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**GORDON RESEARCH CONFERENCES** *frontiers of science*

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**Nancy Ryan Gray, Ph.D.**  
Director

**2011 GORDON RESEARCH CONFERENCE  
on CLUSTERS, NANOCRYSTALS & NANOSTRUCTURES**

**FINAL PROGRESS REPORT**  
DEPARTMENT OF ENERGY  
GRANT NO. DE-SC0005222

The Gordon Research Conference on CLUSTERS, NANOCRYSTALS & NANOSTRUCTURES was held at Mount Holyoke College, South Hadley, MA, July 24-29, 2011. The Conference was well-attended with 174 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 174 attendees, 82 voluntarily responded to a general inquiry regarding ethnicity which appears on our registration forms. Of the 82 respondents, 22% were Minorities – 2% Hispanic, 18% Asian and 2% African American. Approximately 20% of the participants at the 2011 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In designing the formal speakers program, emphasis was placed on current unpublished research and discussion of the future target areas in this field.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 As you know, in the interest of promoting the presentation of unpublished and frontier-breaking research, Gordon Research Conferences does not permit publication of meeting proceedings.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,  
Lai-Sheng Wang, *Conference Chairperson*  
BROWN UNIVERSITY

## **Clusters, Nanocrystals & Nanostructures**

July 24-29, 2011

Mount Holyoke College

South Hadley, MA

Chairs:

Lai-Sheng Wang & Richard E. Palmer

Vice Chairs:

Todd D. Krauss & Simon A. Brown

Small particles have been at the heart of nanoscience since the birth of the field and now stand ready to make significant contributions to the big challenges of energy, health and sustainability. Atomic clusters show exquisite size-dependent electronic and magnetic properties and offer a new level of control in catalyses, sensors and biochips; functionalised nanocrystals offer remarkable optical properties and diverse applications in electronic devices, solar energy, and therapy. Both areas are complemented by a raft of recent advances in fabrication, characterization, and performance of a diversity of nanomaterials from the single atom level to nanowires, nanodevices, and biologically-inspired nanosystems.

The goal of the 2011 Gordon Conference is thus to continue and enhance the interdisciplinary tradition of this series and discuss the most recent advances, fundamental scientific questions, and emerging applications of clusters, nanocrystals, and nanostructures. A single conference covering all aspects of nanoscience from fundamental issues to applications has the potential to create new ideas and stimulate cross fertilization. The meeting will therefore provide a balance among the three sub-components of the conference, true to its title, with a selection of new topics added to reflect rapid advances in the field.

The open atmosphere of a Gordon conference, emphasizing the presentation of unpublished results and extensive discussions, is an ideal home for this rapidly developing field and will allow all participants to enjoy a valuable and stimulating experience. Historically, this Gordon conference has been oversubscribed, so we encourage all interested researchers from academia, industry, and government institutions to apply as early as possible. We also encourage all attendees to submit their latest results for presentation at the poster sessions. We anticipate that several posters will be selected for "hot topic" oral presentations. Given the important role students and postdocs play in the future of this field, we also anticipate several talks of this kind from young investigators.

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### **Contributors**



## 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	<b>Catalysis I</b>
7:40 pm - 7:50 pm	Discussion Leader: <b>Hannu Hakkinen</b> (Univ. of Jyvaskyla)
7:50 pm - 8:25 pm	<b>Hans-Joachim Freund</b> (Fritz Haber Institute of the Max Planck Society) "Adsorption and Reactivity of Molecules and Atoms on and in Supported Nanoparticles and Nanocrystals"
8:25 pm - 8:40 pm	Discussion
8:40 pm - 9:15 pm	<b>Masatake Haruta</b> (Tokyo Metropolitan University) "Novel Catalysis by Gold Clusters Leading to Green Chemistry"
9:15 pm - 9:30 pm	Discussion

## MONDAY

7:30 am - 8:30 am	Breakfast
8:45 am	Group Photo
9:00 am - 12:30 pm	<b>Cluster Spectroscopy and Characterization</b>
9:00 am - 9:10 am	Discussion Leader: <b>Ziyou Li</b> (University of Birmingham)
9:10 am - 9:40 am	<b>Manfred M. Kappes</b> (Karlsruhe Institute of Technology) "Cluster Structures and their Temperature Dependence"
9:40 am - 9:50 am	Discussion
9:50 am - 10:00 am	<b>Constantin Romanescu</b> (Brown University) "Novel Planar Boron Clusters"
10:00 am - 10:05 am	Discussion
10:05 am	Coffee Break
10:30 am - 11:00 am	<b>Kit H. Bowen</b> (Johns Hopkins University) "Photoelectron Spectroscopy of Cluster Anions"
11:00 am - 11:10 am	Discussion
11:10 am - 11:40 am	<b>Andre Fielicke</b> (Fritz Haber Institute of the Max Planck Society) "Probing the Structure and Chemistry of Gas - Phase Transition Metal Clusters with Infrared Spectroscopy"
11:40 am - 11:50 am	Discussion

