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**GORDON RESEARCH CONFERENCES** *frontiers of science*  
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**Nancy Ryan Gray, Ph.D.**  
Director

**2010 GORDON RESEARCH CONFERENCE  
on Catalysis**

**FINAL PROGRESS REPORT**

DEPARTMENT OF ENERGY  
GRANT NO DE-SC0004567

The Gordon Research Conference on Catalysis was held at Colby-Sawyer College, New London, NH June 27-July 2, 2010. The Conference was well-attended with 203 participants (attendees list attached). The attendees represented the spectrum of endeavor in this field coming from academia, industry, and government laboratories, both U.S. and foreign scientists, senior researchers, young investigators, and students. Of the 203 attendees, 99 voluntarily responded to a general inquiry regarding ethnicity which appears on our registration forms. Of the 99 respondents, 24% were Minorities – 5% Hispanic, 18% Asian, and 1% African American. Approximately 24% of the participants at the 2010 meeting were women.

In designing the formal speakers program, emphasis was placed on current unpublished research and discussion of the future target areas in this field. There was a conscious effort to stimulate lively discussion about the key issues in the field today. Time for formal presentations was limited in the interest of group discussions. In order that more scientists could communicate their most recent results, poster presentation time was scheduled. Attached is a copy of the formal schedule and speaker program and the poster program. In addition to these formal interactions, "free time" was scheduled to allow informal discussions. Such discussions are fostering new collaborations and joint efforts in the field.

Thank you for your support of this Conference. As you know, in the interest of promoting the presentation of unpublished and frontier-breaking research, Gordon Research Conferences does not permit publication of meeting proceedings. If you wish any further details, please feel free to contact me. Thank you.

Sincerely,  
**Abhaya K. Datye**, *Conference Chairperson*  
University of New Mexico

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## CATALYSIS

June 27-July 2, 2010  
Colby-Sawyer College  
New London, NH

Chair:  
Abhaya K. Datye  
Vice Chair:  
Bruce R Cook

Catalysis is a key technology for improving the quality of life while simultaneously reducing the adverse impact of human activities on the environment. The discovery of new catalytic processes and the improvement of existing ones are also critically important for securing the nation's energy supply. The GRC on Catalysis is considered one of the most prestigious conferences for catalysis research, bringing together leading researchers from both academia, industry and national labs to discuss the latest, most exciting research in catalysis and the future directions for the field.

The 2010 GRC on Catalysis will follow time-honored traditions and feature invited talks from the world's leading experts in the fundamentals and applications of catalytic science and technology. We plan to have increased participation from industry. The extended discussions in the company of outstanding thinkers will stimulate and foster new science. The conference will include talks in the following areas: Alternative feedstocks for chemicals and fuels, Imaging and spectroscopy, Design of novel catalysts, Catalyst preparation fundamentals, Molecular insights through theory, Surface Science, Catalyst stability and dynamics. In 2010, the Catalysis conference will move to a larger conference room with a new poster session area that will allow 40 posters per session. The dorm rooms provide single and double accommodations, free WiFi and the registration fee includes all meals and the famous lobster dinner on Thursday night. Afternoons are open to enjoy the New England ambiance with opportunities for hiking, sailing, golf and tennis to create an outstanding conference that will help you network with colleagues, and make long lasting connections.

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### Contributors



GRACE Davison

The Gary B. McVicker Fund

ExxonMobil

## SUNDAY

- 2:00 pm - 9:00 pm Arrival and Check-in (Office Closed 6:00 pm - 7:00 pm)
- 6:00 pm Dinner
- 7:30 pm - 7:40 pm Welcome / Introductory Comments by GRC Site Staff
- 7:40 pm - 9:30 pm **ALTERNATIVE FEEDSTOCK FOR FUELS AND CHEMICALS**  
[In Memory of Gary B. McVicker]
- Discussion Leader: **W. Curt Conner** (University of Massachusetts, Amherst, MA)
- 7:40 pm - 8:20 pm **George Huber** (Univ. of Massachusetts, Amherst, MA)  
"Catalytic conversion of bio oils into fuels and chemicals"
- 8:20 pm - 8:35 pm Discussion
- 8:35 pm - 9:15 pm **Brent Shanks** (Iowa State University, Ames, IA)  
"Multifunctional Catalyst Systems for Converting Carbohydrates and Their Derivatives"
- 9:15 pm - 9:30 pm Discussion

