Final UK-China Joint Offshore Renewable Energy Conference (virtual)

UK&CHN CORE UK & China Centre for Offshore Renewable Energy

Day 1: Highlights

Tuesday 8th Dec 2020

08:30-11:30 GMT | 16:30-19:30 pm CCT

Session 1: Live

08:30 | 16:30 Welcome by Conference Chair Dr Maurizio Collu (University of Strathclyde)

08:40 | 16:40 Keynote by Dr Yan Li (China Electric Power Research Institute): Analysis of key technologies of offshore wind power grid connection and revision of grid code in China

09:00 | 17:00 Keynote by David Findlay (Offshore Renewable Energy Catapult)

09:20 | 17:20 Funder welcome & perspective by Jin Xu (NSFC) & Amy Spalding (EPSRC)

09.30 | 17:30 BREAK

Session 2: Pre-recorded

09:40 | 17:40 Highlight summary 'INNO-MPP' by Drs Maurizio Collu & Sun Ke

09:50 | 17:50 Highlight summary 'Resin' by Prof Lars Johanning (University of Exeter)

10:00 | 18:00 Highlight summary 'Fengbo-Wind' by Prof Rafael Palacios (Imperial College London)

10:10 | 18:10 Highlight summary 'Extreme Wind' by Prof Thomas Adcock (University of Oxford)

10:20 | 18:20 Highlight summary 'Mod-Core' by Dr Alasdair McDonald (University of Strathclyde)

Session 3: Live

10:30 | 18:30 What progress have we made? A panel discussion with the project leads

Chair:

Ritwika Sengupta (NERC)

Panel:

Dr Sun Ke (Harbin Engineering University)
Prof Lars Johanning (University of Exeter)
Prof Rafael Palacios (Imperial College London)
Prof Ye Li (Shanghai Jiao Tong University)
Dr Alasdair MacDonald (University of Strathclyde)

11.00 | 19:00 Close of day and invitation to visit project booths (Maurizio Collu)

Day 2: Science

Wednesday 9th Dec 2020

08:30-11:30 GMT | 16:30-19:30 pm CCT

Session 4: Live

08:30 | 16:30 Welcome by today's chair Prof Thomas Adcock (University of Oxford)

08:40 | 16:40 Keynote by Dr Mark Hemer (CISRO): Offshore renewable energy systems as part of Australia's Blue Economy

09:00 | 17:00 BREAK

Session 5: Semi-live

09:10 | 17:10 INNO-MPP main results by Dr Maurizio Collu (University of Strathclyde)

09:25 | 17:25 Resin main results by Dr Ed McKay (University of Exeter)

09:40 | 17:40 Fengbo-Wind main results by Dr Hongyang Dong (University of Warwick)

09:55 | 17:55 Extreme Wind main results by Prof Ton Van Den Bremer (University of Oxford)

10:10 | 18:10 Dr Paul Lepper (University of Loughborough) talking on the "Underwater noise assessment of ORE: The flying hydrophone"

10:25 | 18:25 BREAK

Session 6: Live

10:30 | 18:30 Soft skills needed for a career in renewable energy. A panel discussion with early career researchers

Chair:

Jennifer Fox (Aquatera)

Panel:

Dr Yang Yi (Harbin Engineering University)
Dr Ed Mackay (University of Exeter)
Dr Mark McAllister (University of Oxford)
Dr Tianning Tang (University of Oxford)
Dr Hongyang Dong (University of Warwick)

11.00 | 19:00 Close of session and invitation to visit project booths by Prof Tom Adcock

Day 3: What next?

Thursday 10th Dec 2020

08:30-11:30 GMT | 16:30-19:30 pm CCT

Session 7: Live

08:30 | 16:30 Welcome by today's chair Prof Rafael Palacios (Imperial College London)

08:40 | 16:40 Keynote by Prof Paul Tett (SAMS) & Dr Suzi Billing (SAMS): Exploring the social characteristics ofcombining technologies on multi-use offshore installations'

Session 8: Semi-live

09:00 | 17:00 Learning through engagement, Prof Lars Johanning (University of Exeter) and Cui Lin (National Ocean Technology Centre of China)

09:30 | 17:30 BREAK

Session 9: Live

09:40 | 17:40 Future research and funding priorities for ORE. A panel discussion

Chair:

