Wednesday 10th September			
WDD	Wave device development and testing 4		**ROOM 1**
	Chair: Matt Folley		
Time	**ID**	**Title**	**Authors**
9.00	**881**	Experimental Analysis of the Effect of Surge-Pitch Coupling on the Dynamics and Power Production a Submerged Wave Energy Converter	Raza Ali; Aeron Roach; Bret Bosma; Bryson Robertson
	896	Performance of a multi - chamber OWC embedded in a circular platform	Antonino Simone Spanò; Giovanni Malara; Felice Arena
	944	Sea Trialling the M4 Wave Energy Converter: Initial Hydrodynamic Performance Insights	Adi Kurniawan; Hugh Wolgamot; Guy McCauley; Matthaus Zering; Peter Stansby
	946	Toward defining wave prediction requirements for wave energy applications	Nataliia Sergiienko; Mathieu Cocho
	TBC		
10.30	**Coffee Break**		
WDD	Wave device development and testing 5		**ROOM 1**
	Chair: Nataliia Sergiienko		
11.00	**800**	Theoretical and experimental analysis of a dual chamber OWC device	Dimitrios Konispoliatis; Ioannis Chatjigeorgiou; Dimitrios Liarokapis; Argyris Mavrakos; Gregory Grigoropoulos
	968	Comparison of interaction effects between multi-wave absorber systems	Matthew Holland; Niall McLean; Elva Bannon; David Forehand; Thomas Giles; Katie Smith; Laura-Beth Jordan; Thomas Davey
	996	Wave amplification using a flexible floating water bladder for WEC enhanced performance	Pedro Lomonaco; Mike Plackett; Alex Sutherland; Solomon Yim
	1051	Experimental Scaling Challenges of Air Turbines for Oscillating Water Column Wave energy converters	Beatrice Fenu; João C. C. Henriques; Ander Zarketa Astigarraga; Yerai Peña Sanchez; Markel Peñalba Retes
	1052	Combining a wave tank with a robotized dry test rig for WEC evaluation	Dana Salar; Erik Hultman
12.30	**Lunch Break**		

WDD	Wave device development and testing 6		ROOM 1
	Chair: Peter Stansby		
Time	**ID**	**Title**	**Authors**
14.00	**927**	Validation challenges and applicability of the Wavebox concept: a novel wave-tank for early stage testing	Iñigo Zárate Garcia; Jesus Maria Blanco Ilzarbe; Joannes Berque; Iñigo Mendikoa; Erik Hultman; Dana Salar
	973	Experimental Validation of Pressure Differential Wave Energy Converters on a Versatile Floating Platform Using Advanced Experimental Techniques	Thomas Giles; Thomas Davey; David Forehand; Laura-Beth Jordan; Elva Bannon; Niall McLean; Matthew Holland
	1060	Modelling and control of wave energy converters with nonlinearities: An LPV and robust control approach	Salvatore Galazzo; Nicolás Faedo; Demián García-Violini
	1073	On the response of the U-Oscillating Water Column breakwater in the Port of Salerno for PTO installation	Alessandra Romolo; Vincenzo Fiamma; Giovanni Malara; Valentina Laface; Antonino Simone Spanò; Elena Valentino; Felice Arena
	TBC		
15.30	**Coffee Break**		
WDD	Wave device development and testing 7		**ROOM 1**
	Chair: Christophe Gaudin		
16.00	**1128**	Multi-Objective Development of a Point Absorber Wave Energy Converter Using Dynamic Modelling	Gianmaria Giannini; Giuseppe Giorgi; Paulo Rosa-Santos; Francisco Taveira-Pinto; Giuliana Mattiazzo; Victor Ramos; Ermanno Giorcelli
	1141	Design Optimization and Experimental Validation of a Pendulum-Based Wave Energy Converter for Autonomous Ocean Drones	Arsh Khan; Evan Kuo; Elaf Alahdal; Nilesh Kothari; Mikin Patel; Reza Alam
	1215	Wave Energy Conversion Efficiency of the UGEN along the Western Portuguese Coast	Sergio Ribeiro e Silva; Diogo Lourenço; Lígia Pinto
	1248	Power optimisation of a heaving buoy in a wave-enhancing contraction	Onno Bokhove; Harvey Thompson; Omar Naar; Peter Grieve; Jongrae Kim
17.30	**TBC**		

