

## Energy and Chemical Industries



Improving quality of life demands the supply of increasing amounts of energy and consumer chemicals, whilst at the same time global warming has become a major cause for concern. The Energy research theme addresses the challenges of introducing the hydrogen economy to replace the current reliance on carbon-based fuels.

Fuel cells, hydrogen generation, storage and use are being investigated. The production of chemicals such as pharmaceuticals, vitamins, personal and household products is the traditional business of the chemical industry, but new challenges are being addressed to manufacture such products more efficiently.

Novel production routes using catalysis or supercritical fluids, reduction of waste by-products, and control of product formulation are some of the key challenges which are being addressed within the Chemical Industries theme.

### Theme Research Areas

- [Hydrogen Energy Research \(/research/activity/chemical-engineering/energy-chemical/hydrogen-energy-research.aspx\)](/research/activity/chemical-engineering/energy-chemical/hydrogen-energy-research.aspx)
- [Catalysis and Reaction Engineering \(/research/activity/chemical-engineering/energy-chemical/catalysis-reaction/index.aspx\)](/research/activity/chemical-engineering/energy-chemical/catalysis-reaction/index.aspx)
- [Supercritical Fluids \(/research/activity/chemical-engineering/energy-chemical/supercritical-fluid/index.aspx\)](/research/activity/chemical-engineering/energy-chemical/supercritical-fluid/index.aspx)



### Research Groups

- [Catalysis and Chemical Reaction Engineering \(/research/activity/chemical-engineering/energy-chemical/catalysis-reaction/index.aspx\)](/research/activity/chemical-engineering/energy-chemical/catalysis-reaction/index.aspx)
- [Fuel Cells \(/research/activity/chemical-engineering/energy-chemical/fuel-cells/index.aspx\)](/research/activity/chemical-engineering/energy-chemical/fuel-cells/index.aspx)
- [Nanoengineering and Surface Chemistry \(/research/activity/chemical-engineering/energy-chemical/nanoengineering-surface-chemistry/index.aspx\)](/research/activity/chemical-engineering/energy-chemical/nanoengineering-surface-chemistry/index.aspx)

### Staff involved in this theme

Academic	Research Keywords
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<a href="/staff/profiles/chemical-engineering/ingram-andy.aspx">Dr Andy Ingram (/staff/profiles/chemical-engineering/ingram-andy.aspx)</a>	
<a href="/staff/profiles/chemical-engineering/kendall-kevin.aspx">Prof Kevin Kendall (/staff/profiles/chemical-engineering/kendall-kevin.aspx)</a>	Hydrogen, Fuel Cells, Hybrid vehicles, Systems for combined heat & power
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Dr Bruno Pollet	Fuel cells
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<a href="/staff/profiles/chemical-engineering/simmons-mark.aspx">Dr Mark Simmons (/staff/profiles/chemical-engineering/simmons-mark.aspx)</a>	Chemistry-chem eng interface, reaction engineering of enantioselective reactions
<a href="/staff/profiles/chemical-engineering/wood-joe.aspx">Dr Joe Wood (/staff/profiles/chemical-engineering/wood-joe.aspx)</a>	Catalysis, reaction engineering, hydrogenation, carbon capture and storage, heavy oil upgrading, reaction kinetics.