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All indexed by Engineering Index (EI).

* Continue to next session.

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ISOPE RENEWABLE ENERGY AND ENVIRONMENT SYMPOSIUM

4. RENEWABLE ENERGY I: Offshore Wind Structures 1 (V.

Monday June 20 ¹⁾ 10:30 Room 3

Chair: T Ummenhofer, Karlsruhe Inst of Technology, Germany
Co-Chair: JP Liyanage, Univ of Stavanger, Norway

Integration of Support Structure and Turbine Design – Final Results of WP4-Task4.1 on Offshore Support Structures of the EU Upwind Project
T Fischer, Univ of Stuttgart, Germany

Comparison of Dynamic Response of Monopile, Tripod and Jacket Foundation System for a 5MW Wind Turbine
HC Park, W Shi, CW Chung, YC Kim, Pohang Univ of Sci & Tech, Korea

Optimization of Supporting Structures of Offshore Wind Plants - New Research Approaches
M Albiez, S Herion, T Ummenhofer, Karlsruhe Inst of Tech, Germany

Dynamic Analysis of Offshore Wind Turbines
SM Jafri, A Eltáher, P Jukes, MCS Kenny, USA

Fully-Coupled Wind Turbine Simulation Including Substructuring of Support Structure Components: Influence of Newly Developed Modeling Approach on Fatigue Loads for an Offshore Wind Turbine on a Tripod Support Structure
F Vorpahl, Fraunhofer IWES, Germany

14. RENEWABLE ENERGY II: Offshore Wind Structures 2

Monday June 20 ^(V. I) 14:00 Room 3

Chair: F Vorpahl, Fraunhofer IWES, Germany
Co-Chair: W de Vries, TU Delft, Netherlands

Fixed Bottom Tripod Type Offshore Wind Turbines under Extreme and Operating Conditions
G Farmakis, DC Angelides, Aristotle Univ of Thessaloniki, Greece

Design Formula for Scour Protection around Offshore Monopiles

TC Raaijmakers, D Rudolph, B De Sonnevill, GJCM Hoffmans, H Verheij, Deltares, Netherlands

Cyclic Response of Granular Subsoil under a Gravity Foundation for Offshore Wind Turbine

S Safinus, G Sedlacek, U Hartwig, Ed Zueblin AG, Germany

Full-scale Model Tests on a Gravity Based Foundation for Offshore Wind Turbines

U Hartwig, Ed Zueblin AG, Germany

Designing the Next Generation of Computational Codes for the Analysis of Wind Energy Systems

M Muskulus, NTNU, Norway

23. RENEWABLE ENERGY III: Offshore Wind Loads (V. 1)

Monday June 20 16:20 Room 3

Chair: TA Fischer, Univ of Stuttgart, Germany

Co-Chair: JD Sørensen, Aalborg Univ, Denmark

Numerical Analysis of Turbulent Flow past a Truss-tower and Implications for Offshore Downwind Turbines

TR Hagen, M Reiso, M Muskulus, NTNU, Norway

Rotor Design for a 10 MW Offshore Wind Turbine

L Frøyd, OG Dahlhaug, NTNU, Norway

Tower Shadow - Experiment Comparing Wake Behind Tubular and Truss Towers

M Reiso, G Moe, NTNU, Norway

Wave-Structure Interaction on a Variable Bathymetry using a High-order Finite Difference Method

HB Bingham, R Read, Tech Univ of Denmark, Denmark

Wave Loads on Offshore Wind Turbines, Regular and Focused Waves

JR Ramirez, P Frigaard, T Lykke, Aalborg Univ, Denmark

Nonlinearity in Wave Impacts on Wind Turbine Foundations

S Yan, City Univ; J Zang, Univ of Bath; QW Ma, City Univ, UK

Dynamic Ice Load Model in Overall Simulation of Offshore Wind Turbines

S Hetmanczyk, Inst for Wind Energy & Energy System Tech, Germany; J Heinonen, Technical Research Centre of Finland, Finland

29. RENEWABLE ENERGY XVI: Tidal & Current Energy 2

Monday June 20 16:20 Room 9
(V. 1)

