

EPSRC Doctoral Training Centre in Hydrogen, Fuel Cells and their applications

Concern over climate change and the need to reduce carbon emissions has led to the consideration of alternative “clean” energy solutions. Hydrogen is not only applicable for use as a zero-emissions fuel in transport applications but it can also be used to supply heat and power to buildings.

The UK’s large hydrogen and fuel cell companies, with substantial projects on their books, have found recruitment of the engineers and scientists that they need for this research challenging. There are only a handful of UK universities conducting research in this area and the UK lacks the large centres that exist in Europe, the USA, Canada and Japan.

The EPSRC funded Doctoral Training Centre in Hydrogen, Fuel Cells and their Applications is a Midlands Energy Consortium collaboration designed to tackle the skills needs of the hydrogen and fuel cells sector whilst providing underpinning research and development. The £5.5million Centre will train 50 PhD students in this new and exciting area over 5 years. Students will take a four-year programme which combines taught modules in science and engineering topics related to hydrogen and fuel cells, the energy system, business, economics and management.

At the same time the Centre will create a critical mass of hydrogen and fuel cell research in the Midlands, building on the significant infrastructure investments made by our Universities which include the installation of two hydrogen vehicle refuelling stations, one of which is shown in the picture below. We plan to conduct research in the following areas:

- Hydrogen Fuel Cell Hybrid Vehicle (HFCHV)
- Fuel Cell Combined Heat and Power (CHP)
- Micro Fuel Cells for Portable Applications
- Fuel Cell Systems & System Integration
- Discovery of Novel Nanomaterials for Hydrogen Storage & Fuel Cell Systems
- Hydrogen production from Biomolecules by Novel Methods
- Development of Novel Materials for Fuel Cell Systems
- Robotic programming of Fuel Cell Systems
- Computational Modelling of Fuel Cells
- Evaluation of Economically Efficient Energy and Fuel Investments
- Effect of Hydrogen and Fuel Cell Deployment on Electricity Generation Policy



Hydrogen Fuel Cell Hybrid Vehicle being refueled at
The University of Birmingham campus

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