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ABSTRACT DEADLINE: NOVEMBER 1, 2005

REMINDER: *In fairness to all potential authors, late abstracts will not be accepted.*

MRS Symposium EE: Hydrogen Storage Materials

The development of solid-state materials capable of storing hydrogen with a high-capacity-per-unit volume and weight is vital to the goal of deploying hydrogen as a widely used energy carrier. The efficiency of the hydrogen addition/removal processes is also of prime concern if the materials are to be used on a large scale. Fundamental materials issues, such as the relationship between atomic structure and hydrogen binding, need to be elucidated. This symposium is concerned with solid-state reaction pathways, hydrogen transport in materials and on surfaces, materials stability and structural change associated with hydrogen addition and subtraction, catalysis, and nanoscale phenomena. Exploring these issues will require coupling expertise in materials synthesis and advanced characterization tools, as well as explanatory and predictive theories. This symposium also seeks to elucidate the underlying principles that can lead to advanced hydrogen storage materials with improved properties.

Topics to be covered include, but are not limited to:

- Catalysts for reversible complex metal hydrides
- Chemical reactions that release and store hydrogen
- Atomically heterogeneous adsorbents: zeolites, metal-organic frameworks and metal-carbon complexes, B-C-N, aerogels, and polymer materials
- Theory and modeling
- Effect of nanoscale phenomena on thermodynamics and kinetics
- Kinetics of hydrogen dissociation and recombination, solid-state reactions, bulk and surface diffusion, and catalytic action
- Materials approaches to heat management
- Relationships between structure and hydrogen binding energies
- Advanced and high-throughput measurement techniques
- New materials

Invited speakers (tentative) include: **Vinay Bhat** (Lab. de Réactivité et Chimie, France), **Bob Bowman** (Jet Propulsion Lab), **Tony Cheetham** (Univ. of California-Santa Barbara), **Ping Chen** (National Univ. of Singapore), **Ashok Damle** (Research Triangle Inst.), **Anne Dillon** (National Renewable Energy Lab), **Dave Dixon** (Univ. of Alabama), **Daniel Fruchart** (CNRS, France), **Laura Gagliardi** (Univ. di Palermo, Italy), **Jacques Huot** (HRI, UQTR, Canada), **Greg Kubas** (Los Alamos National Lab), **Michel Latroche** (UCMTR, CNRS, France), **Huen Lee** (Korea Advanced Inst. of Science & Technology, R.O. Korea), **Weifang Luo** (Sandia National Labs), **Shin-ichi Orimo** (Tohoku Univ., Japan), **Guido Pez** (Air Products), **Sunita Satyapal** (U.S. Dept. of Energy), **Viktor Struzhkin** (Carnegie Mellon Univ.), **Hitoshi Takamura** (Tohoku Univ., Japan), **Dave Thorn** (Los Alamos National Lab), **John Vajo** (HRL Labs), **John Wilkes** (U.S. Air Force Academy), **Ying Wu** (Millenium Cell), **Boris Yakobson** (Rice Univ.), **Tanner Yildirim** (National Inst. of Standards & Technology), and **Andrea Zuttel** (Univ. of Fribourg, Switzerland).

Symposium Organizers

James C. F. Wang

Sandia National Laboratories, MS 9403, 7011 East Ave., Livermore, CA 94550
Tel 925-294-2786, Fax 925-294-3410, jcwang@sandia.gov

William Tumas

Los Alamos National Laboratory, MS C331, Los Alamos, NM 87545
Tel 505-667-3803, Fax 505-667-9905, tumas@lanl.gov

Aline Rougier

Université de Picardie Jules Verne, Laboratoire de Réactivité et de Chimie des Solides - UMR 6007, 33 Rue St.-Leu, F-80039 Amiens Cedex, France
Tel 33-3-2282-7604, Fax 33-3-2282-7590, aline.rougier@sc.u-picardie.fr

Michael J. Heben

National Renewable Energy Laboratory, MS 3216
1617 Cole Blvd., Golden, CO 80401-3393
Tel 303-384-6641, Fax 303-384-6655, michael_heben@nrel.gov

Etsuo Akiba

AIST, Energy Electronics Institute, Hydrogen Energy Group
Tsukuba Central 5-2, 1-1-1 Higashi, Ibaraki 305-8565, Japan
Tel/Fax 81-29-861-4541, e.akiba@aist.go.jp

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