Chair: TA Newson, Univ of Western Ontario, Canada

A Numerical Study of Darrieus Water Turbine

I Paraschivoiu, NV Dy, Ecole Polytechnique de Montreal, Canada

A Review of Foundation Concepts for In-Stream Tidal Turbine Systems

TA Newson, Univ of Western Ontario, Canada; P Larkin, Senergy, UK; R Maynard, Rm Associates, UK

Numerical and Experimental Analysis of a Shrouded Hydroturbine

DP Coiro, F Scherillo, G Troise, U Maisto, Univ of Naples, Italy

Experimental Tests on a Submerged Tethered System for Marine Current Energy Production

DP Coiro, G Troise, F Scherillo, A De Marco, U Maisto, Univ of Naples, Italy

Study of Gear Ratio in the Tidal Current Generation System

K Naoi, M Shiono, K Suzuki, Nihon Univ, Japan

33. RENEWABLE ENERGY IV: Offshore Wind Floating 1 (V.

Tuesday June 21 08:00 Room 3
1)

Chair: C Capanoglu, International Design and Analysis Services, USA

Experimental and Computational Comparisons of the OC3-HYWIND and Tension-Leg-Buoy (TLB) Floating Wind Turbine Conceptual Designs

TA Nygaard, Inst for Energy Tech; A Myhr, KJ Maus, Norwegian Univ of Life Sciences, Norway

Model Test of the OC3-Hywind Floating Offshore Wind Turbine

HK Shin, Univ of Ulsan, Korea

State-of-the-art in Floating Wind Turbine Design Tools

A Cordle, GL Garrad Hassan, UK; J Jonkman, National Renewable Energy Lab, USA

Dynamic Mooring Line Modeling in Hydro-Aero-Elastic Wind Turbine Simulations

BS Kallesøe, Tech Univ of Denmark, Denmark; Y Rune, Statoil, Norway

Development of Multibody Dynamics Kernel for Motion Analysis of Floating Wind Turbine

NK Ku, JH Cha, AR Jo, Seoul National Univ; KP Park, Daewoo Shipbuilding & Marine Engineering; S Ha, M Friebe, KY Lee, Seoul National Univ, Korea

Dynamics of a Floating Wave Energy Platform with Three Wind Turbines Operating

TJ Larsen, BS Kallesøe, Tech Univ of Denmark; HF Hansen, Danish Hydraulic Inst, Denmark

Gyro Effect of Rotating Blades on the Floating Wind Turbine Platform in Waves

T Tsubogo, H Fujiwara, Y Nihei, Osaka Prefecture Univ, Japan

Ducted Turbine Blade Optimization Using Numerical Simulation

M Shives, C Crawford, Univ of Victoria, Canada

38. RENEWABLE ENERGY XVII: Energy & Resources (V. 1)

Tuesday June 21 08:00 Room 9

Chair: T. Mathai, The Glosten Assoc., USA

Evaluation Criteria for a Marine Renewable Multipurpose Platform

G Aguirre, G Perez, TECNALIA; R Manzananas, C Lopez, Acciona, Spain

Performance Analysis of Ocean Geothermal Power Generation Cycle with Generator

HJ Kim, HS Lee, DH Jung, DS Moon, KORDI, Korea; GC Nihous, Univ of Hawaii, USA

Prospective Energy Sources for Autonomous Unmanned Underwater Vehicles

VV Slesarenko, VV Knyazhev, Inst of Marine Tech Problems, FEB-RAS, Russia

A Quantitative Evaluation on Habitat Network of the Clam *Ruditapes Philippinarum* in Tokyo Bay

F Otsuka, K Masuda, T Ikoma, Nihon Univ, Japan

Determining Renewable Energy Efficiency in Turkey: A GIS Based Solution

E Cengiz, A Cabuk, Y Guney, Anadolu Univ, Turkey

Determining the Most Suitable Place for Solar Farm in Eskisehir Using GIS

S Mutlu, A Çubak, Y Guney, Anadolu Univ, Turkey

42. RENEWABLE ENERGY V: Offshore Wind Floating 2 (V.

Tuesday June 21 10:30 Room 3

Chair: J Jonkman, NREL, USA

Co-Chair: TA Nygaard, Inst for Energy Technology, Norway

Experimental Simulation of Wind and Swell Loading on Model Scale Floating Offshore Wind Turbines

