



The Macrogram

Hartford Chapter of the ASM International
Build on our Strengths - Leverage our Diversity - Network to Succeed

MONTHLY MEETING – TOPIC

November 16, 2006

Topic: Polymer and Solid Oxide Fuel Cells for Power Generation

Speaker: Prof. Alevtina (Alla) Smirnova, PhD
Chemical, Materials and Biomolecular Engineering, University of Connecticut

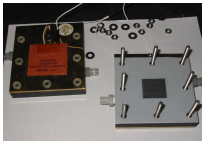
Directions: The Mill on the River, 989 Ellington Road, South Windsor, CT 06074, Ph: 860.289.7929

Agenda: Cocktails: 5:30-6:30 PM
Dinner: 6:30 7:30 PM
Program: 7:30- 8:30 PM

Program Charges: Regular Members - \$28.00
Retirees - \$15.00
Full Time Students - \$15.00

Technical Chairperson: Rampi Ramprasad
Reservations: Call Shirley at Dynamic Metals (860) 583-3336 by noon November 13th. **Thanks!**

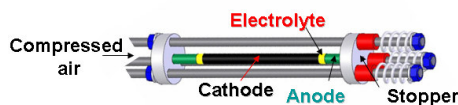
Abstract:



This presentation includes a brief survey of existing types of fuel cells with emphasis on polymer electrolyte membrane (PEM) and solid oxide fuel cells (SOFCs).

New trends in development of promising electrolyte, anode, and cathode materials for the SOFCs will be emphasized in comparison to the traditional materials, methods of their preparation, and properties. The emphasis will be made on new technical designs that allow for obtaining higher SOFC power output in lower operation temperature range.

Regarding PEMFCs, electrolyte membranes and new carbon supported catalysts based on carbon aerogels possessing reproducible and scalable nanostructure will be discussed. These catalysts and their properties allow obtaining high PEMFC performance at low catalyst loading (ca. 0.1 mg/cm²) in the temperature range from room temperature up to at least 90°C that make them promising materials for portable and automotive applications.



A Tour of UTC Power's South Windsor Fuel Cell Facilities at 4PM.
Limited to first 20. Registration Required.
195 Governor's Highway, South Windsor, CT

Bio:



Prof. Smirnova obtained both MS and PhD from St. Petersburg State University, known as the oldest and top ranked university in Russia. The main field of her interest is in the area of high and low temperature fuel cells and fuel cell materials. Among them: ceramic electrolytes, catalysts, and interconnect materials for solid oxide fuel cells (SOFCs) and polymer membranes and catalysts for polymer electrolyte fuel cells (PEMFCs). Her extremely broad experience in the fuel cell area has been obtained through managing a number of multi-disciplinary programs that were partnered with universities and industry in USA, UK, Germany, Spain, Finland, Ukraine, and Russia.

Dr. Smirnova joined University of Connecticut (UCONN) in 2000 and the Connecticut Global Fuel Cell Center in 2003. As an Assistant Research Professor, she was responsible for development of new materials and technology designs for polymer electrolyte fuel cells (PEMFC), direct methanol fuel cells (DMFC), and solid oxide fuel cells (SOFC). During the last five years Prof. Smirnova was developing micro-fluid PEMFCs, passive flow DMFCs sponsored by US Army and novel nano-structured aerogel materials for PEM fuel cell systems. She is currently a NATO project director supervising international project "Solid Oxide Fuel Cells for Energy Security". Prior to this, Dr. Smirnova was employed by Ford Motor Company where her research was focused on the development of small tubular SOFCs for automotive applications.

Alevtina Smirnova has been awarded several national and international awards. She is the author of more than 150 publications in peer-reviewed journals and proceedings and 4 patents. She is a member of the Materials Research Society (MRS), the Electrochemical Society, and American Society of Mechanical Engineers (ASME) and a of the ASME and Elsevier journals.

All Reservations for the UTC Power Fuel Cell Facility Tour must be in by Noon on November 8. If you are not a United States citizen, your passport number and country of citizenship are required when you sign up.