United States Department of Energy
Office of Public Affairs
Washington, DC 20585

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FOR IMMEDIATE RELEASE
Tuesday, May 15, 2007

Energy Dept. Awards $11.2 Million for Hydrogen Research

WASHINGTON, DC – The U.S. Department of Energy (DOE) today announced $11.2 million in awards for research aimed at overcoming the scientific challenges associated with the production, storage and use of hydrogen.

“This funding will support transformational scientific research addressing major issues underpinning the hydrogen economy: hydrogen storage, essential for transportation; and catalysts, for hydrogen production, storage and use," Under Secretary for Science Dr. Raymond L. Orbach said.

DOE’s Office of Science selected 13 projects that will focus on fundamental science in support of hydrogen technologies. Universities and national laboratories in 10 states and Washington, DC will conduct the research.

The projects are part of a department-wide, comprehensive, balanced portfolio of basic and applied research, technology development and demonstration projects aimed at significantly advancing President Bush’s Hydrogen Fuel Initiative. DOE selected the new projects through a merit-review, competitive solicitation process and plans to fund additional projects in fiscal year 2008.

The projects will address two priority technical areas:

Novel Materials for Hydrogen Storage (7 projects, $5.6 million over three years)
Both the National Academy Sciences and DOE have identified hydrogen storage as a key technology for the successful implementation of hydrogen and fuel cell technologies. A broad range of research in hydrogen storage is covered by these projects, including: complex hydrides; nanostructured and novel materials; theory, modeling and simulation; and state-of-the-art analytical and characterization tools to develop novel storage materials and methods.

Nanoscale Catalysts (6 projects, $5.6 million over three years)
Catalysts play a vital role in hydrogen production, storage and use. Specifically, catalysts are needed for producing hydrogen from water or carbon-containing fuels such as coal and biomass, increasing hydrogen storage kinetics and producing electricity at low cost from hydrogen in fuel cells. Research areas include: innovative synthetic techniques; novel characterization techniques; and theory, modeling and simulation of catalytic pathways.

The list of new projects follows.

Basic Research for the Hydrogen Fuel Initiative	
Institution	**Project Title**
Novel Hydrogen Storage Materials	
Oak Ridge National Laboratory	Quantum Tuning of Chemical Reactivity for Storage and Generation of Hydrogen Fuels
Rutgers University	Novel Theoretical and Experimental Approaches for Understanding and Optimizing Hydrogen-Sorbent Interactions in Metal Organic Framework Materials
Florida International University	Influence of Pressure on Physical Property of Ammonia Borane and its Re-hydrogenation
University of California, Davis	Activation of Hydrogen Under Ambient Conditions by Main Group Molecules
University of California, Santa Barbara	Computational Studies of Hydrogen Interactions with Storage Materials
University of Missouri-Columbia	Networks of Boron-Doped Carbon Nanopores for Low-Pressure Reversible Hydrogen Storage
University of South Florida	Novel Porous Metal-Organic Frameworks for Hydrogen Storage
Nanoscale Catalysts	
Argonne National Laboratory	Structure/Composition/Function Relationships in Supported Nanoscale Catalysts for Hydrogen Generation
Brookhaven National Laboratory	In-situ Studies of the Active Sites and Mechanism for the Water-Gas-Shift Reaction on Metal/Oxide Nanocatalysts
Georgetown University	An in situ Electrode-Potential-Controlled Nuclear Magnetic Resonance Investigation of Sulfur-Poisoning Effect on Platinum Based Mono- and Bi-metallic Nanoscale Electrocatalysts
Ohio State University	Investigation of the Nature of Active Sites on Heteroatom-Containing Carbon Nano-Structures for Oxygen Reduction Reaction
Pacific Northwest National Laboratory	New Bio-Inspired Molecular Catalysts for Hydrogen Oxidation and Hydrogen Production
University of Virginia	Theory-Aided Design of Active and Durable Nanoscale Cathode Catalysts

Additional information about the new awards is available at: http://www.sc.doe.gov/bes/bes.html. The basic hydrogen research program is administered by the department's Office of Basic Energy Sciences in the Office of Science. For more information about DOE's Hydrogen Program, visit: http://www.hydrogen.energy.gov/.

DOE's Office of Science is the single largest supporter of basic research in the physical sciences in the nation and helps ensure U.S. world leadership across a broad range of scientific disciplines. The Office of Science supports a diverse portfolio of research at more than 300 colleges and universities nationwide, manages 10 world-class national laboratories with unmatched capabilities for solving complex interdisciplinary scientific problems, and builds and operates the world's finest suite of scientific facilities and instruments used annually by more than 19,000 researchers to extend the frontiers of all areas of science.

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