WHM	Wave hydrodynamic modelling 5		ROOM 2
	Chair: Giuseppe Giorgi		
9.00	790	Augmenting the Modelica Ocean Engineering Toolbox to Support Multibody Dynamic Simulations	Thomas Hogan; Kush Bubbar
	734	Comprehensive analytical modeling framework for inertial wave energy converters: Theory, simplification, and case study	Fabio Carapellese
	818	A spectral-domain wave-to-wire model for wave energy converters with a geared rotary generator	Jian Tan; George Lavidas
	840	A control-oriented modeling framework for wave energy converters	Gabriel Forstner; Tobias Glaser; Pierre Lourdais; Jørgen Hals Todalshaug
	TBC		
10.30	**Coffee Break**		
GPC	Grid/off-grid integration, power take-off and control 1		**ROOM 2**
	Chair: Nicolas Faedo		
11.00	717	Enhancing Decentralized Control of Wave Energy Arrays by Predicting Optimal Array Motion	Zechuan Lin; Yifei Han; Pedro Fornaro; Xi Xiao; John Ringwood
	796	Predictive control technique for peak shaving of oscillating water column type wave energy converter Kim; Jung Hee Lee	Su-gil Cho; Jaewon Oh; Kilwon Kim; Sanghyun Park; Kyong-Hwan Kim; Jiyong Park; Yoon-Jin Ha; Jeong-Seok Kim; Hyungwoo
	863	Developing control strategies for a floating oscillating water column wave energy converter	Clara Vanessa Encke; Krishnakumar Rajagopalan; Patrick Cross; Troy Heitmann; Terry Lettenmaier; Duncan Lajousky; Kyle Pappas; Ersegun Deniz Gedikli
	868	Optimized Grid Integration of Point Absorber Converters with Grid-forming Energy Storage System	Kemeng Chen; Zechuan Lin; Yifei Han; Xuanyi Zhu; Xuanrui Huang; Xi Xiao
	TBC		
12.30	**Lunch Break**		

GPC		Grid/off-grid integration, power take-off and control 1	ROOM 2
		Chair: Lei Zou	
14.00	882	A Comparative study on basic design of hybrid storage architectures for grid-connected arrays of wave energy converters	Viola De Clerck; Hafiz Ahsan Said; Bruno Paduano; Edoardo Pasta
	890	Symphony: The Ultimate Wave Energy Controller	Pedro Fornaro; Zechuan Lin; Eugenio M. gelos; John V/ Ringwood
	930	Integrating a Wave Farm into an Isolated Power System with Energy Storage Systems: Analysis of Frequency Stability and Renewable Energy Penetration	Jorge Nájera; Marcos Blanco; Gustavo Navarro; Eduardo Rausell; Valentín Urda; Marcos Lafoz; Jose Ignacio Sarasúa; Guillermo Martínez; Juan Ignacio Pérez
	TBC		
	TBC		
15.30		**Coffee Break**	
EIA		Marine spatial planning, environmental impact and appraisal 2	ROOM 2
		Chair: Jan Sundberg	
16.00	907	Observation of fish, birds, and harbor seals around an operating cross-flow turbine	Christopher Bassett; Emma Cotter
	989	Supporting Marine Energy Project Developments in the U.S.: A Toolkit for Siting and Permitting	Sharon Kramer; Grace Chang; Zachary Barr; Cesar R. Castillo; Chrisopher Flanary
	1105	Underwater Noise Monitoring of a Wave Energy Converter: Insights from the HiWave-5 Project in Aguçadoura, Portugal	Luana Clementino; Clara Rodrigues; Miguel Amado; Pedro Vinagre; Inês Machado; Quentin Geerinckx; Nikla Schmidt; Simone Teixeira; Juan Bald
	1193	Minimizing environmental risks to progress the marine renewable energy industry	Lysel Garavelli, Garavelli; Deborah Rose; Mikaela Freeman; Lenaig Hemery; Hayley Farr; Andrea Copping
17.30	TBC		

