ESRs & Recruitment

RECRUITMENT INFORMATION

DOWNLOAD THE CALL FOR APPLICANTS

contact-floawer@ec-nantes.fr

APPLICATIONS ARE NOW CLOSED

ESR 1: Wind resource assessment in deep waters through space-distributed measurement systems

Work-package: 4 - Wind Resource Assessment in Deep Waters
Host: Centrale Nantes (ECN)
Country: France
Supervisors: Prof. Sandrine Aubrun and Dr. Yves Perignon
Duration: 36 months

Research programme:
1. Wind resource characterization of the ECN offshore test site: SEM-REV;
2. Relevance and reliability of the deployed instrumentation to assess the wind resource on the specific SEM-REV site;
3. Relevance and reliability of the deployed instrumentation to assess the wind resource at other sites;
4. A set of transfer functions between the different measurement systems in order to identify the best
compromise between robustness, reliability and costs to assess wind resource in deep waters.

**Planned secondments:** University of Stuttgart (3 months) and EOLFI (3 months)

**ESR 2: Assessing the measurements of offshore wind conditions using LiDAR on floating platforms for resource assessment and power curve verification**

**Work-package:** 4 - Wind Resource Assessment in Deep Waters  
**Host:** University of Stuttgart (USTUTT)  
**Country:** Germany  
**Supervisors:** Prof. P.W. Cheng and Oliver Bischoff  
**Duration:** 36 months  
**Research programme:**  
1. General study of the advantages and disadvantages of different possibilities to measure wind conditions offshore with floating structures;  
2. Analytical comparison of different methods to measure wind conditions with a LiDAR from different floating platforms and positions (e.g. floating LiDAR, nacelle-based, transition piece based, floater based) for wind resource assessment and power curve determination;  
3. Development of new and extension of existing simulation environments for LiDAR measurements on floating structures performing wind field reconstruction;  
4. Verification of the simulation environment with real measurement data;  
5. Assessment of the uncertainties of LiDAR measurements on different floating structures.

**Planned secondments:** Fraunhofer IWES (3 months) and IDEOL (3 months)

**ESR 3: Offshore wind resource at deep sea sites applying satellite data and numerical modelling**

**Work-package:** 4 - Wind Resource Assessment in Deep Waters  
**Host:** Technical University of Denmark, Wind Energy Department (DTU)  
**Country:** Denmark  
**Supervisors:** Dr. Charlotte Bay Hasager and Dr. Ioanna Karagali  
**Duration:** 36 months  
**Research programme:**  
1. Handle floating LiDAR data, and correct for motion including ship-based LiDAR, such that wind climate can be obtained with limited uncertainty;  
2. Knowledge on the usability of satellite SAR winds at deep sea sites will be compared to numerical model results over 10 years, to estimate inter-annual variability. This result is important as measurement campaigns typically are much shorter;  
3. Evaluation of the advantages and limitations of numerical modelling versus satellite ocean winds and observations from floating buoy/ship-based LiDAR, to assess wind resource statistics, and to provide maps of potential resources at selected deep sea sites for demonstration.

**Planned secondments:** Fraunhofer IWES (3 months) and VORTEX (3 months)

**Important notice:** Applicants for the ESR3 position offered by DTU must also apply via the DTU website in order for their application to be considered:  
https://www.dtu.dk/english/About/JOB-and-CAREER/vacant-positions/job
ESR 4: High-fidelity determination of wave load and load effects for floating wind turbine hulls subjected to severe wave conditions

**Work-package:** 5 – Advanced Floater Analysis  
**Host:** Norwegian University of Science and Technology (NTNU)  
**Country:** Norway  
**Supervisors:** Assoc. Prof. Erin Bachynski and Prof. Michael Muskulus  
**Duration:** 36 months  
**Research programme:**  
1. Development of numerical methods for determining highly nonlinear wave loads and load effects on floating offshore WTs;  
2. Improved engineering load models based on validated high-fidelity simulations. Validation will be carried out using experimental results obtained in the FLOWER project or other ongoing international projects;  
3. Better understanding of long-term extrema for local structural design through use of improved engineering models.  

**Planned secondments:** Centrale Nantes or University College of Cork (3 months) and Equinor (3 months)  

**Important notice:** Applicants for the ESR4 position offered by NTNU must also apply via jobbNorge.no in order for their application to be considered:  
[https://www.jobbnorge.no/ledige-stillinger/stilling](https://www.jobbnorge.no/ledige-stillinger/stilling)

ESR 5: Hydrodynamic analysis and numerical modelling of heave-plates dedicated to the design of floating wind turbines

**Work-package:** 5 – Advanced Floater Analysis  
**Host:** Centrale Nantes (ECN)  
**Country:** France  
**Supervisors:** Dr. Jean-Christophe Gilloteaux and Prof. David Le Touzé  
**Duration:** 36 months  
**Research programme:**  
1. Hydrodynamic database for various geometry, column-diameter/heave-plate diameter ratio and heave-plate depth;  
2. Improved engineering models for modelling heave-plates.  

**Planned secondments:** Norwegian University of Science and Technology (3 months) and IDEOL (3 months)

ESR 6: Advanced physical Modelling Methods for Floating wind turbines

**Work-package:** 5 – Advanced Floater Analysis  
**Host:** University College of Cork (UCC)  
**Country:** Ireland  
**Supervisors:** Prof. Jimmy Murphy and Dr. Cian Desmond  
**Duration:** 36 months  
**Research programme:**  
1. Perform a set of high quality validation from physical testing of an elemental floating object;  
2. Perform a set of high quality validation data for a floating wind energy platform with both aerodynamic
and hydrodynamic effects;
3. LCOE analysis outputs.

