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PRESS RELEASE

Penn State leads DOE consortium focused on hydrogen energy research

Hydrogen energy research at Penn State will see even more expansion as the University begins leadership over a newly established U.S. Department of Energy (DOE) consortium this month.

Under a \$2.4 million research grant designated from DOE's Nuclear Energy Research Initiative (NERI), Penn State will lead a consortium over a three-year period that will investigate thermochemical hydrogen production. Other members of the consortium include Argonne National Laboratory, University of South Carolina and Tulane University.

One of the scopes of NERI is to develop a number of thermochemical cycles for producing hydrogen on a commercial scale through advanced nuclear energy systems. In a thermochemical cycle water and heat are the input, hydrogen and oxygen are the only products, and all other chemicals are recycled.

The objective of the consortium research—"Advanced Electrochemical Technologies for Hydrogen Production by Alternative Thermochemical Cycles"—is to establish the most efficient technologies for hydrogen production that are compatible with nuclear-generated heat sources.

Researchers will investigate a number of prospective thermochemical cycles and key reactions via experimental work and process simulation to evaluate their efficiency and viability for future sustainable energy infrastructure. Penn State Professor of Energy and Mineral Engineering Serguei Lvov will serve as director for the consortium.

"Energy dependence and the large increase in CO₂ and other greenhouse gas (GHG) concentrations in the atmosphere are serious concerns today," says Lvov, who serves as the director of the Electrochemical Laboratory at the Penn State Energy Institute. "Substituting hydrogen for fossil fuels and the use of electric power/heat from nuclear reactors rather than fossil fuels would increase energy independence and reduce GHG emissions."

Research conducted by four Consortium members in many aspects will rely on mutual expertise in particular areas. Joint data analysis and selection of prospective directions and systems will be made at review meetings. It is also anticipated that Consortium activities will be a part of the International Nuclear Energy Research Initiative (INERI), Lvov says, and a strong collaboration with Atomic Energy Canada, Ltd. and a number of Canadian universities will be developed.

On August 30, 2007, DOE announced the selection of 11 university-led teams to conduct state-of-the-art research on nuclear energy with a total funding amount of \$30.7 million. According to a press release from DOE, the goal of the grants is to “further engage U.S. university professor and their students in advanced nuclear fuel cycle research and development, supporting President Bush’s Global Nuclear Energy Partnership and his American Competitiveness Initiative.”