

DAY 1 - April 22

| | | |
|------|------|-----------------|
| 8:30 | 9:15 | Registration |
| 9:15 | 9:30 | Welcome address |

Session I

| | | | |
|-------|-------|-----------------|---|
| 9:30 | 10:30 | Raúl Bayoán Cal | Wind Farm Entrainment (Keynote Talk) |
| 10:30 | 10:50 | Jiangang Chen | Characteristics of the temporal evolution of the turbulent/non-turbulent interface in a planar wake |
| 10:50 | 11:10 | Oliver Buxton | The entrainment of mass, momentum, and kinetic energy into turbulent wakes |

COFFEE BREAK

Session II

| | | | |
|-------|-------|-------------------|---|
| 11:40 | 12:00 | Leonardo Chamorro | Large-scale variability and turbulence structure in environmental flows relevant to wind energy |
| 12:00 | 12:20 | Pawel Baj | A Physics-Based Inverse Framework for Tailoring Mean Flow Profiles using Active Grids |
| 12:20 | 12:40 | Nicolas Mazellier | Investigation of a swirling wake under the effect of upstream disturbances |
| 12:40 | 13:00 | Ingrid Neunaber | On the Evolution and Receptivity of Turbulence in Wakes, with Application to Wind Turbine Flows |

LUNCH BREAK

Session III

| | | | |
|-------|-------|----------------|--|
| 14:00 | 14:20 | Oğuz Uzol | Time-resolved PIV Measurements of the Wake Response of a Porous Disc to Extreme Wind Shear (EWS) Gusts |
| 14:20 | 14:40 | Martin Bourhis | Dissipation scaling in wind turbine wakes exposed to freestream turbulence |
| 14:40 | 15:00 | Marco Placidi | Wind tunnel modelling of stable boundary layers and their effects on turbine wake flow |
| 15:00 | 15:20 | Mano Grunwald | Tip vortex breakdown at high Reynolds numbers for various inflow conditions |
| 15:20 | 15:40 | Luoqin Liu | The mean and spectral properties of vortex structures behind a yawed wind turbine |

COFFEE BREAK

Session IV

| | | | |
|-------|-------|--------------------|--|
| 16:10 | 16:30 | Jason Hearst | The effect of turbulence on wing tip vortices |
| 16:30 | 16:50 | Michael Howland | A wind farm modeling paradigm for stratified atmospheric boundary layers |
| 16:50 | 17:10 | Philippe Chatelain | Integration of a Meandering-Capturing Wake Model into Model Predictive Control for Dynamic Wind-Farm Operation |
| 17:10 | 17:30 | Kostas Steiros | Modelling the Aerodynamics of high loaded wind turbines |

POSTER SESSION AND DRINKS RECEPTION AT THE RGS (18:30 - 20:30)

DAY 2 - April 23

Session V

| | | | |
|-------|-------|------------------|--|
| 9:00 | 10:00 | Sandrine Aubrun | The porous disc as a physical model of a wind turbine: From the concept validation to the floating wind turbine applications (Keynote Talk) |
| 10:00 | 10:20 | Federico Taruffi | Advances in hybrid testing for floating wind turbines |
| 10:20 | 10:40 | Thomas Messmer | Improved wake mixing by coherent flow structures induced by periodic excitations in the wake of a floating wind turbine |
| 10:40 | 11:00 | Dylan Green | Energy and Momentum Transfer in the Wakes of Floating Offshore Wind Turbines |

COFFEE BREAK

Session VI

| | | | |
|-------|-------|----------------------|---|
| 11:30 | 11:50 | Xiaolei Yang | Coherent structures and similarity of wind turbine wakes |
| 11:50 | 12:10 | Dennice Gayme | Evaluating the effect of relative Platform Pitch Motion on Floating Offshore Wind Farm Power Output |
| 12:10 | 12:30 | Charles Meneveau | Generalised actuator disk theory: wake development with turbulent entrainment |
| 12:30 | 12:50 | Emily Louise Hodgson | Impact of freestream turbulent scales on wind turbine wakes, wind farm flows and power generation: insights and outlook |
| 12:50 | 13:10 | Stefan Ivanell | Recent Advances in Faster-than-Realtime LES of Wind Farm Flows |

LUNCH BREAK

Session VII

| | | | |
|-------|-------|------------------------|--|
| 14:10 | 14:30 | Søren Juhl Andersen | Perspectives on data-driven modelling of atmospheric flows around wind turbines. |
| 14:30 | 14:50 | Herbert Owen | LES-Modelling of offshore wind farms using a high order continuous spectral element solver |
| 14:50 | 15:10 | Richard Stevens | Large-scale wind farm atmosphere interactions |
| 15:10 | 15:30 | Hossein Amini Kafiabad | Coupled model of wind-farm-induced gravity waves with atmospheric boundary layer |
| 15:30 | 15:50 | James Bleeg | Inviscid influences on wind farm flows |