A Courbois, CSTB; P Ferrant, J-M Rousset, Ecole Centrale de Nantes; O Flamand, CSTB, France

Challenges in Simulation of Aerodynamics, Hydrodynamics and Mooring Line Dynamics of Floating Offshore Wind Turbines

D Matha, Univ of Stuttgart, Germany; A Cordle, GL Garrad Hassan, UK; R Pereira, Germanischer Lloyd Industrial Services, Germany; J Jonkman, National Renewable Energy Lab, USA

Aero-Elastic-Control-Floater-Mooring Coupled Dynamic Analysis of Floating Offshore Wind Turbines

MH Kim, YH Bae, Texas A&M Univ, USA; SW Im, IH Chang, RIST, Korea

Influence of Control Strategy to Floating OWT Hull Motions by Aero-Elastic-Control-Floater-Mooring Coupled Dynamic Analysis

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

Semi-active Mixed H_2/H_∞ Control Design for Offshore Wind Turbine Systems

HR Karimi, Univ of Agder, Norway

Loads Analysis of Several Offshore Floating Wind Turbine Concepts

A Robertson, J Jonkman, National Renewable Energy Lab, USA

51. RENEWABLE ENERGY VI: Offshore Wind Reliability

(V. 1)

Tuesday June 21 14:00 Room 3

Chair: I Langen, Univ of Stavanger, Norway

Challenges for Risk-based Maintenance Planning for Offshore Wind Turbines

JJ Nielsen, JD Sørensen, Aalborg Univ, Denmark

Development of an Autonomous Meshing Tool for Multi-Dimensional Deformed Thick Plates

P Kaeding, R Labecki, M Bojahr, R Tschullik, Univ of Rostock, Germany

Reliability-Based Calibration of Safety Factors for Offshore Wind Turbines

JD Sørensen, Aalborg Univ, Denmark

Reliability on Offshore Wind Energy Platform to Dynamic Forces

K Kawano, K Nagafuchi, Kagoshima Univ; K Venkataramana, Kumamoto Univ; T Iida, Osakasangyo Univ, Japan

Risk Assessment and Sensitivity Analysis for Offshore Wind Turbines

AA Tafilanidis, Univ of Notre Dame, USA; E Loukogeorgaki, DC Angelides, Aristotle Univ of Thessaloniki, Greece

Framework to Assess System Risks Associated with Design and Deployment of Large Scale Offshore Wind Farms in Northern Context

R Tuisanen, J Jännes, VTT Technical Research Centre of Finland, Finland; JP Liyanage, Univ of Stavanger, Norway

Experience with the Certification of Offshore Wind Farms in Europe

T Faber, L Klinke, Germanischer Lloyd Industrial Services, Germany

Methods for Life Cycle Assessment of Dynamic Characteristics for Offshore Wind Energy Converters

S Thöns, W Rucker, F Hille, BAM Federal Inst of Materials Research & Testing, Germany

61. RENEWABLE ENERGY VII: Offshore Wind Resource &

Farm Optimization (V. 1)

Tuesday June 21 16:20 Room 3

Chair: AJNA Sarmiento, Technical Univ of Lisbon, Portugal

Wind Resource Estimation Using QuikSCAT Ocean Surface Winds

Q Xu, GS Zhang, Hohai Univ, China; YC Cheng, Tech Univ of Denmark, Denmark; QY Ji, Hohai Univ, China

The First Met-mast for Offshore Wind Farm in Korea and its Remote Sensing System

MS Ryu, JS Lee, Korea Electric Power Corp Research Inst, Korea

Multi-fidelity Optimization of Offshore Wind Farm Layout

P-E Réthoré, P Fuglsang, GC Larsen, TJ Larsen, HA Madsen, T Buhl, Tech Univ of Denmark, Denmark

Ecosystem Service Typology: A Wind Farm Siting Tool

AR Grilli, T Lado, M Spaulding, Univ of Rhode Island, USA

A Numerical Assessment for Wave Transformation around the Wind Farm

CM Hsu, WL Yang, CJ Tseng, Taiwan Ocean Research Inst, Taiwan, China

Design of Wind Power Systems for Environmental Compatibility: A Study on Offshore and Cold Climate Case from a Dependability Perspective

