Centrum Wiskunde & Informatica (CWI) has a vacancy in the Scientific Computing research group for a

Postdoc,

on the subject of *Uncertainty quantification and calibration of aeroelastic wind turbine models*.

Job description
Wind-turbine design is performed using aeroelastic wind turbine models to predict power output and loads on the structure, such as blades and tower. Both the models and the external conditions (wind, waves), contain many uncertainties that are important for the design process. In this postdoc project new mathematical techniques will be developed to: (i) identify the main uncertain factors and parameters in wind-turbine design models, and (ii) calibrate these uncertain parameters using available measurement data.

To make this calibration procedure efficient and computable, this project will aim at **developing and applying novel Bayesian inference techniques**. Consequently, the research will be focused around topics such as efficient surrogate model development and model calibration in the case of model discrepancy.

You will work in the Scientific Computing group at CWI Amsterdam, the Netherlands, where you can directly benefit from the available expertise on uncertainty quantification and data assimilation. Next to the daily supervision at CWI, you will be part of the *WindTrue* project and have ample opportunity to collaborate with the other partners in this project: ECN (part of TNO), DNV GL and Suzlon Energy, who will provide measurement data and detailed knowledge about the wind-turbine models.

Requirements
We seek a talented and enthusiastic candidate with a PhD degree in (Applied) Mathematics, Physics, Aerospace Engineering or a related discipline, and a specialization in Numerical Analysis or a related field such as Uncertainty Quantification, Computational Statistics, Data Assimilation, or Machine Learning. Experience with Bayesian inference and related techniques such as Markov Chain Monte Carlo methods will be beneficial. As a candidate, you are expected to not only have a strong mathematical background, but also to show an interest in the physics of wind turbine models. Good programming skills (e.g. Matlab, Python, R) are essential, and good verbal and written communication skills in English are mandatory.

Terms and conditions
The position is for 12 months and preferred starting date is **as soon as possible**. There are possibilities for extension after the 12-month period. The gross monthly salary for an employee on a full-time basis, depending on relevant work experience, ranges from € 3560 to € 4339. Employees are also entitled to a holiday allowance of 8% of the gross annual salary and a year-end bonus of 8.33%. CWI offers attractive working conditions, including flexible scheduling. Please visit our website for more information about our terms of employment: www.cwi.nl/terms-of-employment.

Application
Applications can be sent to b.sanderse@cwi.nl. Please submit your detailed CV, two recent journal papers, your PhD thesis, a motivation letter and at least two references.

For more information about the vacancy, please contact Benjamin Sanderse (b.sanderse@cwi.nl). For more information about CWI, please visit www.cwi.nl or watch our video "A Fundamental Difference" about working at CWI.

About Centrum Wiskunde & Informatica
Centrum Wiskunde & Informatica (CWI) is the Dutch national research institute for mathematics and computer science and is part of the Institutes Organisation of NWO. The mission of CWI is to conduct pioneering research in mathematics and computer science, generating new knowledge in these fields and conveying it to trade, industry, and society at large.

CWI is an internationally oriented institute, with 160 scientists from approximately 27 countries. The facilities are first-rate and include excellent IT support, career planning, training, and courses.
CWI is located at Science Park Amsterdam that is presently developing into a major location of research in the natural sciences in The Netherlands, housing the sciences of the University of Amsterdam and of the Vrije Universiteit as well as several other national research institutes next to CWI.

About Scientific Computing research group
CWI's Scientific Computing group performs high quality research at the frontiers of uncertainty quantification and data assimilation, with application to (computational) fluid dynamics problems, climate

and weather systems, etc. For more information about the Scientific Computing group, visit https://www.cwi.nl/research/groups/scientific-computing.