

THE UNIVERSITY OF MANCHESTER
PARTICULARS OF APPOINTMENT
FACULTY OF SCIENCE & ENGINEERING
SCHOOL OF ELECTRICAL & ELECTRONIC ENGINEERING
DIVISION OF ELECTRICAL & ELECTRONIC ENGINEERING
ELECTRICAL & ELECTRONIC ENGINEERING
VACANCY REF: S&E-13016

Salary: Grade 6 £32,236 to £39,609 per annum
Hours: Full time
Duration: Fixed term from 1 January 2019 until 30 September 2022
Location: Ferranti Building, Manchester

Enquiries about the vacancy, shortlisting and interviews:

Name: Dr Robin Preece

Email: robin.preece@manchester.ac.uk

Job summary

You will work as part of the core research team of the Supergen Energy Networks Hub to progress risk and uncertainty analysis in future energy networks. You will drive forward a body of research on uncertainty propagation and quantification, as well as developing effective methods for communicating uncertainty and risk to different energy network stakeholders. You will also collaborate with other researchers at partner universities as part of the Supergen Energy Networks Hub.

You will be based full time in the School of Electrical and Electronic Engineering at The University of Manchester. You will collaborate with academic and industrial project partners, model and simulate energy networks, model uncertainties using appropriate methods, develop new methods and tools to understand system performance, write technical papers, and present results at major conferences.

Further details

The EPSRC Supergen Energy Networks Hub brings together the vibrant and diverse energy networks community to gain a deeper understanding of the interactions and inter-dependencies of energy networks. The Hub will integrate a wide range of industrial and academic partners in order to address the network challenges surrounding technology, policy, data, markets and risk. The University of Manchester is one of the core partners and through this project you will be driving forward key research that will help to shape the UK's energy landscape.

This role will contribute directly to a work stream focussed on uncertainty and risk analysis in interdependent and interconnected energy systems. However, all work streams across the different network challenge areas will be highly collaborative and you will have excellent opportunities to develop transdisciplinary work and expand your area of expertise.

The detailed research questions you will tackle include:

- How do uncertainties propagate through interdependent multi-vector energy networks?
- How does uncertainty vary within multi-vector energy networks on different timescales and for different locations?
- How can we identify the critical uncertainties in our systems and mitigate for the negative impacts they introduce?
- How can we effectively communicate risk and uncertainty to non-specialist audiences?

You will develop new methods and techniques to solve these questions and more.

Key Responsibilities, Accountabilities or Duties

The range of duties will include the following:

- Although working under the general guidance of an academic, you will contribute ideas to drive forward the research. This will include enhancements to the technical or methodological aspects of their studies.
- Communicate material of a specialist or highly technical nature with industrial partners and the research community. • Prepare and present reports on research progress and write up research work for publication.
- Attend and contribute to relevant meetings.
- Provide suitable support to postgraduate research students and undergraduate project students as appropriate.
- Use creativity to analyse and interpret research data and draw conclusions on the outcomes.
- Plan and manage your own research activity in collaboration with others.
- Build internal contacts and participate in networks for the exchange of information and to form relationships for future collaboration.
- Contribute to grant applications submitted by others and in time develop your own research objectives and proposals for funding.

Person Specification

Please use your application to clearly demonstrate with evidence how you meet the following aspects of the person specification.

Essential:

- Possess, or be about to obtain, a PhD in a subject related to energy networks.
- Have demonstrable experience in uncertainty modelling and the representation of probabilistic data.

- Demonstrate technical proficiency with developing code/algorithms (in any programming language).
- Possess strong analytical and problem solving abilities, with the capability to learn new skills quickly and show a flexible approach towards dealing with research problems.
- Be able to present research findings at national and international meetings and conferences.
- Have excellent scientific communication skills (oral and written) and good interpersonal skills.
- Demonstrate a flexible approach to working, with the willingness to travel and work outside normal business hours if occasionally required.
- Be self-motivated and able to work independently and also collaboratively as a member of a team, with minimal supervision.
- Demonstrate the ability to meet deadlines.

Desirable:

- Experience modelling dynamic energy networks for stability assessment.
- Experience communicating risk and uncertainty to non-specialist audiences.
- Previous experience coding in Matlab or Python.
- Knowledge of European or UK energy networks.
- Have a strong publication record in internationally peer-reviewed journals.
- Previous experience or involvement with multi-partner collaborative projects and the management of such projects.