**Planned secondments:** Centrale Nantes (3 months) and Aerodyn (3 months)

**ESR 7: Advanced design and optimized cost of mooring systems**

**Work-package:** 5 – Advanced Floater Analysis and 7 - System Design to Reduce LCOE  
**Host:** Norwegian University of Science and Technology (NTNU)  
**Country:** Norway  
**Supervisors:** Prof. Michael Muskulus and Assoc. Prof. Erin Bachynski  
**Duration:** 36 months  
**Research programme:**
1. A parametric cost model for different mooring system technologies, including sea bed anchors and complex multi-floater layouts;
2. A methodology to evaluate mooring system reliability, taking into account uncertainties in wave- and current-induced mooring system dynamics and loads;
3. A methodology for robust optimization of mooring systems with respect to performance constraints, system reliability and cost;
4. A comprehensive guideline on mooring system design for floating WTs, to support industrial end-users and future research.

**Planned secondments:** University of Rostock (3 months) and Vicinay (3 months)

**Important notice:** Applicants for the ESR7 position offered by NTNU must also apply via jobbNorge.no in order for their application to be considered:  

**ESR 8: Multi-Used design components for different kind of floating sub-structures**

**Work-package:** 5 – Advanced Floater Analysis and 7 - System Design to Reduce LCOE  
**Host:** University of Rostock (UROS)  
**Country:** Germany  
**Supervisors:** Dr. Frank Adam and Prof. Uwe Ritschel  
**Duration:** 36 months  
**Research programme:**
1. High-fidelity CFD mooring line analysis compared to a multi-body simulation approach to consider dynamic effects of inertia and viscous damping in the design;
2. Multi-used structural components for different kind of floaters to reduce production and maintenance costs and in the end the LCOE;
3. A comprehensive guideline on multi-used structural components on design for floating WTs, to support industrial end-users and future research.

**Planned secondments:** WAVEC (3 months) and GICON (3 months)

**ESR 9: Horizontal and vertical axis WT aerodynamic modeling and testing**

**Work-package:** 6 – Dynamics of wind turbines  
**Host:** Politecnico di Milano (POLIMI)  
**Country:** Italy
Supervisors: Prof. Alessandro Croce and Dr. Stefano Cacciola

Duration: 36 months

Research programme:
1. From high-fidelity to engineering aerodynamic models update (for VAWT and HAWT);
2. Development of new wind turbine and wind farm control technologies and wind tunnel experimental campaign (for VAWT and HAWT);

Planned secondments: CNR-INM (3 months) and Micoperi (3 months)

ESR 10: Dynamics and interaction of floating turbines

Work-package: 6 – Dynamics of wind turbines
Host: University of Oldenburg (UOLD)
Country: Germany
Supervisors: Prof. Joachim Peinke and Dr. Michael Hölling
Duration: 36 months

Research programme:
1. Experimental investigations of a turbine array of model WTs mimicking floating motions exposed to stochastically realistic wind fields;
2. Analysis of resulting turbine’s dynamic response;
3. Development of a stochastic description of the overall floating WT system.

Planned secondments: Politecnico di Milano (3 months) and GICON (3 months)

ESR 11: Ability of vertical axis wind turbines to be a competitive alternative to horizontal axis wind turbines for floating offshore applications

Work-package: 6 – Dynamics of wind turbines
Host: CNRS-LEGI (CNRS)
Country: France
Supervisors: Dr. Stéphane Barre and Assoc. Prof. Christophe Sicot
Duration: 36 months

Research programme:
1. Have a fine mapping of the wake of the WT;
2. Propose a simplified modeling of the wake in order to be able to simulate it in farm configurations;
3. Validate the results obtained in wind tunnel by experiments on a floating system.

Planned secondments: Ecole Nationale Supérieure de Mécanique et d’Aérotechnique (3 months) and Hydroquest (3 months)

ESR 12: Integrated design and LCOE minimization of horizontal and vertical axis wind turbines.

Work-package: 7 - System Design to Reduce LCOE
Host: Politecnico di Milano (POLIMI)
Country: Italy
Supervisors: Prof. Alessandro Croce and Assoc. Prof. Carlo Emanuele Dionigi Riboldi
Duration: 36 months
Research programme:
1. Update of existing rotor/tower design tool with the platform sizing for offshore WTs;
2. Update of existing LCOE mathematical models for design tools and reduction of the LCOE through an integrated design;
3. Comparison between optimal horizontal axis and vertical axis configurations;
4. Guidelines for future WT design.

Planned secondments: Norwegian University of Science and Technology (3 months) and EOLFI (3 months)

ESR 13: System design to minimize the LCOE of Floating Offshore Wind

Work-package: 7 - System Design to Reduce LCOE
Host: WAVEC/Offshore Renewables (WAVEC)
Country: Portugal
Supervisors: Dr. Jose Candido and Assoc. Prof. Luis Gato
Duration: 36 months

Research programme:
1. Development of techno-economic model to assess FOW projects;
2. Development of comprehensive cost database (for WTs, floating platforms, moorings, anchors and electric components and sub-systems);
3. Delivery of system design that minimizes LCOE.

Planned secondments: Politecnico di Milano (3 months) and EOLFI (3 months)

Published on July 19, 2019 Updated on January 20, 2020

- Partagez : Facebook Twitter Linkedin Send by email
- PDF version

contact-floawer@ec-nantes.fr

H2020

Coordinator

Coordinator:
Sandrine AUBRUN, Professor
sandrine.aubrun@ec-nantes.fr

FLOAWEER Partner area