The Institute of Energy and Climate Research Energy Systems Engineering (IEK-10) focuses on the development of models and algorithms for simulation and optimization of decentralized, integrated energy systems. Such systems are characterized by high spatial and temporal variability of energy supply and demand as well as by a high degree of interdependence of material and energy flows. Research at IEK-10 aims to provide scalable and faster than real-time capable methods and tools which enable the energy-optimal, cost-efficient and safe design and operation of future energy systems.

We are offering a

2019D-238 - PhD-Position - Conception, Design and Development of Multi-FPGA Simulation Methods for Real-time Verification of Power Electronics enabled Energy Systems

Your Job:
• Analysis of the current state of the art in real-time simulation methods
• Development of simulation methods for multi-FPGA platforms
• Programming of a simulation solution that is able to execute on multi-FPGA platforms with execution time below 50ns
• Development of test case and scenarios for the evaluation of the developed platform
• Development of simulation interfaces between the developed simulator and commercial products
• Validation of the simulation models on the basis of the energy infrastructures of the campus Forschungszentrum Jülich

Your Profile:
• M. Sc. degree in electrical/electronic engineering, computer or computational science or a related field with good final grade (German system equivalent 2.0 or better)
• Strong mathematical and programming background
• Knowledge of modelling, preferably of energy systems
• Previous experience with FPGA programming (VHDL, Verilog)
• Excellent knowledge and experience in programming (e.g. Python, Matlab, C, C++)
• Excellent ability for cooperative collaboration
• Very good communication skills in English

Our Offer:
• Possibility of pursuing a PhD at Faculty of Mechanical Engineering at RWTH Aachen University supervised by Prof. Benigni
• A highly motivated research group in one of the biggest research centers in Europe
• An excellent scientific and technical infrastructure: both necessary conditions for a successful PhD thesis at RWTH Aachen within three and a half years
• Participation in project meetings and conferences
• Strong support and mentoring for setting up a future career in science and/or the industry
• Payment of the PhD position will be based on 75% of the Collective Agreement for the Civil Service (TVöD) EG 13
• Information on employment as a PhD student at Forschungszentrum Jülich can be found here http://www.fz-juelich.de/gp/Careers_Docs

Forschungszentrum Jülich aims to employ more women in this area and therefore particularly welcomes applications from women.

We also welcome applications from disabled persons.