

# 7<sup>th</sup> Oxford Tidal Energy Workshop (OTE 2019)

## Programme

8<sup>th</sup> April 2019

11:00 – 11:10 Opening

11:10 – 12:25 Session 1: Device modelling and performance (1)

11:10 *An adaptive 3D force distribution model for calculating interactions and power production in an array of vertical axis water turbines*  
Vincent Clary (Université Grenoble Alpes)

11:35 *Preliminary assessment of blade twist-deformation as a load relief mechanism for tidal turbine blades*  
Federico Zilic de Arcos (University of Oxford)

12:00 *Quantifying the downstream wake intensity and recovery of an axial flow hydrokinetic turbine through validated CFD models*  
Chantel Niebuhr (University of Pretoria)

12:25 – 12:35 Poster Presentations

12:35 – 14:00 Lunch

14:00 – 15:15 Session 2: Environmental and resource modelling

14:00 *Bathymetric features affecting turbine performance: Insights from a CFD model*  
Merel Verbeek (TU Delft)

14:25 *Agent-based modelling of fish collisions with tidal turbines*  
Kate Rossington (HR Wallingford)

14:50 *Empirical orthogonal functions for decoupling waves and turbulence in ADCP measurements*  
Michael Togneri (Swansea University)

15:15 – 15:30 Introduction to the SuperGen ORE Hub  
(Byron Byrne & Richard Willden, University of Oxford)

15:30 – 16:00 Coffee

16:00 – 17:15 Session 3: Experimental testing

16:00 *Characterising the FloWave facility for horizontal axis tidal turbine correlation*  
Matt Edmunds (Swansea University)

16:25 *Experimental study on interactions between two closely spaced rotors*  
James McNaughton (University of Oxford)

16:50 *Hydrodynamics PTO and control design of a horizontal axis model turbine for experimental research*  
Zohreh Sarchiloo, Mohammad Rafiei (CNR-INM)

18:45 – Drinks reception & Dinner  
Côte Brasserie, 41 George St, Oxford OX1 2BE

9<sup>th</sup> April 2019

- 9:25 – 10:40 Session 4: Floating platform dynamics
- 9:25 *The effects of surge motion on floating horizontal axis tidal turbines*  
Mohamad Hasif bin Osman (University of Oxford)
  - 9:50 *Sensor fusion and motion modelling of a floating tidal stream turbine*  
Thomas Lake (Swansea University)
  - 10:15 *Validating a numerical model for assessing entire floating tidal systems*  
Ed Ransley (Plymouth University)
- 10:40 – 11:10 Coffee
- 11:10 – 12:25 Session 5: Array modelling and control
- 11:10 *Theoretical prediction of the efficiency of very large turbine arrays: combined effects of local blockage and wake mixing*  
Takafumi Nishino (University of Oxford)
  - 11:35 *Variations in the optimal design of a tidal stream turbine array with costs*  
Zoe Goss (Imperial College)
  - 12:00 *A speed control strategy for parallel connected tidal turbines in an array using a variable ratio gearbox*  
Simon Reynolds (University of Edinburgh)
- 12:25 – 12:40 Early Career Researcher (ECR) Engagement in SuperGen ORE Hub,  
(Byron Byrne & Richard Willden, University of Oxford)
- 12:40 – 14:00 Lunch
- 14:00 – 15:15 Session 6: Device modelling and performance (2)
- 14:00 *Blade-explicit fluid structure interaction of a ducted high-solidity tidal turbine*  
Mitchell Borg (University of Strathclyde)
  - 14:25 *Analysis of unsteady loading of a tidal stream turbine with an actuator line RANS model*  
Wei Kang (University of Manchester)
  - 14:50 *Numerical modelling of a vertical-axis cross-flow turbine*  
Ruiwen Zhao (University of Edinburgh)
- 15:15 – 15:30 Closing

Poster Presentations:

*Large eddy simulation of tidal stream turbine arrays in environmentally realistic flows*

Pablo Ouro-Barba (Cardiff University)

*Using 3D coastal tidal models to assess tidal array performance*

Mohammed Al Moghayer (Heriot-Watt University)

*Optimising the income of a fleet of tidal lagoons*

Lucas Mackie (Imperial College)