

Institute for Catalysis in Energy Processes

The **Annual Scientific Meeting** of the ICEP will be held on **Monday, April 6, 2009** at Northwestern University's Evanston campus (Ryan Hall/Nano Building, 2190 Campus Drive, Evanston Campus, Rm. 4003). University faculty, industrial mentors, industrial researchers, postdoctoral fellows, and graduate students are all invited to participate. On **Tuesday, April 7, 2009** there will be a half-day program including ICEP Executive Committee and External Advisory Board (Ryan Hall/Nano Building, Room 4003).

Monday, April 6, 2009 (full-day program, Location: Ryan Hall, Room 4003)

7:30 – 8:15 a.m. Continental Breakfast

8:15 – 8:45 a.m. Welcome: *Emilio Bunel*, Director, Chemical Sciences & Engrg. Division
Argonne National Laboratory
Peter Stair, Professor of Chemistry; Director, ICEP

Section 1

8:45 – 9:10 a.m. "Chemical Catalysis: Selective Oxidation of Alkanes to Oxygen Fuels: An Overview", *Jeffrey Miller*, Argonne National Laboratory

9:10 – 9:55 a.m. The Central Role of Synthesis: Catalyst Supports

The Next Generation of Single-Site Heterogeneous Catalysts—MOFs as Versatile, Tunable, and Unique Catalysts and Supports, *SonBinh Nguyen*,
Dept. of Chemistry, Northwestern University

Oxide Nanocrystals as Supports: Synthesis and Functionalization,

Kenneth Poepelmeier, Dept. of Chemistry, Northwestern University

Metal-Support Interface: Active Site for Selective Oxidation, *Harold Kung*,
Dept. of Chemical & Biol. Engrg., NU

9:55 – 10:15 a.m. Coffee Break

10:15 – 11:00 a.m. The Central Role of Synthesis: Catalytic Species

Atomic Layer Deposition for Catalyst Synthesis, *Jeffrey Elam*, Argonne Nat'l Lab
Toward Single-Site Heterogeneous Vanadium Oxidation Catalysts, *Tobin Marks*,
Dept. of Chemistry, Northwestern University

Organic-Inorganic Hybrids as Synthesis Tools in Heterogeneous Catalysis,

Justin Notestein, Dept. of Chemical & Biol. Engrg, Northwestern Univ.

11:00 – 12:00 p.m. Characterizing of Structures and Transformations

Catalytic Oxides: Synthesis and Atomic Surface Structure, *Laurence Marks*,
Dept. of Materials Science & Engrg., Northwestern Univ.

XAFS Spectroscopy in Catalysis Research, *Jeffrey Miller*, Argonne Nat'l. Lab
In situ X-ray Studies of Oxide Supported Catalysts, *Michael Bedzyk*, Dept. of
Materials Science & Engrg., Northwestern Univ.

Discovering Catalytic Species by Resonance Raman Spectroscopy,

Peter Stair, Dept. of Chemistry, Director, ICEP, Northwestern University

12 – 12:30 p.m.

Understanding Elementary Reactions Using Computational Methods

Catalyst-support Effects on Catalytic Reactions, *Larry Curtiss*, Argonne Nat'l. Lab
Linking the Atomic Scale with the Process Scale, *Linda Broadbelt*, Chem. & Biol.
Eng, Northwestern University

Buffet Lunch, Allen Center

12:45 – 1:45 p.m.

Section 2

2:00 – 2:25 p.m. Photocatalysis: Overview of CO₂ Reduction, *Kimberly Gray*, Civ. & Env. Eng, NU

2:25 – 2:45 p.m. Elucidation of CO₂ Reduction Mechanisms, *Eric Weitz*, Chemistry, NU

2:45 – 3:05 p.m. Interrogating CO₂ Reduction at Defect Sites, *Richard Van Duyne*, Chemistry, NU

3:05 – 3:25 p.m. Probing Structure of Photocatalyst and Mechanism of CO₂ Reduction by EPR,
Nada Dimitrijevic, ANL

3:25 – 3:40 p.m. Coffee Break

3:40 – 4:00 p.m. Using SFG and CIMS to Probe Surface Reactions, *Franz Geiger*, Chemistry, NU

4:00 – 4:40 p.m. The Fate of Electron-hole Pairs and Charge Transfer – Theory, *Peter Zapol*, ANL
Catalytic Roles and Possibilities of Defects, Dopants, and Hydration on Oxide Surfaces, *Donald Ellis*, Chemistry, NU

4:40 – 5:00 p.m. Material Connections- Advanced Photocatalytic Materials: Back to Synthesis Closing Remarks, *Peter Stair*, Director, ICEP; Chemistry, Northwestern University

5:30 – 8:00 p.m. Poster Session, Norris Center, Room 202 (Northwestern Room, refreshments)

7:00 – 8:00 p.m. Dinner, Norris Center, Room 205A (Louis Room)