Dr Alasdair McDonald (University of Strathclyde)

Panel:

James Fleming (EPSRC Head of Energy)
Jin Xu (NSFC)
Dr Wei Chen, (MingYang Group)
Claudio Bittencourt (DNVGL)
Prof Philipp Thies (University of Exeter, EPSRC Supergen ORE)

10:15 | 18:15 Collaborations between China and UK: opportunities and challenges. A panel discussion

Chair:

Prof Xiaowei Zhao (University of Warwick)

Panel:

Jessica Henry (British Embassy in China)
Dr Ge Tan (Chinese Embassy in the UK)
Prof Ruzhu Wang (Shanghai Jiao Tong University)
Angela Lock (Tekmar Group)
Fraser Deas (British Council)
Dr Ed Mackay (University of Exeter)
Dr Xue Xu (University of Strathclyde)

10.45 | 18:45 Final words and thanks from Conference Chair Dr Maurizio Collu

People:
Who will you hear from at this conference?

UK&CHN | CORE UK & China Centre for Offshore Renewable Energy

Day 1: Highlights

Conference Chair / speaker

Dr Maurizio Collu

is Reader in Offshore Renewable Energy Systems at the Naval Architecture, Ocean and Marine Engineering Department of the University of Strathclyde. With his team he focuses on the development of multi-purpose offshore platforms for the sustainable development of small/isolated communities, exploiting the synergies among offshore renewable energy and aquaculture industries. He has been the lead Principal Investigator of the £0.8M INNO-MPP project, leading a team of engineers, environmental and social scientists.

Keynote speakers

Dr Yan Li

is the Deputy Director of the Renewable Energy Research Centre of the China Electric Power Research Institute (CEPRI). His research interests include power system analysis, renewable energy modelling, grid integration simulation and renewable energy planning. Presentation summary: At the end of 2019, the installed capacity of offshore wind power reached 4.9GW in China, second only to the United Kingdom and Germany, ranking third in the world. The presentation focuses on the construction of tens of millions of kilowatts of offshore wind power bases in the future, focusing on the corresponding development policy incentives and technical research development and standard formulation, studying how to plan offshore wind power grid integration, and guide the development of offshore wind power technology.

David Findlay

is the UK vice general manager of the TUS-ORE Catapult Research Centre (TORC). He is a Mechanical Engineer with 15 years' experience working in marine energy. Whilst at University, he worked closely with Professor Stephen Salter – the inventor of Salter's Duck – a pioneering wave energy development from the 1970s. Since then David has working on several innovative wave and tidal energy developments including Scotrenewables floating tidal system and the WET-NZ wave energy device from New Zealand. David invented the WaveNET coupled wave array, and SQUID wave energy module, and founded Albatern wave power where he led the design, build and deployment of a series of pioneering wave energy projects from 2007 – 2017. David joined TORC as Vice General Manager (UK) in 2019.

TORC
TUS-ORE CATAPULT

Tus Ore Catapult (TORC)

iTus ORE Catapult (TORC) is a joint venture between the UK's Offshore Renewable Energy Catapult, one of the World's leading offshore wind test and verification centres and Tus Wind, a subsidiary of Tus Holdings – one of the world's leading new technology innovation, incubations and investment vehicles. TORC was established to promote collaboration in offshore renewable energy and the Blue Economy between the UK and China.

Funder representatives

Jin Xu

is Programme Director of the Bureau of International Cooperation of the National Science Foundation of China. He has been working in his role since 2011 and manages NSFC's collaboration with UK, France, Germany, the Netherlands, among other countries.

Amy Spalding

works for UK Research and Innovation as a Portfolio Manager for Offshore Renewable Energy at the Engineering and Physical Sciences Research Council.

Speakers

Dr Maurizio Collu - see day 1 'Conference Chair'.

Prof Lars Johanning

is Professor of Ocean Technology at the Univesity of Exeter. His research focuses on hydrodynamics and station keeping systems, including loading and dynamic response of mono-towers in steep and breaking waves hydrodynamic and reliability studies on station keeping systems for offshore renewable energy devices and hydrodynamic analysis supporting the development of aquaculture systems He has a leading roles on the Industrial Doctoral Centre for Offshore Renewable – IDCORE. He has been leading the UK team for the ResIn project.

