Gotoh, H, Harada, E, Ohniwa, K, Kyoto Univ, Japan

**Field Survey on Harbor Facility Damage Due to Cyclone NARGIS in Myanmar**

Hiraishi, T, Port and Airport Research Inst, Japan

**The Characteristic Analysis of the Storm Surge in Fujian Coastal Area and Its Forecast**

Tan, Y, Zhang, J L, Wang Y H, Hohai Univ, China

**On the Study of Impulsive Waves Caused by Landslides**

Li, T, Troch, P, De Rouck, J, Ghent Univ, Belgium

**Tsunamis Generated by Subaerial Landslides along the Coast of a Conical Island: Three-Dimensional Experiments in a Large Tank**

Di Risio, M, Univ of L'Aquila; Bellotti, G, Panizzo, A, Univ of Rome; Molfetta, M G, Polytechnic of Bari; Aristodemo, F, Univ of Calabria-DDS; Pratola, L, Polytechnic of Bari; De Girolamo, P, Univ of L'Aquila; Petrillo, A F, Polytechnic of Bari, Italy

**109. PIPELINES & RISERS IX: Pipeline 2 (V. 2)**  
**Thursday June 25 10:30 Room 1007**

**Chair:** Duan, M, China Univ of Petroleum, China

**Design of Rock Berm Cover for Offshore Pipeline LNG Project in Hong Kong**

Gaudin, C, Univ of Western Australia, Australia; Landon, M M, Univ of Maine, USA; Pedersen, V, CLP Power Hong Kong, China; Kiat, C H, Lequin, W, Intecsea, Singapore

**Dynamic Analysis and Crack Identification for Free Spanning Pipeline with a Fatigue Crack**

Feng, X, Hu, J S, Zhu, T, Zhou, J, Dalian Univ of Tech, China

**Free Span Dynamics versus Global Buckling of the High Pressure and High Temperature Pipeline**

Sun, J, Jukes, P, Duan, G, J P Kenny, USA

**HP/HT Pipeline Expansion Analyses and Comparison with Hot Pipe Survey**

Brakstad, L, Halvorsen, V H, Reinertsen AS; Holden, O M, StatoilHydro, Norway

**Integrated Structural Reliability-Finite Element Analysis of Lateral Buckling of Offshore Flowlines**

Bannekake, R, Eltaher, A, Sun, J, Jukes, P, J P Kenny, USA

**110. ADVANCED SHIP II: Production & Maintenance (V. 4)**

**Thursday June 25 10:30 Room 1005**

**Chair:** Fukada, S, Tsuneishi Shipbuilding, Japan

**Co-Chair:** Serizawa, H, Osaka Univ, Japan

**Prediction and Control Methods to Reduce Distortion of Deck Panels Produced during Block Assembly of Car Carrier**

Murakawa, H, Tajima, Y, Rashed, S, Osaka Univ; Okumoto, Y, Kinki Univ; Akiyoshi, K Naikai Zosen; Serizawa, H, Osaka Univ, Japan

**Optimization of Block Division Using Nodal Cut Set Method in Consideration of Production Stages in Ship Hull Construction**

Karottu, V K, Hamada, K, Kitamura, M, Hiroshima Univ, Japan

**The Establishment of Profile Production Line for Shipbuilding in Shipyard**

Hu, Y, Wang, C F, Mao, Y S, Li, P, Zhou Y Q, Leng, R, Xiang, Z, Wuhan Univ of Technology, China

**Supporting Force Distribution and Bottom Strength under Launching Condition**

Fukada, S, Tsuneishi Shipbuilding, Japan; Yu, J X, Tianjin Univ, China

**A Study on the Improvement of Prediction Accuracy of Hull Fatigue Life Using a Fatigue Damage Sensor**

Takaoka, Y, Kawasaki Shipbuilding Corp; Nihei, K, Kawasaki Heavy Industries; Kobayashi, T, Kawaju Techno Service Corp; Koiwa, T, Yamamoto, N, Usami, A, Dobashi, H, Nippon Kaiji Kyokai, Japan

