

Research and Technology Services for Fuel Cell Implementation, from Materials to Systems
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Fuel cells will play an important role in future sustainable energy scenarios. In combination with electrolysis they offer an option for the storage and use of renewable electricity, but they can also be used for the efficient production of electricity from biomass derived fuels. In combination with batteries they can increase the energy density of the energy supply for applications ranging from portable outdoor appliances, and remote and back-up power supply solutions, to range-extended vehicles. Although the development of fuel cells has advanced significantly in recent years there is still some need for research and technology development to improve this technology before its market introduction.

As Europe's leading applied research organisation the Fraunhofer-Gesellschaft is working intensively on solutions for sustainable energy supply of the future. At the Fraunhofer Institute for Chemical Technology the Applied Electrochemistry Department is strongly engaged in the development of electrochemical systems for a more efficient use of renewable energies. In the area of fuel cells we support our customers by the development of materials, the development of innovative testing methods for fuel cells on materials and single cell level and the realisation of demonstration units for special fuel cell applications

At our booth at the 2015 FC EXPO we will present some recent developments.
These include:

- Mass spectrometric monitoring of transient processes in fuel cells:
This technique allows the monitoring of fast processes which may cause degradation of the fuel cell, enabling mitigation strategies to be developed
- Direct alcohol fuel cells with alkaline anion exchange membranes:
These types of fuel cells allow the efficient conversion of alcoholic fuels from renewable sources (ethanol, glycerol) or fossil waste materials (ethylene glycol)
- Sulphur-tolerant catalysts for HT-PEMFCs, facilitating the use of hydrogen from biomass or fossil fuel reforming
- Range-extender and APU concepts for passenger cars and light-duty commercial vehicles, helping to increase the reliability and comfort of electric vehicles

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