

## Di-Jia Liu

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### Professional Experience

- Development of nanostructured carbons as new materials for membrane electrode and Pt-free electrocatalyst in PEM fuel cell application
- Development of nanostructured polymer and carbon composite as on-board hydrogen storage material for transportation application
- Development of new catalyst and support materials for direct alcohol fuel cell application
- Investigation of solid oxide fuel cell material using microfocused synchrotron X-ray scattering technique
- Development of diesel reforming catalyst and reactor for production of hydrogen rich reformat in fuel cell and emission post-treatment application
- Development of electrochemical CO removal technology for PEM fuel cell application
- Development of a state-of-the-art ozone catalytic converter for Boeing 777 aircraft environmental control system
- Development of NO<sub>x</sub> reduction catalyst system for lean-burn automotive combustion engine emission control
- Development of catalytic coating for CO and VOC remediation for microturbine power generator
- Development of in-situ and real-time synchrotron x-ray absorption spectroscopic method for catalyst characterization under the reaction condition
- 6-Sigma Black Belt for industrial process development through statistical design and control principles

### Professional Society Activities

- Member of American Chemical Society
- Member of North American Catalysis Society
- Member of American Ceramic Society
- President (1999) and Program Chair (1998) of Chicago Catalysis Club, a local branch of North American Catalysis Society

### Education

- Postdoctoral Fellow, The University of California at Berkeley
- PhD, Physical Chemistry, The University of Chicago
- BS, Chemistry, Beijing University

### Awards

- Argonne National Laboratory Pacesetter Award, 2006
- Honeywell Aerospace Technology Achievement Award, 2001
- Honeywell Laboratory Special Recognition Award, 2001
- Honeywell Power Systems Achievement Award, 2000
- USA Today Quality Cup Award, 2000
- AlliedSignal Corporate Technical Achievement Award, 1998

- AlliedSignal Special Technical Recognition Award, 1995
- Elizabeth R. Norton Prize, The University of Chicago, 1986

### **U S Patents**

- U.S. Patent 6,245-214, "Electro-Catalytic Ooxidation (ECO) Device to Remove CO from Reformate for Fuel Cell Application," Timothy J. Rehg, Di-Jia Liu, James C. Williams, and Mark Kaiser, 2001
- U.S. Patent 6,584,760, "Emissions Control in a Recuperated Gas Turbine Engine," John Lipinski, Karl Fler, Tony Prophet, Peter Zheng, Di-Jia Liu and George Lester, 2003
- U.S. Patent 6,540,843, "Method of Preparing a Catalyst Layer over a Metallic Surface of a Recuperator," Di-Jia Liu, Daniel R. Winstead, and Norman Van Den Bussche, 2003
- U.S. Patent 6,576,199, "Environmental Control System Including Ozone-Destroying Catalytic Converter Having Anodized and Washcoat Layers," Di-Jia Liu, Daniel R. Winstead, and Peter M. Michalakos, 2003
- U.S. Patent 6,550,310, "Catalytic Adsorption and Oxidation Based Carbon Monoxide Sensor and Detection Method," Di-Jia. Liu, Ulrich Bonne, and Richard A. Alderman, 2003
- US Patent 6,962,193, "Tubular catalytic aircraft precooler," Di-Jia Liu, Dan Winstead and Belinda Foor, 2006
- US Patent 7,037,878, "Environmental Control System Including Ozone Destroying Catalytic Converter Having Anodized and Washcoat Layer," Di-Jia Liu, Daniel R. Winstead, and Peter M. Michalakos, 2006

### **Publications**

- More than 50 scientific publications in peer-reviewed journals in the area of fuel cells, environmental catalysis, advanced materials characterization and physical chemistry