**111. HYDRODYNAMICS XIV: Dynamics & Design (V. 3)**

**Thursday June 25 10:30 Room 1102, 11F**

**Chair:** Minoura, M, Osaka Univ, Japan

**Co-Chair:** Spinneken, J, Imperial College London, UK

**Variable Fidelity Optimization in Ship Design**

Kim, H Y, Yang, C, Kim, H Y, George Mason Univ, USA; Chun, H H, Pusan National Univ, Korea

**A Practical Optimization Tool for Hydrodynamic Design of Ship Hull Forms**

Kim, H Y, Yang, C, Kim, H J, Löhner, R, George Mason Univ; Noblesse, F, NSWC-CD, USA

**Numerical Simulation of Flow around a Pod Propeller**

Li, W, Shanghai Jiao Tong Univ, China; Yang, C, George Mason Univ, USA

**Dynamic Response Evaluations of Offshore Platform with Porous Cylinders**

Park, M S, Kawano, K, Kagoshima Univ, Japan

**Modelling Coastal Run-up by a Well-balanced Shallow Flow Solver**

Liang, Q, Wang Y, Newcastle Univ, UK; Archetti, R, Univ of Bologna, Italy; Hall, J W Newcastle Univ, UK

**A Fast ADI Method for Two-Dimensional Shallow Water Equations**

Kim, H, Jang, C H, Lee, Y, Kookmin Univ, Korea

**Dynamic Behavior of a Submersible Fish Cage**

Lee, C W, Lee, J H, Lee, G H, Choe, M Y, Lee, M K, Song, D H, Pukyong National Univ, Korea

### 112. OCEAN & WIND ENERGY VI: Wind 1 (V. 1)

Thursday June 25 10:30 Room 1101, 11F

**Chair:** Murai, M, Yokohama National Univ, Japan

**Co-Chair:** Cheboxarov, V V, FEB Russian Academy of Sciences, Russia

#### **Validation of a Finite Element Based Simulation Approach for Offshore Wind Turbines within IEA Wind Annex XXIII – Simulation Challenges and Results for a 5-MW Turbine on a Tripod Substructure**

Vorpahl, F R, Huhn, H, Busmann, H-G, Fraunhofer Center for Wind Energy and Maritime Engineering (CWMT); Kleinhansi, S, Aero Dynamik Consult Ingenieurgesellschaft, Germany

#### **A Study of Geometric Properties and Shape Factors for Wind Turbine Tower Design**

Jang, J J, Chien, C W, National Taiwan Ocean Univ, Taiwan, China

#### **Wave Response Experiment on SPAR-Type Floating Bodies for Offshore Wind Turbine**

Utsunomiya, T, Nishida, E, Kyoto Univ; Sato, I, Toda Corporation, Japan

#### **Dynamic Analysis of Offshore Wind Turbine under Extreme Wind and Wave Loading with Including the Fluid-Structure Interaction**

Chen, X B, Chen, J Y, Li, J, Dalian Univ of Tech, China

#### **An Experimental Study on the Roll Motion Reduction of the Floating Wind Turbine Platform with Submerged Horizontal Fins**

Sunahara, S, Sekita, K, Tokai Univ, Japan

#### **Application of an Abandoned Jacket for an Offshore Structure Base of Wind Turbine in Bohai Heavy Ice Conditions**

Wang, Y, Dalian Univ; Duan, M, China Univ of Petroleum; Shang, J H, CNOOC, China

## THURSDAY 14:00

### 113. HYDRODYNAMICS XII: CFD 11 & Multibody Dynamics 3 (V. 3)

Thursday June 25 14:00 Room 1008

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

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

#### **Simulation of Multi-Body Systems in Waves**

Doig, R, Kaeding, P, TKMS Blohm + Voss Nordseewerke, Germany

#### **Hydrodynamic Analysis for Side-By-Side Offloading**

Bunnik, T, MARIN, The Netherlands; Voogt, A, Pauw, W, MARIN, USA

#### **Two Ships Operating in Close Proximity in Rough Sea**

Li, L, American Bureau of Shipping, USA

#### **Numerical Studies on Nonlinear Hydrodynamic Interactions of Side-by-Side Moored Vessels in Extreme Waves**

Lu, H D, Yang, C, Löhner, R, George Mason Univ, USA

#### **Fully Nonlinear Hydrodynamic Interaction between Two 3D Floating Structures in Close Proximity**

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

#### **A Study on the Flow Pattern around a Multi-Submerged Body According to the Body Gap**

Gim, O S, Ministry of Land Transport and Maritime Affairs; Lee, G W, Mokpo National Maritime Univ, Korea