11:50 am - 12:20 pm	<b>Simon Billinge</b> (Columbia University) "Material Structure in the Nano-World: The Nanostructure Problem and Modern Scattering Methods for Solving It"
12:20 pm - 12:30 pm	Discussion
12:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	<u>Poster Session</u>
6:00 pm	Dinner
7:30 pm - 9:30 pm	<b>Nanocrystals I</b>
7:30 pm - 7:40 pm	Discussion Leader: <b>Moungi Bawendi</b> (MIT)
7:40 pm - 8:10 pm	<b>Lou Brus</b> (Columbia University) "Graphene - electronic correlation, charge transfer, and basal plane reactivity"
8:10 pm - 8:20 pm	Discussion
8:20 pm - 8:50 pm	<b>Delia Milliron</b> (Lawrence Berkeley National Lab) "Device Integration by Ligand Exchange: Nanocomposites and Nanocrystal Electrochromics"
8:50 pm - 9:00 pm	Discussion
9:00 pm - 9:10 pm	<b>Pavlo Zolotavin</b> (University of Chicago) "Superconductivity in Colloidal Pb Nanoparticles"
9:10 pm - 9:15 pm	Discussion
9:15 pm - 9:25 pm	<b>Prashant Jain</b> (University of California at Berkeley) "Active Tunable Plasma Resonances in Doped Quantum Dots"
9:25 pm - 9:30 pm	Discussion

## TUESDAY

7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	<b>Catalysis II</b>
9:00 am - 9:10 am	Discussion Leader: <b>Friedrich Esch</b> (Munich Technical University)
9:10 am - 9:40 am	<b>Scott L. Anderson</b> (University of Utah) "Chemistry on Size - Selected, Supported Clusters"
9:40 am - 9:50 am	Discussion
9:50 am - 10:00 am	<b>Radha Narayanan</b> (University of Rhode Island) "Colloidal Supported Metal Nanoparticles as Novel and Effective Intermediate Nanocatalysts for Liquid Phase Suzuki Cross-Coupling Reactions"
10:00 am - 10:05 am	Discussion
10:05 am	Coffee Break
10:30 am - 11:00 am	<b>Ib Chorkendorff</b> (Technical University of Denmark) "Mass Selected Nanoparticles Used for Modeling Catalytic Reactions"

11:00 am - 11:10 am Discussion

11:10 am - 11:40 am **A. Welford Castleman** (Penn State University)  
"From Elements to Clusters: The Periodic Table Revisited"

11:40 am - 11:50 am Discussion

11:50 am - 12:20 pm **Chuck H. F. Peden** (Pacific Northwest National Lab)  
"Monomers and Small Clusters of Metals and Metal Oxides on Solid  
Oxide Supports: Preparation, Characterization and Catalytic Reactivity"

12:20 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

6:00 pm Dinner

7:30 pm - 9:30 pm **Molecular Design and Manipulation**

7:30 pm - 7:40 pm **Discussion Leader:** Peter Lievens (Katholieke Universiteit Leuven)

7:40 pm - 8:10 pm **Fraser Stoddart** (Northwestern University)  
"Molecular Switches on Nanoparticles"

8:10 pm - 8:20 pm Discussion

8:20 pm - 8:50 pm **Karina Morgenstern** (Leibniz Universität Hannover)  
"Anomalous properties of 'Nanocopper' in diffusivity, decay, and  
electronic structure"

8:50 pm - 9:00 pm Discussion

9:00 pm - 9:10 pm **Preston Snee** (University of Illinois At Chicago)  
"Ratiometric CdSe/ZnS Protein Sensing"

9:10 pm - 9:15 pm Discussion

9:15 pm - 9:25 pm **Christian Strelow** (University of Hamburg)  
"Colloidal Nanocrystals Coupled to Optical Semiconductor Microtube  
Resonators"

9:25 pm - 9:30 pm Discussion

## WEDNESDAY

7:30 am - 8:30 am Breakfast

9:00 am - 12:30 pm **Nanocrystals II**

9:00 am - 9:10 am Discussion Leader: **Todd D. Krauss** (University of Rochester)

9:10 am - 9:40 am **Charles M. Lieber** (Harvard University)  
"Nanowires"