I El-Thalji, Linnaeus Univ, Sweden; JP Liyanage, Univ of Stavanger, Norway

An Asset Management Solution for Offshore Wind Farms Based on System Dynamics Simulation: A Case Study

I El-Thalji, Linnaeus Univ, Sweden; JP Liyanage, Univ of Stavanger, Norway

GIS Based Site Selection for Alternative Energy Generation on Construction Area

F Rostami Kia, E Cengiz, S Mutlu, A Gabuk, Y Guney, Anadolu Univ, Turkey

71. RENEWABLE ENERGY VIII: Wave Energy 1 (V. 1)

Wednesday June 22 08:00 Room 3

Chair: S Nagata, Saga Univ, Japan

A Finite Element Model for Efficiency of a Moored Floating OWC Device

J-R P Nader, SP Zhu, P Cooper, B Stappenbelt, Univ of Wollongong, Australia

Performance Assessment of the Pico OWC Power Plant Following the EquiMar Methodology

A Pecher, Aalborg Univ, Denmark; I Le Crom, Wave Energy Centre, Portugal; JP Kofoed, Aalborg Univ, Denmark; F Neumann, Wave Energy Centre, Portugal

Consideration on Experimental Data Analysis Method and Equivalent Linearization for Nonlinear Load of OWC Type Wave Power Generation

M Suzuki, Univ of Tokyo, Japan

Extreme Value Analysis of Wave Energy Converters

KJ Doherty, Aquamarine Power; M Folley, Queen's Univ, UK; R Doherty, Univ College Dublin, Ireland

Fully Nonlinear Simulation of Wave Interaction with Fixed and Floating Wave Energy Devices

ZZ Hu, DM Causon, CG Minham, L Qian, Manchester Metropolitan Univ, UK

A Study of Modeling Point Absorber Wave Energy Conversion Systems: RANS CFD, Potential Flow and Empirical Approach

YH Yu, Y Li, National Renewable Energy Lab, USA

Statistical Availability Analysis of a Wave Energy Converter

KJ Doherty, K Abdulla, J Skelton, P O'Kane, Aquamarine Power, UK; R Doherty, Univ College Dublin, Ireland; G Bryans, Aquamarine Power, UK

81. RENEWABLE ENERGY IX: Wave Energy 2 (V. 1)

Wednesday June 22 10:30 Room 3

Chair: AJNA Sarmiento, Technical Univ of Lisbon, Portugal

Co-Chair: YH Yu, National Renewable Energy Lab, USA

Numerical Analysis on Primary Conversion Efficiency of Floating OWC-type Wave Energy Converter

S Nagata, K Toyota, Y Imai, T Setoguchi, MAH Mamun, Saga Univ, Japan

Subharmonic Tuning of a Three-body Point Absorbing Wave Energy Converter

MN Mosher, Univ of Victoria, Canada

Study of Energy Absorbing from Ship Roll

JY Liu, H Yi, YF Zhang, YH Li Shanghai Jiao Tong Univ, China

Experimental Validation of a Nonlinear Model for Wave-body Interaction Applied to a Schematic Wave Energy Converter

E Guerber, M Benoit, Ecole des Ponts Paris-Tech, France; ST Grilli, Univ of Rhode Island, USA; C Buvat, Ecole des Ponts Paris-Tech, France

Effect of Inlet Geometry Modification of Wave Conversion System on the Buoy

JS Oh, SH Han, KJ Jo, Korea Maritime Univ, Korea; JM Kim, C Johnstone, Univ of Strathclyde, UK

Experimental Study on a Floating Structure with a U-Tube

CC Huang, DC Lai, MF Lee, YH Lin, National Sun Yat-sen Univ, Taiwan, China

Small Buoys for Wave Energy Harvesting: Experimental and Numerical Modeling Studies

AR Grilli, ST Grilli, Univ of Rhode Island; SP Bastien, RB Sepe, Electro Standards Lab; H Vincent, ML Spaulding, Univ of Rhode Island, USA

90. RENEWABLE ENERGY X: Wave Energy 3 (V. 1)

Wednesday June 22 14:00 Room 3

Chair: SW Hong, Maritime & Ocean Eng Research Inst, Korea

Optimization of the Performance of Overtopping Wave Energy Converters with a Simple Slope Built-in Sea Defense Structures by Geometry Control