#### **Numerical Simulation of Wave-Current Flow Field around Pile Groups by a Vortex Method**

Chen, B, Teng, B, Dalian Univ of Tech, China

**Discrete Event/Discrete Time Simulation of Block Erection by a Floating Crane Based on Multibody System Dynamics**  
Cha, J H, Lee, K Y, Ham, S H, Seoul National Univ; Roh, M I, Univ of Ulsan; Park, K P, Suh, H W, Daewoo Shipbuilding & Marine Engineering, Korea

**114. GEOTECH XI: Geohazard & Geoinformatics (V. 2)**  
Thursday June 25 14:00 Room 1001

**Chair:** Kawabata, T, Kobe Univ, Japan

**Experience of Mathematical Simulation for a Geotechnical Assessment of Construction of “Federation” Island**  
Koff, G L, Chesnokova, I V, Georisk R&D Centre, Russia

**Behavioral Trait Investigation of Large Scale Underground Space for Seeking a Road: A Case Study in KRTS, Taiwan**  
Chi, Y Y, Chen, Y L, Lee, Y F, Chang Jung Christian Univ, Taiwan, China

**Analytic Network Process Method Integrated with GPC/GIS Technology Used to Identify Potential Slope Failures in Central Taiwan**  
Chen, K T, Tsai, K J, Shieh, C L, Chang Jung Christian Univ, Taiwan, China

**A Study on Earthquake and Typhoon Induced Regional Debris Flow Hazards**  
Ku, C Y, National Taiwan Ocean Univ, Taiwan, China

**Establishment of the Marine GIS Information Service System in Taiwan Coastal Area**  
Chien, L K, Feng, T S, Yen, C C, Lee, B C, National Taiwan Ocean Univ, Taiwan, China

**Establishment and Application of Global Satellite Tracking Web Geographical Information System**  
Yen, C C, Chien, L K, Feng, T S, Lee, B C, National Taiwan Ocean Univ, Taiwan, China

**The Research of Data Exchange over Heterogeneous Geographic Information Systems**  
Kung, H Y, Pingtung Univ of Science and Tech; Chen, C H, National Chiao Tung Univ; Wu, C I, Lin, C Y, Pingtung Univ of Science and Tech; Lo, C C, National Chiao Tung Univ; Tsai, K J, Chang Jung Christian Univ, Taiwan, China

**Application of Random Walk Particle Tracking to the Delineation of Capture Zones**  
Inoue, K, Takao, Y, Tanaka, T, Kobe Univ, Japan

**A Study on Delineation of Debris Flow Hazards in Hualien County, Eastern Taiwan**  
Hsu, S M, Chao, C H, Wen, H Y, Sinotech Engineering Consultants; Ku, C Y, National Taiwan Ocean Univ; Chi, S Y, Sinotech Engineering Consultants, Taiwan, China

**Development of a New Device for Measuring Contact Pressure Distribution of Geo-Materials**  
Oshige, S, Yasufuku, N, Omine, K, Kobayashi, T, Kyushu Univ, Japan

**Mechanism of Geoenvironmental Contamination with LNAPLs at Sites Close to the Ocean**  
Flores, G, Inui, T, Katsumi, T, Takatsukasa, Y, Kamon, M, Kyoto Univ, Japan

**115. OFFSHORE SYSTEM VII: TLP/SPAR/FPSO 4 (V. 1)**  
Thursday June 25 14:00 Room 1002

**Chair:** Utsunomiya, T, Kyoto Univ, Japan



**Loads on Tie-Down Systems for Floating Drilling Rigs during Hurricane Conditions**

Bae, Y H, Texas A&M Univ; Yang, C K, FloaTEC, Kim, M H, Ward, E G, Texas A&M Univ, USA