## MONDAY

- 7:30 am - 8:30 am Breakfast
- 9:00 am - 12:30 pm **NOVEL CATALYTIC MATERIALS**
- Discussion Leader: **Eric Lowenthal** (W.R. Grace, Columbia, MD)
- 9:00 am - 9:40 am **Robert Schlögl** (Fritz Haber Institute, Berlin, Germany)  
"Carbon as a multifunctional catalyst - not just a support"
- 9:40 am - 10:00 am Discussion
- 10:00 am Coffee Break / Group Photo
- 10:30 am - 11:10 am **Levi Thompson** (University of Michigan, Ann Arbor, MI)  
"Nanostructured Carbides and Nitrides: Properties, Opportunities and Challenges"
- 11:10 am - 11:30 am Discussion
- 11:30 am - 12:10 pm **Anne Gaffney** (The Langmuir Research Institute, St. Louis, MO)  
"A New Catalyst Design Methodology: Integrated Atomic-level Modification and Intrinsic Kinetic Characterization"
- 12:10 pm - 12:30 pm Discussion
- 12:30 pm Lunch
- 1:30 pm - 4:00 pm Free Time
- 4:00 pm - 6:00 pm Poster Session I (Poster Judging)
- 6:00 pm Dinner

7:30 pm - 9:30 pm

## 3D CHARACTERIZATION OF CATALYSTS

Discussion Leader: **Abhaya Datye** (University of New Mexico, Albuquerque, NM)

7:30 pm - 8:10 pm

**Fleming Besenbacher** (University of Aarhus, Aarhus, Denmark)  
"Catalytic model systems and surface reactivity studied by high-resolution, video-rate STM"

8:10 pm - 8:30 pm

Discussion

8:30 pm - 9:10 pm

**Paul Midgley** (Cambridge University, Cambridge, UK)  
"3D Imaging of Catalysts and Nanoparticles by Electron Tomography"

9:10 pm - 9:30 pm

Discussion

## TUESDAY

7:30 am - 8:30 am

Breakfast

9:00 am - 12:30 pm

## SURFACE SCIENCE

Discussion Leader: **Galen Fisher** (Univ. of Michigan, Ann Arbor, MI / Delphi Powertrain, Auburn Hills, MI)

9:00 am - 9:40 am

**Ib Chorkendorff** (Danish Technical University, Lyngby, Denmark)  
"Identifying and manipulating the active site in the search of new catalysts"

9:40 am - 10:00 am

Discussion

10:00 am

Coffee Break

10:30 am - 11:10 am

**Chuck Peden** (Pacific Northwest National Laboratories, Richland, WA)  
"Surface Structure and Catalytic Properties of Poorly Crystalline  $\gamma$ -Al<sub>2</sub>O<sub>3</sub> Surfaces: New Insights from Ultrahigh Field NMR Spectroscopy and Aberration-Corrected Transmission Electron Microscopy"

11:10 am - 11:30 am

Discussion

11:30 am - 12:10 pm

**Charlie Campbell** (University of Washington, Seattle, WA)  
"Kinetic and Thermodynamic Studies of Elementary Steps in Catalytic Reaction Mechanisms and Catalyst Deactivation"

12:10 pm - 12:30 pm

Discussion

12:30 pm

Lunch

1:30 pm - 4:00 pm

Free Time

4:00 pm - 6:00 pm

Poster Session II (Poster Judging)

6:00 pm

Dinner

7:30 pm - 9:30 pm

## INSIGHTS INTO CATALYSIS THROUGH THEORY

Discussion Leader: **Mark Barteau** (University of Delaware, Newark, DE)

7:30 pm - 8:10 pm

**Matthias Scheffler** (Fritz Haber Institute, Berlin, Germany)  
"Surface chemistry of heterogeneous catalysis"

8:10 pm - 8:30 pm

Discussion

8:30 pm - 9:10 pm

**Bill Schneider** (University of Notre Dame, Notre Dame, IN)

"Capturing the Effects of Surface Coverage on Catalytic Reaction Rates"