9:40 am - 9:50 am Discussion

9:50 am - 10:00 am **Shihe Yang** (The Hong Kong University of Science and Technology)  
"Carving Spindle Nanostructures and Their Potential in Energy  
Applications"

10:00 am - 10:05 am Discussion

10:05 am	Coffee Break
10:30 am - 11:00 am	<b>Chris B. Murray</b> (UPenn) "Nanocrystal Assembly: Multi-Component Superlattices and Nanocrystal Based Devices"
11:00 am - 11:10 am	Discussion
11:10 am - 11:40 am	<b>Shouheng Sun</b> (Brown University) "Design and Synthesis of Composite Nanoparticles for Fuel Cell Catalysis"
11:40 am - 11:50 am	Discussion
11:50 am - 12:20 pm	<b>Emily Weiss</b> (Northwestern University) "Exciton Delocalization and Splitting at the Quantum Dot-Organic Interface"
12:20 pm - 12:30 pm	Discussion
12:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	<u>Poster Session</u>
6:00 pm	Dinner
7:00 pm - 7:30 pm	<u>Business Meeting</u> <i>Nominations for the next Vice Chair; Fill out Conference Evaluation Forms; Discuss future Site &amp; Scheduling preferences; Election of the next Vice Chair</i>
7:30 pm - 9:30 pm	<b>Nanomagnetism and Nanogold</b>
7:30 pm - 7:40 pm	Discussion Leader: <b>Wolfgang H. Harbich</b> (Ecole Polytechnique Federale de Lausanne)
7:40 pm - 8:10 pm	<b>Russell P. Cowburn</b> (University of Cambridge) "Magnetic Nanostructures for 3-Dimensional Spintronics"
8:10 pm - 8:20 pm	Discussion
8:20 pm - 8:50 pm	<b>Rongchao Jin</b> (Carnegie Mellon University) "Thiolate-Protected Gold Clusters"
8:50 pm - 9:00 pm	Discussion
9:00 pm - 9:10 pm	<b>Jeffrey J. Urban</b> (Lawrence Berkeley National Laboratory) "Studies of Hydrogen-Induced Phase Transitions in Nanocrystalline Hybrid Materials"
9:10 pm - 9:15 pm	Discussion
9:15 pm - 9:25 pm	<b>Guangjun Cheng</b> (National Institute of Standard and Technology) "Catalytically Etching Graphene by Metallic Nanoparticles"
9:25 pm - 9:30 pm	Discussion

## THURSDAY

7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	<b>Theory</b>

9:00 am - 9:10 am	Discussion Leader: <b>Mark Pederson</b> (U.S. Department of Energy)
9:10 am - 9:40 am	<b>De-en Jiang</b> (Oak Ridge National Laboratory) "Understanding and Predicting Gold Nanoclusters by Simulated Annealing, Basin Hopping, and Combinatorics"
9:40 am - 9:50 am	Discussion
9:50 am - 10:00 am	<b>Penée A. Clayborne</b> (University of Jyväskylä) "Ligand-Protected Aluminum Clusters as Superatom Complexes"
10:00 am - 10:05 am	Discussion
10:05 am	Coffee Break
10:30 am - 11:00 am	<b>Ignacio Garzon</b> (Universidad Nacional Autónoma de México) "Chirality, Optical Activity, and Enantiospecific Adsorption in Metal Clusters"
11:00 am - 11:10 am	Discussion
11:10 am - 11:40 am	<b>Vlasta Bonacic-Koutecky</b> (Humboldt University) "Metallic Clusters as Building Blocks for Optical and Catalytic Materials"
11:40 am - 11:50 am	Discussion
11:50 am - 12:20 pm	<b>Oleg Prezdhó</b> (University of Rochester) "Excited State Dynamics in Semiconductor Quantum Dots: Insights from Time-Domain Ab Initio Studies"
12:20 pm - 12:30 pm	Discussion
12:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	<u>Poster Session</u>
6:00 pm	Dinner
7:30 pm - 9:30 pm	<b>Concluding Session</b>
7:30 pm - 7:40 pm	Discussion Leader: <b>Simon Brown</b> (University of Canterbury)
7:40 pm - 8:20 pm	<b>John Polanyi</b> (University of Toronto) "Surface Dynamics Followed a Molecule at a Time by STM"
8:20 pm - 8:35 pm	Discussion
8:35 pm - 9:15 pm	<b>Alexander M. Cruickshank Lecture:</b> <b>Paul Weiss</b> (University of California at Los Angeles) "Precise Assemblies, Clusters, Superatoms, and Cluster-Assembled Materials"