**CFD Modeling of Fluid Resonance in the Narrow Gaps of Floating Rectangular Structures**

Lu, L, Dalian Univ of Tech, China; Cheng, L, The Univ of Western Australia, Australia; Teng, B, Dalian Univ of Tech, China; Zhao, M, The Univ of Western Australia, Australia; Qin, J M, Dalian Univ of Tech, China

**Coupled Ship/Mooring Line Analysis in the Time Domain**

Qiu, W, Peng, H, Memorial Univ of Newfoundland, Canada

**Research on Hydrodynamic Interaction among the DPS**

Wang, L, Yang, S, Wang, L, Shanghai Jiao Tong Univ, China

**Analysis of Dynamic Positioning System Performance for Semisubmersible Platform**

Wang, L, Wang, L, Li, Z, Shanghai Jiao Tong Univ, China

**116. HPM X: Advance in Welding Tech (V. 4)**

**Thursday June 25 14:00 Room 1004**

**Chair:** Murakawa, H, Osaka Univ, Japan

**New Techniques for In-Situ Microstructure Observation in Welding**

Komizo, Y I, Terasaki, H, Osaka Univ, Japan

**Experimental Study on the Mechanical Properties of Thermit Welding Joints of Rail Steels at Low Temperature**

Wang, Y Q, Hu, Z W, Shi, Y J, Xi, W, Tsinghua Univ, China

**Influential Factors Affecting Inherent Deformation during Plate Forming by Line Heating (Report 4): The Effect of Material Properties**

Vega, A, Nawafune, M, Osaka Univ; Tango, Y, Ishiyama, M, IHI Engineering Marine; Rashed, S, Murakawa, H, Osaka Univ, Japan

**Influential Factors Affecting Inherent Deformation during Plate Forming by Line Heating (Report 5): The Effect of Water Cooling**

Vega, A, Nawafune, M, Osaka Univ; Tango, Y, Ishiyama, M, IHI Engineering Marine; Rashed, S, Murakawa, H, Osaka Univ, Japan

**Effect of Low Temperature Transformation Expansion on Restraint Stress of High Strength Steel Welds**

Mochizuki, M, Mikami, Y, Iyota, M, Osaka Univ, Japan

**Numerical Study on Strain Behavior during Solidification Evaluation of Solidification Cracking Susceptibility in Low Carbon Austenitic Stainless Steel Laser Weld**

Yamada, J, Okano, S, Mori, H, Mochizuki, M, Nishimoto, K, Osaka Univ, Japan

**Experimental Study on Thermal Distortion Behavior during In-Process Control Welding by Additional Cooling**

Okano, S, Mochizuki, M, Toyoda, M, Osaka Univ; Ueyama, T, Daihen Corp Welding & Mechatronics, Japan

**Development of Plasma Cutting Machines with Automatic Edge Preparation Capability**

Osawa, N, Osaka Univ; Furujo, A, Koike Sanso Kogyo; Nagahori, M, Nissan Tanaka; Onishi, T, Mitsui Engineering & Shipbuilding; Yajima, H, IHI Marine United; Miyamoto, T, Japan Ship Technology Research Assoc, Japan

**Experience on Application of Methods of Fracture Mechanics for Estimation of Gasholder Serviceability and Life Time**

Basko, E M, Lazutin, V N, Larionov, V V, Melnikov Institute, Russia

**Study on High Speed Rotational Arc Sensing of Underwater Welding**

Shi, Y H, Wang, G R, South China Univ of Tech, China

**117. COASTAL ENGINEERING XI: Sediment Transport (V. 3)**  
**Thursday June 25 14:00 Room 1006**

**Chair:** Lin, M C, National Taiwan Univ, Taiwan, China

**The Effect of Coastal Structure Construction on the Longshore Drift of Sokcho Shoreline**

Park, H B, Pukyong National Univ; Kang, Y K, Samsung Corp; Ryu, C R, Pukyong National Univ, Korea

