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June 30–July 5, Anchorage, Alaska, USA

The Twenty-third (2013) International
**Ocean (Offshore) and Polar
Engineering Conference**

Including additional ISOPE symposia:

- 1st **Manganese Steel**
- 2nd **Tsunami & Safety**
- 2nd **Asset Integrity**
- 4th **Arctic Science & Technology**
- 3rd **Arctic Materials**
- 4th **Renewable Energy & Environment**
- 5th **Sloshing Dynamics & Design**
- 5th **Frontier & Clean Energy Tech**
- 11th **High-Performance Materials**
- 6th **Strain-Based Design**

ISOPE-2013

Anchorage, Alaska, USA, June 30–July 5

Technical Program

(Updated March 7)

Refereed papers from **52** countries in **151** technical general
plenary and keynote presentations

General Information, Reservations, Publications and Program

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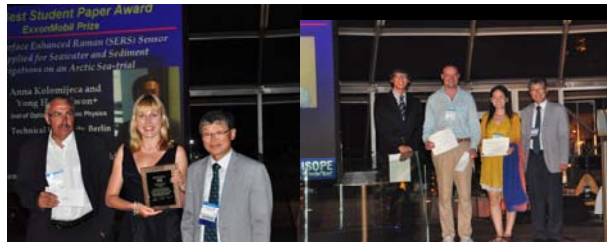
Technical Program Committee, ISOPE

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2012 ISOPE Awards: Best Student Paper, Scholarship, Session Organizer: Presentation at Banquet Reception and Registration



Conference Opening Session



Annual Conference Banquet

More photos on www.isope.org and www.isope2013.org
ISOPE-2012 Rhodes
The 22nd Annual International Ocean and Polar Engineering
Conference, Rhodes, Greece, June 17-22, 2012

TECHNICAL PROGRAM

The Twenty-third (2013) International Ocean (Offshore) and Polar Engineering Conference Anchorage, Alaska, USA, June 30–July 5, 2013

The number at the end of the session title indicates the tentative number of the proceedings volume. Only the changes in titles or authors the ISOPE-2013 Technical Program Committee (TPC) received in writing before **March 7, 2013** are reflected in this program. Program will be updated once more in March. Final version will be updated in the Conference Proceedings of peer-reviewed papers and the Final Program. Conference proceedings (ISBN 978-1-880653-99-9; ISSN 1098-6189) will be available as a set of 4 volumes (4,000 pp. est.) from ISOPE during and after the Conference.

Proceedings papers are indexed by Engineering Index and Compendex and others.

SUNDAY, June 30 **Conference Reception**

17:00

Arleaga Hall

MONDAY 08:30

Monday **1. OCEAN AND ENERGY REVIEW (V. 1)** **Cook Hall**
 July 1 **08:30**

Chair: R Ayer, ExxonMobil Research & Engineering, USA
Co-Chair: HI Park, Korea Maritime Univ, Korea

Conference Opening Address
Shigeru Naito, ISOPE President, Osaka University, Japan

Welcome to Anchorage
Dan Sullivan, the honorable Mayor of Anchorage, USA

Some of My Source Rocks are Now Reservoirs -- Fine-grained Reservoirs from 'Shale Gas' to 'Shale Oil'
QR Passey, KM Bohacs, M Rudnicki, L Esch, ExxonMobil Upstream Research, USA

MONDAY 10:00

Monday **2. LNG SLOSHING I: Model Test I (V. 3)** **Room 1**
 July 1 **10:00**

Chair: S Schreier, Univ of Rostock, Germany

Benchmark on Sloshing Model Tests
T Loysel, E Gervaise, L Brosset, S Moreau, Gaztransport & Technigaz, France

The Second ISOPE Sloshing Benchmark: Bureau Veritas Sloshing Model Tests & CFD Calculations
E Baudin, L Diebold, Bureau Veritas, France

Experimental Studies on Sloshing in a STX Independence Type-B Tank
SY Kim, KH Kim, YJ Ahn, YH Kim, Seoul National Univ; JH Heo, TS Jeong, CH Lee, DH Kim, STX Offshore & Shipbldg, Korea

Study of Liquid Sloshing in 3D Model Tank: Experimental and Numerical Approach

SL Ruan, TT Liu, QJ Yue, Dalian Univ of Tech; B Xie, QG Du, CNOOC Research Inst, China

An Experimental Study of Non-Linear Liquid Sloshing in a Rectangular Tank

O Kargbo, JH Zheng, Hohai Univ, China

3. HYDRODYNAMICS I: Shallow-Water (V. 1)

Monday July 1 10:00 Room 2

Chair: M Kashiwagi, Osaka Univ, Japan

Co-Chair: SQ Yan, City Univ, UK

Entrainment Effect on the Simulation of Density Currents by a Two Layer Shallow Water Model

C Adduce, V Lombardi, G Sciotino, M La Rocca, M Morganti, Univ Roma Tre, Italy

An Empirical Analysis of Coastal Shoaling Induced Wave Filtering

A Vögler, D Christie, J Morrison, Univ of the Highlands and Islands, United Kingdom

Numerical Simulations of the Hydrodynamics in the Coastal Waters of the Nan-Wan Bay of Southern Taiwan

TW Hsu, National Cheng Kung Univ; JM Liao, LW Wang, Taiwan Ocean Research Inst; WJ Juang, Inst of Transportation; SY Chen, National Cheng Kung Univ, Taiwan, China

The Representation of Complex Boundaries in a Multilayer Shallow Water FV-LBM Model

P Prestininzi, M La Rocca, Univ Roma Tre, Italy

The Nonlinear Fourier Transformation (NLFT) as an Innovative Analysis Method for Waves in Shallow Water

M Bruehl, H Oumeraci, TU Braunschweig, Germany

Combined Field and Numerical Investigation of the Hydrodynamics around an Artificial Reef in Loch Linnhe, Scotland

Y Al-Bourae, M Downie, QH Liang, Newcastle Univ, UK

Impact Analysis of the Flood on the Reinforced Rural Building

SY Xiao, Dalian Univ of Tech, China

4. RENEWABLE ENERGY I: Offshore Wind Tech 1

Foundation A (V. 1)

Monday July 1 10:00 Room 3

Chair: SC Bang, South Dakota School of Mines, USA

Offshore Wind Turbine Foundation Model Validation with Wind Farm Measurements and Uncertainty Quantification

A Natarajan, C Koukoura, Technical Univ of Denmark; T Krogh, OJ Kristensen, DONG Energy, Denmark

Centrifuge Testing of Monopiles for Offshore Wind Turbines

PB Kirkwood, SK Haigh, BH Lau, Univ of Cambridge, UK

Numerical and Experimental Modeling of Scour at Foundation Structures for Offshore Wind Turbines

A Stahlmann, T Schlurmann, Leibniz Univ Hannover, Germany

Cyclic Behaviour of Soils at Sheringham Shoal Offshore Wind Farm

TMH Le, G Eiksund, NTNU; P J Strøm, Statoil, Norway

5. RISK ASSESSMENT& RELIABILITY I (V. 4)
Monday July 1 10:00 Room 4

Chair: M K Ha, Samsung Heavy Industries, Korea

Safety and Reliability Management in Deepwater Drilling Engineering in South China Sea: Challenges and Solutions

RC Cheng, HG Wang, L Shi, YH Ge, ZC Sun, HL Tian, China National Petroleum, China

Brownfield HAZOP / PHA Application for Residual Risk Removal: Creating a Safer Future from Current Studies for Present and Updated Facilities

RS Wittkower, J P Kenny, USA; A Botto, WGIM, Brazil; J Garcia, WGIM, USA; B Poblete, Atkins Global; P Jukes, J P Kenny, USA

Framework for Risk Analysis Based on FMEA, CNEA, FTA and BBN

LFP Calil, HA Kagueiama, A Dias, Federal Univ of Santa Catarina, Brazil

Coastal Vulnerability and Risk Assessment in Complex Disasters and Adaptation Strategies Exploration

LK Chien, RJ Lei, National Taiwan Ocean Univ; BC Lee, Huafan Univ; SY Chiu, LJ Hung, National Taiwan Ocean Univ, Taiwan, China

Risk and Safety Studies for New LNG Floating Units Projects

O Benyessaad, D Ruf, Bureau Veritas, France

Explosion Risk Analysis of Re-gasification Process of LNG-FSRU

HS Lee, MJ Koo, SH Kim, JW Choi, Samsung Heavy Industries, Korea

Guidelines for Documenting Quantitative Risk Assessments of Oil & Gas Upstream Facilities

SE Oliva, ERM, USA

Probabilistic Risk Assessment of Welded Offshore Steel Structures

IA Chaves, RE Melchers, Univ of Newcastle, Australia

6. ASSET INTEGRITY I: Integrity Management (V. 4)
Monday July 1 10:00 Room 5

Chair: S Maleki, TWI, UK

From Thickness Measurements to FE Computations in Offshore Units

A Rouhan, Bureau Veritas, France ; V Bonniol, Bureau Veritas, USA ; HH Vu, Bureau Veritas, France

Hull Integrity Techniques & Strategies

DA Contantinis, EM&I Alliance ; R Caldwell, Marine Integrity Management Solution, UK

Assessing Industry Trends in Risk-based Asset Management Practices

U Bharadwaj, P Polyviou, TWI Ltd, UK

Overview of the Monitas II Project

R Hageman, MARIN, Netherlands ; D L'Hostis, Total, France ; J van der Cammen, Bluewater Energy Services ; P Aalberts, MARIN, Netherlands

How Round is Round? Understanding Linepipe End Dimensions

RC James, Wood Group Integrity Management, Australia

The Variation of the Short Edge Compressed Panel's Critical Buckling Stress with the Effect of Transverse Stiffener

Y Du, Bureau Veritas, BV-BOSUN, China

7. VORTEX-INDUCED VIBRATION I: Single Cylinder (V. 3)
Monday July 1 10:00 Room 6

Chair: F Gao, Inst. of Mechanics, CAS, China

Experimental Evaluation of Oscillatory Flow around 2D Sections through PIV

MB de Conti, M Szajn bok, Univ of Sao Paulo, Brazil

Large-Eddy Simulation of Flows around a 3D Cylinder at Subcritical Reynolds Number

MY Duan, DC Ean, Shanghai Jiao Tong Univ, China

Experimental Investigation of Hydrodynamic Coefficients of a Circular Cylinder under Prescribed Oscillating Motion

MH Kamarudin, K P Kenny; KP Thiagarajan, Univ of Maine, USA; R Paurobally, Univ of Western Australia, Australia

Flow around a Circular Cylinder with Radial Disturbances at a Low Reynolds Number

LM Lin, XF Zhong, YX Wu, Inst of Mechanics, CAS, China

Vortex-Induced Vibration of Cylindrical Structure with Different Aspect Ratio

MA A Rahman; Univ of Western Australia, Australia; KP Thiagarajan, Univ of Maine, USA

Periodic Solutions of Unforced Duffing Equation Using OHAM

ZL Lin, YQ Jin, Shanghai Jiao Tong Univ, China

Pipeline - Span Vortex Induced Vibration Assessment Using Coupled CFD and FEA Methods

L Chica, A Al-showaiter, B Ozturk, P Jukes, MCS Kenny, USA

3D Simulations of the Galloping of Square Cylinders in Cross-Flow at Low Reynolds Numbers: Influence of the Aspect Ratio

S Corbeil-Létourneau, S Etienne, R-K Yu, A Hay, D Pelletier, Ecole Polytechnique de Montreal, Canada

STRAIN-BASED DESIGN

8. SBD I: Toughness Measurements (V. 3)

Monday July 1 10:00 Room 7

Chair: W Cheng, ExxonMobil Upstream Research, USA

Co-Chair: E Østby, SINTEF, Norway

Keynote

The Latest on Pipeline Strain-Based Design and Assessment - PRCI Guidance Document (Oral Presentation Only)

K Meyer, Michael Baker Corp; J Hart, N Zulfiqar, SSD Inc; R Gordon, Microalloying International, USA

Fracture Toughness Instrumentation Techniques for Single-Specimen Clamped SE(T) Tests on X100 Line Pipe Steel: Experimental Setup

TS Weeks, National Inst of Standards & Tech, USA

Notch Root Radius Effects on the Results of Fracture Toughness Testing of X100 Line Pipe Steel by the Clamped SE(T) Test

TS Weeks, E Lucon, National Inst of Standards & Tech, USA

Determination of Tearing Resistance in CWP and SENT Specimens Using Direct Current Potential Drop Measurements

MA Verstraete, S Hertele, K Van Minnerbruggen, R Denys, W De Waele, Ghent Univ, Belgium

Comparison of Resistance Curves from Multi-Specimen and Single-Specimen Surface Notched SEN(T) Geometry

LN Pussegoda, S Tiku, BMT Fleet Technology; WR Tyson, DY Park, J Gianetto, G Shen, CanmetMATERIALS, Canada; HG Pisarski, TWI, UK

9. FERT I: Clean Coal I (V. 1)
Monday July 1 10:00 Room 8

Chair: GT Kim, SK Innovation, Korea
Co-Chair: TW Kwon, SK Innovation, Korea

Computational Analyses on Coal-Conveying Pneumatic System
C Lee, Univ of Suwon; JW Lee, Ajou Univ; SJ Hwang, Univ of Suwon, Korea

Characteristics of Pneumatic Transport of Low Rank Coal for the Application of Fast Fluidized Bed Gasification
JW Lee, SW Chung, SO Yoo, SP Yoon, JM Lee, SY Yun, Ajou Univ; GT Kim, JW Shin, SK Innovation, Korea

Catalyst Loading and Dispersion Study for Catalytic Gasification of Lignite
SH Kim, DJ Marchand, E Schneider, Peen State Univ, USA; JH Kim, GT Kim, JW Shin, SK Innovation, Korea

Modeling of Geothermal Heat Exchangers
G Florides, P Christodoulides, E Theofanous, L Lazari, V Messaritis, Cyprus Univ of Tech, Cyprus

Process Design and Economic Evaluation of Steam Hydrogasification Process
CS Park, XM Lu, J Norbeck, Univ of California-Riverside, USA

Catalytic Coal Gasification: Discrete Element Modeling vs. Experiments
YL Joo, AC Ruo, BP Williams, Cornell Univ, USA; YJ Park, JH Kim, SK Innovation, Korea

A Study of the Gasification Characteristics on CO₂ or CH₄ Co-feeding in a Lab Scale Fluidized Bed Reactor
JS Park, YJ Kim, GT Kim, JW Shin, BS Kwak, DS Kim, SK Innovation, Korea

The High-Pressure Flash Dryer Design for the Gasification of Low-Rank Coals
SK Lim, MH Yi, GT Kim, SK Innovation, Korea

Evaluation of Indonesia Roto Coal Reactivity for Producing Methane-Rich Syngas through the Catalytic Gasification Technology
HT Kim, H Namkung, TJ Kang, Ajou Univ, Korea

10. ADVANCED SHIP TECH I: Shipbuilding Simulation (V. 4)
Monday July 1 10:00 Room 9

Chair: SY Hong, MOERI/KIOST, Korea
Co-Chair: S. Okazawa, Hiroshima Univ, Japan

A Study on Modeling and Simulation of Layered Ship Production Scheduling System
BE Goo, MJ Choi, H Chung, KAIST, Korea

Study on the Optimal Scheduling of the Outdoor Processes Based on the Simulation around the Quays and Docks on the Ship-Yard
WS Ruy, Jeju National Univ; HJ Hwang, HS Choi, MOERI/KIOST, Korea

Dynamic Simulation of Synchronized Multi-Cranes for Block Lifting
NK Ku, S Ha, MI Rho, KY Lee, Seoul National Univ, Korea

Development of a Mobile Block Logistics Simulation System for Ship and Offshore Structures

MS Kim, SD Lee, DY Cho, HC Song, JH Cham Mokpo National Univ;
HJ Hwang, MOERI/KIOST, Korea

**Information Visualization Approach to Modeling Shipyard
Manufacturing Shop Simulation**

P Lee, DK Lee, MG Back, YR Choi, JG Shin, Xinnos Co/Seoul National
Univ, Korea

**Initial Plan of Shipbuilding Capacity Based on the Stochastic Discrete
Event Simulation**

KS Kim, JH Lee, Inha Univ; HJ Hwang, MOERI/KIOST, Korea

Monday **11. HPM I: Fatigue & Fracture 3 (V. 4)**
July 1 **10:00** Room 10

Chair: M Hauge, Statoil, Norway

**Analysis of Effects of Steel Texture on Cleavage Crack Branching
[Oral presentation]**

I Kawata, S Aihara, Univ of Tokyo; T Kawabata, Nippon Steel &
Sumitomo Metal; K Shibamura, Univ of Tokyo, Japan

**Comparison of Applicability of the Existing Models and a New Model
for Unstable Crack Propagation and Arrest in High-Pressure Gas
Pipelines [Oral presentation]**

H Nakai, S Aihara, Univ of Tokyo, Japan

**A Numerical Model to Predict Cleavage Fracture Toughness of
Ferrite-Cementite Steel Taking Account of Cementite Cracking
Mechanism**

K Shibamura, T Hiraie, S Aihara, Univ of Tokyo, Japan

MONDAY 14:00

Monday **12. LNG Sloshing II: Model Tests 2 (V. 3)**
July 1 **14:00** Room 1

Chair: SH Kwon, Pusan National Univ, Korea

**Sensitivity Study on the Influence of the Exciting Motion in Liquid
Sloshing in a Rectangular Tank**

B Mehl, S Schreier, Univ of Rostock, Germany

**Experimental Study on the Effects of Pressure Sensors and Time
Window in Violent Sloshing Pressure Measurement**

YJ Ahn, KH Kim, SY Kim, SW Lee, YH Kim, Seoul National Univ,
Korea

**Liquid Impact Loads: How Far the Perception of the Reality Might Be
Transformed by Measurements?**

L Brosset, Gaztransport & Technigaz, France

Dynamic Pressure Calibration

S Razzak, J Amaichan, Gaztransport & Technigaz, France

**Experimental Investigation on the Layered Liquid Sloshing in a
Rectangular Tank**

MA Xue, JH Zheng, Hohai Univ; Sichuan Univ; PZ Lin, YX Ma, Dalian
Univ of Tech, China

Monday **13. HYDRODYNAMICS II: Fluid-Structure Interactions 1 (V. 1)**
July 1 **14:00** Room 2

Chair: W Qiu, Memorial Univ of Newfoundland, Canada

An Experimental Study on Added Mass Effect for the Vibration of Rectangular Tank

KS Kim, NS Kim, KS Kim, Daewoo Shipbldg & Marine Engineering, Korea

Efficient Bivariate Non-Stationary System Identification Technique for Offshore Structures

ES Lim, MS Liew, Universiti Teknologi PETRONAS, Malaysia

A Study on the Interactions of Nonlinear Surface Waves with Fixed Semisubmerged Bodies

M Rodriguez, J Spinneken, Imperial College London, UK

CFD Simulation of Wave and Current Influence on the Offshore Substructure

WG Park, TJ Kang, SK Yeom, Pusan National Univ, Korea

Numerical Study on Fluid-structure Coupling Performance of Flexible Marine Propellers

W Li, YX You, TQ Hu, F Cao, Shanghai Jiao Tong Univ, China

Impact of Landslide-generated Waves on the Motion of a Complex Multibody in the Restricted Area by a Two-phase Solver

JJ Ye, TQ Li, Wuhan Univ of Tech, China

Estimation of Response Transfer Functions of Offshore Structures Using the Time-Varying ARX Model [Proceedings only]

E Yazid, MS Liew, S Parman, VJ Kurian, Universiti Teknologi Petronas, Malaysia

14. RENEWABLE ENERGY II: Offshore Wind Tech 2

Foundation B (V. 1)

Monday July 1 14:00 Room 3

Chair: Ivar Langen, Univ of Stavanger, Norway

An Investigation into the Behavior of Piled Footings in Sand for Offshore Wind Turbines

P Behrang, DP James, Univ of Western Australia, Australia

The Influences of Soil Properties on Wind Turbine Tower

F Cai, G Eiksund, NTNU, Norway

Design and Evaluation of the Foundation of the Offshore Wind Turbine in the West Coastal of Taiwan

JF Tsai, CC Tse, National Taiwan Univ; YC Chiang, Tzu Chi Univ; TS Yeh, National Taiwan Univ, Taiwan, China

Acoustic Emissions Due to Offshore Piling - Field Measurements at an Offshore Wind Energy Construction Site

K Reimann, M Schwarz, J Grabe, Hamburg Univ of Tech, Germany

15. RISK ASSESSMENT& RELIABILITY II (V. 4)

Monday July 1 14:00 Room 4

Chair: O Benyessaad, Bureau Veritas, France

Measuring the Performance of a New Type of Expansive Stressed Grouted Clamp

Z Yuan, Y Shu, H Yu, DM Xie, Ocean Univ of China, China

Mooring Chain Fatigue Considering Friction-induced Bending Effect and Application to Deepwater FPSO

OJ Hwang, CH Kang, YT Oh, Daewoo Shipbldg & Marine Engineering, Korea

Structural Reliability Estimation of Offshore Wind Turbines by Statistic Extrapolation

YQ Xia, Shanghai Jiao Tong Univ, China

Development of the Monitoring System at the Yu. Korchagin field in the Northern Part of the Caspian Sea

IY Batdin, RA Gurman, LUKOIL, Russia

Safety Management of LNG Storage Tank's Concrete Wall Using Wireless Sensor System

DW Ha, Yonsei Univ; KW Lee, JH Kim, KOGAS; HS Park, Yonsei Univ, Korea

Modeling Safety of Multistate Systems with Application to Maritime Ferry Transportation System

J Soszyńska-Budny, K Kolowrocki, Gdynia Maritime Academy, Poland

A Practical Optimization Method for Ship Subdivision to Improve the Safety of the Ongoing Transport Ship

YY Yu, Y Lin, CG Jin, JG Xiao, Dalian Univ of Tech, China

Modeling Safety of Critical Infrastructures with Application to Port Oil Piping Transportation System

K Kolowrocki, J Soszyńska-Budny, Gdynia Maritime Academy, Poland

16. ASSET INTEGRITY II: Pipeline Integrity (V. 4)

Monday July 1 14:00 Room 5

Chair: RE Melchers, Univ of Newcastle, Australia

Risk Assessment and Failure Prediction of High-Strength Steel Pipelines with Considerations of the Synergism of Corrosion Defects, Internal Pressure and Soil Strain

FY Cheng, Univ of Calgary, Canada

Mechanism for Debonding of Internal Pipeline Lining

RE Melchers, Univ of Newcastle, Australia

Integrity Assessment of Petroleum Processing Plant Piping System

GFM De Souza, Univ of Sao Paulo ; DA Rodrigues, Petrobras, Brazil

Interaction Identification for Corroded Steel Pipeline with Colonies of Defects

X Li, Y Bai, Dalian Univ of Tech, China

Integrity Assessment of Pipelines in Operation

HS Alsos, SO Kvarme, Reinertsen AS ; BK Penmatcha, F Reza, F Haugen, Statoil, Norway

X70 Pipeline Properties Investigated by Full- and Small- Scale Reeling Simulations

ACC Vilas Boas, JM Silva, R Nolasco, R Barbosa, V&M Tubes, Brazil

Defect Detection for Pipelines Using Time Reversal Method and PZT-based Guided Waves

S Yan, NZ Zhao, J Qi, Shenyang Jianzhu Univ; H Yan, Liaoning Electric Power Survey & Design Inst, China

17. VORTEX-INDUCED VIBRATION II: Multiple Cylinders (V. 3)

Monday July 1 14:00 Room 6

Chair: Q Xiao, Univ of Strathclyde, UK

An Experimental Investigation of the Synchronization Phenomena for Oscillating Cylinder Pairs

MM Hayder, Savannah State Univ, USA

Resonance Forever in a Rotational System: The Infinite VIV Lock-In Regime for Pivoted Cylinders

B Stappenbelt, AD Johnstone, Univ of Wollongong, Australia

Analysis of Inline and Transverse Forces Acting on Elliptical Body Immersed in the Wake of a Circular Cylinder in Tandem Arrangement

H Hans, JM Miao, Nanyang Technological Univ, Singapore; MS Triantafyllou, MIT, USA

CFD Simulation of Vortex-Induced Vibrations of Dual Vertical Risers

HC Chen, K Huang, Texas A&M Univ; CR Chen, ABS, USA

Vortex-Induced Vibration Experiment Research of Two Cylinders in Side-by-Side Arrangement

W Qin, Z Kang, WX Liu, Harbin Engineering Univ, China

**Monday 18. SBD II: SBD Assessment (V. 3)
July 1 14:00 Room 7**

Chair: E Tsuru, Nippon Steel & Sumitomo Metal, Japan

Co-Chair: A Fonzo, Centro Sviluppo Materiali, Italy

Strain-Based Engineering Critical Assessment - An Update on ExxonMobil Technology

DP Fairchild, SY Shafrova, W Cheng, S Kibey, H Tang, VR Krishnan, ExxonMobil Upstream Research, USA

In-Service Performance of Flawed Pipelines for Offshore Applications

A Fonzo, G Melis, Centro Sviluppo Materiali, Italy; P Darcis, I Marines-Garia, H Quintanilla, Tenaris Tamsa, Mexico; F Marchesani, L Vitali, Saipem SpA, Italy

Flaw Tolerance of Pipelines Containing Circumferential Flaws Subjected to Axial Straining and Internal Pressure - Tests and Analyses

HG Pisarski, S Smith, T London, TWI, UK

Strain Based Design of Helical Submerged Arc Welded Line Pipe

FM Koop, S Zimmermann, Salzgitter Mannesmann Forschung, Germany

A Material Stress-Strain Model of Large Deformation for Pipeline Strain-Based Design Application

DM Duan, TransCanada Pipelines, Canada

Failure Prediction for Induction Bend Pipes under Monotonic Loading with Emphasis on Strain Localization

M Mitsuya, H Motohashi, Tokyo Gas, Japan

**Monday 19. FERT II: Clean Coal II (V. 1)
July 1 14:00 Room 8**

Chair: YM Lee, Hanyang Univ, Korea

Co-Chair: H Jung, KIER, Korea

Thermally Rearranged Polymer Membranes for CO₂ Capture

YM Lee, Hanyang Univ, Korea

Gravimetric and Geodetic Monitoring of CO₂ Plume in the Geological Carbon Storage

