

Chairman-Elect
Simon Podkolzin
Past Chairman
Wolfgang Ruettinger
Catalysis Society Representative
Israel Wachs
Webmaster
Jennifer Wade
Directors
David Harris
Colin Beswick
John Byrne

The CATALYSIS SOCIETY of Metropolitan New York
www.nycsweb.org

Chairman
MARCO J. CASTALDI
(212) 854-6390
(212) 854-7081 (fax)
Mc2352@columbia.edu

Secretary
LUCAS DORAZIO
(732) 205-5173
(732) 205-5300 (fax)
lucas.dorazio@BASF.com

Treasurer
JOHN BRODY
(908) 730-2932
(262) 313-4051 (FAX)
John.f.brody@exxonmobil.com

Wednesday, September 21, 2011
Crowne Plaza Hotel, Somerset, New Jersey

Steven McIntosh
Department of Chemical Engineering, Lehigh University

“Electrocatalysis for Solid Oxide Fuel Cells”

The promise of direct and efficient conversion of chemical to electrical energy makes fuel cell development an area of great technological interest. Solid Oxide Fuel Cells (SOFCs) are unique in that they operate via ionic transport of oxygen anions from the air electrode (cathode) to the fuel electrode (anode). As such, SOFC can theoretically utilize a wide range of fuels, promising efficient power generation from high energy density fuels that are easily stored and transported; however, traditional Ni-based SOFC anodes are limited to hydrogen fuel due to carbon fouling on Ni in the presence of dry hydrocarbons.

In this talk, I will discuss the development of mixed ion-electron conducting oxide electrocatalysts that have the potential to replace Ni and enable operation with hydrocarbon fuels. In particular I will discuss efforts to measure the hydrocarbon oxidation activity of these materials under realistic SOFC anode conditions and to relate this activity to the bulk oxide structure. I will also address the development of oxygen reduction and proton incorporation electrocatalysts.

Amrita Pal
2011 Spring Symposium Poster Winner
Stevens Institute of Technology

“Investigation of BPE adsorption on metallic and oxidized silver nanoparticles with Raman spectroscopy and DFT calculations”

Silver catalysts are actively studied for multiple selective oxidation reactions of hydrocarbons. Adsorption of hydrocarbons on silver surfaces as a function of silver oxidation, however, is not well understood. In the current study, adsorption of a commonly used spectroscopic probe molecule BPE (Figure 1) on metallic and partially oxidized 50 nm monodispersed Ag nanoparticles supported on silica was investigated using Surface Enhanced Raman Spectroscopic (SERS) measurements and DFT calculations. The size of Ag nanoparticles was confirmed with SEM and zeta-potential measurements, the extent of Ag oxidation was varied using controlled exposures to ozone and UV light and monitored with XPS measurements.

Dinner is a buffet, and includes <u>a choice of beef, chicken or fish</u>		Members	\$40
		Non-members	\$50
Social Hour (Cash Bar)	6:00 PM	Students	\$25 (Student Members = \$15)
Dinner	7:00 PM	Retired/Post-Doc/ Unemp.	\$40 (Members = \$30)
Presentation	7:45 PM	Annual Dues	\$30 (Student = \$10)

Deadline for dinner reservations is 2:00 p.m. Friday, September 16, 2011

Call or email Lucas Dorazio (732) 205-5173 (lucasd.dorazio@basf.com) for reservations. With the exception of extreme circumstances, anyone not canceling reservations by the above deadline will be billed for dinner regardless of attendance.

2010-2011 Officers: Marco Castaldi (Chair), Simon Podkolzin (Chair-Elect), Wolfgang Ruettinger (Past Chair), Israel Wachs (Catalysis Society Rep), Lucas Dorazio (Secretary), John Brody (Treasurer), Jennifer Wade (Webmaster), David Harris, Colin Beswick, John Byrne (Directors)