**Feasibility Study on Integrating Soft Countermeasure into Current Hard Shore Protection System around Taiwan Coast**

Wu, Y C, Yang, R Y, Liou, J Y, Hwung, H H, Hwung, H Y, National Cheng Kung Univ, Taiwan, China

**Acceptable Approximation of Numerical Integration for Bed or Total Sediment Transport**

Kim, H S, Yoon, C S, Kookmin Univ, Korea

**Local Scour in Front of Quay Wall Caused by Bow Thruster and Its Countermeasure Using Filter Units**

Mizutani, N, Nakamura, T, Shinoda, Y, Koyama, H, Nagoya Univ, Japan

**Flow Characteristics of the Suspended Flexible Curtain for Sediment Harvest**

Li, Y H, Yu, G L, Shanghai Jiao Tong Univ, China

**The Deviation Characteristics of Sediment Particles in Curvilinear Flows**

Hong, G J, CCGRP/Shanghai Jiao Tong Univ; Yu, G L, Shanghai Jiao Tong Univ; Feng, L, CCGRP, China

**A Combined Thermography -Neural Network for the Prediction of Eroded Caves behind Seawall**

Lee, T L, Lin, H M, Chen, H H, Yang, R Y, Leader Univ, Taiwan, China

**Erosion Mechanisms of Cohesive Bed and Bank Materials**

Bui, T V, Deguchi, I, Arita, M, Osaka Univ, Japan

**On the Calculation of Properties of Water Waves over a Layered Muddy Bed**

Ng, C O, Univ of Hong Kong, Hong Kong, China

**Studies on the Effect of Random Wave Loading on Dynamic Response of Sandy Seabed**

Wang, Z T, Luan, M T, Dalian Univ of Tech, China

**118. PIPELINES & RISERS X: Pipeline 3 (V. 2)**  
**Thursday June 25 14:00 Room 1007**

**Chair:** Gresnigt, A M, Delft Univ of Tech, The Netherlands

**Co-Chair:** Jukes, P, J P Kenny, USA

**Effect of Diameter to Thickness Ratio and External Pressure on the Velocity of Dynamic Buckle Propagation in Offshore Pipeline**

Omrani, Z, Abedi, K, Mostafa Gharabaghi, A, Sahand Univ of Tech, Iran

**A Finite Element Method Approach on Liner Wrinkling of Snug Fit Lined Pipe**

Hilberink, A, Heerema Marine Contractors; Peek, R, Shell International Exploration and Prod; Gresnigt, A M, Sluys, L J, Delft Univ of Tech, The Netherlands

**Pipeline Laying Analysis Based on Substructure Method**

Zhang, W S, Dalian Univ of Tech; Li, Z G, COOEC; Zhang, X F, Dalian Univ of Tech; Li, X, COOEC; Yue Q J, Dalian Univ of Tech, China

**Saipem/ENI Offshore Pipeline Repair System (SiRCoS)**

Spinelli, C M, ENI Gas & Power, Italy

**The Latest Developments in Upheaval Buckling Analysis for Buried Pipelines**

Wang, J, Ayman, E, Sun, J, Wang, S, Duan, D, Jukes, P, J P Kenny, USA

**119. ADVANCED SHIP III: Motion & Performance (V. 4)**  
**Thursday June 25 14:00** Room 1005

**Chair:** Umeda, N, Osaka Univ, Japan  
**Co-Chair:** Sapsis, T S, MIT, USA

**Probabilistic Analysis of Ship Roll Motion under General Stochastic Excitation: I. Derivation of an Equation Governing the Probability Density Function**

Athanassoulis, G A, National Tech Univ of Athens, Greece; Sapsis, T S, MIT, USA; Tsantili, I-S, National Tech Univ of Athens, Greece

**Probabilistic Analysis of Ship Roll Motion under General Stochastic Excitation: II: Numerical Determination of the Probability Density Function Solution**

Sapsis, T S, MIT, USA; Athanassoulis, G A, Cavriiades, P, National Tech Univ of Athens, Greece