9:10 pm - 9:30 pm Discussion

## WEDNESDAY

7:30 am - 8:30 am Breakfast

9:00 am - 12:30 pm **THE SCIENCE OF CATALYST SYNTHESIS**

Discussion Leader: **Scott Mitchell** (SABIC, Houston, TX)

9:00 am - 9:40 am **John Regalbuto** (University of Illinois at Chicago, Chicago, IL)  
"A Simple, Scientific Method for the Synthesis of Supported Metal Catalysts"

9:40 am - 10:00 am Discussion

10:00 am Coffee Break

10:30 am - 11:10 am **Dan Shantz** (Texas A&M University, College Station, TX)  
"Synthesis and Catalytic Properties of Zeolites Containing Multiple (and Different) Framework Heteroatoms"

11:10 am - 11:30 am Discussion

11:30 am - 12:10 pm **Helge Toufar** (Süd Chemie, Louisville, KY)  
"Manufacture and Application of Novel Zeolitic Materials for Industrial Catalysis"

12:10 pm - 12:30 pm Discussion

12:30 pm Lunch

1:30 pm - 4:00 pm Free Time

4:00 pm - 6:00 pm Poster Session III

6:00 pm Dinner

7:00 pm - 7:30 pm Business Meeting

(Nominations for the next Vice Chair; Fill out Conference Evaluation Forms; Discuss future Site & Scheduling preferences; Election of the next Vice Chair)

7:30 pm - 9:30 pm **ENGINEERING OF CATALYSTS FOR EXCEPTIONAL STABILITY**

Discussion Leader: **Bob McCabe** (Ford Motor Company, Dearborn, MI)

7:30 pm - 8:10 pm **Hirohisa Tanaka** (Daihatsu Motor Company Japan)  
"Intelligent catalysts that can reform-and-restore nano particles in real automobiles"

8:10 pm - 8:30 pm Discussion

8:30 pm - 9:10 pm **Gabriel Veith** (Oak Ridge National Laboratory, Oak Ridge, TN)  
"Hydroxyls - the key ingredient to stabilize and activate catalysts"

9:10 pm - 9:30 pm Discussion

## THURSDAY

7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	<b>SPECTROSCOPY</b>
	Discussion Leader: <b>Peter Stair</b> (Northwestern University, Evanston, IL)
9:00 am - 9:40 am	<b>Leon Lefferts</b> (University of Twente, Enschede, Netherlands) "Heterogeneous catalysis in the liquid phase: Fundamental and engineering challenges"
9:40 am - 10:00 am	Discussion
10:00 am	Coffee Break
10:30 am - 11:10 am	<b>Clare Grey</b> (State Univ. of New York, Stony Brook, NY) "NMR spectroscopy of Catalysts"
11:10 am - 11:30 am	Discussion
11:30 am - 12:10 pm	<b>Chris Williams</b> (University of South Carolina, Columbia, SC) "Vibrational Spectroscopy at Solid-Liquid Catalytic Interfaces: Progress and Prospects"
12:10 pm - 12:30 pm	Discussion
12:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	Poster Session IV
6:00 pm	Dinner
7:30 pm - 9:30 pm	<b>FUTURE PERSPECTIVES</b>
	Discussion Leader: <b>Robert Farrauto</b> (BASF, Menlo Park, NJ)
7:30 pm - 8:10 pm	<b>Johannes Schwank</b> (University of Michigan, Ann Arbor, MI) "Catalysis - The Last Refuge For The Alchemist"
8:10 pm - 8:30 pm	Discussion
8:30 pm - 9:10 pm	<b>Wayne Goodman</b> (Texas A&M University, College Station, TX) "Six Lies and a Videotape"
9:10 pm - 9:30 pm	Discussion
<b>FRIDAY</b>	
7:30 am - 8:30 am	Breakfast
9:00 am	Depart

