Center for Fuel Cells

A National Science Foundation Industry/University Cooperative Research Center (NSF I/UCRC)

The **NSF Center for Fuel Cells (CFC)** at the **University of South Carolina** provides an opportunity to focus research, nationally and internationally, to benefit commercialization of an environmentally friendly technology that encourages independence from foreign oil.
Director and Principal Investigator: Dr. John W. Van Zee

Center Mission and Rationale

The mission of the Center for Fuel Cells is to help industry advance the technology and commercialization of fuel cells by performing research in five areas:

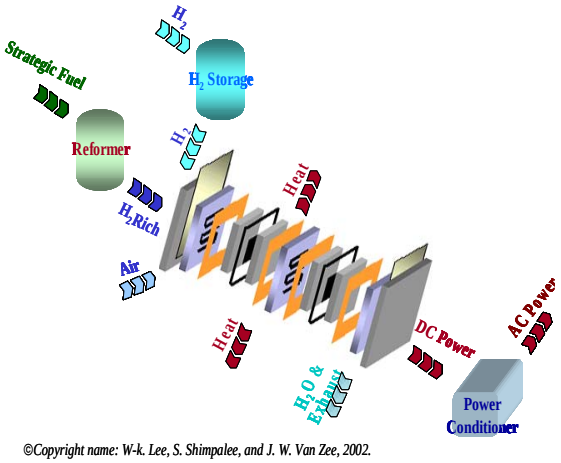
1. Fuel cell design
2. Fuel cell performance
3. Hydrogen storage materials, devices, and distribution systems
4. Catalysts and materials for hydrogen production and electrodes
5. Motor design and power conditioning

In addition, our primary purpose is to educate graduate and undergraduate students with expertise in these areas. The Center benefits students by providing them with an industrial appreciation for the opportunities of the technology. Industrial direction and participation, as well as University cooperation, are essential elements of the Center. The CFC is expanding to include researchers from the Georgia Institute of Technology and projects on Solid Oxide Fuels (SOFCs).

Research Program

Currently Funded Projects and Principal Investigators:

- Catalysts for Impurity-Free Hydrogen – Dr. Michael Amiridis (USC)
- Fundamentals of the Hydrolysis of Chemical Hydrides – Dr. Michael Matthews (USC)
- Development of Novel Method to Synthesize Low Pt Content Oxygen Electrocatalyst – Dr. Branko Popov
- The Effect of Impurities from Sealants and Bi-Polar Plates – Dr. John van Zee (USC)
- Using CFD Models for Optimum Design: Part V – Dr. Sirivatch Shimpalee (USC)
- Techniques for the Rheological Characterization of Bulk Molding Compounds for the Manufacture of Bipolar Plates: Part IV – Dr. Francis Gadala-Maria (USC)
- Characterization of Gas Diffusion Layers and Their Effect on PEMFC Performance – Dr. Sirivatch Shimpalee (USC)
- Durability of Seals / Gaskets in Fuel Cells – Dr. Bill Y. J. Chao (USC)
- Metal and Complex Hydride Hydrogen Storage Vessel Design – Dr. James Ritter (USC)
- Catalytic Desulphurization for Fuel Cell Application – Dr. Michael Amiridis (USC)
- Dynamic Response of a Fuel Cell System on a Variable Frequency AC Power Bus – Dr. Roger Dougal (USC)
- Contaminant Screening – Dr. Tao Gu (USC)
- Novel Support for Electrocatalyst Used in PEM Fuel Cells – Dr. Branko Popov (USC), Dr. John Weidner (USC) and Dr. Christopher Williams (USC)



Other Areas of Interest for Collaboration

- Computational Fluids Dynamics, Hydrogen Production, Fabrication, and Manufacturing of Components
- See website: http://fuelcells.sc.edu for other areas.