JW Kim, J Baek, R Kao, J Neumeyer, H Kabirzadeh, JY Ahn, Univ of Calgary, Canada

Operating Experience of Desulfurization Process and Pre-combustion CO₂ Capture Process Integrated with Coal Gasifier

HJ Ryu, DH Lee, SY Lee, SH Jo, YC Park, Korea Inst of Energy Research, Korea

Application of Oxy-fuel Combustion Technology to a Reheating Furnace for CO₂ Capture and Energy Savings

DS Noh, EK Lee, Korea Inst of Energy Research, Korea

An Alternative for Liquid Fuel Production

ML Hindman, ExxonMobil Research & Engineering, USA

Study on Sustainable Development of the Green Energy in Taiwan

CH Jhong, National Taiwan Ocean Univ; WC Huang, Kainan Univ, Taiwan, China

Coal-to-Liquids (CTL) Technology Development Status in Korea

H Jung, Korea Inst of Energy Research, Korea

Well Test Simulation as a Validation Method for New CBM Reservoir Model

JH Lee, YC Supartono, Chonnam National Univ, Korea

Efficient Use of Low Rank Coal

SH Lee, SD Kim, DH Chun, HK Choi, JH Yoo, JW Lim, YJ Rhim, Korea Inst of Energy Research, Korea

20. ADVANCED SHIP TECH II: Strength & Vibrations (V. 4)
Monday July 1 14:00 Room 9

Chair: M Fujikubo, Osaka Univ, Japan

Residual Ultimate Strength of Grounding Ships

WQ Liu, K Suzuki, Univ of Tokyo, Japan

Progressive Collapse Behaviour of Ship Hull Girder under Oblique Wave

ZY Pei, Tsuneishi (Shanghai) Ship Design, China; K Iijima, M Fujikubo, Osaka Univ; S Kanaka, S Okazawa, Hiroshima Univ; T Yao, Tsuneishi Shipbuilding, Japan

Investigations on the Influence of Particular Components of the Idealized Structural Unit Method (ISUM) for Collapse Analysis of Plate Structures

T Lindemann, P Kaeding, Univ of Rostock, Germany

Multi-Objective Optimization of Ship Hull Ultimate Strength

JH Ji, DY Wang, Shanghai Jiao Tong Univ, China

Connection between Analytical Solution for Limit Load and Ansys/LS-Dyna Solution

AI Mamontov, Far Eastern Federal Univ, Russia

Fracture Behavior of Strength Mismatched Welded Joint

N Kiji, Japan Marine United; A Komori, H Matsushita, M Fujikubo, Osaka Univ, Japan

Experimental Study on the Reduction of Underwater Ship Propeller Noises by Using Bubble Screen Techniques

YT Lin, CJ Huang, National Cheng Kung Univ, Taiwan, China

21. HPM II: Advances in Welding Technology 1 (V. 4)
Monday July 1 14:00 Room 10

Chair: DP Fairchild, ExxonMobil Upstream Research, USA

Development of High-Strength and Good-Toughness Welding Consumables for Offshore Structures

Y Kitagawa, P Hanm H Kawasaki, Kobe Steel, Japan

Oscillation / Polarity Synchronized MIG/MAG Welding Process for Enhanced Performance in Automated Joining and Coating

RHG Silva, DC Jair, Federal Univ of Santa Catarina, Brazil

Weldability of Heavy Wall Seamless Line Pipe in Grade X80Q

D Toma, V&M Tubes; J Wiebe, SZMF; C Bruns, G Kubla, V&M Tubes, Germany

Micro-Jet Technology in Welding

T Wegrzyn, Silesian Univ of Tech; J Piwnik, Tech Univ of Bialystok, Poland; M Plata, NOVALTEC SARL, Switzerland; DP Hadrys, WSZOP, Poland; AP Silva, Univ of Beira Interior, Portugal

MONDAY 16:20

22. LNG Sloshing III: Sloshing Physics (V. 3)

Monday July 1 16:20 Room 1

Chair: L Brosset, Gaztransport & Technigaz, France

PIV and Synchronized Pressure Measurement for Violent Sloshing Flows

YJ Ahn, SY Kim, JH Kim, YH Kim, Seoul National Univ, Korea

Full Scale Measurement of Sloshing on the LNG IMO: Further Comparison to Model Scale Results

CF Berthon, R Pasquier, GTT, France

Generalized Bagnold Model

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

Scaling of Liquid Impact Pressures: Influence of the Gas Escaping Studied Through 2D Numerical Simulations

MR Karimi, L Brosset, Gaztransport & Technigaz; J-M Ghidaglia, ENS-Cachan, France; ML Kaminski, TU Delft, Netherlands

Comparison of Sloshing Model Test Results at Scales 1:10 and 1:40

MR Karimi, C Kosinski, L Brosset, Gaztransport & Technigaz, France

23. HYDRODYNAMICS III: Fluid-Structure Interactions 2 (V. 1)

Monday July 1 16:20 Room 2

Chair: C Yang, George Mason Univ, USA

Simulation of Focusing Waves and Local Line Forces due to Wave Impacts on a Tripod Structure

A Hildebrandt, V Sriram, T Schlurmann, Leibniz Univ Hannover, Germany

Numerical Prediction of Wave Loading on a Floating Platform Coupled with a Mooring System

HJ Cao, YC Liu, DC Wan, Shanghai Jiao Tong Univ, China

Hydrodynamic Forces of Oscillating Fin in the Low KC Flow Regions

Y Imai, S Nagata, Saga Univ; S Okubo, Hitachi Zosen, Japan

Variation of the Drag Coefficient Investigated Using Tower-Based Long Period Measurements - Condition with Following and Cross Swell -

N Suzuki, Kinki Univ; Y Toba, Tohoku Univ; S Komori, N Takagaki, Y Baba, T Kubo, Kyoto Univ; K Shintaku, Marsima Aqua System; M Yamamoto, Kinki Univ, Japan

Study on Scattering Wave around a Porous Horizontal Elliptical Plate

FF Zhao, R Wan, Ocean Univ of China; ZH Liang, Shandong Univ, China; T Kinoshita, WG Bao, Univ of Tokyo, Japan; LY Huang, Ocean Univ of China, China

Study on the Interaction between a Solitary Wave and a Submerged Semi-circular Cylinder Using Acceleration Potential

H Tang, LX Wang, YH Wu, Nanyang Technological Univ, Singapore

Model Tests for Dynamic Responses of Float-over Barge in Shallow Wave Basin

VJ Kurian, NH Baharuddin, A Magee, AM Hashim, Universiti Teknologi PETRONAS, Malaysia

Experimental Research on the Effect of the Wave Directionality on the Wave Action on Large Cylinder

XR Ji, SX Liu, JX Li, Dalian Univ of Tech, China

**24. RENEWABLE ENERGY III: Offshore Wind Tech 3
Substructures (V. 1)**

Monday July 1 16:20 Room 3

Chair: F Vorpahl, Fraunhofer-IWES, Germany

Keynote

Offshore Wind Farm Layout Optimization - State of the Art

PS Valverde, EDP Inovagco; AJNA Sarmiento, Tech Univ of Lisbon; M Alves, Wave Energy Center, Portugal

Numerical Investigations on Local Degradation and Vertical Misalignments of Grouted Joints in Offshore Wind Turbines with Monopile Foundation

P Schaumann, S Lochte-Holtgreven, R Eichstaedt, Leibniz Univ Hannover, Germany; T Camp, G McCann, GL Garrad Hassan, UK

New Approaches for the Verification of Grouted Connections

M Mittelstaedt, M Klose, B Wesarg, Germanischer Lloyd Industrial Services, Germany

Grouted Joints for Offshore Wind Turbine Jackets under Full Reversal Axially Loading Conditions

A Bechtel, P Schaumann, S Lochte-Holtgreven, Leibniz Univ Hannover, Germany

Derivation and Validation of Soil-Pile Interaction Models for Offshore Wind Turbines

YP He, MC Wang, YS Zhao, WK Du, RH Jiang, Shanghai Jiao Tong Univ, China

Application of 3D Nonlinear Beam Theory on Modeling of Offshore Wind Turbines

C Corte, Corte Ingenieurbuero, Germany

Parametric Study and Structural Optimization of Offshore Jacket Substructures

KH Chew, Nanyang Technological Univ, Singapore; D Zwick, NTNU, Norway; EYK Ng, K Tai, Nanyang Technological Univ, Singapore; M Muskulus, NTNU, Norway

25. STRUCTURE RESPONSES (V. 4)

Monday July 1 16:20 Room 4

Chair: S Benson, Newcastle Univ, UK

Non Linear Structural Response of Bilge Keels

V Bonniol, Bureau Veritas Marine, USA

Mathematical Model of the Shell with Filling Agent for Hydraulic Structures

AT Bekker, NY Tsimbelman, Far Eastern Federal Univ; DA Potianikhin, Inst of Automation & Control Processes; TI Chernova, IG Kuznetsov, EV Kvon, Far Eastern Federal Univ, Russia

Cylindrical Floating Membrane Containers Filled with Fresh Water in Waves

T Tsubogo, T Yoshiyama, Osaka Prefecture Univ, Japan

Structural Safety Assessment of Ship Collision & Grounding Using FSI Analysis Technique

SG Lee, T Chau, JH Nam, Korea Maritime Univ, Korea

26. ASSET INTEGRITY III: Fatigue Monitoring (V. 4)

Monday July 1 16:20 Room 5

Chair: M Kaminski, TU Delft, Netherlands

Fatigue Behavior of Doubler Plate Connections

T de Beer, K Willemse, SBM Offshore, Netherlands

Fatigue Oriented Risk Based Inspection and Structural Health Monitoring of FPSOs

MD Tammer, ML Kaminski, TU Delft, Netherlands

Effects of Climate Change on Fatigue Life of Offshore Structures

T Zou, XL Jiang, M Kaminski, TU Delft, Netherlands

Methods for Sensing and Monitoring Fatigue Cracks and Their Applicability for Marine Structures

MP van der Horst, JL Kaminski, TU Delft ; E Puii, DotDotFactory, Netherlands

Fatigue Predictions Using Statistical Inference within the Monitas II Project

R Hageman, MARIN ; F van der Meulen, TU Delft, Netherlands

27. VORTEX-INDUCED VIBRATION III:

Jumpers & Umbilicals V. 3)

Monday July 1 16:20 Room 6

Chair: RS Wittkower, MCS Kenny, USA

FSI Using Coupled CFD-FEA - Application to Jumper VIV

A Al-Showaiter, L Chica, A Eltaher, P Jukes, MCS Kenny, USA

High Frequency Vibration of Subsea Dynamic Umbilical with Bend Stiffener

K Huang, Genesis; S Sriraman, RX Song, Technip, USA

VIV Assessment of Rigid Jumper Systems - A Comparative Study on Jumper Shapes

AR Nair, P Sharma, Det Norske Veritas (USA), USA; O Fyrileiv, Det Norske Veritas, Australia

VIV Analysis of Subsea Piping Components with Practical Boundary Conditions Using New FSI Methodology

MA Gamino, S Abankwa, R Pascali, Univ of Houston, USA

Prony-based Method for Time-Frequency Analysis of Marine Riser VIV Data

WL Yang, Ocean Univ of China, China; SLJ Hu, Univ of Rhode Island, USA; HJ Li, Ocean Univ of China, China

Coupled Fluid Induced Vibration (FIV) Studies of a Flowline Jumper Using Coupled ABAQUS and Acusolve

L Chiba, B Ozturk, A Al-showaiter, MCS Kenny; R Pascali, Univ of Houston; P Jukes, MCS Kenny, USA

28. SBD III: Materials for SBD (V. 3)
Monday July 1 16:20 Room 7

Chair: R Denys, Ghent Univ, Belgium

Mass Production of X70 High Deformable Line Pipe for Strain-based Design

Y Shinohara, T Hara, D Iwasaki, N Doi, Nippon Steel & Sumitomo Metal, Japan

Softening of Girth Weld HAZ and the Effects on Tensile Strain Capacity

HY Chen, China National Petroleum, China

Influence of Strain Aging on Parameters for Assessment of Multi-Axial Load Histories of High-Frequency-Induction (HFI) Welded Line Pipe

H Brauer, H Lvbbe, Salzgitter Mannesmann Line Pipe; S Hoehler, Salzgitter Mannesmann Forschung, Germany

Analytical Formulation for Line Pipe Bending Strain Capacity Evaluation Developed Through Experimental - Numerical Approach

CM Spinelli, ENI SpA; G Demofonti, A Lucci, M Di Biagio, J Ferino, Centro Sviluppo Materiali, Italy

Influence of Anisotropy on Flaw Acceptability in Spiral Welded Pipe Sections

K Van Minnebruggen, W De Waele, MA Verstraete, Ghent Univ; P Thibaux, J Van Wittenberghe, OCAS/Arcelor Mittal Global; R Denys, S Hertele, Ghent Univ, Belgium

Approaches to Modeling of the Fracture Propagation Control

E Burlutskiy, A*STAR Inst of High Performance Computing, Singapore

29. FERT III: Heavy Oil/EOR (V. 1)
Monday July 1 16:20 Room 8

Chair: DS Kim, SK Innovation, Korea

Co-Chair: C Huh, Univ of Texas at Austin, USA

Recent Developments in Polymer-Based Enhanced Oil Recovery Processes

C Huh, Univ of Texas at Austin, USA

C-EOR Projects - Offshore Challenges

C Rivas, F Gathier, SNF, France

A Novel Approach in Estimating Shear-Thinning Rheology of HPAM and AMPS Polymers for Enhanced Oil Recovery Using Artificial Neural Network

JS Lim, PS Kang, Korea Maritime Univ, Korea; C Huh, Univ of Texas at Austin, USA

Performance of Gel Treatments in Reservoirs with Multi-scale Heterogeneity

KS Lee, JH Lee, BI Choi, GX Shen, Hanyang Univ, Korea

Sensitivity Analysis on Steam and Gas Push to Reduce Heat Loss into the Top Water-Bearing Area Overlaying Oil Sands Reservoir

CH Park, Kangwon National Univ; SH Chung, JM Kang, Seoul National Univ, Korea

Downhole Burners: Pushing the Envelope of Enhanced Oil Recovery in the Arctic

GD Vassilellis, Gaffney, Cline & Associates; L Capper, MJ Schneider, World Energy Systems; M Kuhlman, MK Tech Solutions, USA

Optimal Operation of Fast-SAGD Process Considering Steam Channeling among Vapor Chambers

CH Park, Kangwon National Univ; SH Jeong, SH Chung, BH Min, JM Kang, Seoul National Univ, Korea

Displacement of THF/SDS Solution by CO₂/N₂ in Cooled Porous Media

MJ Yang, XJ Wang, YC Song, LL Jiang, YC Zhao, Dalian Univ of Tech, China

Enhance Recovery of Methane from Gas Hydrate Reservoirs with CO₂ + N₂ Sequestration

G Nisha, G Harini, Univ of Petroleum & Energy Studies; S Nisha, Adikavi Nannaya Univ, India

30. ADVANCED SHIP TECH III: Resistance & Propulsion (V. 4)
Monday July 1 16:20 Room 9

Chair: W Koterayama, Kyushu Univ, Japan
Co-Chair: C Yang, George Mason Univ, USA

Design Optimization of Stern End Bulb for Reduced Drag

HY Kim, C Yang, George Mason Univ, USA

Predicting Powering Performance Changes for Ships in Offshore Conditions from Small Design Modifications

B Windén, S Turmock, D Hudson, Univ of Southampton, UK

Prediction for Ship Resistance Considering Sinkage and Trim

JT Qin, KQ Chen, W He, Wuhan Univ of Tech, China

Experimental Investigation on Micro-Bubble Resistance Reduction of Low Speed Ship

LL Zhou, KQ Chen, JM Wang, AM Liu, Wuhan Univ of Tech, China]

Theoretical and Experimental Investigations of the Hydrodynamic Interaction of Fluid and Construction with Consideration of the Resistance

NA Taranukha, OV Zhurbin, IN Zhurbina, Komsomolsk-na-Amure State Tech Univ, Russia

Application of Mixture Experiments in Ship Resistance Optimization

HC Chang, ZY Liu, BW Feng, CS Zhan, ZD Cheng, Wuhan Univ of Tech, China

Prediction and Improvement of Propulsive Performance of Wing Sails Considering Their Aerodynamic Interaction

T Nakashima, T Miyasaka, Hiroshima Univ; Y Nihei, Osaka Prefecture Univ; Y Doi, Hiroshima Univ, Japan

31. HPM III: Advances in Welding Technology 2 (V. 4)
Monday July 1 16:20 Room 10

Chair: H Murakawa, Osaka Univ, Japan

Orbital Laser Cutting and Welding of Pipeline Structures

MP Vanska, T Purtonen, A Salminen, T Bjork, Lappeenranta Univ of Tech, Finland

Comparison of Welding Processes in Welding of Fillet Joints

A Unt, ET Lappalainen, AS Salminen, H Eskelinen, Lappeenranta Univ of Tech, Finland

Effect of Welding Variables on the White Spot Formation on Autogeneous GTA Welds of Fe-36%Ni Alloys

HK Lee, JY Kim, MJ Huh, Daewoo Shipbldg & Marine Engineering; CY Kang, Pusan National Univ, Korea

Sensing Short Circuit GMA Welding Process for Monitoring Weld Bead Geometry

SA Alfaro, Brasilia Univ, Brazil

Residual Stresses in Welded Steels with Longitudinal Stiffeners Determined by Neutron and X-ray Diffraction

JV Hensel, T Nitschke-Pagel, TU Braunschweig; R Wimpory, Mikrostruktur & Eigenspannungsanalyse Berlin; K Dilger, GU Braunschweig, Germany

TUESDAY 08:00

**32. LNG Sloshing IV:
Numerical Simulation of Wave Impacts (V. 3)**
Tuesday July 2 08:00 Room 1

Chair: J-M Ghidaglia, ENS-Cachan, France

Simulations of Wave Impact and Two-Phase Flow with ComFLOW: Past and Recent Developments

R Luppens, Univ of Groningen; B Duz, Delft Univ of Tech; HJL van der Heiden, P van der Plas, AEP Veldman, Univ of Groningen, Netherlands

Simulation of Breaking Wave Impacts on a Flat Rigid Wall by a 2D Parallel Finite Volume Solver with Two Compressible Fluids and an Advanced Free Surface Reconstruction

J Costes, Eurobios; L Brosset, GTT, France; F Dias, University College Dublin, Ireland; J-M Ghidaglia, ENS Cachan, France

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

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

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

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

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

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

**33. HYDRODYNAMICS IV: Fluid-Structure Interactions 3;
Hydroelastic (V. 3)**
Tuesday July 2 08:00 Room 2

Chair: DC Wan, Shanghai Jiao Tong Univ, China

Investigation on the Variable Horizontal Force of Vertical Cylinders in Internal Waves

HY Guo, L Zhang, FS Meng, Ocean Univ of China, China

Wake of an Inclined Cylinder with Different End Boundary Conditions

RS Gioria, G Franzini, JR Meneghini, Univ of Sao Paulo, Brazil

A Study on the Hydrodynamic Performance and Weather Window Analysis for HYSY 981 Semisubmersible Drilling Rig

Z Jiang, B Xie, China National Offshore Oil, China

Focused Waves Interaction with a Vertical Wall
DZ Ning, XL Zhuo, B Teng, Dalian Univ of Tech, China

Hydro-Elastic Dynamic Analysis and Stress Resultants on Time Domain vs. Frequency Domain
HY Kang, MH Kim, Texas A&M Univ, USA; JY Cho, MK Kim, GS E&C, Korea

Combined Physical and Numerical Modelling Study of Surge Impact on Structures
QH Liang, Newcastle Univ, UK; F Yamada, Kumamoto Univ; G Tsujimoto, Kobe City College, Japan

CFD Simulation of Impact Load during Water Entry of Offshore Equipment
JH Kim, YS Park, CY Song, WJ Kim, Mokpo National Univ, Korea

34. RENEWABLE ENERGY IV: Offshore Wind Tech 4
Loads (V. 1)

Tuesday July 2 08:00 Room 3

Chair: D Matha, Univ of Stuttgart, Germany,

Experimental Investigation of Steep Wave Impact on a Jacket Type Wind Turbine Substructure
JF Luxmoore, S Ilic, AM Folkard, Lancaster Univ; SJ McLelland, B Murphy, Hull Univ, UK

Numerical Prediction of Wave Impacts on the Supporting Structures of Shanghai Donghai-Bridge Offshore Wind Turbines
H Zhou, HJ Cao, DC Wan, Shanghai Jiao Tong Univ, China

Significance of Ice Impact on Structural Integrity of a Monopile Offshore Wind Turbine
M Norouzi, E Wells, S Cioc, E Nikolaidis, Univ of Toledo, USA

Cost Reductions in Offshore Wind Turbine Jacket Design Using Integrated Analysis Methods
A Cordle, J King, Garrad Hassan, UK

A Study of Gust Response Factor for Wind Turbine Towers Design
JJ Jang, National Taiwan Ocean Univ; CW Chien, E&C Engineering, Taiwan, China

Turbulence Modeling around Extremely Large Cylindrical Bluff Bodies
LJA Pang, M Skote, Nanyang Technological Univ, Singapore

Time-History Analysis of a 600kW Wind Turbine under Wenchuan Seismic Excitation [Proceedings only]
L Zhu, Beijing Univ of Civil Engineering & Architecture; ZX Ye, Tsinghua Univ, China

35. STRUCTURAL STRENGTH (V. 4)

Tuesday July 2 08:00 Room 4

Chair: T Yao, Tsuneishi Shipbuilding, Japan

Application of Finite Element Analyses for Assessment of Fracture Behavior of Modern High Toughness Seamless Pipeline Steels
W Wessel, T Schmidt, V&M Tubes; A Nonn, Salzgitter Mannesmann Forschung, Germany

Buckling/Fracture Behavior of GFRP Stiffened Panel with Top-Hat Stiffener under Compression and Prediction of Initiation of Delamination
D Yanagihara, K Fukuwa, Ehime Univ; M Fujikubo, Osaka Univ, Japan

Ultimate Strength of Gross Damaged Orthogonal Stiffened Panels under In-Plane Compression

S Benson, RS Dow, Newcastle Univ, UK

A Collaborative Optimization Analysis on Stiffened Cylindrical Shell Structures

Z Jiang, B Xie, CNOOC; WC Cui, China Ship Scientific Research Center, China

Third Order GBT Terms and Its Complete Solution

RJ Chiu, Univ of Manchester, UK

36. ASSET INTEGRITY IV: Fatigue & Corrosion (V. 4)

Tuesday July 2 08:00 Room 5

Chair: K Willemse, SBM Offshore, Netherlands

Investigations of the Microstructure of Line Pipe Steels in Connection with Corrosion Behavior

S Dziaszyk, A Schneider, T Schmidt, V&M Tubes, Germany

Effect of Residual Tensile Stress on Stress Corrosion Behavior of the Base Metal of X80 UOE Pipe

QR Xiong, CNPC Tubular Goods Research Center; DX Liu, Northwestern Polytechnical Univ; WW Li, WW Zhang, YR Feng, HY Chen, CNPC Tubular Goods Research Center, China

Corrosion Evaluation of Post-Tensioning Systems after Long-Term Exposure Testing

GE McCool, HG Wheat, JE Breen, SL Wood, Univ of Texas at Austin, USA

37. VORTEX-INDUCED VIBRATION IV: Upstream Effects & Large Structures (V. 3)

Tuesday July 2 08:00 Room 6

Chair: S Etienne, Ecole Polytechnique de Montreal, Canada

Research on Vortex Induced Motion of a Deep Draft Semi-Submersible with Four Rectangular Columns

ZN Bai, LF Xiao, YF Kou, Shanghai Jiao Tong Univ, China

VIM of Dual Buoyancy Can FSHR System

K Huang, D Du, RX Song, XL Zhou, Technip, USA

A New Wake Oscillator Modeling of Vortex-Induced Vibration of SCR with Two Degrees of Freedom

W Qin, Z Kang, RX Song, LP Sun, Harbin Engineering Univ, China

Three Dimensional Numerical Analysis of Circular Cylinder Oscillating Transversely in Oscillatory Flow and Uniform Flow

Y Deng, WP Huang, Ocean Univ of China; JL Zhao, Shandong Marine Fisheries Research Inst, China

Estimation of Flow Fields in a Model of Rearing Tank for Marine Fish Larvae by Numerical Calculation

T Sumida, Oshima National College of Maritime Tech; H Kawahara, Kurume National College of Tech; S Shiotani, Kobe Univ, Japan

Numerical Simulation of VIV Characteristics for a Marine Riser in Uniform and Linear Sheared Currents

JS Wang, LL Zhan, Shanghai Jiao Tong Univ; SQ Jiang, LB Xu, CNOOC Research Center; JW Shi, Shanghai Jiao Tong Univ, China

Integral Transform Solution for Fluid Force Investigation of a Flexible Circular Cylinder Subject to Multi-Mode Vortex-Induced Vibrations

JJ Gu, ML Duan, China Univ of Petroleum, China; C Levi, S Estefen, COPPE/UF RJ, Brazil

Tuesday **38. SBD IV: Strain Capacity (V. 3)** **Room 7**
July 2 **08:00**

Chair: A Fonzo, Centro Sviluppo Materiali, Italy
Co-Chair: HG Pisarski, TWI, UK

Pipeline Strain Capacity Prediction of Multi-Process Fill Pass Girth Welds
TD Anderson, H Tang, FF Noecker, ExxonMobil Upstream Research, USA

Reeling Capability of Non Heat-Treated ERW Line Pipe in R-lay
E Tsuru, Y Shinohara, K Nagai, Y Nagata, H Hamatani, Nippon Steel & Sumitomo Metal, Japan

Full Scale Investigation on Compressive Strain Capacity of Cold Bending Pipes
HY Chen, China National Petroleum Corp, China

Collapse Resistance of UOE Pipes - Effect of Geometrical and Mechanical Allowance within the Pipe Cross-Section
H Karbasian, S Zimmermann, Salzgitter Mannesmann Forschung; C Kalwa, Europipe GmbH, Germany

Structural Behaviour of High-Frequency-Induction (HFI) Welded Line Pipe Subject to External Bending Loads
S Hoehler, Salzgitter Mannesmann Forschung; H Brauer, Salzgitter Mannesmann Line Pipe, Germany