COFFEE BREAK

Session VIII

| | | | |
|-------|-------|------------------|---|
| 16:20 | 16:40 | Julie Lundquist | Differences in cluster and internal wake effects from mesoscale and large-eddy simulations |
| 16:40 | 17:00 | Claudia Brunner | A Lagrangian Tracer System Using Balloons to Study Wind Farm Interactions with the Atmospheric Boundary Layer |
| 17:00 | 17:20 | Wim Munters | Validating a three-year high-resolution mesoscale simulation of a multi-gigawatt offshore wind farm cluster with lidar and satellite observations |
| 17:20 | 17:40 | Julia Gottschall | Assessing turbulent wind farm flows with dual-Doppler radar measurements |
| 17:40 | 18:00 | Nicolai Nygaard | Offshore wind farms in a turbulent atmosphere - when models meet reality |

CONFERENCE DINNER - Ognisko (18:30 - 21:00)

DAY 3 - April 24

Session IX

| | | | |
|-------|-------|--------------------------|---|
| 9:00 | 10:00 | Johan Meyers | Simulation and modelling of wind-farm blockage (Keynote Talk) |
| 10:00 | 10:20 | Simone Tamaro | Exploring the potential and limits of wake mixing |
| 10:20 | 10:40 | Jan-Willem van Wingerden | Dynamic wind farm flow and cluster wake control |
| 10:40 | 11:00 | Sylvain Laizet | Reinforcement Learning for Real-Time Closed-Loop Collaborative Wind Farm Control and Power Optimisation |

COFFEE BREAK

Session X

| | | | |
|-------|-------|--------------------|---|
| 11:30 | 11:50 | Fotis Sotiropoulos | Toward Predictive Offshore Wind Farm Simulations |
| 11:50 | 12:10 | Stefano Leonardi | Numerical analysis of the ocean circulation induced by off-shore wind farms |
| 12:10 | 12:30 | Esteban Ferrer | Predictions of the Underwater Acoustic Footprint of Large Offshore Wind Turbines |
| 12:30 | 12:50 | Joshua Brinkerhoff | LES of the AWAKEN benchmark wind farm with complex topography, mesoscale atmospheric forcing, and variable thermal stratification |

LUNCH BREAK

Session XI

| | | | |
|-------|-------|----------------------|---|
| 13:50 | 14:10 | Sebastiano Stipa | Coupled Wave-Atmosphere Effects on the Wake of Offshore Wind Farm Clusters |
| 14:10 | 14:30 | Dominic von Terzi | Breaking the barrier of sound: Can wind turbines operate safely in transonic flow? |
| 14:30 | 14:50 | Alessandro Bianchini | Unsteady Wake Dynamics and Rotor-Wake Interactions in Floating Offshore Wind Farms: Comprehensive Insights from the NETTUNO Project |
| 14:50 | 15:10 | Jens Nørkær Sørensen | Analytical limit for extraction of offshore wind energy using a minimalistic model approach |

Closing remarks

IMPERIAL
Department of Aeronautics



| LIST OF POSTERS | |
|--------------------------------------|---|
| Udhaya Chandiran Krishnan Paranjothi | Sensitivity of wind farm-induced gravity waves to rotor diameter, farm aspect ratio and turbine spacing |
| Ilan Upfal | A new joint yaw and induction control paradigm revealed by Unified rotor modeling and validation |
| Lorenn Le Turnier | Resolving a Wind Turbine Wake With Lagrangian Particle Tracking |
| Elisa Valepyn | Assessment using LES simulations of the wake meandering predictions by the OnWaRDS wake model |
| Akhileshwar Borra | Field-scale Lagrangian particle tracking measurements of tip vortices using soap bubbles |
| María Rosales | CFD Validation and POD-Based Flow Decomposition of an Isolated Wind Turbine Using SOD2D |
| Hyunseok Kim | Laboratory Recreation of Atmospheric Turbulence |
| Ali Ata Adam | Analysis of Wind Turbine Wake Instabilities Induced by External Perturbations |
| Adrian McGlade | Interaction between an ABL and a model wind farm |
| Francisco Oliveira | Spanwise-resolved wind turbine blade dynamics |
| Pedro Alves | Turbulent/turbulent interfaces: building blocks for understanding the connection between scales |
| Sachin Umans | An actuatable porous disk for miniature active cluster wake control windtunnel experiments |
| Mehtab Ahmed Khan | Interaction of neighboring wind farms in shallow atmospheric boundary layers |

IMPERIAL

Department of Aeronautics



Engineering and Physical Sciences Research Council

