



# NUC E 590 SEMINAR

## Nuclear Engineering

Thursday, February 7, 2008

*Seminar at 4:00 p.m.—135 Reber*

*(Reception at 3:30 p.m.—hallway outside of 121 Reber)*

**DR. SERGUEI LVOV**

Professor

Energy & Geo-Environmental Engineering

Penn State University

### **NUCLEAR HYDROGEN: ADVANCED ELECTROCHEMICAL TECHNOLOGIES FOR HYDROGEN PRODUCTION BY ALTERNATIVE THERMOCHEMICAL CYCLES**

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. Dr. Lvov is the consortium director and will discuss 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.