More: https://emps.exeter.ac.uk/renewable-energy/staff/lj233
Contact: L.Johanning@exeter.ac.uk

Prof Rafael Palacios

is Professor in Computational Aeroelasticity at the Faculty of Engineering, Department of Aeronautics at Imperial College London. He leads the Load Control and Aeroelastics lab that investigates computational methods for dynamic analysis, control and optimization of flexible air vehicles and offshore wind turbines. He is currently Director of Research at the Department of Aeronautics. He has been the UK lead Principal Investigator for the Fengbo-Wind project.

More: https://www.imperial.ac.uk/people/r.palacios
Contact: thomas.adcock@eng.ox.ac.uk

Prof Thomas Adcock

is an Associate Professor in the Department of Engineering Science at the University of Oxford and a Tutorial Fellow of St Peter's College Oxford. He is a metocean engineer looking at how engineers understand the ocean environment and how infrastructure interacts with this. Research topics include statists and non-linear physics of extreme waves; wave-structure interactions; storm surges and more. He has been the UK lead Principal Investigator of the Extreme-Wind project.

More: https://eng.ox.ac.uk/people/thomas-adcock/
Contact: thomas.adcock@eng.ox.ac.uk

Dr Alasdair McDonald

is a Reader at the EPSRC Centre for Doctoral Training in Wind and Marine Energy Systems at the Department of Electronic and Electrical Engineering at the University of Strathclyde. His research interests are centred on electrical generators and their application to renewable energy, especially wind turbine powertrains. He has been leading the UK team of the Mod-Core project.

More: https://www.strath.ac.uk/staff/mcdonaldalasdairdr/
Contact: alasdair.mcdonald@strath.ac.uk

Panel discussion 'What progress have we made'

Chair

Ritwika Sengupta

works as a Programme Manager for the Energy portfolio within the Natural Environment Research Council, which is part of UK Research and Innovation.

Speakers

Dr Sun Ke

is an Associate Professor at the College of Shipbuilding Engineering at Harbin Engineering University. She works on fluid dynamics, ocean renewable energy and offshore engineering and is interested in the numerical and experimental investigation of tidal current and wind turbines' load, power and flow field characters around single turbine, duct and turbine array. Her recent research interests are numerical simulations and modelling of ocean renewable energy platform integrated of tidal current, wave and offshore wind energy devices. He has been leading the Chinese team of the INNO-MPP project.

Contact: sunke@hrbeu.edu.cn

Prof Lars Johanning - see under day 1 'speakers'.

Prof Rafael Palacios - see under day 1 'speakers'.

Prof Ye Li

is Professor works at the School of Naval Architecture, Ocean and Civil Engineering at Shanghai Jiao Tong University (SJTU). He is the founding director of SJTU's multiple functional towing tank, and the founding director of the National Centre for Offshore Wind Technology. His research focuses on theoretical, numerical and experimental studies of fluid-structure interactions. He has been leading the Chinese team of the Extreme Wind project.

More: https://www.linkedin.com/in/ye-li-27269a4
Contact: ye.li@sjtu.edu.cn

Dr Alasdair McDonald - see under day 1 'speakers'.

Day 2: Science

Day Chair / speaker

Prof Thomas Adcock - see under day 1 'speakers'.

Keynote speaker

Dr Mark Hemer

is a Principal Research Scientist with CSIRO's Ocean and Atmosphere business unit. He leads the Offshore Renewable Energy Systems Research Program of Australia's Blue Economy Co-operative Research Centre.

More: https://people.csiro.au/H/M/mark-hemer

Speakers

Dr Maurizio Collu - see day 1 'Conference Chair'.

Dr Ed McKay

is a senior research fellow in the Offshore Renewable Energy Group at the University of Exeter. His research interests include hydrodynamics of offshore structures, statistical modelling of extreme conditions and metocean modelling. Prior to joining the University of Exeter, Ed worked in the wave and tidal energy industry for 12years, at companies including DNV GL, Pelamis Wave Power and Wavepower Technologies.