Burst Experimental Investigation in Large Diameter High Strength Pipe Tee
SC Huang, KL Ji, YH Chen, TH Wang, CNPC, China

Evaluation of Plastic n_f factors for SE(B) Specimens Based on Three-dimensional Finite Element Analyses
Y Huang, W Zhou, E. Wang, Western Univ; G Shen, CANMET-MTL, Canada;

Tuesday **39. FERT IV: Shales Gas (V. 1)** **Room 8**
July 2 **08:00**

Chair: R Ayer, ExxonMobil Research & Engineering, USA
Co-Chair: SJ Cho, SK USA, USA

Shale Gas and Light Tight Oil Reservoir Production Results: What Matters?
RG LaFollette, Baker Hughes, USA

Reservoir Conditions Steady-State Permeability Measurements on Tight Rocks such as Shales Using Intact Rock Samples [Oral presentation]
S Sinha, ExxonMobil Upstream Research, USA

Developing Shale Reserves: Learnings from Ten Basins
G King, Apache Corp, USA

Using Shale Engineering as a Framework to Combine Geomechanics and Flow Modeling
G Vassilellis, C Li, D Alexis, Gaffney, Cline & Associates, USA

Advent of a New Golden Age: Renaissance of Shale Gas
KH Kim, KEPS; SJ Cho, SK Innovation, USA

Novel Apparatus to Measure the Low-Permeability and Porosity in Tight and Shale Gas Reservoir
JH Lee, JG Kim, Chonnam National Univ, Korea

Pressure Transient Characteristics of a Fractured Horizontal Well in Shale Gas Reservoirs

KS Lee, SJ Lee, TH Kim, Hanyang Univ, Korea

40. ADVANCED SHIP TECH IV: Ship Design (V. 4)
Tuesday July 2 08:00 Room 9

Chair: TQ Li, Wuhan Univ of Tech, China

A Study on Design of IMO C-Type LNG Fuel Storage Tank with Capacity of 500m³slosh

SB Shin, DJ Lee, DH Kim, HS Kim, Hyundai Heavy Industries, Korea

Hydrodynamic and Structural Design of Large Bilge Keels for SSFU

E Pettersen, Moss Maritime, Norway; R Bruschi, SAIPEM SpA, Italy; F-C Wickman Hansen, Moss Maritime, Norway

Study on Harmonization of Formative Design and Hull Design of Mega-Yacht Based on Integrated Software Platform

W Cai, N Si, Wuhan Univ of Tech, China

Improvement of Ship Geometry by Optimizing the Sectional Area Curve with Binary-Coded Genetic Algorithms (BCGAs)

M Tasrief, M Kashiwagi, Osaka Univ, Japan

Reverse Problem in Hull Form Design Based on NURBS and Given Hydrostatic Parameters Using Immune Genetic Algorithm

CH Lu, YR Zhang, Dalian Univ of Tech, China

On the Design of Energy Saving Shaft Bracket for a Twin Screw Vessel

KQ Chen, W He, JT Qin, Wuhan Univ of Tech, China

41. SUBSEA-PIPELINES-RISERS-CABLE I:

Install & Operation 1 (V. 1)
Tuesday July 2 08:00 Room 10

Chair: H Gu, ABS Singapore, Singapore

Strength and Deformation Capacity of Corroded Pipes - Laboratory Tests and FEM Analyses

L Marchionni, Saipem SpA, Italy; E Levold, Statoil, Norway; C Molinari, Saipem SpA; A Restelli, ENI; L Vitali, Saipem SpA, Italy

Design and Installation Challenges of Large Diameter Tie-In Spool for Subsea Facilities

D Kannan, IKM Ocean Design, Norway

Subsea Templates Installation at the North-Sea Using the HLV THIALF

A El Mouhandiz, S Troost, H Ottens, Heerema Marine Contractors, Netherlands

Installation Effects on As-Laid Embedments of Subsea Pipelines

MK Hossain, K Sharma, B Ozturk, MCS Kenny, USA

Subsea Production System with a Large-Scale Seabed Storage

DJ Chang, JY Kim, IH Choi, YS Choi, JK Kim, YT Seo, Korea Advanced Inst of Science & Tech, Korea

TUESDAY 10:30

42. LNG Sloshing V: CFD (V. 3)
Tuesday July 2 10:30 Room 1

Chair: F Dias, University College Dublin, Ireland

Numerical Simulations of 2D Liquid Impact Benchmark Problem Using Two-Phase Compressible SPH Method

A Rafiee, F Dias, University College Dublin, Ireland

Analysis of Liquid Sloshing in Half-full Horizontal Elliptical Tanks by a Scaled Boundary Finite Element Method

JB Li, J Liu, G Lin, Dalian Univ of Tech, China

Dynamic Probes: An On-The-Fly CFD Plug-In for Sloshing Impact Assessment

T Gazzola, L Diebold, Bureau Veritas, France

Prediction of Pressure Induced by Liquid Sloshing for LNG Carrier

RQ Zhu, HX Ma, Jiangsu Univ of Science & Tech; QM Miao, WT Zhen, China Ship Scientific Research Center, China

A Computer Code for Fast Simulations of Liquid Tank Sloshing [Proceedings only]

YS Cao, FW Zhang, MARINTEK (USA); S Liapis, Shell Global Solutions, USA

Scaled Boundary FEM Solution of 3D Liquid Sloshing in Containers with Complex Geometry

J Liu, G Lin, JB Li, Dalian Univ of Tech, China

43. HYDRODYNAMICS V: Fluid-Structure Interactions 4;

Multibody (V. 3)

Tuesday July 2 10:30 Room 2

Chair: MH Kim, Texas A&M Univ, USA

On a Mathematical Model for the Hydrodynamic Interaction of Ships in Tandem

JR Souza Junior, CG Ragazzo, Univ of Sao Paulo, Brazil

Viscous Effects in the Gap Region between Two Side-By-Side Floating Bodies at Resonant Frequencies

D Smith, W Qiu, Memorial Univ of Newfoundland, Canada

Fully Nonlinear Investigation of Resonant Wave Motion in the Gap between Multiple 3D Structures

SQ Yan, QW Ma, City Univ London, UK

Research on the Rolling Motion Model of Composite Trimaran

SL Yang, HT Xu, YY Wen, BM Wang, YY Zong, Jiangsu Univ of Science & Tech, China

Numerical Simulation of Motion Response Control of Multi-Body Floating Systems

XC Yu, IntecSea; J Falzarano, Texas A&M Univ, USA

Evaluation of Springing-Induced Fatigue Damage for a Large Container Carrier

JH Choi, BH Jung, JH Hwang, Hyundai Heavy Industries, Korea

Fatigue Assessment of the 18,000 TEU Container Vessel Considering the Effect of Springing

JB Koo, BJ Kim, KB Jang, Samsung Heavy Industries, Korea

A Numerical Investigation on Hydrodynamics of Two Floating Bodies of Arbitrary Arrangements in Regular Waves

ZY Zhang, Harbin Engineering Univ, China

44. RENEWABLE ENERGY V: Offshore Wind Tech 5

Floating A (V. 1)

Tuesday July 2 10:30 Room 3

Chair: JD Sørensen, Aalborg Univ, Denmark

Pressure Mapping for Floating Offshore Wind Turbines Using Computational Fluid Dynamics Methods

F Beyer, PW Chen, Univ of Stuttgart, Germany

CFD Simulation of a Floating Offshore Wind Turbine System Using a New Crowfoot Mooring-Line Model

T Xing, S Quallen, Univ of Idaho; P Carrica, YW Li, Univ of Iowa, USA

Variations in Extreme Load Predictions for Floating Offshore Wind Turbine Extreme Pitching Motions Applying Different Aerodynamic Methodologies

D Matha, D Bekiropoulos, S-A Fischer, Univ of Stuttgart, Germany; T Duarte, Tech Univ of Lisbon, Portugal; K Boorsma, ECN, Netherlands; T Lutz, PW Cheng, Univ of Stuttgart, Germany

Design and Analysis of a Model Wind Turbine Blade for Wave Basin Test of Floating Wind Turbines

YP He, WK Du, YS Zhao, MC Wang, RH Jiang, Shanghai Jiao Tong Univ, China

Prediction of Wave-induced Tower Loading of Floating Offshore Wind Turbine Systems

N Xu, T Ishihara, Univ of Tokyo, Japan

Simulation-Based Concept Study for a Floating LIDAR System

J Gottschall, M Strach, T Viergutz, G Wolken-Moehlmann, Fraunhofer IWES, Germany

45. HPM IV: Advances in Welding Technology 3 (V. 4)

Tuesday July 2 10:30 Room 4

Chair: R Steel, Schlumberger, USA

Friction Stir Welding Tool Life Development for Thick Section Steel

BT Thompson, M Eff, J Seaman, EWI, USA

Microstructural Characterization of Simulated Friction Stir Welded UNS S32205 Duplex Stainless Steel

AJ Ramirez, EB Fonseca, TFA Santos, Brazilian Nanotechnology National Lab; ST Button, ST Button, Univ of Campinas, Brazil

Dissimilar Friction Stir Welding of Steel to Ni-based Alloy 625 - Butt and Lap Joints

AJ Ramirez, JF Rodriguez, Brazilian Nanotechnology National Lab, Brazil

Friction Stir Welding of Dissimilar Butt and Lap Joints of Low Carbon Steel to Alloy 625

J Rodriguez, A Ramirez, Brazilian Nanotechnology National Lab, Brazil

Influence of Friction Stir Welding on Fatigue Crack Growth in API 5L X80 Pipeline Steel

JW Sowards, NIST, USA; AJ Ramirez, VF Pereira, Brazilian Nanotechnology National Laboratory, Brazil; JD McColskey, T Weeks, NIST, USA

HIGH-PERFORMANCE MATERIALS

**46. MANGANESE STEEL FOR ENERGY I:
Phase Transformation & Mechanical Properties (V. 4)**

Tuesday July 2 10:30 Room 5

Chair: NJ Kim, POSTECH, Korea

Keynote

Unique and Useful Microstructures in Fe-(10-18)Mn Steels

JW Morris, Univ of California at Berkeley, USA

Phase Equilibria, Phase Transformations and Alloy Design of Fe-Mn Based Alloys

K Ishida, Tohoku Univ, Japan

FCC Structured Fe-Mn Alloys with High Contents of Aluminum

YS Oh, H Yangm J Kim, YJ Lee, RIST; JM Koo, JW Jang, JK Choi, JK Lee, POSCO, Korea

First Principles Study on the Impurity Segregations at Grain Boundaries in High Manganese Steel

H Yang, YS Oh, J Kim, YJ Lee, RIST; SG Lee, WK Jang, JK Choi, POSCO, Korea

Effect of Al on Hydrogen Delayed Fracture in a High Mn Austenitic Steel

YW Lee, Yonsei Univ, Korea

Effect of Prestrain and Twin Morphology on Low-cycle Fatigue Performance of High Manganese Austenitic TWIP Steel

CS Lee, QY Guo, YS Chun, JH Lee, YU Heo, Pohang Univ of Science & Tech, Korea

Effect of Deformation Twin on Mechanical Properties of Lean Manganese Twinning Induced Plasticity(TWIP) Steels at Quasi-Static Strain Rate

ID Choi, Korea Maritime Univ; BH Song, Taegu Tech; JY Kim, POSCO Specialty Steel; YK Lee, Yonsei Univ, Korea

47. ARCTIC SCIENCE & TECH I: Arctic Environment (V. 1)
Tuesday July 2 10:00 Room 6

Chair: T Kokkinis, ExxonMobil Upstream Research Co, USA

Leads and Landfast Ice in the Beaufort and Chukchi Seas [Oral presentation]

AR Mahoney, H Eicken, R Gens, Univ of Alaska Fairbanks; AG Gaylord, Nuna Technologies; T Heinrichs, FJ Meyer, LH Shapiro, Univ of Alaska Fairbanks, USA

Long Term Changes in Metocean-Ice Conditions in the Canadian Beaufort Sea

DB Fissel, MMS Alvarez, E Ross, JR Marko, ASL Environmental Sciences, Canada

Simulating Oil Spills in Water and Sea-Ice in the Beaufort Sea

SH Nudds, A Drozdowski, YY Lu, S Prinsenberg, Bedford Inst of Oceanography, Canada

Validation AMSR-E Sea Ice Concentration Using Aerial Image in Edge Region of Antarctic Amery Ice Shelf [Oral presentation]

J Su, Q Shi, GH Hao, Ocean Univ of China; QL Lou, LZ Zhu, YJ Chen, LZ Wang, Heilongjiang Bureau of Surveying & Mapping, China

Drift of Icebergs in the North-Eastern Barents Sea and Its Correlation with Fields of Atmospheric Pressure by Instrumental Measurements

GK Zubakin, NY Ivanov, AV Nesterov, FSBI, Russia

Probabilistic Analysis of Alaskan Beaufort Sea Ice Gouge Data

JVM Caines, INTECSEA Canada, Canada; G Lanan, INTECSEA, USA; A Georghiou, A Sturge, M Paulin, INTECSEA Canada, Canada

Automatic Sea Ice Detection and Classification Algorithm Using Geostationary Ocean Color Imager (GOCI)
CS Yang, Korea Inst of Ocean Science & Tech (KIOST), Korea

**48. SUBSEA-PIPELINES-RISERS-CABLE II:
Install & Operation 2 (V. 1)**
Tuesday July 2 10:30 Room 7

Chair: P Teigen, Statoil, Norway
Co-Chair: N Gazis, J P Kenny, USA

Accurate and Efficient Determination of Fall Trajectories and Impact Zones for Dropped Subsea Objects of Complex Geometries
A Majed, P Cooper, INTECSEA, USA

Probabilistic Approach for Mudmat Stability Analysis
N Gazis, J P Kenny, USA

Pull-up Metal Seal System for Subsea Wellhead Equipment
C Cao, China National Petroleum, China

Essential Considerations Leading to a Reliable Design and FE Analysis of Subsea HISC Compliant Flange Joint Connections
ZG Tu, S Katuramu, P Nyström, IKM Ocean Design, Norway

**49. FERT V:
Panel**
Tuesday July 2 10:30 Room 8

Chair: R Ayer, ExxonMobil Research & Engineering, USA
Co-Chair: DS Kim, SKI, Kprea

Shale Gas

Clean Coal

50. ADVANCED SHIP TECH V: Maneuvering & Control (V. 4)
Tuesday July 2 10:30 Room 9

Chair: H Miyazaki, National Maritime Research Inst, Japan

Hull Form Optimization of Floating Offshore Platform Considering Seakeeping Ability and Structural Weight
YM Park, BS Jang, Seoul National Univ, Korea

Seakeeping Characteristics of an Air-Cushion Vehicle
M Dhanak, M Kindel, Florida Atlantic Univ, USA

Research on the Hydrodynamic Performance of High-Speed Air Cavity Craft
KQ Chen, LL Zhou, Q Wang, Wuhan Univ of Tech, China

Investigation on Hydrodynamics of Fast Ships with Different Bowshapes in Waves and Restricted Waters
P Qian, H Yi, HY Li, Shanghai Jiao Tong Univ, China

Enhancing Navigation Information with Augmented Reality Technology I - Image Analysis
JM Lee, KH Lee, DS Kim, Inha Univ, Korea

Modular Parameter Identification for Ship Maneuvering Prediction Based on Support Vector Machines
XG Wang, ZJ Zou, JC Yin, Shanghai Jiao Tong Univ, China

Experimental and Numerical Study about the Static Heel Effect on the Turning Ability

H Miyazaki, Y Tsukada, H Sawada, T Kuroda, National Maritime Research Inst, Japan

51. UNDERWATER SYSTEMS I: AUV & UUV (V. 2)
Tuesday July 2 10:30 Room 10

Chair: SC Yu, POSTECH, Korea

Preliminary Study on the High-Accuracy Image Taking UUV System
SC Yu, JH Pyo, H Joe, Pohang Univ of Science & Tech, Korea

Development of High-Mobility Unmanned Underwater Observation Vehicle with Super-Luminosity LED for Sea Exploration
I Yamamoto, Y Morinaga, N Inagawa, Univ of Kitakyushu; M Iwasaki, T Hiratsuka, BraTech Co, Japan

Development and Test of an AUV for Asset Integrity and Environmental Monitoring in Offshore Oil & Gas Scenarios
F Gasparoni, F Bruni, R Chomicz, V Ciccarelli, M Favaretto, M Filippini, F Furlan, T Grasso, Tecnomare, Italy; N Hveding Bergseth, E Bjornbom, ENI Norge, Norway; P Broccia, M Buffagni, ENI E&P, Italy

Yumeiruka -The AUV Equipped with X-type Canard Rudders
H Yoshida, T Hyakudome, S Ishibashi, H Ochi, Y Watanabe, T Sawa, Y Nakano, M Sugawara, T Nakatani, Y Ohta, JAMSTEC, Japan

TUESDAY 13:15

Jin S Chung Award Lecture
Tuesday July 2 13:15 Room 1

Speaker to be announced.

Introduction by S. Naito, ISOPE president, Osaka Univ, Japan

TUESDAY 14:00

52. LNG Sloshing VI: Sloshing & Statistics (V. 3)
Tuesday July 2 14:00 Room 1

Chair: YH Kim, Seoul National Univ, Korea

Statistical Evaluation of Local Impact Pressure in Model Tank
ZJ Wei, TT Liu, SL Ruan, XD Chen, QJ Yue, Dalian Univ of Tech, China

Multivariate Extreme Statistics in Sloshing Model Tests Measurements
A Dematteo, A Ratouis, Gaztransport & Technigaz; S Cl  men  on, Telecom ParisTech; N Vayatis, ENS Cachan, France

Stochastic Simulations of Pressure Fields Induced by Sloshing Impacts
A Dematteo, A Ratouis, Gaztransport & Technigaz; S Cl  men  on, Telecom ParisTech, France

Extreme Values Theory Applied to Sloshing Pressure Peaks
B Fillon, L Diebold, Bureau Veritas, France

Statistical Behavior of Global & Local Sloshing Key Parameters
L Diebold, Q Derbanne, T Gazzola, Bureau Veritas, France

53. HYDRODYNAMICS VI: Fluid-Structure Interactions 5;

Tuesday **July 2** **Ships A (V. 3)** **Room 2**
14:00

Chair: HC Chen, Texas A&M Univ, USA

Influence of Viscosity on Radiation Forces: a Comparison between Monohull, Catamaran and SWATH
L Bonfiglio, S Brizzolara, Univ of Genoa, Italy and MIT, USA; C Chrystostomidis, MIT, USA

Determining Wave Resistance Using a Dissipative Potential Flow Model
M Fürth, ZM Chen, MY Tan, Univ of Southampton, UK

Numerical Study of Bow Shape Effect on Green Water Phenomenon
CA Bellezi, LY Cheng, K Nishimoto, Univ of Sao Paulo, Brazil

An Experimental and Numerical Study on Seakeeping of T-Shaped Barge in Topping Transportation
X Xu, X Li, JM Yang, HN Lu, Shanghai Jiao Tong Univ, China

Boat Shape Optimization for Whitewater Applications
S Barm, JK Dorsch, L Gottfried, J Rotter, A Baeten, HS Augsburg, Germany

Application of EARSIM for Numerical Prediction of Ship Hydrodynamic Performances
YC Kim, KS Kim, J Kim, MOERI/KIOST, Korea

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

Tuesday **July 2** **14:00** **Room 3**

Chair: T Ishihara, Univ of Tokyo, Japan

Experimental Study of a Floating Offshore Wind Turbine TLP
C Wehmeyer, Rambøll Offshore Wind; F Ferri, Aalborg Univ; J Skourup, Rambøll Ports & Geostructures; PB Frigaard, Aalborg Univ, Denmark

Analysis of Dynamics in Deep water Catenary Model with One Buoy for SPM Systems in Floating Offshore Wind Turbines
SK Park, A Ahadpour Dodaran, Pusan National Univ, Korea

Coupled Nonlinear Analysis Method for a Floating Offshore Wind Turbine with Single-Point Mooring
C Ma, K Iijima, M Fujikubo, Osaka Univ, Japan

Top-Down Architecture of the Mooring Analysis Program: The Multi-Segmented, Quasi-Static Cable Model
MD Masciola, J Jonkman, A Robertson, National Renewable Energy Laboratory, USA

Time Domain Analysis of an Array of Floating Offshore Wind Structures
SY Hong, YH Kim, BW Nam, SW Hong, MOERI/KIOST, Korea

Economical and Technical Parameters in the Life Cycle Modeling of Floating Offshore Wind Farms
V Diaz-Casas, L Castro-Santos, Univ of A Coruqa, S Ferreiro-Gonzalez, CETNAGA; A Martinez Lopez, Univ of A Coruqa, Spain

The Shape Design and Analysis of Floating Offshore Wind Turbine Structures with Damper Structure and Shallow Draft
JH Kim, SY Hong, MOERI/KIOST; HJ Kim, Samsung Heavy Industries, Korea

55. OCEAN TECH I South China Sea LIWAN 3-1 Field Development 1 (V. 1)

Tuesday July 2 14:00 Room 4

Chair: AM Wang, CNOOC-COOEC, China

Keynote

Overview of Liwan 3-1 Deepwater Subsea Tieback Gas Development

Xiaojian Jin, CNOOC, China

Process Design Considerations of Large Central Platform for LW3-1 Deepwater Gas Development

XH Zhou, Y Hao, HL Yi, CNOOC Research Inst, China

Research of Flow Assurance for Deep Water Gas/Condensate Oil Pipelines

HJ Chen, XH Zhou, J Wang, CNOOC Research Inst, China

Pigging Simulation Analysis of Liwan 3-1 Deepwater Tieback Flowlines in South China Sea

XC Yu, QP Li, B Cheng, CNOOC Research Inst, China

Installation Method Selection for Heavy Weight Topside in South China Sea

JL Hou, CNOOC, China; Q Tang, RICHTECH Int'l Engineering, USA; L Xu, CNOOC, China

56. MANGANESE STEEL FOR ENERGY II:

Welding & Corrosion (V. 4)

Tuesday July 2 14:00 Room 5

Chair: HW Jin, ExxonMobil Research & Engineering, USA

Hot Cracking Susceptibility of Fe-Mn-Al-C Steel Welds

CH Lee, Hanyang Univ, Korea

Fatigue Crack Propagation Behaviors of High Manganese Steels at Room and Cryogenic Temperatures

DH Jeong, Gyeongsang National Univ; WK Jang, SG Lee, JK Choi, POSCO; YJ Kim, KIGAM; SS Kim, Gyeongsang National Univ, Korea

Effect of Alloying Additions on the Solidification Cracking Susceptibility of High Manganese Steel Weld Metals

BJ Sutton, JC Lippold, Ohio State Univ, USA

Effects of Chromium and Manganese on Corrosion Resistance of High Strength Steels in Chloride Environments

YM Hyun, HS Kim, Hongik Univ; SG Lee, POSCO, Korea

Solid State Friction Stir Welding of Austenitic High Manganese Alloyed Steel

HW Jin, N Ma, R Ayer, ExxonMobil Research & Engineering; DP Fairchild, ExxonMobil Upstream Research, USA

57. COASTAL I: Waves (V. 3)

Tuesday July 2 14:00 Room 6

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

Broad-Scale Parametric Spectral form for Nonlinear Interactions in Wind Wave Spectra

FM Xu, DMA Sowa, Hohai Univ, China; W Perrie, Bedford Inst of Oceanography, Canada

Sensitivity Analysis of Typhoon-Induced Meteorological Fields along San-in Coast of Japan by WRF Parameter Settings

SY Kim, T Matsuura, Y Matsumi, Tottori Univ; THA Tom, Surflegend Inc; T Yasuda, H Mase, Kyoto Univ, Japan

Estimation of Design Waves along Jiangsu Coast
DM Xie, YP Chen, CK Zhang, Hohai Univ, China

Study on Wave Characteristics in South Coastal Waters of Jiangsu under the Influence of Winter Monsoon
B Yang, WB Feng, Y Zhang, XY Ni, Hohai Univ, China

Deepwater Wave Characteristics around Japan Observed by NOWPHAS GPS Buoy Network
H Kawai, K Seki, K Kawaguchi, T Inomata, Port and Airport Research Inst, Japan

Wave Reynolds Shear Stresses Distribution in Regular Waves Propagating on Sloping Bottom
F De Serio, M Ben Meftah, M Mossa, Technical Univ of Bari, Italy

**58. SUBSEA-PIPELINES-RISERS-CABLE III:
Concept Development (V. 2)**

Tuesday July 2 14:00 Room 7

Chair: WC Kan, ExxonMobil Development Co., USA
Co-Chair: D Walker, BP, USA

Challenges in Riser Design for Shallow Water Installed at FPSO's in Campos Basin
RA Alvim, 2H Offshore; EL Labanca, EJB Ribeiro, OGX; OC Veras, 2H Offshore, Brazil

On Reducing Scouring by Controlling Junction Flow
TC Su, Florida Atlantic Univ, USA; B Chen, T Hu, H Zhang, ZY Yang, Dalian Univ of Tech, China

Design of Pipelines for Shore Approach Installation by Horizontal Directional Drilling
SL Danilo, MV Rodrigues, Det Norsk Veritas; RF Solano, Petrobras; AR Medeiros, Subsea7, Brazil

Quality Assurance and Quality Control Considerations in HDD Shore Approach Crossings
AR Medeiros, COPPE/UF RJ; AM Chaves, DrillTec; BP Jacob, COPPE/UF RJ; DML Silva, DNV; J Siqueira, Petrobras; PE Santa Maria, Subsea 7, R Alessandri Junior, Laney Directional Drilling do Brasil Perfuragues, Brazil

Motion and Riser Design Assessment Study of a Specialized Ship Conversion
G Singhal, M Mao, A Croston, E Daly, MCS Kenny, USA

Calculating Riser Dynamic Effects on Spar Motions in Waves
LX Xu, Technip, USA

59. GEOTECH I: Offshore Geotechnics 1 (V. 1)

Tuesday July 2 14:00 Room 8

Chair: CF Leung, National Univ of Singapore, Singapore

Leg to Seabed Impact Analysis for Jackup during Installation
WL Dong, JJ Wang, LS Song, JB Li, China Oilfield Services, China

Grouted Connection in Monopile Foundation
N-E Ottesen Hansen, F Stevanato, F Jakobsen, LICEngineering, Denmark

Bearing Capacity Predictions of Mudmats: A Numerical Approach
B Abdalla, N Gazis, J P Kenny, USA

Application of High Strain Dynamic Testing Technique to Underwater Skirt Pile Foundation

WT Yu, Offshore Oil Engineering, China; LQ Liang, Dynamics Inc; R Givet, GRL Engineering, USA; LC Qin, XC Li, AM Wang, Offshore Oil Engineering, China

On the Pushover Analysis of Suction Caisson in Sand

MF Ahlinhan, IMPaC Offshore Engineering; M Achmus, Univ of Hannover; S Hoog, J Berger, IMPaC Offshore Engineering, Germany

Assessment of p-y Curves from Numerical Methods for a Non-Slender Monopile in Cohesionless Soil

LB Ibsen, HR Roesen, Aalborg Univ; M Hansen, TK Wolf, COWI A/S; KL Rasmussen, NIRAS, Denmark

Centrifugal Model Behavior of Laterally Loaded Suction Pile

YS Kim, TH Kim, KO Kim, JP Lee, JW Bak, Daewoo E&C, Korea

Simulation of Wave-Seabed-Structure Interaction in OpenFOAM Using a Non-Associated Mohr-Coulomb Soil Model

T Tang, Tech Univ of Denmark; J Roenby, DHI; O Hededal, Tech Univ of Denmark, Denmark

Damping Effect on the Seismic Behavior of Offshore Monopiles

A Barari, M Bayat, LB Ibsen, Aalborg Univ, Denmark

60. ADVANCED SHIP TECH VI: Impact & Collision (V. 4)

Tuesday **July 2** **14:00** Room 9

Chair: T Shibue, Kinki Univ, Japan

Experimental Study on Mastic of Cargo Containment Systems in Membrane Type LNG Carrier under the Repeated Ice Loads

JH Kim, BK Choi, WI Ha, Hyundai Heavy Industries; HC Song, Mokpo National Univ, Korea

Investigation on the Impact Force of Ships to the Ship Lock Structure

D Chen, YD Liao, Hohai Univ, China

Dynamic Structural Response Study of Ship Beam under Large Slamming Load

WQ Liu, K Suzuki, Univ of Tokyo, Japan

Falling Behavior Simulation of a Seated Human Body on an Experimental Carriage at Collision

T Shibue, T Hayami, T Sawai, M Ohmasa, N Hirokawa, K Kato, Kinki Univ, Japan

On the Performance of Free Fall Life Boats during Drop and Sail Away

P Teigen, H Skeide, Statoil, Norway; F Quadvlieg, MARIN, Netherlands

61. UNDERWATER SYSTEMS II Propulsion & Gliding (V. 2)

Tuesday **July 2** **14:00** Room 10

Chair: S Yamaguchi, Kyushu Univ, Japan

Position and Orientation Estimation of a Tail-Beating Robot Fish in Two-Dimension

JH Guo, HS Liu, JY Wang, SW Huang, National Taiwan Univ, Taiwan, China

What is the Best Shape Fin for Fish Robot?

