Michele Lewis

Argonne National Laboratory
Chemical Sciences and Engineering Division
9700 South Cass Avenue, Building 205
Argonne, IL 60439-4837
phone: 630/252-6603, fax: 630/252-5246
e-mail: lewism@anl.gov

Research and Professional Experience

- **Present**. Chemist at Argonne National Laboratory
  - Thermochemical cycle research and development
  - Nuclear waste form development and testing
  - Hydrogen production technology development
  - Measurement of thermodynamic properties in molten salts
  - Waste form testing
  - Measurement of electronic properties using a linear accelerator
  - Measurement of properties of cytochrome C using Raman spectroscopy

Education

- Ph.D., Chemistry, Northern Illinois University
- B.S., Chemistry, University of Pittsburgh

Professional Activities

- Publication Reviewer:
  - *International Journal of Hydrogen Energy*
  - *Journal of Applied Physics*
- National and International Collaboration:
  - Research for this program involves significant collaboration activities under the Nuclear Energy Research Initiative-Consortium (NERI-C) program with
    - Pennsylvania State University
    - University of South Carolina
    - Tulane University
    - An International Nuclear Energy Research Initiative (INERI) with the Atomic Energy of Canada
    - Several Canadian universities through a program funded by the Ontario Research Foundation
- Ongoing informal information exchange with researchers at Commissariat à L'Energie Atomique (CEA), Saclay.

Selected Publications

M. A. Lewis, J. G. Masin, and P. A. O'Hare, "Evaluation of alternative thermochemical cycles. Part I: The methodology," *International Journal of Hydrogen Energy*, 34:4115-4124, 2009.

M. A. Lewis and J. G. Masin, "The evaluation of alternative thermochemical cycles – Part II: The down-selection process," *International Journal of Hydrogen Energy*, 34:4125-4135, 2009.

M. A. Lewis, M. S. Ferrandon, D. F. Tatterson, and P. Mathias, "Evaluation of alternative thermochemical cycles – Part III further development of the Cu–Cl cycle," *International Journal of Hydrogen Energy*, 34:4136-4145, 2009.

M. Ferrandon, M. Lewis, D. Tatterson, and A. Zdunek, "Overview of the development and status of the thermochemical Cu-Cl cycle," 2008 AIChE Annual Meeting; Philadelphia, Pennsylvania, November, 2008.

M. Ferrandon, M. Lewis, D. Tatterson, A. Gross, D. Doizi, L. Croizé, V. Dauvois, J. L. Roujou, Y. Zanella, and P. Carles, "Hydrogen Production by the Cu-Cl Thermochemical Cycle: Investigation of the Key Step of Hydrolyzing $CuCl_2$ to Cu_2OCl_2 and HCl Using A Spray Reactor," to be published in *International Journal of Hydrogen Energy*.

M. Ferrandon, M. Lewis, F. Alvarez, and E. Shafirovich, "Hydrolysis of $CuCl_2$ in the Cu-Cl Thermochemical Cycle for Hydrogen Production: Experimental Studies Using a Spray Reactor with an Ultrasonic Atomizer," in preparation.