LB Victor, P Troch, Ghent Univ; JF Kofoed, Aalborg Univ, Denmark

Wave Energy Production by a Flexible Floating Breakwater

C Michailides, D Angelides, Aristotle Univ of Thessaloniki, Greece

Multi-chamber OWC Devices to Reduce and Convert Wave Energy in Harbour Entrance and Inner Channels

P Ruol, L Martinelli, P Pezzutto, Univ of Padova, Italy

Experimental Study on Wave Energy Converting System Using Floating Breakwater

W Peng, Y Watanabe, N Mizutani, Nagoya Univ, Japan

Numerical Modelling of an OWC Wave Energy Converter in a Breakwater in NW Spain

I Lopez, G Iglesias, Univ of Santiago de Compostela, Spain

Experimental Modelling of the Overtopping Flow on the Wave Dragon Wave Energy Converter
S Parmeggiani, Wave Dragon, UK; JP Kofoed, Aalborg Univ, Denmark

Practical Method for the Performance Estimation of Proposed Pilot OWC System in Korea
BS Hyun, Korea Maritime Univ, Korea; Z Liu, Ocean Univ of China, China; JY Jin, Korea Maritime Univ; KY Hong, Maritime & Ocean Engineering Research Inst, Korea

100. RENEWABLE ENERGY XI: Wave Energy 4 (V. 1)
Wednesday June 22 16:20 Room 3

Chair: D Vicinanza, Second Univ of Naples, Italy
Co-Chair: Y Peng, Inst of Electrical Engineering, CAS, China

Hydrodynamic Force of Oscillating Fin in Low KC Region
Y Imai, S Nagata, K Toyota, T Setoguchi, Saga Univ, Japan

A Conceptual Model of a Flap Type Wave Energy Converter
A Henry, Aquamarine Power; M Folley, Queen's Univ, UK

Investigation on the Efficiency of a Pendulum Wave Energy Converter in Regular Waves
SQ Qiu, JW Ye, DJ Wang, South Univ of Tech, China

Modelling the Dynamics of a Bottom-Hinged Surface-Piercing Buoyant Flap Subject to Water Waves
S Bourdier, Queen's Univ; J van 't Hoff, Aquamarine Power; M Folley, TJT Whittaker, Queen's Univ, UK

Numerical and Experimental Analysis of Backward Bent Duct Buoy (BBDB) Wave Energy Converter
WC Koo, KR Lee, Univ of Ulsan, Korea

Development of the WaveCat Wave Energy Converter
G Iglesias, H Fernandez, Univ of Santiago de Compostela, Spain

Estimation of Annual Power Production of Point Absorber Wave Energy Converters
J van den Berg, P Ricci, Tecnalia, Spain

110. RENEWABLE ENERGY XII: Wave Energy 5 (V. 1)
Thursday June 23 08:00 Room 3

Chair: S Grilli, Univ of Rhode Island, USA

International Vision for Ocean Energy [Keynote, Oral presentation]
J Huckerby, Ocean Energy Systems Implementing Agreement, New Zealand

A Novel Direct Drive Turbine for Wave Energy Conversion
MA Zullah, CG Kim, YH Lee, Korea Maritime Univ, Korea

Motion and Performance of Floating Wave Energy Converter System with Multiple OWC Columns
Y Yasuzawa, Y Okumura, T Nagashima, Kyushu Univ, Japan

Numerical Simulation of an Oscillating Water Column Wave Energy Converter: Comparison of Two Numerical Codes
JMP Conde, Univ Nova de Lisboa, Portugal; E Didier, LNEC, Portugal; PRF Teixeira, Univ Federal do Rio Grande, Brazil

Energy Conversion Characteristics on Floating Type Pendulum Wave Energy Converter in Regular Waves
K Toyota, S Nagata, Y Imai, T Setoguchi, K Ono, Saga Univ, Japan

Methodology for an Economic Assessment of a Wave Energy Farm
BF Teillant, NUI Maynooth; F Mouwen, J Weber, Wavebob; J Ringwood, NUI Maynooth, Ireland