Dr Hongyang Dong

is a Research Fellow in machine learning and intelligent control at the School of Engineering, University of Warwick, working with Prof Xiaowei Zhao. He is currently working on the FENGBO-Wind Project of the UK-China Centre for ORE. His research interests include intelligent control, deep learning, and adaptive control with their applications in ORE systems and autonomous systems.

Prof Ton Van Den Bremer

works in the Department of Engineering Science at the University of Oxford, and Tutor and Fellow in Engineering in Worcester College. His research interests are in geophysical fluid mechanics, understanding the role of non-linearity in oceanic and atmospheric gravity waves. For his Royal Academy of Engineering Research Fellowship, Ton is examining the role of waves in the transport and spreading of plastic pollution in the ocean. He also has an interest in stochastic processes, applied to the economics of natural resources and climate. As part of the project, Ton van den Bremer will examine the evolution of waves from deep water onto the top of slopes, where increases in the probability of extreme waves have been observed and offshore wind turbines are planned.

Dr Alasdair McDonald - see under day 1 'speakers'.

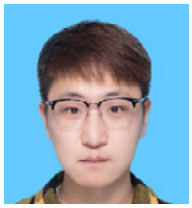
Panel discussion ‘Soft skills needed for a career in renewable energy’

Chair

Jennifer Fox

is a Senior Consultant at Aquatera Ltd, based in Orkney, Scotland and is also the Programme Manager for ORJIP Ocean Energy. Over the last number of years Jennifer has been working on the MATES Project which examines the skills gaps in the offshore renewable energy sector in Europe and ways of addressing those skills gaps in the future.

Speakers



Yang Yi

is a postgraduate of Harbin Engineering University. During his graduate school, he mainly studied the star-up performance of vertical axis tidal turbine and offshore hybrid systems. In 2019, he has participated in INNO-MPP project, and made a partial contribution to WP3 which is a model experiment of MPP aiming to learn its hydrodynamic performance.

Dr Ed Mackay - see under day 2 ‘speakers’.

Dr Mark McAllister

holds an MEng in Mechanical Engineering (2013) as well as a PhD in Engineering (2017) from from the University of Edinburgh. Mark joined the Department of Engineering Science in Oxford as a postdoctoral research associate in late 2017.

Tianning Tang

is a final year DPhil student studying at the University of Oxford. Tianning Tang has graduated from the University of Nottingham majored in BEng mechanical engineering. Tianning used a combination of field measurements, numerical simulations, and experiments to investigate the wave statistics and the non-linear effects on the extreme waves. Currently, he is working on applying data-driven methods to predict the wave statistics in the open ocean.

Dr Hongyang Dong - see under day 2 ‘speakers’

Day 3: What next?

Day Chair / speaker

Prof Rafael Palacios - see under day 1 'speakers'.

Keynote speakers

Prof Paul Tett

is a Principal Investigator in Coastal Systems at the Scottish Association for Marine Science (SAMS), Honorary Professor at Edinburgh Napier and Heriot-Watt Universities in Scotland, and has been a Visiting Research Professor at Ocean University of Qingdao, China. He is a biological oceanographer who became interested in social systems as well as ecosystems. He currently leads a work-package on social and policy aspects of multi-functional offshore structures in the European H2020 Blue Growth Farm project. He is standing in for his colleague and collaborator, Dr Suzi Billing, who has taken ill. He will present Suzi's work on social acceptability.

More: https://www.sams.ac.uk/people/researchers/tett-professor-paul/
Contact: paul.tett@sams.ac.uk

Dr Suzi Billing

is an interdisciplinary social scientist at the Scottish Association for Marine Science (SAMS) researching rural development, social licence to operate and community agents for change within the context of the sustainable use of coastal and marine resources. She is currently working on the Blue Growth Farm project concerning multi-functional platforms.

More: https://www.sams.ac.uk/people/researchers/billing-dr-suzi/
Contact: suzi.billing@sams.ac.uk

Panel discussion 'Future research and funding priorities for ORE'

Chair

Dr Alasdair McDonald - see under day 1 ' speakers'.

Speakers

Jin Xu - see funder representative day 1

Dr Wei Chen

is the General Manager of the Ming Yang European Business and Engineering Centre based in Hamburg, Germany. With a PhD in electrical engineering, Dr Chen previously worked at UK-DEWI as a type testing engineer for wind turbines, He also project managed renewables certification projects and delivered technical evaluations of the design, production and installation of renewable power plans for DNV GL. In his current role he has set up the local team in Germany and supports the growth of the Ming Yang business in Europe.

