



# NIST Combinatorial Methods Center

## NCMC-14 Agenda

### A DOE-EERE/NIST Joint Workshop on Combinatorial Materials Science for Applications in Energy

November 5, 2008 ◊ Bldg. 224 / Room B-245  
November 6 – 7, 2008 ◊ Bldg. 101 / Lecture Room B

#### Wednesday, November 5, 2008 ◊ Afternoon

12:30 PM [Arrival & Registration](#)

1:15 PM [Welcoming Remarks & Introduction](#)

1:20 PM Gary Sandrock, DOE-EERE  
Overview of Hydrogen Storage: Gas, Liquid and Solid

#### Hydrogen Storage I: Detection and Characterization for Irreversible Chemical Hydrides and Reversible Hydrides

1:35 PM Kevin Ott, LANL  
Chemical Hydrogen Storage: Opportunities and Needs for Characterization and  
Rapid Throughput

2:05 PM Ewa Ronnebro, Sandia  
Current Challenges and Needs in Metal Hydride Research

2:30 PM Leo Bendersky, NIST  
Combinatorial and High-Throughput Approaches for Thin Films: Application to  
Hydrogen Storage Materials

2:55 PM [Break](#)

3:10 PM Jean-Philippe Soulie, Ilika Technologies, Ltd.  
High-Throughput Discovery of Novel Complex Metal Hydrides

3:35 PM Marty Green, NIST  
Combinatorial and High-Throughput Approaches for Exploring Inorganic  
Materials

4:00 PM Michael Fleischauer, NRC-National Institute for Nanotechnology  
Rechargeable Batteries: A Combinatorial Perspective

4:25 PM [Breakout Groups – Discussion](#)

5:15 PM [Interim Discussion Reports](#)

5:45 PM [Adjourn](#)

## Thursday, November 6, 2008 ◇ Morning

7:30 AM [Arrival & Registration](#)

8:25 AM [Welcome](#)  
Eric Lin, Chief, Polymers Division, NIST

### **Hydrogen Storage II: Detection and Characterization for Hydrogen Adsorption Materials**

8:30 AM Anne Dillon, NREL  
Materials in the DOE Hydrogen Sorption Center of Excellence

9:00 AM Andrew Cooper, University of Liverpool  
High Throughput Discovery of Polymeric Hydrogen Adsorptive Materials

9:25 AM Joe Zhou, Texas A&M  
Combinatorial Synthesis and High Throughput Screening of Biomimetic Metal-Organic Materials for Military Hydrogen-Storage Applications

9:50 AM Jochen Lauterbach, University of Delaware  
Combi and HT Application of Spectroscopic Techniques

10:15 AM [Break](#)

10:30 AM Michael Fasolka, NIST  
Overview of Combi Methods for Soft Materials

10:55 AM Michael Smith, Symyx  
High-Throughput Methods for Material Science Research in Energy Applications

11:20 AM Rick Ricker, NIST  
Materials for Safe Containment, Transport, Delivery, and Use of Hydrogen Fuel:  
Hydrogen Pipeline Safety

11:45 AM [Lunch: NIST Cafeteria](#)

## Thursday, November 6, 2008 ◇ Afternoon

### **Fuel Cells and Membranes Session**

1:00 PM [Introduction & Overview](#)  
Kirt Page, NIST

1:10 PM James Goldbach, Arkema  
State of the Art and Challenges in Polymer Electrolyte Fuel Cell Membranes

1:40 PM Carson Meredith, GA Tech  
A Combi Approach to Characterizing Fuel Cell Membranes

2:10 PM Kirt Page, NIST  
Fuel Cell Membrane Project Structure & Dynamics

- 2:30 PM Discussion
- 2:45 PM Break
- 3:00 PM Breakout Groups – Discussion (also using Dining Rooms A & B)
- 4:00 PM Plenary Lecture  
Richard Wool, University of Delaware  
Fundamental Design of Sustainable Materials: Solutions to Global Warming
- 5:00 PM Adjourn
- 6:30 PM Dinner and Discussion Reports (see details in the Workshop Handout)

**Friday, November 7, 2008** ◇ Morning

- 7:45 AM Arrival
- 8:25 AM Welcome Back  
Kate Beers, NIST

**Organic Photovoltaics Session**

- 8:30 AM Introduction and Overview  
Dean DeLongchamp, NIST
- 8:40 AM Russell Gaudiana, Konarka  
The Role of Morphology in OPV Technology
- 9:05 AM Matt Reese, NREL  
Combinatorial Measurements of PV Aging
- 9:30 AM David Ginger, University of Washington  
SPM Methods for PV Performance Testing
- 9:55 AM Dean DeLongchamp or David Germack, NIST  
NIST Polymers Program in OPV – Discussion
- 10:15 AM Break

**NCMC Update Session**

- 10:30 AM Jun Young Chung, NIST  
Surface Wrinkling: A Powerful Tool for Measuring Material Properties
- 10:50 AM Adam Nolte, NIST  
A Flexible Platform for Adhesion Measurements at Polymer and Biomaterial Interfaces
- 11:10 AM Peter Johnson, NIST  
High-Throughput Measurements of Viscoelastic Properties Using Surface Indentation

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11:30 AM Edwin Chan, NIST  
Surface Wrinkles for Controlling Soft Material Adhesion

11:50 AM Lunch: [NIST Cafeteria](#)

**Friday, November 7, 2008 ♦ Afternoon**

1:15 PM [New Customer Engagement Plan for NIST Polymers](#)  
Eric Lin, NIST

**NCMC Laboratory Tours and Demonstrations**

2:30 PM [Lab Tours and Demonstrations](#) – convene in the NCMC Labs, Building 224,  
Room B-207 (see the Lab Tours Handout in the Workshop Handout)

3:30 PM [Adjourn](#)

Please mark your calendars to join us at NCMC-15 on April 20 – 21, 2009!