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**Catalysis (2010)**

Name	Organization	Participation	Status
AHMED, SHAKEEL	KING FAHD UNIVERSITY OF PETROLEUM & MINERALS	Poster Presenter	Registered
ALEXANDROVA, ANASTASSIA N	UNIVERSITY OF CALIFORNIA - LOS ANGELES	Poster Presenter	Registered
ALFONSO, DOMINIC R	NATIONAL ENERGY TECHNOLOGY LABORATORY - DOE	Poster Presenter	Registered
ANTOS, GEORGE J	NATIONAL SCIENCE FOUNDATION	Attendee	Registered
AU, MING	SAVANNAH RIVER NATIONAL LABORATORY	Attendee	Registered
BABER, ASHLEIGH E	TUFTS UNIVERSITY	Poster Presenter	Registered
BALDYCHEV, IVAN S	UNIVERSITY OF PENNSYLVANIA	Poster Presenter	Registered
BARNES, CRAIG E	UNIVERSITY OF TENNESSEE	Poster Presenter	Registered
BARRIO, LAURA	BROOKHAVEN NATIONAL LABORATORY	Poster Presenter	Registered
BARTEAU, MARK A	UNIVERSITY OF DELAWARE	Discussion Leader	Registered
BATONNEAU, YANN	UNIVERSITY OF POITIERS	Poster Presenter	Registered
BAYRAM, ERCAN	COLORADO STATE UNIVERSITY	Poster Presenter	Registered
BESENBACHER, FLEMMING	AARHUS UNIVERSITY	Speaker	Registered
BHAN, ADITYA	UNIVERSITY OF MINNESOTA	Poster Presenter	Registered
BINZ, JASON	PENN STATE UNIVERSITY	Poster Presenter	Registered
BLANTON, JAIME R	EVONIK DEGUSSA CORP.	Attendee	Registered
BOLLMANN, LUIS	THE DOW CHEMICAL COMPANY	Attendee	Registered
BOPPANA, VENKATA BHARAT RAM	UNIVERSITY OF DELAWARE	Poster Presenter	Registered
BOUCHER, MATTHEW B	TUFTS UNIVERSITY	Poster Presenter	Registered
BRAIDY, NADI	UNIVERSITÉ DE SHERBROOKE	Poster Presenter	Registered
BUCHANAN, JOHN S	EXXONMOBIL RESEARCH & ENGINEERING	Attendee	Registered
CABALLERO, ALFONSO	UNIVERSITY OF SEVILLE	Poster Presenter	Registered
CAMPBELL, CHARLES T	UNIVERSITY OF WASHINGTON	Speaker	Registered
CAO, JAMES CHUNSHI	EXXONMOBIL CHEMICALS RESEARCH	Attendee	Registered
CASTALDI, MARCO J	COLUMBIA UNIVERSITY	Poster Presenter	Registered
CHANDLER, BERT D	TRINITY UNIVERSITY	Poster Presenter	Registered
CHASE, PRESTON A	GREENCENTRE CANADA	Poster Presenter	Registered
CHAUGULE, SAURABH S	PURDUE UNIVERSITY	Poster Presenter	Registered
CHEAH, SINGFOONG	NATIONAL RENEWABLE ENERGY LABORATORY	Poster Presenter	Registered
CHEN, MINGSHU	XIAMEN UNIVERSITY	Poster Presenter	Registered
CHEN, WENSHENG	UOP	Attendee	Registered
CHENG, JANE C	EXXONMOBIL R & E COMPANY	Attendee	Registered
CHINTA, SIVADINARAYANA	TOTAL PETROCHEMICALS INC, USA	Attendee	Registered
CHORKENDORFF, IB	TECHNICAL UNIVERSITY OF DENMARK	Speaker	Registered
CHRISTOPHER, PHILLIP N	UNIVERSITY OF MICHIGAN	Poster Presenter	Registered
CISTON, JAMES	BROOKHAVEN NATIONAL LABORATORY	Poster Presenter	Registered
CONNER, CURTIS	UNIVERSITY OF MASSACHUSETTS, AMHERST	Discussion Leader	Registered
COOK, BRUCE R	BP PRODUCTS NORTH AMERICA	Vice Chair	Registered
CROZIER, PETER A	ARIZONA STATE UNIVERSITY	Poster Presenter	Registered
DADSON, ANDREW	US SYNTHETIC CORP.	Attendee	Registered
DATYE, ABHAYA K	UNIVERSITY OF NEW MEXICO	Chair	Registered
DENG, WEILING	ARGONNE NATIONAL LABORATORY	Poster Presenter	Registered
DOGAN, FULYA	STONY BROOK UNIVERSITY	Poster Presenter	Registered
DOSKOCIL, ERIC J	BP PRODUCTS N.A.	Attendee	Registered