K Kikuchi, Y Uehara, Y Kubota, M Osamu, Toyo Univ, Japan

Propulsion Characteristics of Bioinspired Propulsion Mechanism in Fluid Using Variable Stiffness Fin with Torsional Rectangular Elastic Plates

S Kobayashi, K Takahashi, S Fujiwara, Shinshu Univ, Japan

A Tendon Driven Biorobotic Pectoral Fin: Mechanism and Analysis

S Sen, SS Rathour, P Saha, SN Shome, CSIR, India

Design of an Ocean-Going Solar-Powered Underwater Glider

H Tonai, M Arima, Osaka Prefecture Univ, Japan

Design and Analysis of an Underwater Glider without a Buoyancy Engine

G Parchani, M Santhakumar, A Kumar, SS Chintakula, IIT Indore, India

Gliding Tests of Underwater Glider for Long-term Virtual Mooring in Towing Tank

M Nakamura, Kyushu Univ; K Asakawa, T Hyakudome, JAMSTEC; T Kawatani, T Ueda, Kyushu Univ, Japan

Attack Angle and Strength of Rudder for Power-free Underwater Vehicle in Kuroshio

CT Lee, Kaohsiung Univ of Applied Science; RY Yang, National Cheng Kung Univ; HH Pan, Kaohsiung Univ of Applied Science, Taiwan, China

TUESDAY 16:20

62. LNG Sloshing VII: Sloshing Load Prediction & Structural Assessment (V. 3)

Tuesday July 2 16:20 Room 1

Chair: SG Lee, Korea Maritime Univ, Korea

Analytical Approach to Predict Sloshing Severity in LNG Membrane Tanks Based on Optimized Series of Model Tests

B Kayal, C-F Berthon, A Ratouis, Gaztransport & Technigaz, France

Study on Prediction of Sloshing Severity

MZ Zheng, YH Kim, SY Kim, YJ Ahn, Seoul National Univ, Korea

The Practical Structural Assessment Procedure of FLNG Cargo Containment Systems

MH Oh, JM Kim, TH Park, JS Moon, WS Sim, MS Lee, Hyundai Heavy Industries, Korea

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

SG Lee, JH Nam, T Chau, Korea Maritime Univ, Korea

Structural Safety Assessment for Support Structure of Independent LNG Cargo Tank (IMO Type "B") Considering Reaction Force of High Level

JK Bang, STX Offshore & Shipbldg, Korea

Investigation of the Reduction of Sloshing Loads through Fluid-Structure Interaction in a Rectangular Tank

D Hassana, S Schreier, Univ of Rostock, Germany

63. HYDRODYNAMICS VII: Fluid-Structure Interactions 6; Ships B (V. 3)

Tuesday July 2 16:20 Room 2

Chair: SY Hong, MOERI/KIOST, Korea

Springing Effects and Design Assessment on a Large Container Ship

YW Lee, Y Xiao, ZH Wang, N White, J Tong, Lloyd's Register, UK

Nonlinear Wave-induced Motion Response of a Barge during Dry Transportation

BW Nam, HG Sung, SK Cho, SY Hong, NW Kim, MOERI/KIOST, Korea

A Study on Towing Characteristics of a Transportation Barge in Waves

SY Hong, BW Nam, JH Kim, JY Park, MOERI/KIOST, Korea

Development and Application of Trim Optimization Techniques Using an Evaluation System(SoLuTion) Based on the RANS for EEOI Reduction

HT Kim, SK Choi, CB Hong, JH Bae, JS Seo, SM Hwangbo, JS Kim, Samsung Heavy Industries, Korea

Higher-Order BEM for Radiation Forces of a Modified Wigley Hull with Forward Speed

GH He, M Kashiwagi, Osaka Univ, Japan

Practical Application of CFD for Design of Energy Saving Devices mounted on Ship stern

KS Kim, YC Kim, J Kim, YY Lee, HS Ahn, SH Van, MOERI/KIOST, Korea

Maneuverability Simulations for Lifeboats Using CFD

C Ciortan, H Austefjord, Det Norske Veritas, Norway

64. RENEWABLE ENERGY VII: Offshore Wind Tech 7

Dynamics (V. 1)

Tuesday July 2 16:20 Room 3

Chair: D Kaufer, Univ of Stuttgart, Germany

Investigation of Local Vibration Phenomena of a Jacket Sub-Structure Caused by Coupling with Other Components of an Offshore Wind Turbine in a Coupled Simulation Environment

W Popko, Fraunhofer IWES, Germany; P Antonakas, Loughborough Univ, UK; F Vorpahl, Fraunhofer IWES, Germany

FloVAWT: Progress on the Development of a Coupled Model of Dynamics for Floating Offshore Vertical Axis Wind Turbines

A Shires, M Collu, M Borg, FP Brennan, Cranfield Univ, UK

Coupled Dynamic Analysis of FOWT (Floating Offshore Wind Turbine) with Partially Broken Blade

YH Bae, MH Kim, Texas A&M Univ; Q Yu, ABS, USA

Assessment of the Importance of Mooring Dynamics on the Global Response of the DeepCwind Floating Semisubmersible Offshore Wind Turbine

MD Masciola, A Robertson, J Jonkman, National Renewable Energy Laboratory, USA

Investigation of RAOs Computed Using WAMIT and FAST for Various Floating Offshore Wind Turbines Subjected to Different Wind and Wave Conditions

GKV Ramachandran, JM Jonkman, A Robertson, National Renewable Energy Laboratory, USA

Numerical Modelling of Fluid-Structure Interactions for Floating Wind Turbines

A Viri, JS Xiang, MD Piggott, CC Cotter, J Spinneken, CC Pain, Imperial College London, UK

65. OCEAN TECH II

South China Sea LIWAN 3-1 Field Development 1 (V. 1)

Tuesday July 2 16:20 Room 4

Chair: AM Wang, CNOOC-COPEC, China

Study on Deepwater Submerged Pump Skid for Installation of Suction Piles

LQ Wang, JL Hou, CNOOC Research Inst, China

Fabrication Considerations of the Liwan 3-1 Mega Jacket

SM Li, Y Yang, ZR Song, FY Yang, T Deng, Offshore Oil Engineering; ZC Yang, CNOOC; J Gao, Novellant Engineering Services, China

Mega Cargo Transportation Analysis through a Fully Coupled Method in Liwan3-1 CEP Jacket Transportation Analysis

B Liu, YL Cai, HJ Yin, Offshore Oil Engineering; J Wang, COTEC, China

Challenges and Innovations of Flow Assurance System in the Development of the LiWan 3-1 Deepwater Gas Field

QP Li, HY Yao, XC Yu, K Wang, CNOOC Research Inst, China

Structural Design and Analysis of Subsea Camera Shell in Deep Water

HD Wei, MZ Zhou, Y Jiang, Offshore Oil Engineering, China

The Statistical Characteristics of Sea Waves with Double-peaked Spectra in Deep Area of South China Sea

BT Xie, FH Lei, JQ Wang, JG Li, CNOOC Research Inst, China

66. MANGANESE STEEL FOR ENERGY III:

Cryogenic Properties & Applications (V. 4)

Tuesday July 2 16:20 Room 5

Chair: JW Morris, Univ of California-Berkeley, USA

Co-Chair: YK Lee, Yonsei Univ, Korea

The Status of the Development of High Mn Steels for the Cryogenic Purpose

DH Kim, Samsung Heavy Industries, Korea

High Manganese Austenitic Steel for LEG Tanks

SG Lee, IW Han, SG Hong, POSCO, Korea

Study on Microstructure and Mechanical Properties of Cryogenic High-Manganese Weld Metal

IW Han, JK Choi, POSCO; CY Kang, Pusan National Univ; BK Lee, POSCO, Korea

Availability Evaluation of High Mn Steel by Comparison with Current Materials Available in Cryogenic Environment

KS Kim, MS Kim, JK Kang, CY Park, Daewoo Shipbldg & Marine Engineering, Korea

Introduction of Structural Engineering for the Application of Cryogenic High-Manganese Steel to IMO Type-B Tank Design

DK Lee, IS Han, TJ Koh, JH Woo, Daewoo Shipbldg & Marine Engineering, Korea

Prevention of Intergranular Fracture in Martensitic Mn Steels at Cryogenic Environment

IC Yi, KH Kwon, YM Ha, POSTECH; HC Lee, POSCO; NJ Kim, POSTECH, Korea

Deformation Behavior of Austenitic High Mn Steel at Cryogenic Temperature

YM Ha, HM Kim, POSTECH; CS Lee, POSCO; SH Lee, NJ Kim, POSTECH, Korea

Cryogenic Performance of High Manganese Austenitic Steel Welded Joint

YH Park, SG Hong, SG Lee, JK Choi, POSCO, Korea

Low Temperature Deformation Behavior and Wear Resistance of High Mn Steels

K Choi, J Yoo, POSTECH, Korea; HW Jin, R Ayer, ExxonMobil Research & Engineering, USA; NJ Kim, POSTECH, Korea

67. COASTAL II: Waves & Storm Surge 1 (V. 3)
Tuesday July 2 16:20 Room 6

Chair: LK Chien, National Taiwan Ocean Univ, Taiwan, China
Co-Chair: K Kawasaki, Nagoya Univ, Japan

A Fractional Step Method for Non-Hydrostatic Coastal Flows [Oral Presentation]

F Lalli, A Bruschi, ML Cassese, V Pesarino, ISPRA, Italy

Harbor Tranquility Analysis Method for Using Boussinesq-type Nonlinear Wave Transformation Model

K Hirayama, Port and Airport Research Inst, Japan

Numerical Modeling of Nonlinear Wave Transformation Using Elliptic Mild Slope Equation

A Sharma, V Panchang, Texas A&M Univ, USA

Numerical Study on the Solitary Wave Interaction with the Density-Stratified Fluid in a Submarine Trench

HL Wu, SC Hsiao, HH Hwung, National Cheng Kung Univ, Taiwan, China

Numerical Assimilation of Wave Data along the Coast of Jiangsu, China

CF Tong, J Shi, YX Yan, Hohai Univ, China

Numerical Simulation of Hydrodynamics in the Surf Zone over a Moveable Bed in CROSSTEX Experiment

HD Yoon, Myongji Univ; SW Shin, Kwandong Univ, Korea; DT Cox, Oregon State Univ, USA; CK Pyun, Myongji Univ, Korea

Hydrodynamic Modeling of Changxing Island Sea Area, Dalian

MG Li, WD Li, MX Xie, Tianjin Research Inst for Water Transport Engineering, China

**68. SUBSEA-PIPELINES-RISERS-CABLE IV:
Flow Assurance (V. 2)**

Tuesday July 2 16:20 Room 7

Chair: H Moshagen, BHM Engineering Services, Norway

MEG Optimization Strategy Using Under-Inhibition to Prevent Hydrate Blockage in Offshore Long Distance Tie-Backs

YT Seo, JY Kim, IH Choi, JK Kim, SY Kim, DJ Chang, Korea Advanced Inst of Science & Tech, Korea

Flow Assurance by Electrical Heating of Long Pipelines

JK Lervik, SINTEF Energy Research; A Nysveen, NTNU; H Kulbotten, SINTEF Energy Research, Norway

State of the Art for Application of Direct Electrical Heating of Flowlines

H Kulbotten, JK Lervik, SINTEF Energy Research; A Nysveen, NTNU, Norway

Design Consideration for Slug Catcher Treatment Using Closed System

HS Zhu, J Wang, QP Li, CNOOC Research Inst, China

69. GEOTECH II: Offshore Geotechnics 2 (V. 1)
Tuesday July 2 16:20 Room 8

Chair: PC Wong, ExxonMobil Development Co, USA

Non-Linear Soil Springs for Buckling Analysis of Suction Caissons

SB Hanssen, Multiconsult/NTNU; J Tistel, S Giese, C Athanasiu, A Bye, Multiconsult, Norway

Soil-Structure Interaction and Stiffness of Suction Caisson Foundations

CP Aubeny, F Grajales, YZ Zhang, Texas A&M Univ, USA

3D Large Deformation FE Analysis of Spudcan and Cone Penetration on Three-Layer Clays

MS Hossain, JB Zheng, D Wang, Univ of Western Australia, Australia

Penetration Mechanism of Suction Bucket Foundation in Laboratory Model Test

KS Kim, MH Oh, OS Kwon, IS Jang, TH Kim, KIOST, Korea

A Preliminary Study on Bucket Foundation under Transient Moment Loading

A Foglia, LB Ibsen, Aalborg Univ; L Mikalauskas, LICengineering; SK Nielsen, Aalborg Univ, Denmark

Deep Penetration of Offshore Foundations on Multiple Layer Soil-Centrifuge Tests

SN Ullah, Univ of Western Australia, Australia

Current Induced Scour around Single Piles and Pile Groups

P Gao, ML Duan, C Zhong, ZL Yuan, JG Wang, China Univ of Petroleum-Beijing, China

Environmental Condition Limit Analysis on Jackup Extraction

WL Dong, JJ Wang, LS Song, China Oilfield Services; ML Duan, China Univ of Petroleum China

Numerical Study of the Combined Bearing Capacity of a Skirted-Spudcan Foundation

N Cheng, YH Tian, MJ Cassidy, Univ of Western Australia, Australia

70. ENVIRONMENT I: CO₂ Capture and Transport (V. 1)
Tuesday July 2 16:20 Room 9

Chair: K Otsuka, Osaka Prefecture Univ, Japan

Co-Chair: CM Spinelli, ENI; Italy n

A Multi-stage CO₂ Capture Technology Using Energy Exchangeable Fluidized Beds

YK Park, WC Choi, HM Seo, NY Kang, DY Min, Korea Research Inst of Chemical Tech; DK Lee, Gwangju Univ; KW Kim, KS Lee, Sogang Univ; HK Moon, HH Cho, Yonsei Univ, Korea; D Liu, JZ Gui, Liaoning Shihua Univ, China

Definition of Requirements for Safe and Reliable CO₂ Transportation Network through an Integrated Laboratory, Computer Modeling and Full Scale Methodology

CM Spinelli, ENI; G Demofonti, A Lucci, M Di Biagio, Centro Sviluppo Materiali, Italy

Operating Experience of Desulfurization Process and Pre-combustion CO₂ Capture Process Integrated with Coal Gasifier

HJ Ryu, DH Lee, SY Lee, SH Jo, Korea Inst of Energy Research, Korea

Development of Prediction Model of CO₂ Hydrate Film Thickness for CCS

X Ma, Y Abe, A Kaneko, Univ of Tsukuba; K Yamane, National Maritime Research Inst. Japan

Application of Environmental Impact Assessment Based on CO₂ Emission for Marine Renewable Energy Devices in Korea
HS Lee, JC Park, SM Jeong, Pusan National Univ; MS Song, Hongik Univ; BS Hyun, Korea Maritime Univ, Korea

Application of Environmental Impact Assessment Based on CO₂ Emission for Marine Renewable Energy Devices in Korea
HS Lee, JC Park, SM Jeong, Pusan National Univ; MS Song, Hongik Univ; BS Hyun, Korea Maritime Univ, Korea

71. UNDERWATER SYSTEMS III: Control & Maneuverability

(V. 2)
Tuesday July 2 16:20 Room 10

Chair: M Nakamura, Kyushu Univ, Japan

System Identification of a Small Scale Autonomous Surface Vehicle Using Neural Networks
JH Woo, NW Kim, Seoul National Univ, Korea

Design of Linear Quadratic Controller for a Supercavitating Vehicle
SH Kim, NW Kim, Seoul National Univ, Korea

Dynamic Modeling and Control of a New Underwater Loading Platform
GH Xu, ZL Zeng, Huazhong Univ of Science & Tech; B Yu, China Power Engineering Consulting Group, China

Movability Study of a Small Crawler ROV Deployed from a Launching Station to Operate on the Seafloor
T Katsui, Kobe Univ; T Inoue, JAMSTEC; M Akashi, Kobe Univ; M Kyo, JAMSTEC, Japan

Speed Estimation and Simulation of an Underwater Wheeled Vehicle Based on Fuzzy Kalman Filter
GH Xu, Y Zhao, Huazhong Univ of Science & Tech; B Yu, China Power Engineering Consulting, China

WEDNESDAY 08:00

72. LNG Sloshing VIII: Liquid Cargo & Ship Motions Coupling (V. 3)

Wednesday July 3 08:00 Room 1

Chair: L Diebold, Bureau Veritas, France

An Experimental Study on the 2-DoF Motion of Side-by-Side Connected 2D Rectangular Cylinders with Sloshing Effect
YH Kim, HG Sung, MOERI/KIOST; HS Choi, Seoul National Univ, Korea

A Study on Effects of Liquid Motion in a Fully Filled Tank on Vessel Motion
SY Cao, HD Lu, FW Zhang, Marintek USA, USA

Coupled Sloshing and Motion Analysis of FLNG in Side-by-Side Arrangement
JJ Park, JH Seo, MS Kim, BW Kim, YS Suh, Samsung Heavy Industries, Korea

Numerical Studies on Coupling Effects between Liquid Sloshing and Ship Motions
FX Huang, George Mason Univ, USA; RC Zhu, Shanghai Jiao Tong Univ, China; C Yang, George Mason Univ, USA

Numerical Simulation of the Sloshing in Tanks of LNG Carrier Moving in Ice Condition

NV Tryaskin, IV Tkachenko, VN Tryaskim, VV Yakimov, State Marine Tech Univ of St. Petersburg, Russia

Dynamic Coupling between Ship Motion and Three-Layer-Liquid Separator by Using MPS (Moving Particle Simulation)

KS Kim, MH Kim, Texas A&M Univ, USA

73. HYDRODYNAMICS VIII: MetOcean 1 (V. 3)

Wednesday July 3 08:00 Room 2

Chair: M La Rocca, Univ Roma Tre, Italy

A Study on the Statistical Prediction of the Freak Wave Generation in the Ocean

M Ishiguro, A Shinkai, S Yamaguchi, Kyushu Univ, Japan

A Study on the Optimal Ship Routing Considering Weather Information and Current in Real Time

JM Park, NW Kim, Seoul National Univ, Korea

Vertical Structure of the Currents in the Gulf of Finland

Y Klevantsov, State Oceanographic Inst; V Rozhkov, KG Smirnov, St Petersburg State Univ, Russia

Simulating the Storm Surge of Typhoon No. 1210 "DAMREY" and Its Characteristic Analysis

Y Tan, Hohai Univ, China

The Sea-Level Predictions around Taiwan in 2030 Using Artificial Neural Network

TL Lee, Nan Jeon Inst of Tech; YP Sung, CJ Huang, National Cheng Kung Univ; CP Tsai, National Chung Hsing Univ; CC Wen, Hungkuang Univ, Taiwan, China

Detecting Changes in Wave Spectra Using the Total Variation Distance

J Ortega, C Euan, CIMAT, Mexico; PC Alvarez-Esteban, Univ of Valladolid, Spain

Accuracy of Global and High Resolution Models in Stormy Conditions

L Cavaleri, L Bertotti, ISMAR, Italy

74. RENEWABLE ENERGY VIII: Offshore Wind Tech 8

Wednesday July 3 08:00 Room 3

Chair: S Herion, Karlsruhe Inst of Tech, Germany

A New Structural-Dynamics Module for Offshore Multimember Substructures within the Wind Turbine CAE Tool FAST

HM Song, R Damiani, A Robertson, J Jonkman, National Renewable Energy Laboratory, USA

Validation of an Integrated Simulation Method with High Resolution Load Measurements of the Offshore Wind Turbine REpower 5M at Alpha Ventus

D Kaufer, PW Cheng, Univ of Stuttgart, Germany

Experiments and Researches on Flow-induced Vibration Model for Supporting System of Wind Turbine in Offshore Wind Farm

GH Yan, JP Zhao, Nanjing Hydraulic Research Inst; ZM Lu, YF Lin, Shanghai Investigation, Design & Research Inst, China

Reliability Assessment of Offshore Wind Turbines Considering Faults of Electrical / Mechanical Components

JD Sørensen, E Kostandyan, Aalborg Univ, Denmark

Development of Co-Simulation Analysis of Aerodynamics, Mechanism Dynamics and Control System Dynamics for Large Wind Turbines
MH Chiang, YN Chen, YJ Lee, HJ Lin, TC Tung, CS Wang, National Taiwan Univ, Taiwan, China

On the Design of Measurement Campaigns for Fatigue Life Monitoring of Offshore Wind Turbines
UC Smolka, PW Cheng, Univ of Stuttgart, Germany

A Study Risk Assessment of Offshore Wind Farm on the Construction
LK Chien, SY Chiu, WC Tseng, KH Chen, National Taiwan Ocean Univ, Taiwan, China

75. OCEAN TECH III

South China Sea LIWAN 3-1 Offshore Installation 1 (V. 1)
Wednesday July 3 08:00 Room 4

Chair: PW Marshall, MHP Systems Engineering, USA
Co-Chair: AM Wang, CNOOC-COOEC, China

Pendulous Installation Method and its Installation Analysis for a Deepwater Manifold in South China Sea
AM Wang, SH Zhu, XH Zhu, JK Xu, M He, Offshore Oil Engineering, China

A Rational Approach for Global Strength Evaluation of T-Shaped Launch Barge HYSY229 during Liwan 3-1 Mega Jacket Launch
SH Zhu, Offshore Oil Engineering, China; HN Austefjord, DNV, Norway; CW Qu, CY Zou, DNV, China; M He, AM Wang, Offshore Oil Engineering, China

Design and Operation Considerations for Large Jacket Installations in South China Sea
CS Yu, ZG Li, J F, WT Yu, AM Wang, Offshore Oil Engineering; JM Li, CNOOC, China

T-Shaped Launch Barge Modification Design for Very Challenging Floatover Installation of Liwan 3-1 Mega Topsides in South China Sea
HL Li, Y Yang, RH Yuan, WW Zie, AM Wang, Offshore Oil Engineering; XJ Jin, CNOOC, China

A Model Test Study for Liwan 3-1 Mega Jacket Launch in South China Sea
X Li, Shanghai Jiao Tong Univ; D Li, L Yu, ZC Yang, X Sun, CNOOC; AM Wang, Offshore Oil Engineering, China

A Comparative Study of Launch Analysis and Field Measurement for Liwan 3-1 Mega Jacket Launch in South China Sea
M He, HL Li, AM Wang, Offshore Oil Engineering; L Yu, CNOOC; Z Li, J Li, Shanghai Jiao Tong Univ, China

76. HPM V: Advanced Materials & Offshore Structures 1 (V. 4)
Wednesday July 3 08:00 Room 5

Chair: A Battistini, SAIPEM, Italy

Swelling-induced Instability of Hydrogels under Non-equal Biaxial Stretches
YY Lin, CH Yang, National Cheng Kung Univ, Taiwan, China

Geomechanical Characteristics of Gneiss in Antarctica due to Freezing-Thawing Tests
YS Kim, KJ Kim, Korea Inst of Construction Tech; BA Jang, YM Park, Kangwon National Univ, Korea

Effects of Carbon Content on Cold-rolling Cracking of Four Light-Weight Steels [Oral presentation]

SH Lee, SS Sohn, BJ Lee, Pohang Univ of Science & Tech; JH Kwak, POSCO, Korea

The Production and Testing of MEIDP Linepipe for 3500m Application

IFJ Nash, P Carr, Peritus International, UK; Peritus International, USA

A Modern Methodology of Materials Development for High Toughness Seamless Linepipe Products for Offshore Applications

