WestVirginiaUniversity
Department of Mechanical and Aerospace Engineering

MAE GRADUATE SEMINAR

Solid Oxide Fuel Cells: New Materials and Measurements

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Abstract: This talk will describe recent materials studies of SOFCs at Northwestern University and Functional Coating Technology LLC. The use of three-dimensional reconstruction of electrode microstructure using focused ion beam – scanning electron microscopy will be discussed. Nano-structured electrode materials will be described, including infiltrated cathodes and a new type of oxide anode material where solid-state precipitation produces ~ 5 nm metal Ru clusters on the oxide surfaces. Results on SOFC operation fuelled with hydrocarbons will be described, including a new type of anode-supported SOFC where the Ni-YSZ support is replaced with a conducting oxide.

Biography: *Scott A. Barnett* is a Professor in the Materials Science and Engineering Department at Northwestern University. He is also founder and President of Functional Coating Technology LLC. After receiving his Ph.D. in Metallurgy from the University of Illinois at Urbana-Champaign in 1982, he held postdoctoral appointments at the University of Illinois and Linkoping University (Sweden). He took his present position at Northwestern in 1986. His research focuses on thin films and coatings produced by physical vapor and colloidal deposition methods. His general areas of interest in fuel cells include thin electrolyte deposition, low-temperature operation, electrode reaction mechanisms, and hydrocarbon reactions.

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