DOURA, KEVIN F	LEHIGH UNIVERSITY	Attendee	Registered
DUNN, BRIAN C	CONOCOPHILLIPS	Attendee	Registered
DURANTE, VINCENT A	ALLOY SURFACES COMPANY	Poster Presenter	Registered
ELKS, JEFFREY T	BP PRODUCTS NORTH AMERICA	Attendee	Registered
ELSEN, HEATHER A	EXXONMOBIL RESEARCH AND ENGINEERING	Attendee	Registered
FANG, FANG	YALE UNIVERSITY	Poster Presenter	Registered
FARMER, JASON A	UNIVERSITY OF WASHINGTON	Poster Presenter	Registered
FARRAUTO, ROBERT J	BASF CATALYSTS LLC	Discussion Leader	Registered
FECANT, ANTOINE	IFP	Poster Presenter	Registered
FISHER, GALEN B	UNIVERSITY OF MICHIGAN	Discussion Leader	Registered
FLAHERTY, DAVID W	UNIVERSITY OF CALIFORNIA, BERKELEY	Poster Presenter	Registered
FOX, ELISE B	SAVANNAH RIVER NATIONAL LABORATORY	Poster Presenter	Registered
GAFFNEY, ANNE M	AMG CHEMISTRY & CATALYSIS CONSULTING	Speaker	Registered
GAO, FENG	WASHINGTON STATE UNIVERSITY	Attendee	Registered
GAO, PU-XIAN	UNIVERSITY OF CONNECTICUT	Poster Presenter	Registered
GARCIA VARGAS, NATALY	TEXAS A&M UNIVERSITY	Poster Presenter	Registered
GOMEZ, CAROLINA	UNIVERSITY OF ILLINOIS AT CHICAGO	Attendee	Registered
GONG, JINLONG	HARVARD UNIVERSITY	Poster Presenter	Registered
GRAHAM, GEORGE W	UNIVERSITY OF MICHIGAN	Poster Presenter	Registered
GREY, CLARE P	STONY BROOK UNIVERSITY	Speaker	Registered
GUO, NENG	ARGONNE NATIONAL LABORATORY	Poster Presenter	Registered
GUZMAN, JAVIER	EXXONMOBIL RESEARCH & ENGINEERING CO.	Attendee	Registered
HALEVI, BARR	UNIVERSITY OF NEW MEXICO	Poster Presenter	Registered
HALLER, GARY L	YALE UNIVERSITY	Attendee	Registered
HANSGEN, DANIELLE A	UNIVERSITY OF DELAWARE	Poster Presenter	Registered
HERBSCHLEB, CORNELIS	UNIVERSITY OF LEIDEN	Poster Presenter	Registered
HERRANZ, TIRMA	INSTITUTO DE QUIMICA FISICA ROCASOLANO	Poster Presenter	Registered
HETRICK, CASEY E	BP PRODUCTS NA, INC.	Attendee	Registered
HOEPFNER, KATRIN HK	FRAUNHOFER INSTITUTE IZM	Attendee	Registered
HUBER, GEORGE W	UNIVERSITY OF MASSACHUSETTS, AMHERST	Speaker	Registered
INGRAM, DAVID B	UNIVERSITY OF MICHIGAN	Poster Presenter	Registered
ISKI, ERIN V	TUFTS UNIVERSITY	Poster Presenter	Registered
JANIK, MICHAEL J	PENNSYLVANIA STATE UNIVERSITY	Poster Presenter	Registered
JEAN-PIERRE, GILSON	ENSICAEN	Poster Presenter	Registered
JIANG, DE-EN	OAK RIDGE NATIONAL LABORATORY	Poster Presenter	Registered
JOHNS, TYNE R	UNIVERSITY OF NEW MEXICO	Poster Presenter	Registered
JOHNSON, ROBERT E	EVONIK DEGUSSA CORP.	Attendee	Registered
JOSHI, AJAY M	BP AMERICA INC	Attendee	Registered
KATZ, MICHAEL B	UNIVERSITY OF MICHIGAN	Poster Presenter	Registered
KEGNAES, SOREN	TECHNICAL UNIVERSITET OF DENMARK	Poster Presenter	Registered
KELLY, THOMAS G	U. OF DELAWARE, DEPT. OF CHEMICAL ENGINEERING	Poster Presenter	Registered
KETURAKIS, CHRISTOPHER	LEHIGH UNIVERSITY	Poster Presenter	Registered
KHOSRAVIAN, HOMA	UNIVERSITY OF ILLINOIS AT CHICAGO	Poster Presenter	Registered
KILOS, BEATA A	THE DOW CHEMICAL COMPANY	Attendee	Registered
KIM, CHANG H	GENERAL MOTORS GLOBAL RESEAERCH & DEVELOPMENT	Poster Presenter	Registered
KO, MOON KYU	KONYANG UNIVERSITY	Attendee	Registered