S Harksen, I Lischewski, A Schneider, T Schmidt, V&M Deutschland, Germany

Effect of Heat Treatment on Hydrogen Diffusion and Hydrogen Induced Cracking Behavior of Process Pipe Steel in Sour Environment

KY Kim, DK Han, SJ Kim, POSTECH; HG Jung, POSCO, Korea

77. COASTAL III: Waves & Storm Surge 2 V. 3)

Wednesday July 3 08:00 Room 6

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

Experimental Investigations in the Flow Field of a Solitary Wave Propagating over a Mild Slope

C Lin, SC Hsieh, YN Shih, PH Yeh, National Chung Hsing Univ, Taiwan, China

Wave Transformation over a Submerged Crescent Shoal

CM Hsu, SW Chen, CJ Tseng, Taiwan Ocean Research Inst; MC Lin, National Taiwan Univ, Taiwan, China

Modulation Instability of Waves in the Presence of Current

I Shugan, HH Hwang, RY Yang, National Cheng Kung Univ, Taiwan, China

Study on Wave Propagation Affected by Navigation Channel

X Lin, B Yang, Y Feng, Hohai Univ, China

Wave and Current Effects on the Wave Transformation and Runup on a Mild Slope

SW Shin, HM Bae, Kwandong Univ; S Yoo, KIOST; KH Kim, Kwandong Univ; JS Shim, KD Do, KIOST; CK Pyun, Myongji Univ, Korea

Research on the Modification of Wave Attenuation in Flexible Vegetation in SWAN-VEG

HJ Cao, WB Feng, Hohai Univ, China; X Feng, Univ of Florida, USA

Simulation of Storm Surge, Wave, Currents in Chesapeake Bay during November 2009 Mid-Atlantic Nor'easter

YQ Meng, Hohai Univ, China; H Wang, YC Teng, College of William and Mary, USA

78. SUBSEA-PIPELINES-RISERS-CABLE V: Improved Performance (V. 2)

Wednesday July 3 08:00 Room 7

Chair: F Lim, 2H Offshore, UK

Research on Seafloor Interaction with Deepwater Steel Catenary Risers

SP Wang, J Zhao, S Xu, CNPC, China

Damage Detection Based on Vibration Transmissibility for Subsea Pipelines

X Feng, XW Hu, Y Wu, J Zhou, Dalian Univ of Tech, China

Evaluation of Contact between Pipelines in Operation

AS Kristoffersen, IKM Ocean Design; LD Oosterkamp, Statoil ASA; PR Nystrom, IKM Ocean Design, Norway

Analysis on Dynamic Characteristics for Cracked Pipe under Complicated Load Conditions

J Zhou, X Feng, D Liu, T Zhu, Dalian Univ of Tech, China

Design of Subsea Oil and Gas Pipeline Repair Clamp

BJ Zhao, CNPC; HW Zhu, China Univ of Petroleum; DY Tang, CNPC, China

Evaluation of Pipe Material Substrates for the Deteriorated Tunnel in Seoul, South Korea

JH Lee, EH Park, KW Yee, BS Chun, Hanyang Univ, Korea

79. GEOTECH III: Offshore Anchors (V. 1)
Wednesday July 3 08:00 Room 8

Chair: C Gaudin, Univ of Western Australia, Australia

Large Deformation Analysis of the Keying Process of Plate Anchors with a Hinged Flap in Clay

T Wang, BJ Sun, China Univ of Petroleum Qingdao, China

Holding Capacity of Suction Caisson Anchor in Clay Deposit Based on Finite Element Modeling

JH Ahn, HM Lee, BM Choi, Pusan National Univ; YT Kim, Pukyong National Univ; HS Shin, Univ of Ulsan, Korea

Determining Pullout Capacity of a Deep Penetrating Anchor (DPA) Using FLAC3D

C Rudito, FMC Kongsberg Subsea; JT Lieng, Deep Sea Anchors, Norway

Estimation on the Permanent Deformation of Suction Anchors Subjected to Static and Cyclic Loads

JH Wang, Tianjin Univ; Y Yang, Xince Electronic Instrument; SZ Li, Tianjin Univ, China

Analysis of Suction Anchors Bearing Capacity in Soft Clays

SZ Li, JH Wang, Tianjin Univ, China

Numerical Study on the Pull-out Performance of Strip Plate Anchors in Sand Considering Strain Softening

L Yu, H Hu, J Liu, Dalian Univ of Tech, China

80. ENVIRONMENT II: Energy & Environment (V. 1)
Wednesday July 3 08:00 Room 9

Chair: F Lalli, ISPRA, Italy

A Numerical Simulation of HOPs Transport with a Sorption-Desorption Kinematic Model

BF Chen, YJ Lin, National Sun Yat-sen Univ, Taiwan, China

Integration Lagrangian Sediment Transport into Non-Orthogonal Ocean Hydrodynamics Model to Simulate Drilling Cutting and Mud Dispersion in Indonesia Ocean Water

M Muin, Institut Teknologi Bandung, Indonesia

Field Study in the Influence of Floating Mud over the Lasting Effect of Sand Capping Technique on Nutrient Release Reduction

N Katakura, Taisei Corp; K Murakami, Tokyo City Univ, Japan

Temporal and Spatial Variation on Water Environment and Fishery Resources in Osaka Bay

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

Benthic Interactions with Renewable Energy

EV Sheehan, Plymouth Univ; MJ Witt, Univ of Exeter; S Cousens, MJ Attrill, Plymouth Univ, UK

Hydrodynamic and Water Quality Simulation of Seawater Intake and Cooling/Saline Water Outfalls from a Power Plant along the Red Sea Coast of KSA

SA Hadima, AM Mostafa, K Rakha, Cairo Univ, Egypt

81. UNDERWATER SYSTEMS IV: Navigation & Communication

(V. 2)

Wednesday July 3 08:00 Room 10

Chair: N Kato, Osaka Univ; Japan

Design of Smart Magnetometer as Sensor Node for Seafloor Geomagnetic Observatory

XT Zhang, Y Chen, Zhejiang Univ; YP Yan, Hangzhou Dianzi Univ, China

Study on Trajectory Tracking and Formation Control for Multiple Torpedoes

JY Park, NW Kim, Seoul National Univ, Korea

A Study of Trajectory Searching Algorithms for a Trajectory Tracking Torpedo

DH Kim, NW Kim Seoul National Univ, Korea

Guidance and Control of an Autonomous Underwater Robot for Tracking and Monitoring Spilled Plumes of Oil and Gas from Seabed

R Kimura, N Kato, H Suzuki, H Senga, Osaka Univ; M Yoshie, T Tanaka, Port and Airport Research Inst; M Choyekh, M Ukita, K Kamezuka, Osaka Univ, Japan

A Japanese-made Compact INS for AUV Use and Its Performance

H Ishibashi, JAMSTEC, Japan

Experimental Results of Underwater Acoustic Communication with Iterative Receiver Structure

JW Han, TD Park, BC Kwon, KM Kim, JW Jung, Korea Maritime Univ, Korea

WEDNESDAY 10:30

82. LNG Sloshing IX: Panel 1:

Numerical Simulation of Wave Impacts: CFD 1 (V.3)

Wednesday July 3 10:30 Room 1

Chair: L Brosset, Gaztransport & Technigaz, France

Key presentation

Frederic Dias, University College Dublin, Ireland

Panelists:

Frederic Dias, University College Dublin, Ireland

Yonghwan Kim, Seoul National Univ, Korea

Jean-Michel Ghidaglia, ENS-Cachan, France

Pierre-Michel Guilcher, HydrOcean, France

83. HYDRODYNAMICS IX: MetOcean 2 (V. 3)

Wednesday July 3 10:30 Room 2

Chair: T-C Su, Florida Atlantic Univ, USA

Analysis of Wind Off the Coast of Central Norway

K Christakos, J Reuder, BR Furevik, Univ of Bergen, Norway

An Analytical Approximation Solution for Fully Non-Linear Progressive Water Waves

JR Shin, Daewoo Shipbldg & Marine Engineering, Korea

Tidal Characteristics of the Gulf of Mexico from a Three-Dimensional Hydrodynamic Model

MX Chen, J Li, W Tan, Hohai Univ; RB Bai, Jiangsu Provincial Communications Planning & Design Inst; Q Xu, Hohai Univ, China

Surface Gravity Wave Deformation in the Presence of Currents and Uneven Bottom

M Bakhoday Paskyabi, Univ of Bergen, Norway

Numerical Simulation of Rogue Waves Based on Linear Theory

NB Gao, JM Yang, LF Xiao, TB Shan, Shanghai Jiao Tong Univ, China

SAR Detection of Hurricane Helene (2006)

Q Xu, YC Cheng, GS Zhang, Hohai Univ, China; XF Li, NOAA, USA

Estimation of Drifter Velocities Using HFR Data Off Eastern Taiwan

WS Chiang, WC Yang, KI Lin, Taiwan Ocean Research Inst, Taiwan, China

84. RENEWABLE ENERGY IX: Offshore Wind Tech 9

Design & Test (V. 1)

Wednesday July 3 10:30 Room 3

Chair: CC Capanoglu, I.D.E.A.S., Inc., USA

GICON-TLP for Wind Turbines - Validation of Calculated Results

F Adam, C Steinke, F Dahlhaus, TU Bergakademie Freiberg; J Grossmann, GICON GmbH, Germany

A Comparison of Calibration and Validation of FAST Code Numerical Models of the DeepCwind Floating Wind Turbine Systems with 1:50-Scale Tank Data

A Jain, Intertek Testing Services; AN Robertson, JM Jonkman, National Renewable Energy Laboratory; AJ Goupee, Univ of Maine; AHP Swift, Texas Tech Univ, USA

Development of Offshore-Suitable Sensors for a Condition Monitoring System of a floating Wind Turbine Illustrated by the HiPRwind-Project

I Koprek, C Kupferschmidt, M Strach, M Hohmann, H Huhn, Fraunhofer IWES, Germany

The Development of a Tip-Fan Wind Mathematical Model

JA AL-Nouman, New Mexico State Univ, USA

85. OCEAN TECH IV:: Dynamic Positioning & Control (V. 3)

Wednesday July 3 10:30 Room 4

Chair: H. Kajiwara, Kyushu Univ, Japan

Co-Chair: JS Chung, ISOPE, USA

Development of an Experimental Methodology for Self-Propulsion Test with a Marine Diesel Engine Simulator, The Second Report - Propeller Pitch Control -

K Tanizawa, Y Kitagawa, K Hirata, M Fukazawa, National Maritime Research Inst, Japan

Dynamic Positioning with Roll-Pitch Motion Control for a Semi-Submersible

SW Xu, XF Wang, L Wang, Shanghai Jiao Tong Univ, China

Evaluation of Dynamic Positioning Performance of Shuttle Tanker in Brazilian Water by Experiment and Numerical Simulation

YS Kim, YH Kim, HG Sung, MOERI/KIOST; JW Kim, KAIST, Korea

Model Tests Development for DP Controlled Tug

JS Sales, VL Vileti, PTT Esperanga, SH Sphaier, COPPE/UFRJ, Brazil

Development and Application of Positioning Support System for Maritime Accidents

Z Zhang, SH Zuo, B Li, Tianjin Research Inst of Water Transport Engineering, China

86. HPM VI: Advanced Materials & Offshore Structures 2

(V. 4)

Wednesday July 3 10:30 Room 5

Chair: HW Jin, ExxonMobil Research & Engineering, USA

Development of Heavy Wall X70 High Strain Linepipe Steel

J Shimamura, K Nishimura, N Ishikawa, S Endo, H Fukuda, R Muraoka, JFE Steel, Japan

API X70-X80Q Heavy-Wall Seamless Pipes for Sour Service Application

D Toma, G Kubla, V Rohden, V&M Tubes, Germany

HAZ Hardness Distribution of Low Carbon Boron Containing Line Pipe Steels

T Hara, Nippon Steel & Sumitomo Metal, Japan

Dynamic Compressive Deformation Mechanisms of Zr-Based Amorphous Matrix Composites Containing Different Sized β Dendrites [Oral presentation]

SH Lee, CW Jeon, MJ Kang, CP Kim, Pohang Univ of Science & Tech, Korea

Research on Property of Aluminum-Silicon and Aluminum-Silicon/Carbon Nanoparticles

K Tulugan, HJ Kim, Gyeongsang National Univ; YH Shin, EMSCO, Korea; WJ Park, WJ Lee, Gyeongsang National Univ, Korea

The Performances of Nano-Sized Al-Si Anode for Lithium Ion Batteries

HJ Kim, WJ Park, Gyeongsang National Univ, Korea

Development of X70 and X80 Grade Linepipe Steel for Sour Environment

HG Jung, WK Kim, SU Koh, KB Kang, POSCO, Korea

87. COASTAL IV: Breakwaters 1 V. 3)

Wednesday July 3 10:30 Room 6

Chair: D Angelides, Aristotle Univ of Thessaloniki, Greece

Co-Chair: Y Yuksel, Yildiz Tech Univ, Turkey

Comparison of Wave Pressure on the Caisson Breakwater With and Without the Cap of Wave Chamber

SH Oh, CH Ji, YM Oh, SC Jang, KIOST, Korea

Wave Pressure Acting on a Porous Vertical Slit Caisson

CH Ji, SH Oh, YM Oh, JC Jang, Korea Inst of Ocean Science & Tech, Korea

Stability and Energy Dissipation of an Antifer Layer Protected Caisson
VSO Kirca, DZ Seker, Istanbul Tech Univ, Turkey

A Study on the Short-Period Wave Control of Wave Resonator
KH Lee, KH Kim, Kwandong Univ; DS Kim, Korea Maritime Univ, Korea

Statistical Characteristics of Individual Sliding Distance of Vertical Caisson Breakwater
KD Suh, SW Kim, Seoul National Univ, Korea

Amplification of Wave Height at Concaved Corner for Rubble-Mound Structures
YT Kim, Korea Inst of Construction Tech; JI Lee, Chonnam National Univ, Korea

**88. SUBSEA-PIPELINES-RISERS-CABLE VI:
Subsea Components (V. 2)**

Wednesday July 3 10:30 Room 7

Chair: M Wu, J Ray McDermott, USA
Co-Chair: C Cao, CNPC, China

Numerical Simulation of Welding Preheating Applied for Pipeline Hot-Tapping in Deep Water
D Lindholm, Inst for Energy Tech; H Sund, Jotne AS; RLP Verley, Statoil; HG Fjar, Inst for Energy Tech, Norway

Tubular Bells Development - Export Pipeline Crossing Design
TC Teh, D DeGeer, INTECSEA; A Aalders, D Zhao, Williams Midstream, USA

Riser/Flowline Replacement Project - Riser Connector Strength Analysis
S Kulkarni, S Sawant, B Ozturk, P Jukes, MCS Kenny, USA

Riser/Flowline Replacement Project - Riser Connector Fatigue Analysis
AA Al-Showaiter, S Sawant, B Ozturk, P Jukes, MCS Kenny, USA

Effect of Limit State Design on the Damage Tolerance of Subsea Systems
ME Cerkovnik, L Tran, D Saldana, 2H Offshore, USA

89. GEOTECH IV: Foundation 1 (V. 1)

Wednesday July 3 10:30 Room 8

Chair: YW Choo, KAIST, Korea
Co-Chair:

Cyclic Behavior of Laterally Loaded Piles Embedded in Soils with Variable Stiffness
I Depina, TMH Le, G Eiksund, T Benz, NTNU, Norway

Initial Settlement of Rock Fills in Soft Clay
G Eiksund, NTNU; TM Pedersen, NTNU/Multiconsult, Norway

Laboratory Testing of Cyclic Laterally Loaded Pile in Cohesionless Soil
HR Roesen, LB Ibsen, Aalborg Univ; M Hansen, TK Wolf, COWI A/S; KL Rasmussen, NIRAS, Denmark

A Study on Determination of Permanent Steel Casing Thickness for Large Diameter Drilled Shafts
MS Nam, JH Jeong, Korea Expressway Corp, Korea

Analysis of Negative Skin Friction on Single Piles from Long-term Field Monitoring in Marine Clay

SS Jeong, JY Ko, Yonsei Univ, Korea

A Study on the Development and the Verification of a Sonar Measurement Device for a Large-Diameter Drilled Shaft

BH Jeon, YK Choi, Kyungshung Univ, Korea

Experimental Study on the Pull-out Performance of Strip Plate Anchors in Medium Dense Sand

J Liu, H Hu, L Yu, Dalian Univ of Tech, China

Behavior Analysis of Micro-pile for Transmission Tower in Weathered Granite Soil

JS Jeong, Sangji Univ; DH Kim, KSPO; SY Sung, Korea Foundation Laboratory; SH Lee, Sangji Univ, Korea

90. ENVIRONMENT III: Oil Spill & Contamination (V. 1)

Wednesday July 3 14:00 Room 9

Chair: G Eidnes, SINTEF Materials and Chemistry, Norway

Development of Autonomous Spilled Oil and Blowout Gas Tracking and Monitoring Buoy System and Its Application to Marine Disaster Prevention

M Choyekh, R Kimura, N Kato, H Senga, H Suzuki, Y Okano, T Ban, Y Takagi, Osaka Univ; M Yoshie, T Tanaka, Port and Airport Research Inst; N Sakagami, Tokai Univ, Japan

Variation Trend of Discharges into Sea from the Yangtze River

JQ Liu, Z Gong, CK Zhang, Hohai Univ, China

Containing Oil Spills by Use of Air Bubbles

G Eidnes, F Leirvik, SINTEF Materials and Chemistry; TA McClimans, SH Gjosund, E Grimaldo, SINTEF Fisheries and Aquaculture, Norway

CFD Simulation of Bubble Curtains Applied to Oil Spill Containment

P Skjetne, SINTEF Materials and Chemistry, Norway

Study on Chemical Contamination in Japanese Coastal Area Derived from Marine Debris Plastics

H Sato, Nihon Univ Junior College, K Saido, A Okabe, T Akiyama, A Nisino, Nihon Univ, Japan

Engineering Approach for Cleaning-up Garbage Patches

HJ Kang, Korea Inst of Ocean Science & Tech, Korea

91. ARCTIC SCIENCE & TECH II: Ice Mechanics & Loads 1 (V. 1)

Wednesday July 3 10:00 Room 10

Chair: M Sayed, National Research Council, Canada

Co-Chair: VM Kozin, Inst of Machine Science & Metallurgy, Russia

Review of Flexural Strength of Multi-year Ice

R Frederking, National Research Council, Canada

Ice Age Classification Using Cross-Polarization Measurement with X-Band Radar

A Parsa, Rutter Inc, Canada

The Method of Experimental Study of the Fracture Energy Criterion of Sea Ice: Requirements to Method and Criterion

VG Tsuprik, Far Eastern Federal Univ, Russia

Measurements of Thermodynamic Properties of Ice Created by Frozen Sea Spray

A Kulyakhtin, S Kulyakhtin, S Løset, NTNU, Norway

Response of Floating Ice Sheet Subjected to Pulse Loading over Variable Bottom

AV Pogorelova, VM Kozin, Inst of Machining & Metallurgy, Russia

Numerical Prediction of Contact Surface between Hummock and Ice Fields for Estimation of Ice Loads on a Structure

AT Bekker, OA Sabodash, Far Eastern Federal Univ, Russia; BV Balakin, Univ of Bergen, Norway

The Research on Tensely-Deformed State of Hummocked Ice Caused By Motion of a Submarine Vessel

VL Zemlyak, Sholom-Aleichem Priamursky State Univ; VM Kozin, Inst of Machine Science & Metallurgy; SD Chizhiumov, State Tech Univ, Russia

Plenary presentation 1

Wednesday July 3 13:15 Room 10

Prediction of Pore Pressures in Thawing Permafrost and Insitu Hydrates on Continental Shelves

Jeffrey S Weaver, ExxonMobil Development Company, USA

Plenary presentation 2

Wednesday July 3 13:15 Room 3

New Guidelines for the Certification of Offshore Wind Turbines (Plenary)

Mike Woebeking, Kimon Argyriadid, Germanischer Lloyd Industrial Services GmbH, Hamburg, Germany

WEDNESDAY 14:00

92. LNG Sloshing X: Panel 2: Benchmark on Sloshing Model Tests (V.3)

Wednesday July 3 14:00 Room 1

Chair: S Schreier, Univ of Rostock, Germany

Key presentation

Thibaut Loysel, Gaztransport & Technigaz, France

Panelists:

Laurent Brosset, Gaztransport & Technigaz, France

Yonghwan Kim, Seoul National Univ, Korea

Eric Baudin, Bureau Veritas, France

Sang-Gab Lee, Korea Maritime Univ, Korea

Sun-Hong Kwon, Pusan National Univ, Korea

93. HYDRODYNAMICS X: NWT 1 (V. 3)

Wednesday July 3 14:00 Room 2

Chair: K Tanizawa, National Maritime Research Inst, Japan

Numerical Modeling of Breaking Wave Kinematics with a Parallel Level Set Solver

M Alagan Chella, H Bihs, M Muskulus, A Tørum, NTNU, Norway

Numerical Towing Tank Application to the Prediction of Added Resistance Performance of KVLCC2 in Regular Waves

J Kim, MOERI/KIOST; IR Park, Dong-Eui Univ; KS Kim, YC Kim, YS Kim, SH Van, MOERI/KIOST, Korea

Bottom Pressure Distribution Due to Wave Scattering Near a Submerged Obstacle

J Touboul, V Rey, Univ du Sud Toulon-Var, France

Steady-State Resonance of Multi-Wave Interaction

Z Liu, ZL Lin, SJ Liao, Shanghai Jiao Tong Univ, China

Focused Wave Evolution in Intermediate Water Depth Using First Order and Second Order Wave-Maker Theory

V Sriram, K Kramer, M Wilms, S Schimmels, T Schlurmann, Leibniz Univ Hannover, Germany

Direct Numerical Simulations on the Uniform In-plane Flow around an Oscillating Circular Disk

XL Tian, JM Yang, X Li, LF Xiao, Shanghai Jiao Tong Univ, China

94. RENEWABLE ENERGY X: Offshore Wind Tech 10

Control (V. 1)

Wednesday July 3 14:00 Room 3

Chair: M Muskulus, NTNU, Norway

Multi-objective Active Structural Control of the OC3-Hywind Floating Wind Turbine

YL Si, HR Karimi, Univ of Agder, Norway

An LPV Modeling and Observer-based H_∞ Control for Offshore Wind Turbine

T Bakka, HR Karimi, Univ of Agder, Norway

Nonlinear Model Predictive Control of Floating Wind Turbines

D Schlipf, V Hocke, F Sandner, D Matha, PW Cheng, Univ of Stuttgart, Germany

A Regulated Perturb and Observe Algorithm for Renewable Energy Systems

KY Lee, National Taiwan Univ; WJ Tsai, National Chung Cheng Univ; YC Chiu, HC Yen, National Taiwan Univ, Taiwan, China

Holistic Offshore Wind Power Plant Design - Exploiting the Full Benefits of 3D Engineering and Virtual Reality

T Lauckner, J Rosen, RWE Innogy GmbH, Germany

95. OCEAN TECH V: Installation & Operation (V. 1)

Wednesday July 3 14:00 Room 4

Chair: W Dong, CNOOC-COSL, China

Co-Chair: HG Sung, MOERI/KIOST, Korea

A New Method for Crawler Crane Down to the Dock

C Gong, RZ Song, WX Mao, YY Xie, Y Chen, Offshore Oil Engineering, China

Static Equilibrium Configuration of Deepwater Steel Lazy-wave Riser

ML Duan, China Univ of Petroleum; JL Wang, Fudan Univ; K Tian, China Univ of Petroleum; JM Ma, Fudan Univ, China

SHWE Topside Installation

MD Yuan, LX Chen, Dockwise Engineering, China; F Ma, DJ Kim, Ocean Dynamics, USA

Integrated Simulations of a Floating Crane Installation Vessel with DP systems in Waves

BW Nam, SY Hong, BW Kim, YS Kim, JW Kim, MOERI/KIOST, Korea

Safety Analysis for Installation of Offshore Structure based on Proportional-Derivative Control Strategy with Multibody Dynamics

JH Cha, YJ Heo, CY Song, WJ Kim, Mokpo National Univ, Korea

A Study on the Cuttings Transport in Rotating Inclined Annuli

NS Woo, YJ Kim, Korea Inst of Geoscience and Mineral Resources; SM Han, Korea Marine Equipment Research Inst, Korea

96. HPM VII: Advanced Materials & Offshore Structures 3

(V. 4)

Wednesday July 3 14:00 Room 5

Chair: S Aihara, Univ of Tokyo, Japan

Increasing ULCS Structural Response Knowledge Through 3DFEM and a Comprehensive Full-Scale Measurement System

E Baudin, F Bigot, Q Derbanne, F-X Sireta, E Quinton, Bureau Veritas, France

Development of YP460 Class Steel Plate with Excellent Brittle Crack Arrestability for Large Container Ships

Y Murakami, Y Takeuchi, K Hase, S Endo, T Sakimoto, T Handa, JFE Steel, Japan

Long Brittle Crack Arrest Behavior in Fillet Tee Joint of Large Container Ship

T Handa, T Sakimoto, JFE Steel; M Toyoda, K Noboru, T Takeda, K Inose, IHI Marine United; S Igi, K Ooi, JFE Steel, Japan

Stress Concentration Factors of Thick-Walled K-Joints with Gap Made of RHS and Comparison with Existing Recommendations

S Herion, O Fleischer, J Decheng, KoRoH GmbH, Germany

Use of High Performance Rectangular Hollow Sections (RHS) with Yield Strength between 355 and 890 Mpa

T Müller, V&M Tubes; S Herion, KoRoH GmbH; W Scheller, Salzgitter Mannesmann Forschung, Germany

Technical Challenges in Development of High-Strength Steel Pipeline Technology

F Cheng, Univ of Calgary, Canada

Ultimate Capacity of Non Load Carrying Weld of a Structural Steel with Yield Strength 960 Mpa

I Valkonen, Rautaruukki Oyj, Finland

97. COASTAL V: Breakwaters 2 (V. 3)

Wednesday July 3 14:00 Room 6

Chair: S Araki, Osaka Univ, Japan

Wave Energy Dissipation Effectiveness of a Partially Submerged Oblique Thin Plate