**Full Scale Experiment for Frictional Resistance Reduction Using Air Lubrication Method (Measurement Results of Local Shear Stress, Thrust and Torque)**

Hoang, C L, Toda Y, Sanada, Y, Osaka Univ, Japan

**Effects of Draft and Forward Speed of a Ship on Added Resistance in Waves**

Kashiwagi, M, Ikeda, T, Sasagawa, T, Osaka Univ, Japan

**Estimation Method for the Arrival Directions of the Radio Waves to Measure the Surface Current of Sea Using VHF Radar on Vessel**

Arai, R, Nakatani, N, Sachi, K, Yamada, T, Okuno, T, Osaka Prefecture Univ; Hamano, T, Kawasaki Shipbuilding, Japan

**Cost and Benefit Model for Aids to Navigation by Using TRIZ**

Gug, S G, Korea Maritime Univ, Korea; Bransby, M, General Lighthouse Authorities of the United Kingdom and Ireland, UK

**120. HYDRODYNAMICS XV: Dynamics 4 & Measurements (V. 3)**  
**Thursday June 25 14:00** Room 1102, 11F

**Chair:** Naito, S, Osaka Univ, Japan  
**Co-Chair:** Broglia, R, INSEAN, Italy

**3-D Wave Field Measurements Using Reflected Light Image**

Sanada, Y, Takayama, A, Toda, Y, Osaka Univ; Hamachi, S, Universal Shipbuilding, Japan

**Measurement of Greenwater on a 3D Structure**

Chang, K A, Ariyaratne, K, Mercier, R, Texas A&M Univ, USA

**Application of Non-Metric Camera for In-Situ Measurement for Ocean Engineering Research**

Wang, C C, Liao, Y C, National Sun Yat-Sen Univ, Taiwan, China

**Application of a Pan/Tilt Control Camera in Coastal Image Research in His-Tzu-wan Bay**

Hsiao, Y H, Chuang, S C, Huang, M C, National Cheng Kung Univ, Taiwan, China

**Experimental Study of Breaking Wave Loads on Vertical Walls**

Kang, H G, Sun, Y, Dalian Univ of Tech, China

**Non-Homogeneity of Nearshore Wave Field from X-Band Radar Images**

Feng, X, Yan, Y, Hohai Univ, China; Kao, C C, Wu, L C, National Cheng Kung Univ, Taiwan, China

**Acoustic Tomography of Hydrophysical Processes in Ocean Shelf Zones**

Strobykin, D S, Morgunov, Y N, V.I. Il'ichev Pacific Oceanological Inst, FEB RAS, Russia

**Non-Intrusive Technique for Identifying Solute Dispersion in Porous Media Using Image Analysis**

Inoue, K, Takenouchi, R, Matsunaga, N, Tanaka, T, Kobe Univ, Japan

**121. OCEAN & WIND ENERGY VII: Wind 2 (V. 1)**

**Thursday June 25 14:00 Room 1101, 11F**

**Chair:** Vorpahl, F R, Fraunhofer Center for Wind Energy & Maritime Eng (CWMT), Germany

**Co-Chair:** Chen, X B, Dalian Univ of Tech, China

**Design and Construction Considerations for Offshore Wind-Turbine Foundations in the United States**

Malhotra, S, Parsons Brinckerhoff, USA

**Numerical Simulation of Wave and Current Interaction with Rotary Pontoon of Offshore Wind Turbine**

Cheboxarov, V V, Cheboxarov, V V, Inst for Automation and Control Processes, FEB RAS, Russia

**Inclusive Environmental Assessment for Offshore Wind Power Stations**

Murai, M, Aono, T, Yokohama National Univ, Japan

**A Straight-Bladed Vertical Axis Wind Turbine with a Directed Guide Vane Row - Effect of Guide Vane Solidity on the Performance**

Takao, M, Takita, H, Matsue National College of Tech; Maeda, T, Kamada, Y, Mie Univ, Japan