KRANE, SONJA	AMERICAN CHEMICAL SOCIETY	Attendee	Registered
KRONER-NIZIOLEK, ANNA	DIAMOND LIGHT SOURCE LTD.	Poster Presenter	Registered
KUHN, JOHN N	UNIVERSITY OF SOUTH FLORIDA	Poster Presenter	Registered
LAWTON, TIMOTHY J	TUFTS UNIVERSITY	Poster Presenter	Registered
LECLERC, COREY	NEW MEXICO TECH	Attendee	Registered
LEE, SUNGCHUL	YALE UNIVERSITY	Poster Presenter	Registered
LEFFERTS, LEON	UNIVERSITY OF TWENTE	Speaker	Registered
LESTER, GEORGE R	GEORGE LESTER, INC. & NORTHWESTERN U.	Poster Presenter	Registered
LEWIS, EMILY A	TUFTS UNIVERSITY	Poster Presenter	Registered
LI, NING	UMASS	Poster Presenter	Registered
LI, WENZHEN	MICHIGAN TECHNOLOGICAL UNIVERSITY	Poster Presenter	Registered
LI, NAN	YALE UNIVERSITY	Poster Presenter	Registered
LI, XIANG	TEXAS A & M UNIVERSITY	Poster Presenter	Registered
LIM, STEVEN SANGYUN	ALBEMARLE CORPORATION	Attendee	Registered
LINIC, SULJO	UNIVERSITY OF MICHIGAN	Poster Presenter	Registered
LIRA, ESTEPHANIA	AARHUS UNIVERSITY	Poster Presenter	Registered
LIU, JINGBO L	TEXAS A&M UNIVERSITY-KINGSVILLE	Poster Presenter	Registered
LIU, CHANGKUN	HEADWATERS TECHNOLOGY INNOVATION GROUP	Poster Presenter	Registered
LIU, YI	BROWN UNIVERSITY	Poster Presenter	Registered
LIZARAZO-ADARME, JAIR A	PACIFIC NORTHWEST NATIONAL LABORATORY / BATTELLE	Attendee	Registered
LO, CYNTHIA S	WASHINGTON UNIVERSITY IN ST. LOUIS	Poster Presenter	Registered
LONERGAN, WILLIAM W	UNIVERSITY OF DELAWARE	Poster Presenter	Registered
LOWENTHAL, ERIC E	W. R. GRACE & CO	Discussion Leader	Registered
LUO, LIN	DOW CHEMICAL	Poster Presenter	Registered
MAAYAN, GALIA	UNIVERSITY OF FLORIDA	Poster Presenter	Registered
MADON, ROSTAM J	BASF	Attendee	Registered
MALEK, ANDRE	DOW CHEMICAL	Attendee	Registered
MARSHALL, CHRISTOPHER L	ARGONNE NATIONAL LABORATORY	Poster Presenter	Registered
MAYERNICK, ADAM D	THE PENNSYLVANIA STATE UNIVERSITY	Poster Presenter	Registered
MCCABE, ROBERT W	FORD MOTOR COMPANY	Discussion Leader	Registered
MCCLURE, SEAN M	TEXAS A & M UNIVERSITY	Poster Presenter	Registered
MERTE, LINDSAY R	AARHUS UNIVERSITY	Poster Presenter	Registered
MESTL, GERHARD	SUD CHEMIE	Attendee	Registered
METTLER, MATTHEW S	UNIVERSITY OF DELAWARE	Poster Presenter	Registered
MEYER, RANDALL	UNIVERSITY OF ILLINOIS AT CHICAGO	Attendee	Registered
MICK, STEPHEN E	PROTOCHIPS, INC.	Poster Presenter	Registered
MIDGLEY, PAUL A	UNIVERSITY OF CAMBRIDGE	Speaker	Registered
MIHAI, OANA	NORWEGIAN UNIVERSITY OF SCIENCE AND TECHNOLOGY	Poster Presenter	Registered
MIRANDA, RAUL	U.S. DEPARTMENT OF ENERGY	Attendee	Registered
MITCHELL, SCOTT F	SABIC TECHNOLOGY CENTER	Discussion Leader	Registered
MOSCHETTA, ERIC G	PENN STATE UNIVERSITY	Poster Presenter	Registered
MOTCHELAHO, ANNE MYRIAM MEGNE AMM	UNIVERSITY OF THE WITWATERSRAND	Poster Presenter	Registered
NAIR, HARI	EXXON MOBIL CHEMICALS	Attendee	Registered
NAVARRO, VIOLETA V	UNIVERSITY OF LEIDEN	Poster Presenter	Registered