L Acanal, O Yagci, VSO Kirca, Istanbul Tech Univ, Turkey

Experimental Determination on the Performance Characteristics of Undulating Submerged Obstacle: Comparison between Regular and Irregular Wave Response

RS Shih, Tungnan Univ; WK Weng, CR Chou, Taiwan Ocean Univ, Taiwan, China

Analysis of Wave Interaction with an Adjoining-Type of Composite Poro-Elastic Submerged Breakwater

YJ Lan, TW Hsu, National Taiwan Ocean Univ; YR Liu, National Cheng Kung Univ, Taiwan, China

Interaction of Breaking Waves with a Submerged Porous Triangular Structure

CM Hsieh, National Kaohsiung Marine Univ, Taiwan, China; A Sau, Gyeongsang National Univ, Korea; RR Hwang, Academia Sinica; WC Yang, Taiwan Ocean Research Inst, Taiwan, China

Performance Enhancement of a Perforated Free Surface Semicircular Breakwater

HM The, Universiti Teknologi PETRONAS, Malaysia; V Venugopal, Univ of Edinburgh, UK

Numerical Simulation of the Interaction between Regular Wave of Large Amplitude and Floating Box-Type Breakwater

ZB Jiang, H Liu, BL Wang, Shanghai Jiao Tong Univ, China

Experimental Investigation for Structural Response Assessment of Floating Breakwaters

E Loukogeorgaki, Aristotle Univ of Thessaloniki, Greece; SM Kabdasi, O Yagci, Istanbul Tech Univ, Turkey

Wave-Induced Porous Seabed Response Around Pile-Group Foundations

T Sui, JH Zheng, C Zhang, Hohai Univ, China

98. SUBSEA-PIPELINES-RISERS-CABLE VII:

Fatigue Assessment (V. 2)

Wednesday July 3 14:00 Room 7

Chair: F Cheng, Univ of Calgary, Canada

Improvement of Fatigue Characteristics of Pipeline at Lateral Buckling Locations

KNH Pandravada, WorleyParsons, UAE

Fatigue Strength Evaluation of Drill Pipe for Challenging Deep Drilling Project - Japan Trench Fast Drilling (JFAST)

T Inoue, M Kyo, JAMSTEC; K Sakura, TenarisNKK Tubes, Japan

Seal Weld Fatigue Assessment of CRA Lined Pipe for HP/HT Applications

V Rao, T Sriskandarajah, P Ragupathy, Subsea 7, UK

Fatigue of Subsea Pipelines under Combined Actions

HB Liu, XL Zhao, Monash Univ, Australia

Assessment of Static Rope Behavior with Asymmetric Damage Distribution

JF Beltran, E De Vico, Univ of Chile, Chile

The Effect of Semi and Drill-Ship Response on BOP Stack Motion and Casing Fatigue in Shallow Water

J Pyke, P Ma, A Whooley, MCS Kenny, USA

Wellhead Fatigue Analysis Method: Steps for Improving the Quality of the Global Riser Analyses

HG Holm, H Holden, 4Subsea AS; M Russo, Statoil, Norway

Numerical Evaluation of Fatigue Damage of the Deepwater Riser Induced by VIV Using Pseudo-Excitation Method

L Sun, Z Zong, CF Liu, Dalian Univ of Tech, China

An Integrated Model of SCR and Floater for Dynamical Analysis

WP Huang, CF Yang, QF Meng, Ocean Univ of China, China

99. GEOTECH V: Foundation 2 (V. 1)

Wednesday July 3 14:00 Room 8

Chair: SC Bang, South Dakota School of Mines, USA

Co-Chair: G Eiksund, NTNU, Norway

Effect of Strength of Concrete Bulb on Resistance Characteristics at Pile Toe of Steel Pipe Pile on a Thin Layer

K Oda, S Takegawa, Osaka Univ, Japan

Model Tests on Impact Bearing Capacity of Foundations during Impact Loading

M Kanaoka, N Mizutani, Osaka Sangyo Univ, Japan; B Shrestha, American Buildings A Nucor Co, USA; K Takehara, Kinki Univ; T Tamano, Osaka Sangyo Univ, Japan

Rapid Filling Grouting Method for the Space between Caisson and Ground

KS Cha, TH Kim, Daewoo Engineering & Construction; BG Ahn, Dongah Geological Engineering, Korea

Behavior of Piled Raft Foundations under Vertical Loading

A Barari, LB Ibsen, Aalborg Univ, Denmark

Mooring Analysis Utilizing a Coupled Mooring and Anchor Analysis Approach [Proceedings only]

EH Zimmerman, R Garrity, CY Nie, Delmar Systems, USA

100. TSUNAMI & SAFETY I: Recent & Future Tsunamis (V. 3)
Wednesday July 3 14:00 Room 9

Chair: QW Ma, City Univ, UK

Co-Chair: S-Y Kim, Tottori Univ, Japan

Effect of Tsunami Source Model on the Predicted Wave Height and Runup for the 2011 Tohoku Tsunami: A Numerical Analysis

D Basu, Southwest Research Inst; R Sewell, R T Sewell Associates; K Das, R Janetzke, J Stamatakos, D Waiting, Southwest Research Inst, USA

Mapping the Tohoku 2011 Event with a Remote Sensing Satellite Constellation - A Reference Case

P Loewe, J Wächter, GFZ German Research Centre for Geosciences, Germany

Comparison of FUNWAVE-TVD and FLOW-3D Solvers for Prediction of Near-Field Behavior of the 2011 Tohoku Tsunami

K Das, R Janetzke, D Basu, Southwest Research Inst; R Sewell, R T Sewell Associates; J Stamatakos, D Waiting, Southwest Research Inst, USA

Tsunami Damage to Coastal Structures in Tohoku coasts due to the 2011 off the Pacific Coast of Tohoku Earthquake

M Saito, Oriental Consultants, Japan

Numerical Study on Tsunami Inundation Induced by Tokai, Tonankai and Nankai Massive Earthquakes

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

101. ARCTIC SCIENCE & TECH III: Arctic Vessels & Structures 1
(V. 1)
Wednesday July 3 14:00 Room 10

Chair: D Fissel, ASL Environmental Sciences, Canada

Modeling and Analysis of Probabilistic Distributions of Ice Loads of Lighthouse Structures in the Gulf of Bothnia

AT Bekker, OA Sabodash, RG Kovalenko, YA Krikunova, Far Eastern Federal Univ, Russia

Design of Hebron Gravity Based Structure for Iceberg Impact

Widianto, J Khalifa, ExxonMobil; T Karlsson, Kiewit-Kvaerner
Contractors; P Stuckey, C-CORE, Canada; A Gjoerven, Norconsult,
Norway; A Younan, ExxonMobil, USA

**Safety Assessment of Membrane Type LNG Carrier under Repeated
Ice Impact**

HK Oh, Hyundai Heavy Industries, Korea; C Daley, Memorial Univ of
Newfoundland, Canada; JM Lee, Pusan National Univ; HW Kim, BJ Noh,
Hyundai Heavy Industries, Korea

**Structural Safety Assessment of LNGC CCS under Iceberg Collision
Using FSI Analysis Technique [Proceedings only]**

SG Lee, JK Kim, JH Nam, Korea Maritime Univ, Korea

WEDNESDAY 16:20

102. RENEWABLE ENERGY XI: Ocean Energy 6

Wave Energy 5 (V. 1)

Wednesday July 3 16:20 Room 1

Chair: JM Yang, Shanghai Jiao Tong Univ, China
Co-Chair: MT MacNicoll, Univ of Maine, USA

Vitality of Unsteady Ocean Wave Power Density

RL Waid, Marine Development Associates, USA

Robust Wave Resource Estimation: A Danish Case Study

J Lavelle, JP Kofoed, Aalborg Univ, Denmark

Validation of a Wave-body Interaction Model by Experimental Tests

F Ferri, MM Kramer, Aalborg Univ, Denmark

**Investigation of the Decoupled Hydrodynamic and Thermodynamic
Characteristics of an Oscillating Water Column and their Coupled Effect
under Irregular Sea Wave Excitation**

GD Gkikas, National Tech Univ of Athens, Greece

103. HYDRODYNAMICS XI: NWT 2; CFD (V. 3)

Wednesday July 3 16:20 Room 2

Chair: S Naito, Osaka Univ, Japan

**Basic Design of the Wave Basin Enclosed with Element Absorbing
Wave Makers**

E Okuyama, Akishima Labs, Mitsui Zosen; M Minoura, S Naito, Osaka
Univ, Japan

Focused Wave Optimization by Means of a Self-Correcting Method

H Fernández, S Schimmels, V Sriram, Leibniz Univ Hannover, Germany

**Numerical Simulation of Regular Wave Motion by Smoothed Particle
Hydrodynamic Method**

N Mei, Ocean Univ of China, China; H Lin, Iowa State Univ, USA

**Study on Internal Liquid Pressure of a Fully Filled Tank by
Computational Fluid Dynamics**

T Momoki, A Katashima, T Fukasawa, Osaka Prefecture Univ, Japan

**Numerical Simulation of Green Water Incidents based on Parallel
MPS Method**

YX Zhang, DC Wan, Shanghai Jiao Tong Univ, China

Numerical Simulation of Wave Impact Pressure Using SPH Schemes

S De Chowdhury, SA Sannasiraj, IIT Madras, India

CFD Modeling of Propeller Tip Vortex over Large Distances

BL Zhang, J Lou, CW Kang, Inst of High Performance Computing, Singapore; A Wilson, Rolls-Royce plc, UK; J Lundberg, U Svennberg, Rolls-Royce AB; R Bensow, Chalmers Univ of Tech, Sweden

A 3D Numerical Wave Tank Using the Level Set Method for the Calculation of Wave Propagation and Runup

H Bihs, A Kamath, OA Arntsen, NTNU, Norway

104. RENEWABLE ENERGY XII: Ocean Energy 1

OTEC & Emerging Energy (V. 1)

Wednesday July 3 16:20 Room 3

Chair: S Nagata, Saga Univ, Japan

OTEC Using Multi-stage Rankine Cycle

Y Ikegami, T Morisaki, Saga Univ, Japan

Experimental Study of Multi-heat Sourced Ocean Thermal Energy Conversion System

HJ Kim, HS Lee, YK Jung, YS Kim, JH Son, MOERI/KIOST, Korea

Molecular Design of Binding Organic Liquids (BOLs) for Acid Gas Separations

DJ Heldebrant, PK Koech, I Kutnyakov, MD Bearden, F Zheng, CJ Freeman, A Zwoster, Pacific Northwest National Laboratory, USA

Modeling Dependence between Wind and Wave in an Offshore Wind Turbine Site

M Norouzi, E Nikolaidis, Univ of Toledo, USA

Performance Characteristics of Seawater Heat Pump by Cooling Operation Mode

HS Lee, HJ Kim, DS Moon, MOERI/KIOST, Korea

Evaluation of Heat Exchange Rate for Different Types of Ground Heat Exchangers

SR Lee, S Yoon, GH Go, S Park, KAIST, Korea

Study on a Compound Cage Aquaculture System in an Open Sea

CC Huang, CH Chan, YP Chen, National Sun Yat-sen Univ, Taiwan, China

An Integrated Feasibility Study of an Anaerobic Digestion Plant Using Marine Biomass and Food Waste

K Kuroda, Y Keno, N Nakatani, K Otsuka, Osaka Prefecture Univ, Japan

105. OCEAN TECH VI: Bottom-Fixed Structures (V. 1)

Wednesday July 3 16:20 Room 4

Chair: L Boswell, Citi Univ London, UK

Co-Chair: VJ Kurian, Univ Teknologi PETRONAS, Malaysia

The Numerical Analysis of Wind Load for Jack-up Drilling Unit

Y Lin, AK Hu, W Jiang, Harbin Engineering Univ, China

Use of Friction Pendulum Bearings for Protection of Fixed Offshore Platforms against Seismic Impacts

OM Finagenov, Gazprom VNIIGAZ, Russia

Component, Joint and System Based Environmental Load Factor for Jacket Platforms in Malaysia

MM Abdul Wahab, VJ Kurian, Universiti Teknologi PETRONAS, Malaysia

Progressive Collapse Analysis of Offshore Jacket Platforms Based on Improved Alternative Path Method

H Lin, L Yang, China Univ of Petroleum Qingdao, China

Application of the Wave Based Method (WBM) for the Calculation of Structural Power Flow

N Yang, LY Chen, YF Zhang, Shanghai Jiao Tong Univ, China

Application of Profit-Based Approach for the Cost Estimation of the Ocean Engineering Facilities Design Works

M Korableva, Krylov State Research Centre, Russia

Yeosu Expo 2012 and Big-O Project

KY Park, SR Jung, CH Kim, Hyundai Engineering & Construction, Korea

Innovation Key Drivers in in Maritime Clusters

RA Pinto, B Andrade, Univ of Sao Paulo, Brazil

A Natural Model for Nonlinear Soil/Structure Interaction

RF Zueck, Naval Facilities Engineering Service Center, USA

106. HPM VIII: Advanced Materials & Offshore Structures 4

Wednesday July 3 16:20 Room 5
(V. 4)

Chair: N Osawa, Osaka Univ, Japan

Co-Chair: E Garcia, Tenaris Tamsa, Mexico

Thick YP420 MPa Grade Steel Plates with Excellent HAZ Toughness for Offshore Structures

M Kaneko, R Miyata, K Tashiro, H Imamura, S Shimoyama, T Tani, Kobe Steel, Japan

Effect of Crack Face Loading on Reference Stress for High Pressure Risers and Flowlines

M Cerkovnik, W Akhtar, 2H Offshore, USA

A Study on Design of Fillet Weldment for Longitudinal Stiffener in the Hull Bottom of FPSO

BG Kang, SB Shin, Hyundai Heavy Industries, Korea

Theoretical Investigation to Mitigate Buckling Distortion of Stiffened Panel Structures Assembled by Fillet Welding

JC Wang, S Rashed, H Murakawa, Osaka Univ, Japan

Burst Tests on SAWL 485 Line Pipes for Nord Stream

A Battistini, R Bruschi, SAIPEM, Italy; T Gjedrem, Nord Stream AG, Switzerland; S Zimmermann, Salzgitter Mannesmann Forschung, Germany

Detailed FEA Evaluation of CDF in Reeled Lined / Clad SCR in a BSR System

M Chiodo, J Gouveia, D Manso, G Carvalho, Subsea7, Brazil

Development of an ECA Methodology for Reeled Lined - Clad SCR in a BSR System

M Chiodo, J Gouveia, D Manso, G Carvalho, Subsea7, Brazil

Full and Small-Scale Simulation of Reeled Lined / Clad SCR in a BSR System

M Chiodo, J Gouveia, D Manso, G Carvalho, Subsea7, Brazil

107. COASTAL VI: Waves-Structures (V. 3)

Wednesday July 3 16:20 Room 6

Chair: E Loukogeorgaki, Aristotle Univ of Thessaloniki, Greece

Combined Strip Method on Ship Motions Moored at Arbitrary Bathymetry

S Sakakibara, Yokohama Rubber; Y Otake, M Yamaguchi, MOL Marine Consulting; M Kubo, Kobe Univ, Japan

Wave Height in Front of Plane and Perforate Wall by Oblique Wave

Ji Lee, Chonnam National Univ; YT Kim, Korea Inst of Construction Technology, Korea

Numerical Modeling of Wave Overtopping at Emerged and Overwashed Dykes

AN Raosa, B Zanuttigh, Univ of Bologna, Italy; J Lopez Lara, Univ of Cantabria, Spain

Evaluation of Vibration Characteristics of Caisson-Type Breakwater Using Impact Vibration Tests and Validation of Numerical Analysis Model

JH Yi, WS Park, KIOST; SY Lee, JT Kim, Pukyong National Univ; CK Seo, KEPCO E&C, Korea

Formula for Evaluating Suction Rate of Backfilling Materials from a Coastal Dike by Big Waves

M Ioroi, Y Yamamoto, Tokai Univ, Japan

Turbulent Flow of Combined Wave and Surge Overtopping over a Full Scale HPTRM Strengthened Levee

F Amini, L Li, SY Yuan, Jackson State Univ, USA

Run-Up Waves Damping and Hydraulics Characteristic with Cable-Tied Blocks

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

Development of Erosion Protection Eco Block for the Coastal Plant Complex

JW Lee, Korea Maritime Univ; SJ Kang, KeumSeok Construction; JS Kim, Korea Maritime Univ, Korea

Dynamic Responses of Sea Wall during Earthquakes

BF Chen, National Sun Yat-sen Univ, Taiwan, China

Dynamic Analysis and Vibration Reduction Control for Structure with MTMD under Wave Action

SY Chen, G Liu, HB Wu, TC Liu, China Highway Planning & Design Inst Consultants, China

108. SUBSEA-PIPELINES-RISERS-CABLE VIII:

Advanced Analysis 1 (V. 2)

Wednesday July 3 16:20 Room 7

Chair: AM Gresnigt, TU Delft, Netherlands

Nonlinear Mechanical Model for Dynamic Response of Stretched Mooring Line

LP Sun, G Ma, Harbin Engineering Univ, China

The Analysis of Out-of-Plane Motion of SCRs

J Liu, WP Huang, Ocean Univ of China, China

Dynamics of a Cantilevered Pipe Discharging Fluid with a Nozzle. Part 1: Non-Linear Equations of Three-Dimensional Motion

S Meng, H Kajiwara, Kyushu Univ, Japan

Dynamics of a Cantilevered Pipe Discharging Fluid with a Nozzle. Part 2: Three-Dimensional Dynamic Analysis and Parametric Study

S Meng, H Kajiwara, Kyushu Univ, Japan

A Pipe-Soil Interaction Model for Anti-Rolling Pipeline On-Bottom Stability on a Sloping Sandy Seabed

XT Han, FP Gao, Inst of Mechanics, CAS, China

Comparison of Several FE Models for PIP Pipeline Upheaval Buckling Simulation

XG Zeng, ML Duan, China Univ of Petroleum-Beijing; XY Che, Fudan Univ; SN Tan, China Univ of Petroleum-Beijing, China

109. GEOTECH VI: Ground Improvement (V. 1)
Wednesday July 3 16:20 Room 8

Chair: JQ Shang, Univ of Western Ontario, Canada

Application of Electroosmotic Chemical Treatment to Improve Soft Clay in Practice

CY Ou, National Taiwan Univ of Science & Tech; SC Chien, Aletheia Univ; PG Hsieh, HwaHsia Inst of Tech, Taiwan, China

Effects of the New Type Vacuum Consolidation on Shear Strength of Soft Soil

T Takahashi, H Oikawa, T Ogino, Akita Univ; M Tsushima, Akita National College of Tech, Japan

Assessment of Geotechnical Characteristics in Cement-Admixed Composite Clay

S Lee, MC Park, Univ of Seoul; JS Jeon, Induk Univ, Korea

A Fundamental Study on Cyclic Behaviors of Sand Improved by Chemical Grouting Method

T Sasaki, Kyokado Engineering; N Suemasa, Tokyo City Univ; S Shimada, T Oyama, Kyokado Engineering, Japan

Characteristics on the Chloride Attack Resistance of Geo-polymer Grout Using Quantitative and Qualitative Analysis

SJ Kim, KS Cha, Daewoo E&C; CY Lim, YS Jo, Ssangyong Cement, Korea

Study on Estimation of Quality and Strength of Soil-Cement Column Using Electrical Resistivity

MJ Arai, System Measure Co; M Fujii, YH Gao, Tokai Univ; T Fukaya, K Takechi, Japan Home Shield; Y Kubo, K Minagawa, System Measure Co, Japan

Isotropic Consolidation and Shear Characteristics of Fine Sand Improved by Microbial Carbonate Precipitation

M Tsukamoto, Kawasaki Geological Engineering; Y Inagaki, M Ishihara, T Sasaki, Public Works Research Inst; K Oda, Osaka Univ, Japan

110. TSUNAMI & SAFETY II: Generation & Propagation (V. 3)
Wednesday July 3 16:20 Room 9

Chair: T-R Wu, National Central Univ, Taiwan, China

Co-Chair: D Basu, Southwest Research Inst; USA

Tsunami and Safety in Arctic Region

K Lampela, Lamprotek Oy, Finland

Impulse Waves Generated by the Collapse of a Dry Granular Media

S Viroulet, IRPHE-Univ Marseille; O Kimmoun, Ecole Centrale Marseille, France

Fully Nonlinear Simulation of Tsunami Generation and Propagation by a Hybrid Approach

JH Wang, S Yan, QW Ma, City Univ London, UK

Edge Waves Landslide-Generated Tsunamis

A Romano, G Bellotti, Univ of Roma Tre; M Di Riscio, Univ of L'Aquila, Italy

[Development and Application of Ocean Hydrodynamics and Sediment Transport Model Using Non-Orthogonal Curvilinear Spherical Coordinate Technique to Simulate Tsunami Wave](#)
M Muin, A Wurjanto, Institut Teknologi Bandung, Indonesia

111. ARCTIC SCIENCE & TECH IV: Arctic Operations 1 (V. 1)
Wednesday July 3 16:20 Room 10

Chair: AT Bekker, Far Eastern Federal Univ, Russia
Co-Chair: J Su, Ocean Univ of China, China

[Shallow Water Effects on Ship Performance of a Full Ship in the NSR Navigation](#)

H Kitagawa, Ocean Policy Research Foundation, Japan

[A Tactical Hindcast Calibration Method for Sea Ice Drift Forecasting in the Canadian Beaufort Sea](#)

J Blunt, D Mitchell, D Matskevitch, A Younan, J Hamilton, ExxonMobil Upstream Research, USA

[Model Tests for Development of an Ice Route Optimization Tool](#)

D Ehle, P Hinse, Hamburg Ship Model Basin, Germany

[Problems and Perspectives of Container Transportations through Northern Sea Route of the Russian Federation](#)

NA Taranukha, AD Burmenskiy, SV Koshkin, Komsomolsk-na-Amure State Tech Univ, Russia

[Accidental Ice Management - Platform vs. Ice Breaking Supply Vessel Collision](#)

M Storheim, J Amdahl, NTNU, Norway

[Risk of Sea Spray Icing to Offshore Structures](#)

KF Jones, US Army Corps of Engineers; EL Andreas, NWRA, USA

[Strategy of non-Arctic Nations about the Development of Arctic Oil and Gas Resources](#)

JH Lee, HC Jang, Chonnam National Univ, Korea

THURSDAY 08:00

112. RENEWABLE ENERGY XIII: Ocean Energy 7
Tidal & Current 1 (V. 1)
Thursday July 4 08:00 Room 1

Chair: AJNA Sarmiento, Tech Univ of Lisbon, Portugal

[Vertical-Axis Tidal Stream Turbine of High Efficiency Utilizing the Blockage Effect with Supporting Circular Discs](#)

BS Hyun, JK Lee, Korea Maritime Univ; JY Jin, KIOST, Korea

[Characteristics of Twin-Darrieus Tidal Turbines in Kammon Strait](#)

K Hiraki, K Nishida, Y Nakazono, Y Suzuki, T Kanemoto, Kyushu Inst of Tech; K Yoshino, Kitakyushu National College of Tech, Japan

[Dynamic Response Analysis of Darrieus-Type Vertical Axis Water Turbines](#)

I Paraschivoiu, NV Dy, Ecole Polytechnique de Montreal, Canada; F Saeed, King Fahd Univ of Petroleum & Minerals, Saudi Arabia

[Analysis of a Relay Platform and the Anchor System for the Kuroshio Power Plant](#)

CH Chen, FL Chen, National Taiwan Univ, Taiwan, China

113. HYDRODYNAMICS XII: NWT 2; CFD (V. 3)
Thursday July 4 08:00 Room 2

Chair: S Naito, Osaka Univ, Japan
Co-Chair: A Baeten, HS Augsburg, Germany

Continue
HYDRODYNAMICS XI: NWT 2; CFD

114. RENEWABLE ENERGY XIV: Ocean Energy 2
Wave Energy 1 (V. 1)
Thursday July 4 08:00 Room 3

Chair: J Kofoed, Aalborg Univ, Denmark
Co-Chair: C-P Tsai, National Chung Hsing Univ, Taiwan, China

On the Vertical Motion of Water in the Chambers for Wave Energy Converter

K Hadano, Yamaguchi Univ; K Pallav, Saga Univ; K Taneura, CTI Engineering; K Ohgi, Yamaguchi Univ; T Ohnishi, Ministry of Land, Infrastructure, Transport & Tourism, Japan

Multiple Resonance Oscillating Water Column System for Wave Power Conversion - R/D Toward the Practical Application

K Kihara, Y Hosokawa, Mitsubishi Heavy Industry; Kanaya, Toa Co; Osawa, JAMSTEC; Shimosako, PARI; Masuda, Nihon Univ. T Setoguchi, Saga Univ, Japan

Hydrodynamic Characteristics of a Land-Based Oscillating Water Column for Various Pneumatic Chamber Conditions

WC Koo, JS Kwon, Univ of Ulsan, Korea

Study of the Efficiency of a Downward - Sloped Wave-Front Parallel Wave Energy Converter

MT MacNicoll, KP Thiagarajan, Univ of Maine; J Rohrer, Rohrer Technologies, USA

Validity of Orifices Used to Simulate the Turbine Effect in OWC Wave Energy Converters

KY Hong, SH Kim, SH Shin, YD Kim, JY Jin, MOERI/KIOST, Korea

115. OCEAN TECH VII: TLP and Semisubmersibles (V. 1)
Thursday July 4 08:00 Room 4

Chair: J-F Wu, ABS, USA
Co-Chair: J Jia, Aker Solutions, Norway

Design Evaluation of a Multi-Purpose Semi-Submersible in Hydrodynamic Aspects

YW Lee, Lloyd's Register; A Incecik, Univ of Strathclyde, UK; C Lang, Seaways Engineering, USA

Design and Hydrodynamic Analysis of a New Concept of ETLP

WP Huang, G Liu, B Xu, Ocean Univ of China, China

Coupled Analysis of a Semi-Submersible Platform with Two Types of Hybrid Mooring Systems

DS Qiao, JP Ou, Dalian Univ of Tech, China

Semi-Active Magneto-Rheological Damper to Reduce the Dynamic Response of a Tension-Leg Platform