TDD	Structural mechanics: materials, fatigue, loadings 2		ROOM 3
	Chair: Venki Venugopal		
Time	**ID**	**Title**	**Authors**
9.00	**714**	The Life of a Tidal Blade under Fatigue Testing	Sergio Lopez Dubon, Fergus Cuthill; Miguel Valdivia; Christopher Vogel; Conchur O' Bradaigh; Edward D. McCarthy
	959	Tribological investigation of polyurethane materials for rack-and-pinion in Wave Energy Converter (WEC) systems	Ádám Kalácska
	1041	Fault diagnosis of a wave energy converter based on ball screw mechanism	Alejandro Gonzalez-Esculpi; Hafiz Ahsan Said; Mikael Sidenmark; John Vincent Ringwood
	1045	Innovative Multi-Degradation Rigs: Fast-Tracking Material Validation for Resilient Offshore Renewable Energy	Giacomo Alessandri; Johan Lindén; Leandro de Oliveira; Kjell-Åke Andersson; Nuria Espallargas; Hamid Khanmohammadi; Christian von der Ohe
	1084	Strain failure limits of tidal turbine blades based on full-scale structural testing	William Finnegan; Ciaran Kennedy; Michael Flanagan; Jamie Goggins
10.30	**Coffee Break**		
TDD	Co-location, hybridization and synergies in the Blue Economy 2		**ROOM 3**
	Chair: Irina Temiz		
11.00	**875**	Assessing the potential of hybrid wind-wave energy converters: a case study in Italian seas	Maria Luisa Celesti; Viola De Clerck; Alberto Ghigo; Stefania Patronelli; Davide Alberti; Giovanni Bracco; Bruno Paduano
	910	A guide for co-locating marine energy and aquaculture	Mikaela Freeman; Lysel Garavelli; Ruth Branch; Deborah Rose
	936	Multi-Use Ocean Thermal Energy Conversion (OTEC) Platforms	Andrea Copping; Hayley Farr; Christopher Rumple; Zhaoqing Yang; Kyungmin Park; Fadia Ticona Rollano
	1023	Wave Dragon wave-wind project	Erik Friis-Madsen; Kim Nielsen; Julia Fernandez Chozas; Sarah Krogh Iversen; Peter Frigaard
	1025	Assessing the Technical Feasibility and Resource Integration of Hybrid Offshore Wind and Tidal Stream Energy System	Marianella Bolivar Carbonell; Stephanie Ordonez-Sanchez
12.30	**Lunch Break**		

TDD	Co-location, hybridization and synergies in the Blue Economy 3		ROOM 3
	Chair: Jorge Camacho		
14.00	1103	Modelling Floating Wind-Wave Energy Converters with Froude-Krylov Forces and Lagrangian mechanics	Matheus Costa; Jander Santos; Erivelton Nepomuceno
	1111	On the Integration of Hydrogen in multipurpose wave energy platforms	JUAN PORTILLO; Guilherme Mourão
	1205	Using WEC arrays to enhance the stability and power output of floating wind turbines	Diego Fernando Bernal Camacho; Andreas T. Asiikkis; Edgar Mendoza; Antonis I. Vakis
	1216	A review of wave energy converters for stabilisation and power output optimisation of floating offshore wind platforms	Josefredo Gadelha da Silva; Marcio Junior Lacerda; Erivelton Nepomuceno
	TBC		
15.30	Coffee Break		
SMF	Station-keeping, moorings and foundations 2		ROOM 3
	Chair: Lars Johanning		
16.00	823	Experimental assessment of mooring loads and response of the M4 wave energy converter in complex conditions: the effect of currents and crossing seas	Samuel Draycott; Zi You Felix Ma; Gangqiang Li; Peter Stansby
	842	A novel two-point mooring for a floating vertical axis tidal turbine platform	Luke Friedl; Brad Buckham; Spencer Funk; Riley Richardson; Ignacio Beya Marshall; Ben Whitby; Blake Holowaty; Voytek Klaptocz
	851	Effects of Biofouling on Hydrodynamic Behavior of a Semi-submersible Marine Energy System	Jiahn-Horng Chen; KuanTing Yang
	902	WEC control co-design for mooring optimisation: A screening of programming languages and software tools	Hafiz Ahsan Said; Manal Mekelleche; John Ringwood
17.30	TBC		