NIKOLLA, ERANDA	CALIFORNIA INSTITUTE OF TECHNOLOGY	Poster Presenter	Registered
NORMAN, DAVID W	EASTMAN CHEMICAL COMPANY	Attendee	Registered
OJEDA, MANUEL	SPANISH NATIONAL RESEARCH COUNCIL (CSIC)	Poster Presenter	Registered
OUYANG, XIAOYING	UNIVERSITY OF CALIFORNIA SANTA BARBARA	Poster Presenter	Registered
OZER, RON	DUPONT	Poster Presenter	Registered
PEDEN, CHARLES H	PACIFIC NORTHWEST NATIONAL LABORATORY	Speaker	Registered
PERETICH, MICHAEL E	UNIVERSITY OF TENNESSEE	Poster Presenter	Registered
PHAM, HIEN N	UNIVERSITY OF NEW MEXICO	Poster Presenter	Registered
PHIVILAY, SOMPHONH P	LEHIGH UNIVERSITY	Poster Presenter	Registered
PODKOLZIN, SIMON G	STEVENS INSTITUTE OF TECHNOLOGY	Poster Presenter	Registered
RANGAN, MEGHANA	UNIVERSITY OF COLORADO, BOULDER	Poster Presenter	Registered
REGALBUTO, JOHN R	UNIVERSITY OF ILLINOIS	Speaker	Registered
RIBEIRO, FABIO H	PURDUE UNIVERSITY	Poster Presenter	Registered
RICHARDS, RYAN M	COLORADO SCHOOL OF MINES	Poster Presenter	Registered
RIVAS-CARDONA, ALEJANDRA R	TEXAS A&M	Poster Presenter	Registered
ROMAN-LESHKOV, YURIY	CALIFORNIA INSTITUTE OF TECHNOLOGY	Poster Presenter	Registered
ROUTRAY, KAMALAKANTA	UNIVERSITY OF MASSACHUSETTS AMHERST	Poster Presenter	Registered
RUNNEBAUM, RON	UNIVERSITY OF CALIFORNIA - DAVIS	Poster Presenter	Registered
SAEYS, MARK	NATIONAL UNIVERSITY OF SINGAPORE	Poster Presenter	Registered
SANCHEZ, ANGELICA	UNIVERSITY OF NEW MEXICO	Poster Presenter	Registered
SAVARA, ADITYA	FRITZ-HABER-INSTITUT DER MAX-PLANCK-GESELLSCHAFT	Poster Presenter	Registered
SAVINELLI, ROBERT O	UNIVERSITY OF CALIFORNIA	Poster Presenter	Registered
SCHAIDLE, JOSHUA A	UNIVERSITY OF MICHIGAN	Poster Presenter	Registered
SCHEFFLER, MATTHIAS	FRITZ-HABER-INSTITUT	Speaker	Registered
SCHER, ERIK C	SILURIA TECHNOLOGIES	Attendee	Registered
SCHLOGL, ROBERT	FRITZ HABER INSTITUTE DER MAX-PLANCK-GESELLSCHAFT	Speaker	Registered
SCHNEIDER, WILLIAM F	UNIVERSITY OF NOTRE DAME	Speaker	Registered
SCHWANK, JOHANNES	UNIVERSITY OF MICHIGAN	Speaker	Registered
SEHESTED, JENS	HALDOR TOPSØE A/S	Poster Presenter	Registered
SHANKS, BRENT H	IOWA STATE UNIVERSITY	Speaker	Registered
SHANTZ, DANIEL F	TEXAS A&M UNIVERSITY	Speaker	Registered
SHEKHAR, MAYANK	PURDUE UNIVERSITY	Poster Presenter	Registered
SHU, YUYING	GRACE DAVISON	Attendee	Registered
SIEVERS, CARSTEN	GEORGIA INSTITUTE OF TECHNOLOGY	Poster Presenter	Registered
SINGH, JAGDEEP	ETH ZURICH	Poster Presenter	Registered
SOLED, STUART	EXXONMOBIL RESEARCH AND ENGINEERING CO.	Attendee	Registered
SOULTANIDIS, NIKOLAOS	RICE UNIVERSITY	Poster Presenter	Registered
STAIR, PETER C	NORTHWESTERN UNIVERSITY	Discussion Leader	Registered
STAMATAKIS, MICHAIL	UNIVERSITY OF DELAWARE - CHEMICAL ENGINEERING	Poster Presenter	Registered
SULLIVAN, MICHAEL B	INSTITUTE OF HIGH PERFORMANCE COMPUTING	Poster Presenter	Registered
TANAKA, HIROHISA	DAIHATSU MOTOR CO., LTD.	Speaker	Registered
TAYLOR, BRADLEY M	CONOCOPHILLIPS RESEARCH AND DEVELOPMENT	Poster Presenter	Registered
TEMEL, BURCIN	HALDOR TOPSOE A/S	Poster Presenter	Registered
TEN DAM, JEROEN J	DELFT UNIVERSITY OF TECHNOLOGY	Poster Presenter	Registered
THOMPSON, LEVI T	UNIVERSITY OF MICHIGAN	Speaker	Registered
TOUFAR, HELGE	SUD CHEMIE	Speaker	Registered