**Experimental Study of a New Wind Energy Collecting System**

Sun, Z J, Tang, Z B, Zhejiang Ocean Univ, China

**Estimation Method for Offshore Wind Energy Using Synthetic Aperture Radar and Weibull Parameters**

Kozai, K, Ohsawa, T, Takahashi, R, Kobe Univ; Takeyama, Y, National Inst of AIST, Japan

**Characteristics of Offshore Winds at Shirahama Oceanographic Observatory**

Shimada, S, Ohsawa, T, Serizawa, S, Yoneda, I, Kyoto Univ, Japan

**FRIDAY June 26**

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## GENERAL INFORMATION

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**PLACE AND DATE:** Osaka, Japan, June 21–26, 2009

All ISOPE-2009 Conference's technical events, tea breaks and registration will take place at:

**Osaka International Convention Center\***

5-3-51, Nakanoshima Kita-ku,

Osaka, Japan 530-0005

Fax: +81-(0)6-4803-5620; [www.gco.co.jp/index.html](http://www.gco.co.jp/index.html)

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AIRPORT TO HOTEL on [www.isopec.org](http://www.isopec.org)

**ACCOMODATION.** Find the reservation form in this program or download the file from [www.isopec.org](http://www.isopec.org) > Meetings > ISOPE-2009 > hotel reservation form – **Rihga Royal Hotel**.

*Reservations should be made absolutely before May 4, 2008.*

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WHAT TO SEE IN THE KANSAI REGION on [www.isopec.org](http://www.isopec.org)

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**DEADLINE: Presenting Authors: March 24.**

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Requests in writing for cancellation of registration received by **June 4, 2008** only will be granted a refund minus US\$70 handling fee. **No refund** will be granted to **one “presenting” author** per paper, if the paper is already included in the proceedings.

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International authors, participants or attendees who need help (except financial) can contact: ISOPE-2009 Secretariat, 495 North Whisman Road, Suite 300, Mountain View, California 94043-5711 USA. Fax: +1-650-254-2038; email: [meetings@isope.org](mailto:meetings@isope.org).

**Entry Visa.** Some authors may be required to apply for an entry visa.

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### **CLIMATE**

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**AUTHOR INDEX** is posted on [www.isope.org](http://www.isope.org).

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**Proceedings of the 8th (2008) Pacific/Asia Offshore Mechanics Symposium (PACOMS-2008)**, Bangkok, Thailand, November 17–21, 2006. A single volume (CD-ROM) (ISBN 978-1-880653-52-4; ISSN 1946-004X); 334 pp., US\$100 (ISOPE Member; \$80).

**Proceedings of the 1st (1990) European Offshore Mechanics Symposium (EUROMS-90)**, Trondheim, Norway, 20-22 August 1990. A single volume: (ISBN 0-9626104-4-5; LCCN 90-084691); approx. 590 pp., US\$80. (Member; US\$60.)

**Proceedings of the 7th (2007) ISOPE Ocean Mining Symposium,**

Lisbon, Portugal, July 1–6, 2007. A single volume (hard copy and CD-Rom) (ISBN 978-1-880653-69-2; ISSN 1946-0066): 219 pp., US\$100 (Member; US\$80.)

**Fifth (2007) ISOPE High-Performance Materials Symposium, ISOPE HPM-2007,** Lisbon, Portugal, July 1–6, 2007:

**First (2007) ISOPE HPM Nanomaterials for Structural Applications Symposium, ISOPE NANOS-2007,** Lisbon, Portugal, July 1–6, 2007.

**First (2005) ISOPE Advanced Natural Gas Transport (ANGT) Symposium, ISOPE ANGT-2005,** Seoul, Korea, June 19-24, 2005.

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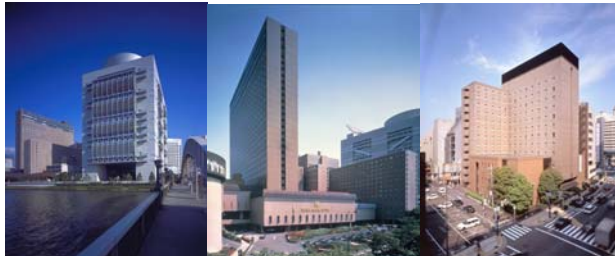
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