THM	Tidal hydrodynamic modelling 4	ROOM 4
	Chair: Yabin Liu	
Time	**ID**	**Title**	**Authors**
9.00	**1020**	Maximum tidal turbine blade loading during waves and corresponding onset flow variation	Tim Stallard; Hannah Mullings
	1043	Parametric Design and Evaluation of Floating Tidal Turbines under Real World Wave Scenarios	Thomas Clarke; Federico Zilic de Arcos; Richard Willden
	1102	Solution-driven Mesh Adaptation Method for Unsteady Tidal Turbine Array Simulation and Optimisation	Eleda Johnson; Joseph Wallwork; Stephan Kramer; Matthew Piggott
	TBC		
	TBC		
10.30	**Coffee Break**		
TDD	Tidal device development and testing 4	**ROOM 4**
	Chair: AbuBakr Bahaj	
11.00	**919**	Performance analysis of a hydraulic tidal turbine for seawater desalination	Antonio Jarquin-Laguna
	929	Tidal flow variation at a test site: instrumentation, physics, or both?	Thomas Lake; Ian Masters; Ali Esmaeili; Iestyn Evans; Deepak George; David Glasby; Jose M. Horrillo-Caraballo; Dawn Morgan; Michael Togneri; Alison J. Williams
	937	De-risking hydrokinetic turbine projects by towing tank tests	Francesco Salvatore; Massimo Falchi; Mohammad Rafiei; Francesca Magionesi; Patrick Cronin; Clement Courade; Conor Dillon
	940	Passively pitching blades for tidal turbines: Experimental Demonstration	Puja Sunil; Kuba Frankowski; Anna Young; Riccardo Broglia; Edward McCarthy; Ignazio Maria Viola
	TBC		
12.30	**Lunch Break**		

TDD	Tidal device development and testing 5		ROOM 4
		Chair: Jesus María Blanco	
14.00	953	Tidal Turbine Benchmarking Project: Stage II - Experiments on unsteady loading in waves	Nijmeh Marouf; Yadong Han; Richard Willden; Sam Tucker Harvey
	954	Using Multibeam Sonar to Characterise the Wake of a Cross-Flow Tidal Turbine	Jeffrey Johnston; Pal Schmitt
	961	Assessment of a floating platform for testing a crossflow tidal turbine	Carwyn Frost; Jan Dillenburger-Keenan; Patrick Cronin
	972	Development and performance assessment of 3D-printed tidal turbine blades: Insights from steady flow testing	Selina Brinkmann; Christopher Vogel; Richard Willden
	TBC		
15.30	**Coffee Break**		
GPC	Grid/off-grid integration, power take-off and control 3		**ROOM 4**
		Chair: George Lavidas	
16.00	964	Influence of Restoring Force Absence and Unidirectional Power Flow on the Power Absorption Performance of WavePiston	Eugenio M. Gelos; Pedro Fornaro; Colm Fitzgerald; John V. Ringwood
	1013	Genetic algorithm based co-design of wave energy converter power take-off, floater geometry, and control	Matthew Onslow; Adam Stock
	1036	Wave Energy Converter Power Take-off for the Albany M4; Dry Test and Initial Deployment	Judith Apsley; Nuwantha Fernando; Akila Jayasinghe; Xiaotao Zhang; Peter Stansby; Hugh Wolgamot; Christophe Gaudin; Adi Kurniawan; Zifan Lin
	TBC		
17.30	TBC		