VAN HOUSELT, ARIE	UNIVERSITY OF TWENTE	Attendee	Registered
VAN RIJN, RICHARD	LEIDEN UNIVERSITY	Poster Presenter	Registered
VEITH, GABRIEL	OAK RIDGE NATIONAL LABORATORY	Speaker	Registered
VELAZQUEZ, JUAN C	RICE UNIVERSITY	Poster Presenter	Registered
WACHS, ISRAEL E	LEHIGH UNIVERSITY	Poster Presenter	Registered
WAIN, ANDY	NATIONAL PHYSICAL LABORATORY	Poster Presenter	Registered
WANG, HONG	MIAMI UNIVERSITY	Poster Presenter	Registered
WANG, XIAOMING	YALE UNIVERSITY	Poster Presenter	Registered
WANGLEE, YING-JEN	UNIVERSITY OF CALIFORNIA SANTA BARBARA	Poster Presenter	Registered
WEBB, PAUL B	SASOL TECHNOLOGY UK	Attendee	Registered
WEI, HAOJUAN	UNIVERSITY OF ILLINOIS AT CHICAGO	Poster Presenter	Registered
WEINGARTEN, RONEN	UNIVERSITY OF MASSACHUSETTS	Poster Presenter	Registered
WILLIAMS, CHRISTOPHER T	UNIVERSITY OF SOUTH CAROLINA	Speaker	Registered
WU, ZILI	OAK RIDGE NATIONAL LABORATORY	Poster Presenter	Registered
XIN, HONGLIANG	UNIVERSITY OF MICHIGAN	Poster Presenter	Registered
XU, BINGJUN	HARVARD UNIVERSITY	Poster Presenter	Registered
YANG, YONG	UNIVERSITY OF WASHINGTON	Poster Presenter	Registered
YI, NAN	TUFTS UNIVERSITY	Poster Presenter	Registered
YIN, JUN	UNIVERSITY OF ILLINOIS AT CHICAGO	Poster Presenter	Registered
ZHANG, LIANG	PACIFIC NORTHWEST NATIONAL LABORATORY	Poster Presenter	Registered
ZHOU, GONG	BROOKHAVEN NATIONAL LABORATORY	Poster Presenter	Registered
ZOICAN LOEBICK, CODRUTA	YALE UNIVERSITY	Poster Presenter	Registered
ZUGIC, BRANKO	TUFTS UNIVERSITY	Poster Presenter	Registered

## 203 Participants