Claudio Bittencourt Ferreira

is the Business Development Director for DNV GL Renewables Certification Wave and Tidal. A structural engineer, Claudio specialises in fixed and floating structures, marine operations, and qualification of technology. He is heavily involved in certification of wind and tidal energy converters. Claudio is the project manager for EquiMar, SDWED and other ongoing certification projects of several wave and tidal energy converters. He was responsible for the development of the DNV GL Standard for Tidal Turbines (DNVGL-ST-0164) delivered in Oct 2015 and the Service Specification DNVGL-SE-0163 Certification of Tidal Turbine and Arrays (following the completion of ETI ReDAPT project). He is a member of the Strategic Advisory Board for H2020 DTOcean and of the Advisory Group for H2020 WETFEET.

Prof Philipp R. Thies

is an Associate Professor in Renewable Energy in the College of Engineering, Mathematics and Physical Sciences (CEMPS) at the University of Exeter. He holds a Dipl.-Wi.-Ing. degree in Energy- and Environmental Energy from the University of Flensburg (Germany) and a PhD in Renewable Energy from the University of Exeter (UK). His research interest lies in the reliability engineering of renewable energy technologies with a focus on offshore energy. He has developed novel component reliability testing approaches, Bayesian statistical analysis approaches for situations of data uncertainty and has been deeply involved in several national and international research and industry-led projects seeking technology demonstration in the field and at large-scale in the lab. His work covers the breadth of marine renewable energy, incl. offshore wind, tidal and wave energy and aligns computational modelling with application driven design improvements and extensive planning, execution and evaluation of component reliability and testing campaigns. Through his work, he has modelled and physically tested several novel mooring systems and dynamic submarine power cables. The work on dynamic power cables has been awarded the IMechE Best Career Researcher Paper. He has been PI on a collaborative EPSRC UK-China project with NOTC and the South China Sea Institute of Oceanology and is contributing to the ResIn project. He is Co-Investigator in the EPSRC/NERC Centre for Doctoral Training in Offshore Renewable Energy (IDCORE), training the next generation of offshore engineers and researchers. He is also a Co-Director of the EPSRC Supergen ORE Hub.

More: http://emps.exeter.ac.uk/renewable-energy/staff/prt205/publications
Twitter: @philipp_thies; Contact: P.R.Thies@exeter.ac.uk

Panel discussion 2 ‘Collaborations between China and UK opportunities and challenges’

Chair

Professor Xiaowei Zhao

is Professor of Control Engineering at the University of Warwick. He is an EPSRC Fellow and a co-director of the EPSRC Supergen ORE (Offshore Renewable Energy) Hub. He obtained his PhD in Control Theory from Imperial College London in 2010 and then worked as a postdoctoral researcher in the Control Engineering Group of the University of Oxford until 2013. After that he joined the University of Warwick where he was awarded a chair in 2018. At Warwick he has established the Intelligent Control & Smart Energy (ICSE) research group which currently includes around 20 PhD students and postdoctoral researchers. His main research areas are control theory and machine learning with applications to the modelling and control of offshore renewable energy systems and their grid integration, local smart energy systems, and autonomous systems. He currently has six main research projects (four from EPSRC and two from H2020) in these areas with a total project values of £20 million.

Speakers

Jessica Henry

is the Head of Energy Policy Team and she leads a team responsible for building strong government-to-government links between the UK and China on energy policy, at the British Embassy Beijing. She previously led on managing the UK contribution to the EU budget in the Prime Minister's European and Global Issues Secretariat. Before that, Jessica worked in the Department for Energy and Climate Change, designing legislation to support electricity market reform and improve the regulatory system for unconventional gas exploration, supporting two separate pieces of primary legislation (Energy Act 2013 and Infrastructure Act 2015). Before joining the Civil Service, Jessica worked for a Member of Parliament and in the political statistics company YouGov. She holds qualifications in both International Relations and Management Accounting, with advanced Mandarin Chinese.

Dr Ge Tan

is the first secretary (Sci & Tech) in the Chinese Embassy in the UK, is responsible for promoting the science, technology and innovation cooperation between China and the UK. Before this position, he worked in the Ministry of Science and Technology (MOST) in China for about 10 years.

