

## **Magali Ferrandon**

Argonne National Laboratory  
9700 South Cass Avenue, Bldg. 205  
Argonne, Illinois 60439  
Phone: 630-252-6260  
Fax: 630-252-5655  
e-mail: [ferrandon@anl.gov](mailto:ferrandon@anl.gov)

### **Professional Experience**

- Assistant Chemical Engineer, Catalysis and Energy Conversion Group, Chemical Sciences and Engineering, Argonne National Laboratory, March 2005-Present
- Postdoctoral Appointee, Fuel Cell for Transportation, Chemical Technology, Argonne National Laboratory, February 2002 to February 2005

### **Research Experience**

- Investigated the chemical and physical mechanism using SEM that lead to degradation of the Ceramatec's cell performance over time for the high-temperature steam electrolysis
- Studied the various techniques to deposit low amount of Pt on aligned carbon nanotubes (ACNT) to reduce the Pt high cost in PEM fuel cell stack
- Investigating the hydrolysis reaction in the Cu-Cl thermochemical cycle, to understand the mechanism and optimize operating parameters using TGA characterization and reactor design
- Synthesized and characterized novel fuel reforming catalysts for hydrogen production, with improved activity, thermal stability, and resistance to sulfur
- Built and operated reactors for the catalytic activity study for auto-thermal reforming of fuels and water-gas shift reaction
- Investigated the effects of catalytic supports and metals interaction using conventional and advanced characterization tools such as BET, XRD, ICP, SEM, EXAFS, etc.

### **Professional Societies**

- Member, Catalysis Club of Chicago
- Member, American Institute of Chemical Engineers

### **Awards**

- Best Poster Award Honorable Mention, Fuel Cell Seminar 2005

## Education

- Ph.D., Chemical Engineering, May 2001, Royal Institute of Technology, Stockholm, Sweden
- M.S., Chemical Engineering, September 1995, ENSSPICAM, Marseille, France

## Publications

- Ferrandon, M. and Krause, T., *Role of the oxide support on the performance of Rh catalysts for the autothermal reforming of gasoline and gasoline surrogates to hydrogen*, Appl. Catal.A, 311, p. 135-145 (2006).
- Choung, S.Y., Ferrandon, M., and Krause, T., *Pt-Re bimetallic supported on CeO<sub>2</sub>-ZrO<sub>2</sub> mixed oxides as water-gas shift catalysts*, Catalysis Today, 99, p. 257-262 (2005).
- Ferrandon, M., Ferrand, B., Björnbom, E., Klingstedt, F., Kalantar Neyestanaki, A., Karhu, H., and Väyrynen, I.J., *Copper oxide-platinum/alumina catalysts for volatile organic compounds and carbon monoxide oxidation: synergetic effect of cerium and lanthanum*, J. Catal. 202, 354-366 (2001).
- Ferrandon, M. and Björnbom, E., *Hydrothermal stabilization by lanthanum of mixed metal oxides and noble metals catalysts for volatile organic compound removal*, J. Catal. 200, 148-159 (2001).
- Ferrandon, M., Berg, M., and Björnbom, E., *Thermal stability of metal-supported catalysts for reduction of cold-start emissions in a wood-fired domestic boiler*, Catal. Today 53, 647-659 (1999).
- Ferrandon, M., Carnö, J., Järås, S., and Björnbom, E., *Total oxidation catalysts based on manganese or copper oxides and platinum or palladium, II. Activity, hydrothermal stability and sulphur resistance*, Appl. Catal. A 180, 153-161 (1999).
- Ferrandon, M., Carnö, J., Järås, S., and Björnbom, E., *Total oxidation catalysts based on manganese or copper oxides and platinum or palladium, I. Characterization*, Appl. Catal. A 180, 141-151 (1999).
- Ferrandon, M. and Björnbom, E., *Deactivation in a wood stove of catalysts for total oxidation*. Stud. Surf. Sci. Catal., Catalyst Deactivation, 126, p. 426 (1999).
- Carnö, J., Ferrandon, M., Björnbom, E., and Järås, S., *Mixed manganese oxide/platinum catalysts for total oxidation of model gas from wood boilers*, Appl. Catal. A 155, 265-281 (1997).

## Abstracts and Proceedings Papers

- Mawdsley, J.R., Carter, J.D., Yildiz, B., Call, A.V., Kropf, A.J., Ferrandon, M.S., Myers, D.J., and Maroni, V.A., *Post-Test Evaluation of the Oxygen Electrode from A Solid Oxide Electrolysis Stack and Electrode Materials Development*, Extended Abstract submitted for the AIChE meeting in Salt Lake City, Nov 4-9<sup>th</sup>, 2007.

- Krause, T., Ferrandon, M., and Rossignol, C., *Reforming catalysts for on-board fuel processing*, oral presentation, 226<sup>th</sup> National Meeting of the American Chemical Society, New York City, NY, September 7-11, 2003. Extended Abstract of Papers of the American Chemical Society 226: U566 136-Fuel Part 1, September 2003.
- Choung, S.Y., Krebs, J., Ferrandon, M., and Krause, T., *Water-gas shift catalysis on Pt bimetallic catalysts*, oral presentation, 226<sup>th</sup> National Meeting of the American Chemical Society, New York City, NY, September 7-11, 2003. Extended Abstract of Papers of the American Chemical Society 226:U566 136-Fuel, Part 1, September 2003.

### **Presentations**

- Carter, J.D., Mawdsley, J., Ferrandon, M., Investigation of SO<sub>3</sub> Electrolysis as an Alternative Step in the Sulfur-Iodine Thermochemical Process, Abstract submitted for the AIChE meeting in Salt Lake City, Nov 4-9<sup>th</sup>, 2007.
- Ferrandon, M., Mawdsley, J., Kropf, J., and Krause, T., Bimetallic Rh-Ni for H<sub>2</sub> Production, Fuel Cell Seminar 2005, Palm Springs, California, USA, November 14-18, 2005. Best Power Award Honorable Mention.
- Ferrandon, M., Ralph, J., and Krause, T., Effect of sulfur on the performance of reforming catalysts for hydrogen production, Oral presentation, AIChE 2004 Annual meeting, Austin, Texas, November 7-12, 2004.
- Ferrandon, M. and Krause, T., Rh-based Catalysts for Autothermal Reforming of Liquid Fuels into Hydrogen, poster presentation, 4<sup>th</sup> DOE National Laboratory Catalysis Conference, Oak Ridge, TN, October 22-24, 2003.
- Mawdsley, J., Ferrandon, M., Ralph, J. and Krause, T., Study of Perovskites as Autothermal Reforming Catalysts, oral presentation, 4<sup>th</sup> DOE National Laboratory Catalysis Conference, Oak Ridge, TN, October 22-24, 2003.