120. RENEWABLE ENERGY XIII: Wave Energy 6 (V. 1)
Thursday June 23 10:30 Room 3

Chair: RL Waid, Marine Development Associates, USA

A Critical Assessment of Latching as Control Strategy for Wave-Energy Point Absorbers
JAM Cretel, GP Thomas, G Lightbody, AW Lewis, Univ College Cork, Ireland

Suboptimal and Causal Reactive Control of Wave Energy Converters through Second Order Model Reduction
F Fusco, JV Ringwood, National Univ of Ireland Maynooth, Ireland

Analytical and Experimental Study on LMMHD Generator for Wave Energy Conversion
Y Peng, LZ Zhao, T Xiao, YY Xu, BL Liu, JA Li, R Li, XL Li, Inst of Electrical Engineering, CAS, China

Hydrodynamic Modelling of Heaving Buoy Wave Energy Conversion System with Liquid Metal Magnetohydrodynamic Generator Wave Energy Conversion
BL Liu, Y Peng, LZ Zhao, J Li, R Li, YY Xu, CW Sha, Inst of Electrical Engineering, CAS, China

Numerical Analysis of Liquid Metal Magnetohydrodynamic Generator for Wave Energy Conversion
T Xiao, Y Peng, LZ Zhao, YY Xu, BL Liu, J Li, R Li, Inst of Electrical Engineering, CAS, China

Float-counterweight Type Wave Power Generation System Experiments in Open Sea
K Taneura, CIT Engineering; K Hadano, P Koirala, Yamaguchi Univ, Japan

130. RENEWABLE ENERGY XIV: Wave Energy Resources

(V. 1)

Thursday June 23 14:00 Room 3

Chair: AJNA Sarmiento, Technical Univ of Lisbon, Portugal

Strategic Environmental Assessment to Evaluate WEC Projects in the Perspective of the Environmental Cost-Benefit Analysis
A Azzellino, Politecnico di Milano; V Ferrante, P Contestabile, Seconda Univ di Napoli; C Lanfredi, Politecnico di Milano; D Vicinanza, Seconda Univ di Napoli, Italy

Factors Affecting the Unsteadiness of the Power Density of Ocean Waves
RL Waid, Marine Development Associates, USA

Wave Resources of the Pacific Region for Small-scale Developments
J Huckerby, Power Projects; P McComb, MetOcean Solutions, New Zealand

Ocean Energy Resource Characterization and Consequences on the Loading of Structures
H Mouslim, G Le Bihan, Ecole Centrale de Nantes, France

Assessment of Nearshore Wave Energy Resource Using Offshore Hindcast Data
GW Kim, WM Jeong, KW Lee, GC Jun, KORDI, Korea

Assessment of Wave Basin Homogeneity for Wave Energy Converter Array Studies
L O'Boyle, B Elsaesser, M Folley, T Whittaker, Queen's Univ, UK

139. RENEWABLE ENERGY XV: Tidal & Current Energy 1

(V. 1)

Thursday June 23 16:20 Room 3

Chair: AJNA Sarmiento, Technical Univ of Lisbon, Portugal

Kuroshio Current Measurement around the Miyake Island, a Potential Site for the Ocean Current Power Generation
T Kodaira, T Waseda, Univ of Tokyo, Japan

Numerical Prediction of the Straight-bladed Water Turbine's Hydrodynamic Characteristics
HN Wu, LJ Chen, BF Chen, National Sun Yat-sen Univ; CH Tai, National Pingtung Univ of Sci & Tech; HH Pan, MH Yu, National Sun Yat-sen Univ, Taiwan, China

Incorporating Turbulent Inflow Conditions in a Blade Element Momentum Model of Tidal Stream Turbines
M Togneri, I Masters, Swansea Univ, UK

Turbulence Correction Terms for Representing Tidal Current Turbines in a Regional Ocean Model for Array Planning and Impact Assessment
T Roc, DC Conley, D Greaves, Univ of Plymouth, UK

PIV Analysis of the Near Wake of HA Tidal Turbines at Laboratory Scale
AR Good, GA Hamill, TJT Whittaker, Queen's Univ, UK

Study of Seiche Oscillations in the Vityaz Bay
SG Dolgikh, GI Dolgikh, VI Il'ichev Pacific Oceanological Inst, Russia