HS Kang, MH Kim, Texas A&M Univ, USA; SS Bhat Aramanadka, Shell, Malaysia

Introduction of Hull Construction for Big Foot E-TLP

JH Song, GJ Kim, KS Lee, MS Kim, Daewoo Shipbldg & Marine Engineering, Korea

Numerical Simulation on TLP's Tendon Sudden Breaking Transient Impacts

Z Zhang, XY Zhang, FloaTEC, USA

Research on Subsea Well Casing Safety with Thermal Effects

BK Gao, XZ Han, China Univ of Petroleum Beijing, China

116. HPM IX: Composite Materials (V. 4)
Thursday July 4 10:30 Room 5

Chair: RH Knapp, Univ of Hawaii, USA
Co-Chair: HG Wheat, Univ of Texas, USA

Fundamental Study on Flexural Fracture Behavior of RC Beam Made of Ductile-Fiber-Reinforced Concrete Using Recycled Aggregate

K Watanabe, M Nakamura, Y Matsuki, Y Kidani, Y Yamada, M Fujii, Tokai Univ; JM Arai, System Measure Co, Japan

Study on Metal-Composite Material Selection Optimization for Structure Vibration Reduction

LY Chen, YF Zhang, N Yang, Shanghai Jiao Tong Univ, China

Mechanical Properties of Soil-Cement made with Vinylon Fiber

M Fujii, K Watanabe, Tokai Univ; K Shinagawa, Inst of Soil Exploration & Investigations Lasting; N Hagiwara, Tokai Univ; MJ Arai, System Measure Co, Japan

Durability of Reinforced Concrete Elements in Aggressive Environment

VV Belov, JSC "St-Petersburg Atomenergoproject; SE Nikitin, St. Petersburg State Polytech Univ, Russia

Glass-Metal-Composite - Structural Material Based on Glass

VV Pikul, Inst for Marine Tech Problems, FEB-RAS, Russia

Increasing of Concrete Strength Using Nanosilica Extracted from the Hydrothermal Solutions

VV Potapov, AN Kashutin, VA Gorbach, KS Shalaev, DS Gorev, Geotechnical Research Center, FEB-RAS; LV Kim, Far Eastern Federal Univ, Russia

The Enhancement of Interfacial Adhesion Strength of Bi-Materials of Aluminum/Carbon Fiber Composite with Micro and Nano Surface Morphological Modification

JJ Lee, WS Kim, JW Jeong, HC Kim, KAIST, Korea

Behavior of Hybrid Protruded Steel-to-Fiber Reinforced Polymer Joints

SE Mouring, US Naval Academy, USA; L Louca, R Brambleby, Imperial College London, UK

117. COASTAL VII: Harbor & Coast V. 3)
Thursday July 4 08:00 Room 6

Chair: N Mizutani, Nagoya Univ, Japan
Co-Chair: TV Karambas, Aristotle Univ of Thessaloniki, Greece

Numerical Modeling of Coastal Dredged Material Placement Study at Noyo Harbor, CA

LH Lin, HH Li, ME Brown, F Wu, LC Andes, USACE, USA

A Coastal Management Case Study in Karasu at Black Sea Region

Y Yuksel, I Tan, B Ayat, A Guner, B Aydogan, Yildiz Tech Univ; DZ Seker, Istanbul Tech Univ, Turkey

Shipping Scheduling Technique for Marine Construction Using Weather Forecasts

K Hasumi, K Ito, Y Oda, Taisei Corp, Japan

Backfill of Narrow Subsea Trenches: From Experiments to Simple Predictive Models to Advanced Numerical Models

RC Epstein, Subsea 7; S Draper, L Cheng, Univ of Western Australia, Australia

High Wind Speed Wind-Blown Sand Environment Induced by Winter Monsoon: An Investigation at Taichung Harbor in Taiwan Using LIDAR Data

CC Wen, Hungkuang Univ, Taiwan, China

Disastrous Geology Survey in Water Areas Based on Acoustic Strata Profile Technique

HM Tan, Hohai Univ, YL Huang, Inst of Earthquake Engineering Jiangsu Province; J Chen, Hohai Univ, China

Study on the Design of Old Harbor Reconstruct into Marinas

Z Qiu, ZA Lu, Hohai Univ, China

Impact of the Reclamation Engineering on the Evolution of Jiangsu Muddy Coast, China

J Chen, Hohai Univ, China

118. SUBSEA-PIPELINES-RISERS-CABLE IX:

Installation & Management (V. 2)

Thursday July 4 08:00 Room 7

Chair: J-F Wu, ABS, USA

Dynamic J-tube Riser Installation Simulation – from S-Lay Vessel to Platform

CY Fan, J Wang, P Jukes, MCS Kenny, USA

Ultra-Deep Water Buckle Arrestor Design and Fracture Assessment Considering S-lay Installation

SP Sawant, B Ozturk, A Chakraborty, P Jukes, MCS Kenny, USA

Engineering Critical Assessment of Pipeline under Axial Straining with Internal Pressure

T Sriskandarajah, DW Zhou, Subsea 7, UK

Evaluation of Ovality Induced by S-Lay Installation with Plastic Strains

AS Hansen, Petrobras, Brazil

Deep Water Installation Based on Fiber Rope Deployment Systems

P Teigen, Statoil; S Torben, P Ingeberg, Rolls-Royce, Norway

119. GEOTECH VII: Soil & Rock Mechanics (V. 1)

Thursday July 4 08:00 Room8

Chair: G Spagnoli, BAUER Maschinen, Germany

Effect of Infill Moisture Content and Thickness on Shear Behavior of Rough Rock Joints

TC Cheng, SG Chern, YT Lin, National Taiwan Ocean Univ, Taiwan, China

Behavior of Pore Water Pressure of Agricultural Reservoir According to Raising Embankment

YH Lee, Osaka Univ, Japan; DW Lee, Chungnam National Univ, Korea; K Tokida, Osaka Univ, Japan

An Experimental Study on Landslide Mechanisms in Three-Gorges Reservoir Area, China

XQ Luo, Shanghai Jiaotong Univ, China; JQ Shang, Y Guo, Univ of Western Ontario, Canada

3-D Seepage Analysis of Earth Dam - Case Study of Pao-Shan Second Reservoir in Taiwan

CH Tan, GS Wang, MS Tsay, YL Chang, HC Kao, Sinotech Engineering Consultants, Taiwan, China

Mechanical Behavior of Buried Rehabilitated Pipes Affected by Aging Pipes with Different Damage Level

K Ono, T Kawabata, Y Sonoda, Kobe Univ, Japan

Vulnerability Assessment of Rain-induced Shallow Landslide under Extreme Climate

CY Ku, LK Chien, CH Jhong, XW Huang, MQ Qiu, National Taiwan Ocean Univ, Taiwan, China

Design of a Post-lay Counterfill by 3D Finite Element Analyses

J Li, I Stava, PR Nystrom, IKM Ocean Design, Norway

The Study of Seismic Characteristics on Geosynthetic Reinforced Soil Embedment by Centrifuge Modeling

WY Hung, Taiwan Ocean Research Inst; CJ Lee, JH Hwang, National Central Univ, Taiwan, China

Failure Mechanisms of the Vertical Drop Structures in Weak Bedrock Channel

MW Huang, JJ Liao, YW Pan, National Chiao Tung Univ, Taiwan, China

A Soil Model Considering Dynamic Principal Stress Rotation

YM Yang, Univ of Nottingham Ningbo, China; HS Yu, Univ of Nottingham, UK

**120. TSUNAMI & SAFETY III:
Warning & Floating Structures (V. 3)**

Thursday July 4 08:00 Room 9

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

A Forecast System for Offshore Water Surface Elevation with Inundation Map Integrated for Tsunami Early Warning

GY Chen, National Sun Yat-sen Univ, Taiwan, China

Investigation on Spectral Ratio Modes of Tsunamigenic Signatures for Automated Reporting and Alert in the TRIDEC System of System for Early Tsunami Warning and Decision-Support

ZA Sabeur, B Arbab-Zavar, Univ of Southampton, UK; P Loewe, M Hammitzsch, GFZ Potsdam, Germany; A Armigliato, G Pagnoni, Univ of Bologna, Italy; R Omira, IPMA, Portugal; J Waechter, GFZ Potsdam, Germany; S Tinti, Univ of Bologna, Italy

The Evolution of Service-oriented Disaster Early Warning Systems in the TRIDEC Project

P Loewe, J Waechter, M Hammitzsch, M Lendholdt, R Haener, GFZ German Research Centre for Geosciences, Germany

Measurement of Sea-Shocks Response of a Sailing Ship in Japan

S Shiotani, K Sasa, N Wakabayashi, Kobe Univ; D Terada, National Research Inst of Fisheries Engineering, Japan

Development of Floating Tsunami Shelter with Mooring

H Mutsuda, M Kamata, S Fujii, Y Doi, Hiroshima Univ; T Fukuhara, Tsuneishi Shipbuilding, Japan

**121. ARCTIC SCIENCE & TECH V: Ice Mechanics & Loads 2
(V. 1)**

Thursday July 4 08:00 Room 10

Chair: R Frederking, National Research Council, Canada
Co-Chair: TE Uvarova, Far Eastern Federal Univ, Russia

Nuclear Magnetic Resonance Study of Sea Water Freezing
NA Melnichenko, Far Eastern Federal Univ, Russia

Development of the Eco-Friendly Model Ice Applying at Ice Tank
JH Kim, STX Offshore & Shipbldg; KS Choi, Korea Maritime Univ, Korea

Thermodynamics on Pancake Ice Growth in a Sea Ice-Wave Tank
T Ogasawara, A Ogasawara, S Sakai, Iwate Univ, Japan

Influence of Peculiarities of the Form of a Submarine Vessel on the Efficiency of the Resonant Method of Breaking Ice Cover
VL Zemlyak, Sholom-Aleichem Priamursky State Univ; AV Pogorelova, VM Kozin, Inst of Machine Science & Metallurgy, Russia

A Bobsleigh Ice Friction Model
EP Lozowski, Univ of Alberta, Canada

Ice Sample Production Techniques and Indentation Tests for Laboratory Experiments Simulating Ship Collisions with Ice [Proceedings only]
SE Bruneau, Memorial Univ of Newfoundland, Canada; AK Dillenburger, S Ritter, Univ of Duisburg-Essen, Germany

THURSDAY 10:30

122. RENEWABLE ENERGY XV: Offshore Ocean Energy 8
Tidal & Current 2 (V. 1)

Thursday July 4 10:30 Room 1

Chair: BS Hyun, Korea Maritime Univ, Korea

Simulation of Fluid-Structure-Interaction on Tidal Current Turbines Based on Coupled Multibody and CFD Methods
M Arnold, PW Cheng, Univ of Stuttgart, Germany

Off-Design Condition Performance Predictions for a Horizontal Axis Tidal Stream Turbine
SW Park, SH Park, SH Rhee, Seoul National Univ, Korea

Numerical Simulations on Performance of Hydropower Turbine in a Duct for the System Utilizing Tidal Jet Generator
SM Jeong, JC Park, HS Lee, JK Lee, Pusan National Univ; YJ Cho, Dong-Eui Univ, Korea

Experimental and Numerical Investigations into an Ocean Current Induced Rotating Magnetic Field Electric Generator
N Mei, L Wang, L Song, Ocean Univ of China, China

Study of Tidal Stream Electricity Generation for Obatake Strait
S Shimizu, M Fujii, E Koga, Oshima National College of Maritime Tech; K Sasa, Kobe Univ; Y Kimura, H Kitakaze, Oshima National College of Maritime Tech, Japan

Deep Ocean Tidal Turbine to Replace Battery Packs in Undersea Sensors
Y Saadat, R Ghorbani, A Samimi, Univ of Hawaii, USA

Tidal Power Generation Plan with Reduced Environmental Impact
BS Shin, KH Kim, Kwandong Univ, Korea

123. HYDRODYNAMICS XIII: NWT 3; CFD (V. 3)
Thursday July 4 10:30 Room 2

Chair: M Minoura, Osaka University, Japan

Evaluation of Hydrodynamic Efficiency of an OWC Device through CFD Simulation

AM Kamath, H Bihs, OA Arntsen, NTNU, Norway

CFD Simulation of Violent Free Surface Flows by a Coupled Level-set and Volume of Fluid Method

HC Chen, YC Zhao, Texas A&M Univ, USA

Surface Flux of Natural Gas Resulting from Subsea Releases Estimated Using CFD

P Skjetne, JE Olsen, SINTEF Materials and Chemistry, Norway

Validation Studies of a Single-Phase Method for Free Surface Flow Computations

H Peng, SY Ni, Memorial Univ of Newfoundland, Canada

On the Steady-State Class-I Bragg Resonance

SJ Liao, DL Xu, ZL Lin, Shanghai Jiao Tong Univ, China

Numerical Simulations of Waves Generation due to Body Motion near Free Surface

JF Wang, DC Wan, RZ Zou, Shanghai Jiao Tong Univ, China

Aspects of the Mean Surge Drift Force for Single Point Moored Vessels

F-CW Hanssen, Moss Maritime, Norway; R Bruschi, Saipem SpA, Italy;

E Pettersen, Moss Maritime, Norway

Dynamics of Moored Vessels in Waves: Methods of Physical Simulation

AA Kuznetsov, BK Igor, MN Bogdanov, BN Smirnov, Krylov Shipbldg Research Inst, Russia

124. RENEWABLE ENERGY XVI; Ocean Energy 3

Wave Energy 2 (V. 1)

Thursday July4 10:30 Room 3

Chair: SW Hong, MOERI/KIOST, Korea

Co-Chair: SE Mouring, US Naval Academy, USA;

Numerical Modeling of a Floating-Pitching Wave Energy Conversion System

YH Yu, Y Li, R Thresher, National Renewable Energy Laboratory, USA

Study on Wave Energy Generation of Multi Bodies for Energy Absorption

YW Lee, KM Li, P Nanjundan, YH Choi, Pukyong National Univ, Korea

Structural Behavior of the Floating Type Wave Energy Converter under Wave Loadings

JM Sohn, BW Nam, HJ Cheon, JY Park, SH Shin, KY Hong, Korea Inst of Ocean Science & Tech, Korea

Wave Energy Converter Design Tool for Point Absorbers with Arbitrary Device Geometry

K Ruehl, Sandia National Laboratories; R Paasch, TKA Brekken, B Bosma, Oregon State Univ, USA

Effect of Motion Damping Structure on Performance and Motion of Floating Wave Energy Converter

JY Park, SH Shin, BW Nam, KY Hong, MOERI/KIOST, Korea

Study of Structural Safety Improvement for Floating Pendulum Wave Energy Converter's Primary Transduction System

HJ Cheon, SH Shin, JM Sohn, BW Nam, JY Park, KY Hong, MOERI/KIOST, Korea

Model Tests and Numerical Analysis on Conversion Efficiency of Floating Pendular Wave Energy Converter

K Toyota, S Nagata, Y Imai, T Setoguchi, Saga Univ, Japan

125. OCEAN TECH VIII: FPS, FPSO & SPAR 1 (V. 1)
Thursday July 4 10:30 Room 4

Chair: AS Duggal, SOFEC, USA

Keynote

FLNG: Market Trend and Technical Challenges

MK Ha, Samsung Heavy Industries, Korea

Wave Chamber of Ultra Large Floating System

JH Liu, Offshore Oil Engineering, China

Monitoring the Response of Connected Moored Floating Modules

CE Michailides, E Loukogeorgaki, DC Angelides, Aristotle Univ of Thessaloniki, Greece

A Simplified Design Procedure for VLFs Using Hydroelastic Design Contours

PS Lee, JG Kim, SP Cho, KT Kim, Korea Advanced Inst of Science & Tech; GS Zi, Korea Univ, Korea

Estimation of Modal Properties for Moored Offshore Structures: A Parametric Approach

E Yazid, MS Liew, S Parman, VJ Kurian, CY Ng, Universiti Teknologi PETRONAS, Malaysia

Empirical Estimation of Probability Distribution of Extreme Responses of Turret Moored FPSOs

AH Izadparast, A Duggal, SOFEC, USA

Preliminary Results of Global Performance Evaluation of a FPSO Designed for Mexican GoM

AOV Hernandez, IMP, Mexico; HG Sung, KIOST, Korea; J Hernandez, IMP, Mexico; SK Cho, KIOST, Korea; OV Molina, IMP, Mexico; KY Hong, KIOST, Korea

126. HPM X: Arctic Materials I (V. 4)
Thursday July 4 08:00 Room 5

Chair: OM Akselsen, SINTEF, Norway

European and Russian Metals for Arctic Offshore Structures

P Kah, P Layus, J Martikainen, M Prinen, Lappeenranta Univ of Tech, Finland

Elastomeric Materials for Harsh Arctic Environments

R Diaz, Trelleborg Offshore Norway AS, Norway

Advanced Welding Technologies for HSS-Arctic-Structures

OO Aderinola, J Martikainen, Lappeenranta Univ of Tech, Finland

Reeling Installation of Rigid Steel Pipelines at Low Temperature

E Heier, Technip Norway; E Østby, SINTEF; OM Akselsen, NTNU, Norway

Challenges in Application of Steel Castings in Cold Climate Regions

HTS Jørgensen, Scana Steel Stavanger; E Østby, OM Akselsen, SINTEF Materials and Chemistry, Norway

Strain Rate Hardening of Marine Structural Steels under Colder Climate Environment

SH Shim, JY Lee, MY Noh, SW Im, RIST; JM Choung, Inha Univ, Korea

Cryogenic Pressure Cycle Testing of Composite Vessels
TK DeLay, Cimarron Composites, USA

FE Simulation of Hydrogen Diffusion in a Duplex Stainless Steel - Influence of Phase Shape and Size and Embedded Defects
V Olden, SINTEF; OM Akselsen, NTNU, Norway

127. COASTAL VIII: Tide & Current V. 3)
Thursday July 4 10:30 Room 6

Chair: S Kabdasli, Istanbul Tech Univ, Turkey

The Simulation of the Tide in the Red Sea and the Gulf of Aden
JC Zuo, YQ Yang, J Li, J Sun, W Tan, Hohai Univ, China

Vertical Structure of the Tidal Current in the Taizhou Bay Adjacent Sea
M Zhang, JC Zuo, Hohai Univ; SH Shi, Fujian Marine Environmental Monitoring Center; Q Lu, J Li, Hohai Univ, China

Numerical Study of Wave-Current Coupling Action on Bridge Structure
TC Liu, G Liu, SY Cheng, HB Wu, CCCC Highway Consultants, China

Annual Variations of Yangtze Estuarine Upwelling and Its Response to ENSO
WY Zhang, Z Gong, CK Zhang, W Tan, Hohai Univ, China

A Study on Effect of Discharge of Anthropogenic Heat from Sea Bottom Layer on Temperature Structure of Enclosed Bay
T Shigematsu, Osaka City Univ; M Maekawa, Hitachi Zosen, Japan

Analytical Investigation of the Flow Induced by Lifting a Large Object from a Porous Seabed
MY Lin, Chung Yuan Christian Univ; HM Huang, LH Huang, National Taiwan Univ, Taiwan, China

Design of Optimal Buoy Type GPS Drifter for Rip Current Measurements at Haeundae Beach
JY Lee, BM Yang, Sungkyunkwan Univ; IC Kim, Dongseo Univ; JL Lee, Sungkyunkwan Univ, Korea

In-Site Measurements of Turbulence over Algal Reef
ZC Huang, National Central Univ; WT Tsai, National Taiwan Univ, Taiwan, China

**128. SUBSEA-PIPELINES-RISERS-CABLE X:
Advanced Analysis 2 (V. 2)**
Thursday July 4 10:30 Room 7

Chair: M Duan, China Univ of Petroleum - Beijing, China

A Rigid Connection for Macro-Elements with Different Node Displacement Natures
R Provasi, CA Martins, Univ of Sao Paulo, Brazil

A Contact Element for Macro-Elements with Different Node Displacement Natures
R Provasi, CA Martins, Univ of Sao Paulo, Brazil

Dynamic Analysis of Marine Drilling Riser for Deepwater Environment
YJ Kim, NS Woo, JK Kwon, Korea Inst of Geoscience & Mineral Resources; SS Kim, Gyeongsang National Univ; SW Yun, BW Kim, Samsung Heavy Industries, Korea

Prediction of Scaled-Model Riser Motions Through the Application of a Shape Filtering Technique

F Trigo, Univ of Sao Paulo; AT Fleury, Centro Univ Fundagco de Ensino Inaciano; FPR Martins, Univ of Sao Paulo, Brazil

Tension and Expansion Analysis of Pipe-in-Pipe Risers: Part A - Theoretical Formulation

KC Man, B Yue, A Szucs, R Thethi, 2H Offshore, USA

Tension and Expansion Analysis of Pipe-in-Pipe Risers: Part B, Finite Element Modeling

B Yue, KC Man, D Walters, 2H Offshore, USA

129. GEOTECH VIII: Soil Properties 1 (V. 1)
Thursday July 4 10:30 Room 8

Chair: SS Kim, Land & Housing Inst, Korea

Co-Chair: TMH Le, NTNU, Norway

Loading Rate Effects on the Stress-Strain Responses of Frozen Soils

WJ Cho, DH Chae, MY Oh, HY Lee, Dankook Univ, Korea

Shear Strength Characteristics of Artificial Lightweight Material in Freezing and Thawing Test

M Tsushima, Akita National College of Tech; K Sawano, S Kikuchi, H Nagai, Nexco-Engineering Tohoku; H Oikawa, Akita Univ, Japan

Effects of Crushed Diatom Microfossils Content on Physical Properties of Japanese Clays

M Tanaka, Y Watabe, Port and Airport Research Inst; R Tomita, Koa Kaihatsu Co, Japan

Undrained Cyclic Behaviour of Dense Frederikshavn Sand

SK Nielsen, LB Ibsen, Aalborg Univ; KW Sørensen, DONG Energy Wind Power; A Shajarati, Rambøll, Denmark

Evaluation of Elastic Wave Velocities in Lunar Soil Simulant Using Bender Elements

T Ogino, T Takahashi, Akita Univ; T Kobayashi, Fukui Univ; H Kanamori, Shimiz Corp; H Oikawa, Akita Univ, Japan

Improving Estimation of *In-situ* Dynamic Strength Properties of Sands

T Shogaki, T Yoshizu, National Defense Academy, Japan

Sample Disturbance Caused by Tube Penetration

T Shogaki, T Yoshizu, National Defense Academy, Japan

Capacitance-Type Sensor for Monitoring of Cavitation in Coastal Soil Structures

K Ueno, Univ of Tokushima; T Takahara, Kanazawa Univ; H Suzuki, R Uzuoka, Univ of Tokushima, Japan

130. TSUNAMI & SAFETY IV
Structures & Sediment Transport (V. 3)
Thursday July 4 10:30 Room 9

Chair: N Goseberg, Leibniz Univ Hannover, Germany

Experimental Run-Up Determination of Single Sinusoidal, Solitary and N-Waves

N Goseberg, Leibniz Univ Hannover, Germany

Flow Fields of Tsunamis Passing on Rubble Mound Breakwaters

T Sakakiyama, Central Research Inst of Electric Power Industry, Japan

Three-Dimensional Simulation on the Developing of Local Scour Induced by Tsunamis

TR Wu, YM Ko, MH Chuang, CY Wang, CR Chu, National Central Univ, Taiwan, China

Sediment Transport Calculation Considering Unresolved Scales of Turbulence and its Application to Local Scouring due to Tsunami Run-Up

T Nakamura, N Mizutani, Nagoya Univ, Japan

Numerical Analysis of the Tsunami-Induced Drift Behavior of a Shipping Container and the Effectiveness of its Countermeasures

T Nakamura, N Mizutani, Nagoya Univ; K Aoyama, Nagoya Railroad Co, Japan

Columns in Reinforced Concrete Buildings Impacted by Tsunami Water-Borne Shipping Containers

KM Madurapperuma, AC Wijeyewickrema, Tokyo Inst of Tech, Japan

Fundamental Study of Tracking Simulation of Large- and Middle-scale Drifting Objects in the North Pacific: Leeway Effect

Y Shimada, Kobe Univ, Japan

131. ARCTIC SCIENCE & TECH VI: Arctic Vessels & Structures 2

(V. 1)

Thursday July 4 10:30 Room 10

Chair: H Kitagawa, Ocean Policy Research Foundation, Japan

Co-Chair: J Hutchings, Univ of Alaska Fairbanks, USA

Dynamic Response of a Submerged Buoy Disconnected at Large Vessel Offsets [Oral presentation]

V Srivastava, B Campbell, T Kokkinis, ExxonMobil Upstream Research, USA; V Aanesland, National Oilwell Varco, Norway

Model Tests for Determination of Ship Resistance in Level Ice under Lateral Pressure

P Hinse, D Ehle, Hamburg Ship Model Basin, Germany

Resistance Test Simulation of Arctic Cargo Tank Vessel Using FSI Analysis Technique

SG Lee, T Chau, Korea Maritime Univ; GS Kim, YS Jang, KD Park, Hyundai Heavy Industries, Korea

Evaluation of the Performance of a Close-Mooring System in Ice [Oral presentation]

M Sayed, I Kubat, National Research Council; A Lyerusalimskiy, ConocoPhillips, Canada

THURSDAY 14:00

132. RENEWABLE ENERGY XVII

Ocean Energy Panel

Thursday July 4 14:00 Room 1

Chair: AJNA. Sarmiento, IST, UTL, Portugal

Co-Chair: SW Hong, MOERI/KIOST, Korea

Details to be announced

133. HYDRODYNAMICS XIV: NWT 4; CFD Floating Body 1

(V. 3)

Thursday July 4 14:00 Room 2

Chair: T Mathai, The Glosten Assoc, USA

Co-Chair: V Sriram, Leibniz Univ Hannover, Germany

Floating Body in Wave Current Simulation Using a Finite Particle Approach

A Baeten, S Barm, JK Dorsch, L Gottfried, J Rotter, HS Augsburg, Germany

Nonlinear Free Surface and Body Interaction Computations Using Rankine Source Method

AC Feng, ZM Chen, Univ of Southampton Univ, UK

Simulation of Floating Body by Vortex Method

S Okubo, S nagata, Y Imai, Saga Univ; H Niizato, Hitachi Zosen, Japan

3D Numerical Analysis on Flow Process of Floating-oil Recovery Device by MHD Method