Prof Ruzhu Wang

graduated from Shanghai Jiao Tong University (SJTU) in 1984, 1987 and 1990 for his bachelor, master and PhD degrees. He was promoted as associate professor in 1992, and full professor in 1994 in SJTU. He was awarded as CheungKong Chair Professor in 2000 by the Ministry of Education (MOE) of China, Distinguished young researcher in 2002 by National Natural Science Foundation of China (NSFC). Prof. Wang is a successful educator, he was awarded the best top 100 National distinguished teacher in 2007, National model teacher in 2009, National Teaching Award in 2009, and National Labor Model in 2015. Prof. Wang is also a well known scientist worldwide, he has published more than 600 refereed journal papers, 130 international conference papers, 32 review papers and 8 books. He has presented more than 30 plenary/keynote lectures in various international conferences. His research achievements have won National Invention award (2010) and National Natural Science Research Award (2014). Due to his most noteworthy contribution to Refrigeration globally, he was honored to receive the J & E International Gold Medal from the Institute of Refrigeration (UK) in 2013. He was selected as Clarivate Highly Cited Researcher in 2017 and 2018 respectively. He was awarded Asia academic award from China-Japan-Korea Societies of Refrigeration in 2017, Nukiyama Memorial Award in Thermal Science and Engineering from Japanese Society of Heat Transfer in 2018, IIR-Gustav Lorentzen Medal from the International Institute of Refrigeration in 2019. He had been appointed as the director of Institute of Refrigeration and Cryogenics of SJTU since 1993. Currently he is also the Director- Engineering Research Center of Solar Energy, MOE China, Vice dean of SJTU Energy Institute. His research group has awarded as Excellent Innovative Team of Energy Research from MOST China in 2014 and NSFC in 2015. Prof. Wang is currently the vice president of Chinese Association of Refrigeration, IIR-B2 vice president, Deputy Editor-in-Chief of Energy, Regional editor-International Journal of Refrigeration, Editor board member of Energy Conversion and Management, Applied Thermal Engineering, etc.. His research is highlighted in heat pumps, sorption cooling, energy system for green buildings, thermal design of energy systems.

Dr Ed Mackay - see Day 2 'speakers'

Angela Lock

is the General Manager APAC, who joined since 2018, Angela established Tekmar APAC Headquarter in Shanghai. She is responsible for the group portfolio in Asia Pacific, including Tekmar Energy Ltd., AgileTek Engineering Ltd., Ryder Geotechnology Ltd., and Subsea Innovation Ltd. Previously, Angela was the General Manager of the British Chamber of Commerce Shanghai. Since 2008, she has assisted many UK companies developing their business in China. Endorsed by the UK Department for International Trade, Scotland Development International, and Renewables UK, she was the co-founder of UK-China Hub for Offshore Wind established in January 2017. Angela has attended and spoken at the Annual Sino-British Offshore Wind Collaboration Advisory Committee Meeting since 2016. Angela completed her undergraduate degree in management in FuDan University in 2004 and obtained her MSc. in 2005 in Loughborough University in the UK. She is a keen athlete and has been practicing karate since teenager time. She has competed in many high-level karate competitions and has won a few national champion titles. She has a seven-year-old daughter.

Fraser Deas

is the Head of Education Services at the British Council China, based in Beijing. In his role he supports UK education institutions with their international work in China, delivering bespoke marketing and research services to grow their brand, recruit students and develop international partnerships. Prior to joining the British Council five years ago, Fraser was the Marketing Manager at an education start-up company in Zhuhai, China. Fraser first came to China when he completed a one-year exchange programme at Nanjing University, as part of his Chinese Studies degree with the University of Sheffield.

Dr Xue Xu

is a Research Associate at the University of Strathclyde. She received her PhD from University of Strathclyde, in 2020, which was focused on the dynamic analysis of the floating systems of Floating Offshore Wind Turbines. She has joined the INNO-MPP project since the June 2019 as a Research Assistant, and contributed partially on Work Packages 2 and 8, which includes the wave energy converter array harbour effect on the MPP, the extreme environmental condition predictions and the risk analysis for the feeding barge system.