PhD position in wind energy meteorology - Marie Skłodowska-Curie

PhD position

There is a vacancy for a PhD position in wind energy meteorology, with focus on ship-based lidar wind measurements, at the Geophysical Institute (GFI) at the University of Bergen, Norway. The position is for a fixed-term period of 3 years and funded by the H2020 / Marie Skłodowska-Curie Action Train2Wind (agreement number 861291). The project is in close collaboration with industrial partners and DTU Wind Energy in Riso, Denmark. The successful candidate is expected to spend secondments of several months duration with collaboration partners during the PhD period.

Are you eager to make an impact in offshore wind research that accelerates the green energy transition?

Are you enthusiastic about the leading renewable energy in the world? If you are interested in understanding the atmospheric flow around large offshore wind farms and motivated by discovering the underlying mechanisms that drive their power production, this PhD project can be for you. Join us in Train2Wind as a prestigious Marie Skłodowska-Curie Early Stage Researcher.

Train2Wind is a PhD and researcher training school analysing entrainment in offshore wind farms with computer models and experiments. By its very nature, a wind turbine extracts energy from the wind, which for a single wind turbine is replenished from the wind field on the sides and above due to the ambient turbulence. However, offshore, the turbulence is lower, and wind farms are typically larger than onshore, therefore the wind can only be replenished from above in a process called entrainment. With a network of 12 PhDs and 8 short-term fellows, Train2Wind will investigate the entrainment process using advanced high-resolution computer and wind tunnel modelling together with measurements of the wind field above, inside and downstream of large wind farms, using lidars, radars and Unmanned Aerial Systems (UAS).

About the project/work tasks:

Wake effects are of crucial importance under the aspect of an optimal placement of turbines in a wind farm and for the spatial planning of the location of different wind farms, in particular in the limited areas close to the coast of the North and Baltic sea. An improved knowledge of the structure and dynamics of wakes as function of atmospheric stability will also enable the development of new strategies for wind farm control. The main objectives of the proposed PhD project are:

- The development, test and application of measurement strategies using a ship-based lidar wind profiler with motion correction capabilities;
- The validation and improvement of the available motion correction algorithms;
- The description of the structure, dynamics and extension of wind turbine and wind farm wakes in dependency of the atmospheric stability;
- The provision of required data sets for the initialization and validation of wake simulations by CFD and mesoscale atmospheric models.

We will use a ship-based and motion corrected lidar wind profiler to collect and interpret relevant measurements of both single turbine and wind farm wakes under a wide range of atmospheric and wave conditions. The measurements are planned during dedicated measurement campaigns, but in addition also by using support and supply vessels during maintenance and repair operations of a wind farm as platforms of opportunity.

Qualifications and personal qualities:

- Applicants must hold a master's degree or the equivalent in meteorology, oceanography, mathematics, physics, informatics, engineering or similar, or must have submitted his/her master's thesis for assessment prior to the application deadline. It is a condition of employment that the master's degree has been awarded.
- Applicants must be able to work independently and in a structured manner, and demonstrate good collaborative skills.
- Applicants must be proficient in both written and oral English.
- The following expertise and skills are required for the position and will be used as main criteria for the selection of the successful candidate:
  - Understanding of atmospheric flow dynamics and boundary layer processes and their effects on wind conditions
  - Experience with atmospheric measurement techniques, in particular wind lidar systems
  - Handling and analysis of large data sets and related programming skills
- The following expertise and skills are advantageous for the position and will also be considered in the evaluation process:
  - Practical experience in planning and performing measurement campaigns
  - Experience in CFD and wake modelling

Personal and relational qualities will be emphasized. Ambitions and potential will also count when evaluating the candidates.

Special requirements for the position

The applicant should not have lived and had his/her main activity in the same country as the beneficiary institute (Norway) for more than 12 months during the last 3 years on the date of appointment. This is a requirement for all Marie Curie sponsored exchange scholarships.

In addition, the successful candidate should satisfy at the time of the recruitment the following mandatory characteristics:
• having not more than 4 years of equivalent research experience (i.e. working as researcher after obtaining your master’s degree)
• having not been awarded a title of PhD

About the PhD position:

As a PhD candidate, you must participate in an approved educational programme for a PhD degree within a period of 3 years. The deadline for applying for admission to the PhD programme at The Faculty of Mathematics and Natural Sciences is 2 months after you start your position or after the start of the research project that will lead to the PhD degree. It is a condition that you satisfy the enrolment requirements for the PhD programme at the University of Bergen.

We can offer:

• a good and professionally stimulating working environment
• salary at pay grade 54 (Code 1017/Pay range 20, alternative 10) in the state salary scale. This constitutes a gross annual salary of NOK 479 600,-. Further promotions are made according to length of service in the position.
• enrolment in the Norwegian Public Service Pension Fund
• good welfare benefits

Your application must include:

• a brief account of the research interests and motivation for applying for the position
• the names and contact information for two referees. One of these should be the main advisor for the master's thesis or equivalent thesis
• CV
• transcripts and diplomas showing completion of the bachelor's and master's degrees. If you have not yet completed your master's degree, please submit a statement from your institution confirming that the master's thesis has been submitted
• relevant certificates/references
• approved documentation of proficiency in English (if required, cf. English language requirements for PhD admission)
• a list of any works of a scientific nature (publication list)
• any publications in your name

The application and appendices with certified translations into English or a Scandinavian language must be uploaded at Jobbnorge.

General information:

For further details about the position, please contact Prof. Joachim Reuder, Geophysical Institute, University of Bergen, Joachim.reuder@uib.no, +47 47381397

The state labour force shall reflect the diversity of Norwegian society to the greatest extent possible. Age and gender balance among employees is therefore a goal. It is also a goal to recruit people with immigrant backgrounds. People with immigrant backgrounds and people with disabilities are encouraged to apply for the position.

The University of Bergen applies the principle of public access to information when recruiting staff for academic positions. Information about applicants may be made public even if the applicant has asked not to be named on the list of persons who have applied. The applicant must be notified if the request to be omitted is not met.

Further information about the employment process can be found here.

About The University of Bergen

The University of Bergen is a renowned educational and research institution, organised into seven faculties and approximately 54 institutes and academic centres. Campus is located in the centre of Bergen with university areas at Nygårdshøyden, Haukeland, Marineholmen, Møllendalsveien and Årstad.

There are seven departments and several centres at Faculty of Mathematics and Natural Sciences. Read more about the faculty and departments.

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