C Ye, LZ Zhao, Y Peng, YJ Liu, Inst of Electrical Engineering, CAS, China

An Unstructured Grid Method for Free Surface Turbulence Flow in Ship Hydrodynamics

JT Huang, Canada

134. RENEWABLE ENERGY XVIII: Ocean Energy 4

Wave Energy 3 (V. 1)

Thursday July 4 14:00 Room 3

Chair: KY Hong, MOERI/KIOST, Korea

Design and Testing of a Wave Energy Conversion System

SE Mouring, W Beaver, A Paulmeno, US Naval Academy, USA

The Characteristics of Wave Impacts on a Oscillating Wave Surge Converter

A Henry, J Nicholson, Aquamarine Power; P Schmitt, Queen's Univ of Belfast, UK; A Rafiee, YJ Wei, University College Dublin, Ireland; S Bourdier, Queen's Univ of Belfast, UK; F Dias, University College Dublin, Ireland; T Whittaker, Queen's Univ of Belfast, UK

Optimum Control of Large Amplitude Low Frequency (LALF) Wave Energy Converter System

GJ Chen, JM Yang, LF Xiao, Shanghai Jiao Tong Univ, China

Sub-optimal Feedback-Feedforward Active Control of a Heaving Wave Absorber

AH Clément, R Genest, F Rongère, Ecole Centrale de Nantes, France

The Effect of Collecting Waves by the Overtopping-Wave Type of Wave-Power Generation

M Minami, Hachinohe National College of Tech; H Tanaka, Tokai Univ, Japan

Study on Characteristic of Wave Run-up Heights and Overtopping Wave Quantity to Develop Wave Overtopping Type Wave-Power Devices

H Tanaka, N Nikawadori, O Yamanashi, T Inami, M Yodokawa, Tokai Univ, Japan

Development of Wave Overtopping Type Wave Power Generation Devices [Proceedings only]

H Tanaka, M Yodokawa, N Nikawadori, O Yamanashi, Tokai Univ, Japan

135. OCEAN TECH IX: FPS, FPSO & SPAR 2 (V. 1)

Thursday July 4 14:00 Room 4

Chair: BF Peng, J Ray McDermott, USA

Coupled Analysis and Robust Optimisation of Moored Vessel and Riser System

II Ikan, F Kara, Cranfield Univ, UK

Integrating Coupled Analysis of Moored Floating Vessel and Risers with Robust Optimization Methodology

IM Ikan, II Maxwell, Cranfield Univ, UK

Study of the Behaviour of Turret Moored Floating Body

SK Cho, HG Sung, SY Hong, MOERI/KIOST; HS Choi, Seoul National Univ, Korea

Dynamic Responses of Truss Spar Platforms Subjected to Short-crested Waves

VJ Kurian, CY Ng, MS Liew, Universiti Teknologi PETRONAS, Malaysia

Scale Model Experiments of the SPAR-Type Floating Offshore Platform

SP Hong, HH Chun, CM Lee, IW Lee, SH Park, Pusan National Univ, Korea

Numerical Investigations of Incoming Wave and Current Directions on SPAR Motions

GC Xu, Harbin Engineering Univ, China; QW Ma, City Univ London, UK; S Ma, LP Sun, Harbin Engineering Univ, China

Seabed-Mooring Line Interaction Effect on Fully-Coupled Spar Platform in Deep Water

ABM Saiful Islam, M Jameel, MZ Junaat, Univ of Malaya, Malaysia

136. HPM XI Arctic Materials 2 (V. 4)

Thursday July 4 14:00 Room 5

Chair: E Østby, SINTEF, Norway

Simulation of Hydrogen Diffusion in a Part-Size Sleeve-on-Pipe Mock-Up for Remote Pipeline Repair Welding

D Lindhom, HG Fjar, Inst for Energy Technology, Norway; N Woodward, Isotek Oil & Gas, UK

Properties of Laser Hybrid Butt Welds of 420 MPa Steel

OM Akselsen, E Østby, SINTEF, Norway; A Kaplan, Lelee Univ of Tech, Sweden

Monitoring of Cleavage Microcrack Arrest in Weld Thermal Simulated Microstructures by Means of Acoustic Emission

E Østby, OM Akselsen, TA Kristensen, SINTEF Materials and Chemistry, Norway

The Effect of Weld Residual Stress on Critical CTOD to Brittle Fracture at Lower Shelf Temperature

T Sakimoto, S Igi, K Oi, S Suzuki, JFE Steel, Japan; E Østby, SINTEF, Norway

Fracture Integrity of Arctic Structures - Determination of Characteristic Fracture Toughness for Engineering Critical Assessment

M Hauge, Statoil; E Østby, SINTEF, Norway

Fracture Mechanics Design Criteria for Low Temperature Applications of Steel Weldments

E Østby, SINTEF; M Hauge, Statoil; AM Horn, Det Norske Veritas; OM Akselsen, SINTEF, Norway

137. COASTAL IX: Beach Erosion (V. 3)

Thursday July 4 14:00 Room 6

Chair: JH Zheng, Hohai Univ, China

Application of Support Vector Machines Model to Predict Wave-induced Scour Depth around Pile Groups

S Ghazafari Hashemi, T Hiraishi, Kyoto Univ, Japan

Experimental Study on the Stability of the Weifang Artificial Beach, China

MX Xie, Tianjin Research Inst for Water Transport Engineering, China

Observational Study of Morphodynamics of Sandy Beaches along the Coast of Tonggu Hill, Northeastern Hainan Island of China

XM Ji, Hohai Univ; YZ Zhang, Nanjing Univ, China; JY Sheng, Dalhousie Univ, Canada

Examination of Coastal Erosion Prevention in the Back of the Gulf of Thailand

Y Yamamoto, Tokai Univ, Japan; N Charusrojanadech, P Rattanarama, King Mongkut's Inst of Tech, Thailand

Soft Countermeasure Study on Mitigation the Erosion Problem of Wai-San-Ding Barrier Island

LA Kuo, RY Yang, YH Chang, HH Hwung, National Cheng Kung Univ, Taiwan, China

Correlation Analysis between Rip Current Generation and Surf-Zone Morphological Variation: A Field Study at Haeundae Beach, Korea

JY Lee, BM Yang, JL Lee, Sungkyunkwan Univ, Korea

A Study on Sediment Transport and Shoreline Change at Enshu Coast, Japan

HX Le, S Kato, Toyohashi Univ of Tech, Japan; M Larson, H Hanson, Lund Univ, Sweden

Numerical Simulations of Sandbar Evolution by Tidal Current Effect

YC Chiang, Tzu Chu Univ; SS Hsiao, National Taiwan Ocean Univ; MC Lin, National Taiwan Univ; HM Fang, HY Wang, National Taiwan Ocean Univ, Taiwan, China

Study on Seabed Erosion and Deposition Considering the Sediment-Carrying Capacity of Bed Shear Force

B Li, SH Zuo, Tianjin Research Inst of Water Transport Engineering, China

CFD Simulation of Scouring in Front of a Breakwater Head by FLOW-3D

IF Lin, IF Tseng, YC Liao, KS Fu, CP Lee, National Sun Yat-sen Univ, Taiwan, China

Erosion of Kuakata Beach and Its Protection by Beach Nourishment

MC Mitra, Univ of Texas at San Antonio, USA

138. SUBSEA-PIPELINES-RISERS-CABLE XI:

Tests & Monitoring (V. 2)

Thursday July 4 14:00 Room 7

Chair: BJ. Buckham, Univ of Victoria, Canada

Co-Chair: FR Frade, Petrobras, Brazil

Local Buckling of Spirally Welded Tubes – Analysis of Imperfections and Physical Testing

SHJ van Es, AM Gresnigt, MH Kolstein, FSK Bijlaard, Delft Univ of Tech, Netherlands

The Experiment for Buried Flexible Pipe Supported by Non-Uniform Bedding

H Asao, T Kawabata, Y Sonoda, Kobe Univ; H Morikami, H Nakashima, Kinki Regional Agricultural Admin Office, Japan

Experimental Study on Damping Characteristics of Pipe Vibration in Liquefied Silt

JJ Pu, Qingdao Prospecting & Surveying Research Inst; JS Xu, GX Li, Ocean Univ of China, China

Verification of AHRS for High Speed UUV in Unstable Launch Condition Using HILS

YW Lim, MH Kim, SW Park, SY Lee, LIGNex1, Korea

Pipe-Clay Seabed Interaction of Offshore Pipelines under Axial Movements Using PIV

M Senthilkumar, P Rajeev, DJ Robert, J Kodikara, Monash Univ, Australia

139. GEOTECH IX: Soil Properties 1 (V. 1)
Thursday July 4 14:00 Room 8

Chair: SJ Han, Expert Group for Earth & Environment, Korea

Continue 129. GEOTECH VIII

140. TSUNAMI & SAFETY V
Risk Assessment (V. 3)
Thursday July 4 14:00 Room 9

Chair: RY Yang, National Cheng Kung Univ, Taiwan, China
Co-Chair: H Mutsuda, Hiroshima Univ, Japan

Tsunami Risk Assessment in Taiwan after the Event of 2011 Tohoku Tsunami

TR Wu, National Central Univ, Taiwan, China

Coastal Inundation of Southern Taiwan Induced by Tsunami Originating from Manila Trench

WC Yang, CC Wu, WS Chiang, YT Cu, CC Kao, Taiwan Ocean Research Inst, Taiwan, China

Earthquake Induced Tsunami Vulnerability Assessment for Coastal Urban Areas in Northern Taiwan

JL Chen, Ministry of the Interior; CY Ku, TH Hsieh, MC Chiu, National Taiwan Ocean Univ, Taiwan, China

Hazard Map with Probable Maximum Tsunamis

YS Cho, JW Lee, Hanyang Univ, Korea

Meeting UNESCO-IOC ICG/NEAMTWS Requirements and Beyond with TRIDEC's Crisis Management Demonstrator for Tsunamis

M Hammitzsch, GFZ German Research Centre for Geosciences, Germany; F Carrilho, IPMA, Portugal; O Necmioglu, KOREI, Turkey; M Lendholt, S. Reiland, J Schulz, GFZ, Germany; R Omira, IPMA, Portugal; M Comoglu, NM Ozel, KOERI, Turkey; J Wächter, GFZ, Germany

The Relationship between the Sea Surface Temperature Variability within the Southwest Atlantic Ocean and Multivariate ENSO Index

YC Hsu, YC Liao, KH Fu, IF Tseng, CP Lee, National Sun Yat-sen Univ, Taiwan, China

141. ARCTIC SCIENCE & TECH VII: Arctic Operations 2 (V. 1)
Thursday July 4 14:00 Room 10

Chair: M Bjerkas, Reinertsen AS, Norway
Co-Chair: J-H Kim, STX Offshore, Korea

Numerical Simulation of Frost Heave in Arctic Pipelines

BA Abdalla, J P Kenny; JF Xu, MCS Kenny, USA; C McKinnon, JP P Kenny, UK; V Gaffard, H Audibert, E Coche, N Hoteit, Total SA, France

Safety of Ships Navigation in Ice and Operational Effectiveness

VA Kulesh, OA Sergey, VV Michael, Maritime State Univ, Russia

Difference of Electromagnetic Wave Radar Reflection Image Due to Presence or Absence of Internal Deformations in RC Open Channel

M Suto, H Ogata, M Hyodo, Tottori Univ; A Ishigami, S Sato, T Kaneta, Civil Engineering Research Inst for Cold Region; R Takata, Matsue College of Tech, Japan

Current Situation and Development Trend of Arctic Drilling Equipments

GD Ji, HG Wang, LB Wang, M Cui, L Liu, Drilling Research Inst, CNPC, China

Knowledge of Arctic and Unmanned Aerial Vehicles

SG De Silva, EQUQUERA, Canada

Simulation Modeling of Marine Transport systems Operating in Ice Conditions

MS Kosmin, OV Tarovik, Krylov State Research Centre, Russia

THURSDAY 16:20

142. RENEWABLE ENERGY XIX:

Wind Energy Panel

Thursday July 4 16:20 Room 1

Chair: F Vorpahl, Fraunhofer-IWES, Germany

Details to be announced

143. SUBSEA-PIPELINES-RISERS-CABLE XIII:

Flexibles & Umbilicals (V. 2)

Thursday July 4 16:20 Room 2

Chair: P Jukes, MCS Kenny, USA

Flexible Pipe On-Seabed Stability, Upheaval Buckling and Hub Protection Methods

RH Kirkvik, Kongsberg Oil & Gas Technologies, Norway

The Study of the Re-arrangement of Flexible Risers

SH Hao, XF Li, Y Zheng, Offshore Oil Engineering, China

Structural Analysis of Umbilical Cables Based on Finite Element Method

QZ Lu, J Yan, QJ Yue, Dalian Univ of Tech, China

Thermal Analysis of Flexible Pipe Barrier Extrusion Cooling Process

YG Chen, J Liu, J Zhao, Wellstream Flexibles – GE Oil & Gas, UK; ZM Tan, Wellstream Flexibles – GE Oil & Gas, USA; T Sheldrake, Wellstream Flexibles – GE Oil & Gas, UK

A Nonlinear Analytical Model for Flexible Risers Subjected to Axisymmetric Loads

R Ramos Jr, CP Pesce, Univ of Sao Paulo; RL Tanaka, Prysmian Surfex, Brazil

Parametric Design of Cables

RH Knapp, Univ of Hawaii, USA

[Efficient Global Nonlinear Dynamic Analysis of Flexible Risers with 3D Models and Direct Stress Recovery in Each Layer](#) A Majed, S Bhat, M Dib, P Cooper, INTECSEA, USA

144. RENEWABLE ENERGY XX: Ocean Energy 5

Wave Energy 4 (V. 1)

Thursday July 4 16:20 Room 3

Chair: R Waid, Marine Development Associates, USA

[The Theoretical and Experimental Investigation into an Ocean Wave Powered Piezoelectric Vibration Generator](#)

N Mei, L Wang, Y Li, XY Yan, L Song, Ocean Univ of China, China

[Wave-energy Absorption by Electric-power Generator Rotating on Interior Circular Surface of an Asymmetric Floating Body](#)

M Kashiwagi, S Nishimatsu, Osaka Univ, Japan

[Evaluation of WEC Power Production at Secondary Sites Based on Real Sea Measurements - Methodology and a Case](#)

JP Kofoed, A Pecher, K Nielsen, MM Kramer, Aalborg Univ, Denmark

[To Study Functions of a Wave Energy Farm for Coastal Zone Environmental Problems](#)

JS Park, JL Lee, Sungkyunkwan Univ; JS Park, Korea Inst of Ocean Science & Tech, Korea

145. OCEAN TECH X: FLNG and FSRU (V. 1)

Thursday July 4 16:20 Room 4

Chair: HG Sung, MOERI/KIOST, Korea

Co-Chair: AH Izadparast, SOFEC, USA

[Dynamic Coupled Multi-Body Analysis of FSRU and Mooring System](#)

BW Kim, SY Hong, HG Sung, SW Hong, MOERI/KIOST, Korea

[Development of 270K CBM LNG FEGaSuS](#)

JL Lee, WJ Choi, JW Jung, STX Offshore & Shipbldg, Korea

[A Development of Docking Aid and Tightening System for FSRU and LNGC](#)

YJ Kim, YJ Cho, Korea Inst of Industrial Tech; KS Kim, SG Lee, Jisystem.com; GH Pyo, JS Woo, DSME E&R; DH Kim, IS Technologies; JI Lee, STX Offshore & Shipbldg, Korea

[Introduction of Structural Design and Construction of FLNG](#)

SW Lee, YM Kim, Daewoo Shipbldg & Marine Engineering, Korea

[Automatic Synthesis and Sequential Modular Simulation of Liquefaction Cycle for LNG FPSO in DEVS Environment](#)

S Ha, NK Ku, Seoul National Univ; MI Roh, Univ of Ulsan, Korea

[Investigation of Two Phase Heat Transfer Coefficients of Cryogenic Mixed Refrigerants](#)

SK Jeong, SW Baek, KAIST, Korea

146. HPM XII: Fatigue & Fracture 1 & 2 (V. 4)

Thursday July 4 16:20 Room 5

Chair: T Hara, Nippon Steel & Sumitomo Metal Corp, Japan

[Defect Tolerance of Riser Girth Welds Exposed to Fatigue Loading](#)

GM Tamponi, E Mecozzi, LF Di Vito, Centro Sviluppo Materiali; P Darcis, Tenaris Dalmine, Italy; I Marine Garcia, H Quintanilla, Tenaris Tamsa, Mexico

Fatigue Testing to Identify Effect of Mean Stress on Fatigue Strength of Welded Joints in Ship Structures

H Polezhayeva, Lloyd's Register; SJ Maddox, TWI Ltd; D Howarth, Lloyd's Register; A Robinson, Univ of Southampton, UK

Fatigue Crack Growth Rates of API X70 Pipeline Steel in a Pressurized Hydrogen Gas Environment

AJ Slifka, ES Drexler, RL Amaro, DS Lauria, NIST; LE Hayden, Louis Hayden Associates; DG Stalheim, DGS Metallurgical Solutions, USA

Comparison and Analysis on Low-cycle Fatigue Behavior of Two X80 Linepipe Materials

Y Li, JM Zhang, WW Zhang, H Li, LK Ji, CY Huo, YR Feng, Tubular Goods Research Inst, CNPC, China

Development and Validation of a Low-Cost CTOD Procedure

CL Walters, G van der Weijde, TNO, Netherlands

A Numerical Model of Brittle Crack Propagation and Arrest in Steels [Oral presentation]

S Aihara, T Namegawa, K Shibamura, Univ of Tokyo, Japan

Microfluidics in Microstructure Optical Fibers: Pressure-Driven and Other Flows and Heat Flux

P Christodoulides, G Florides, C Koutsides, L Lazari, Cyprus Univ of Tech; M Komodromos, Frederick Univ, Cyprus; F Dias, University College Dublin, Ireland;

147. COASTAL X: Sediment & Transport (V. 3)

Thursday July 4 16:20 Room 6

Chair: Y Yamamoto, Tokai Univ, Japan

Co-Chair: JZ Yim, National Taiwan Ocean Univ, China

Selecting Sediment Parameters Method and Its Application in the Suspended Sediment Concentration Research of Yangshan Deepwater Port in Shanghai, China

SH Zou, Tianjin Research Inst of Water Transport Engineering; J Dong, Jiangsu Province Communications Planning & Design Inst; NC Zhang, Dalian Univ of Tech; B Li, Tianjin Research Inst of Water Transport Engineering, China

Investigation on the Design Parameter of Sediment for the 3rd and 4th Units in the Tianwan Nuclear Power Plant

WD Li, MG Li, N Zhang, Tianjin Research Inst for Water Transport Engineering, China

Prediction of Sediment Siltation for Floating Dock Engineering in Yangtze Estuary

JH Zheng, XW Dong, Z Wang, T Wu, Hohai Univ, China

Temporal and Spatial Distribution Characteristics of Suspended Sediment Distribution in the Lingding Bay, South China

W Zhang, HG Wang, Hohai Univ, China

Numerical Simulation and Analysis of the Taimali River Estuary Sediment

WP Huang, JZ Yim, National Taiwan Ocean Univ; CS Kung, YH Tsao, Sinotech Engineering Consultants, Taiwan, China

Boundary Layer Structure under Wave-Mud Interactions

WY Hsu, HH Hwang, National Cheng Kung Univ, Taiwan, China; TJ Hsu, Univ of Delaware, USA; A Torres-Freyermuth, Univ Nacional Autonoma de Mexico, Mexico; RY Yang, National Cheng Kung Univ, Taiwan, China

A Modeling Study of Coastal Sediment Transport and Morphology Change

HH Li, S Alejandro, ME Brown, ERDC/CHL; IM Watts, Florida Inst of Tech; Z Demirbilek, JD Rosati, ERDC/CHL; DR Michalsen, USACE, USA;

Study on the Tidal Current and Sediment Characteristics of Submarine Radial Sand Ridges Off Jiangsu Coast

X Feng, Univ of Florida, USA; WB Feng, L Cui, Hohai Univ, China

Laboratory Study for Pore Pressure in Sandy Bed under Wave Loading

B Liu, Shanghai Jiao Tong Univ, China; DS Jeng, Univ of Dundee, UK

Comparison of LRFD (Load Resistance Factor) and ASD-global Factor of Safety for Drilled Shafts Bearing Capacity

ZH Kim, SB Lee, SB Jang, HB Kim, Samsung C&T, Korea

148. SUBSEA-PIPELINES-RISERS-CABLE XII:

System Integrity (V. 2)

Thursday July 4 16:20 Room 7

Chair: E Fontaine, AMOG Consulting, Australia

Integrity Assessment to 6" and 12" Spool Bends in Deep Water

ZH Liu, H Alsos, M Bjerkaas, Reinertsen, Norway

Pipeline On-bottom Stability Enhancement and its Assessment

N Kershenbaum, PW Lui, P Worman, G Richard, McDermott, USA

Investigation of Local Scour around Submarine Pipelines

EO Cevik, B Kiziloz, Yildiz Tech Univ, Turkey

Stability of Rock Berm under Wave and Current Loading

I Thusyanthan, CAPE Group, Singapore; S Jegandan, Intecsea, UK; DJ Robert, Monash Univ, Australia

Interaction between External Pressure and Denting of Submarine Pipelines

JX Zheng, AC Palmer, Univ of Singapore; P Brunning, CT Gan, Subsea 7, Singapore

Prediction of Response of a Subsea Gas Pipeline after a Full Bore Rupture

K Mashayekh, Univ of Stavanger; A Oosterkamp, Polytec; LD Oosterkamp, Statoil, Norway; L Vitali, SAIPEM, Italy

Ensuring Safe Riser Emergency Disconnect in Harsh Environments: Experience and Design Requirements

P Ma, J Pyke, A Whooley, MCS Kenny, USA

Pipeline Integrity Management - From Design to Operation

AO Lind, Statoil, Norway

Prediction of the Wave Induced Scour under Submarine Pipelines

A Barari, LB Ibsen, Aalborg Univ, Denmark

149. GEOTECH X: Soil Properties 2 (V. 1)

Thursday July 4 16:20 Room 8

Chair: J-W Chen, National Cheng Kung Univ, Taiwan, China

Liquefaction Potential of Non-plastic Silty Sand

JW Chen, National Cheng Kung Univ; WF Lee, National Taiwan Univ of Science & Tech; CC Chen, National Cheng Kung Univ, Taiwan, China

Settlement Characteristics in Soft Ground Improved by the Suction Drain Method

SJ Han, Expert Group for Earth & Environment; SS Kim, Land & Housing Inst, Korea

The Study of Liquefaction Potential Assessment and Threshold of Liquefaction Resistance of Seabed Soil under Cyclic Loading

LK Chien, WC Tseng, BC Chen, National Taiwan Ocean Univ; CM Hsu, Taiwan Ocean Research Inst, Taiwan, China

Rheological Characteristics and Run-out Simulation of Fine-Grained Soils with Sand Content and Liquidity Index

YT Kim, HS Kang, Pukyong National Univ, Korea

Engineering and Construction of Geotechnical Structures with Geotechnical Materials in Coastal Arctic Zone of Russia

S Kudryavtsev, Far Eastern State Transport Univ; Y Berestyanyy, Enterprise DV-Geosynthetics; E Goncharova, Far Eastern State Transport Univ, Russia

Liquefaction Resistance of Colloidal Silica Treated Soil Deposits

A Pamuk, Florida State Univ; P Gallaher, Drexel Univ; T Zimmie, Rensselaer Polytechnic Inst; K Adalier, Florida State Univ, USA

Simple Estimation of Soil Liquefaction Using Screwdriver Sounding Test

T Tanaka, N Suemasa, Tokyo City Univ; S Yamato, Inspection Organization Co; H Tai, Japan Home Shield; T Katada, Tokyo City Univ, Japan

Characterization of Dynamic Behavior of Marine Soil Deposit Subjected to Long Term Cyclic Loading

JM Kim, SW Son, M Saifdar, Pusan National Univ, Korea

Sampling Tube Influence on Clay Sample Quality

T Shogaki, T Yoshizu, National Defense Academy; Y Tsusaka, M Hattori, Aoi Tech Co, Japan

The Mechanical Properties of Coal-Ash Generated in South Korea for Using Tide Embankment Material

MS Yoon, Hanyang Univ; SJ Han, Expert Group for Earth & Environment; SS Kim, Land & Housing Inst, Korea

150. TSUNAMI & SAFETY VI

Panel

Thursday July 4 16:20 Room 9

Chair: S Tinti, Univ. of Bologna, Italy

Co-Chair: H Kawai, PARI, Japan

Details to be announced

151. ARCTIC SCIENCE & TECH VIII: Ice Mechanics & Loads 3

(V. 1)

Thursday July 4 16:20 Room 10

Chair: H Eicken, Univ of Alaska Fairbanks, USA

Co-Chair: D Mahoney, Univ of Alaska Fairbanks, USA

Ice-Induced Vibrations - Detailed Examination of a Full Scale Frequency Locked-In Event

M Bjerkås, Reinertsen AS; A Meese, NTNU; H Alsos, Reinertsen AS, Norway

Numerical Study on Relationship between Ice Force Distribution and Structural Response for Ship

J Sawamura, Osaka Univ, Japan

Determination of Loads on Mooring System during the Semisubmersible Interaction with Ice

EB Karulin, MM Karulina, Krylov State Research Centre, Russia

A Simple Method for the Analysis of Ice-Crushing Induced Lock in Vibration

Y Qu, CNOOC Research Inst, China

Analysis of Accidental Iceberg Impacts with Membrane LNG Carriers

ZH Liu, Reinertsen AS, Norway

A Numerical Simulation for Operating a Dynamic Positioning Vessel in Level Ice

Q Zhou, H Peng, Memorial Univ of Newfoundland, Canada

Investigation of the Research Methods of Calculation of Ice Load for Estimating the Depth of Ice Abrasion

TE Uvarova, EE Pomnikov, GR Shamsutdinova, AS Narkevich, Far Eastern Federal Univ, Russia

Calculations Model of the Ice Abrasion Depth Volume Worn Material

TE Uvarova, EE Pomnikov, GR Shamsutdinova, Far Eastern Federal Univ, Russia

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