## FRIDAY

7:30 am - 8:30 am	Breakfast
9:00 am	Departure

Name	Organization	Participation	Status
<b>ACKERSON, CHRISTOPHER J</b>	COLORADO STATE UNIVERSITY	Poster Presenter	Registered
<b>AGARWAL, ARVIND</b>	MOTILAL NEHRU NATIONAL INSTITUTE OF TECHNOLOGY	Poster Presenter	Registered
<b>AIDALA, KATHERINE E</b>	MOUNT HOLYOKE COLLEGE	Attendee	Registered
<b>ALF, MEWS</b>	UNIVERSITY OF HAMBURG	Poster Presenter	Registered
<b>ANDERSON, SCOTT L</b>	UNIVERSITY OF UTAH	Speaker	Registered
<b>ARD, SHAUN G</b>	UNIVERSITY OF GEORGIA	Poster Presenter	Registered
<b>BAWENDI, MOUNGI G</b>	MASSACHUSETTS INSTITUTE OF TECHNOLOGY	Discussion Leader	Registered
<b>BEBERWYCK, BRANDON J</b>	UNIVERSITY OF CALIFORNIA BERKELEY	Poster Presenter	Registered
<b>BILLINGE, SIMON J</b>	COLUMBIA UNIVERSITY	Speaker	Registered
<b>BIXBY, TERESA J</b>	LBNL - CHEMICAL SCIENCES	Poster Presenter	Registered
<b>BONACIC-KOUTECKY, VLASTA</b>	HUMBOLDT-UNIVERSITAT ZU BERLIN	Speaker	Registered
<b>BOWEN, KIT H</b>	JOHNS HOPKINS UNIVERSITY	Speaker	Registered
<b>BOWLAN, JOHN</b>	FRITZ-HABER-INSTITUT DER MAX- PLANCK-GESELLSCHAFT	Poster Presenter	Registered
<b>BROWN, SIMON A</b>	UNIVERSITY OF CANTERBURY	Vice Chair	Registered
<b>BRUS, LOUIS E</b>	COLUMBIA UNIVERSITY	Speaker	Registered
<b>BUHRO, WILLIAM E</b>	WASHINGTON UNIVERSITY	Poster Presenter	Registered
<b>BUONSANTI, RAFFAELLA R</b>	LBNL-MOLECULAR FOUNDRY	Poster Presenter	Registered
<b>CASTLEMAN, WELFORD</b>	PENN STATE UNIVERSITY	Speaker	Registered
<b>CHEN, JINGYI</b>	UNIVERSITY OF ARKANSAS	Poster Presenter	Registered
<b>CHEN, HSIANG-YUN</b>	TEXAS A&M UNIVERSITY	Poster Presenter	Registered
<b>CHEN, PENG</b>	CORNELL UNIVERSITY	Poster Presenter	Registered
<b>CHENG, GUANGJUN</b>	NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY	Poster Presenter	Registered
<b>CHORKENDORFF, IB</b>	TECHNICAL UNIVERSITY OF DENMARK	Speaker	Registered
<b>CLAYBORNE, PENE E A</b>	UNIVERSITY OF JYVASKYLA	Poster Presenter	Registered
<b>CORDONES, AMY A</b>	UC BERKELEY	Poster Presenter	Registered
<b>CORREA, RAOUL E</b>	MIT	Poster Presenter	Registered
<b>COSSAIRT, BRANDI M</b>	COLUMBIA UNIVERSITY	Poster	Registered



		Presenter	
<b>COWBURN, RUSSELL</b>	CAMBRIDGE UNIVERSITY	Speaker	Registered
<b>CUDDY, MARTIN J</b>	UNIVERSITY OF BIRMINGHAM	Poster Presenter	Registered
<b>CUI, JIAN</b>	MASSACHUSETTS INSTITUTE OF TECHNOLOGY	Poster Presenter	Registered
<b>DHARMAR MEENRAJAN, DAVID JEBA SINGH</b>	PENN STATE UNIVERSITY	Poster Presenter	Registered
<b>DIAS, EVA A</b>	MCGILL UNIVERSITY	Poster Presenter	Registered
<b>DOWLE, MIRIAM R</b>	NANOSCALE PHYSICS RESEARCH LABORATORY	Poster Presenter	Registered
<b>DUKOVIC, GORDANA</b>	UNIVERSITY AT COLORADO BOULDER	Poster Presenter	Registered
<b>EAH, SANG-KEE</b>	RENSSELAER POLYTECHNIC INSTITUTE	Poster Presenter	Registered
<b>ESCH, FRIEDRICH</b>	TECHNISCHE UNIVERSITÄT MÜNCHEN	Poster Presenter	Registered
<b>FIELICKE, ANDRE</b>	FRITZ-HABER-INSTITUT DER MAX- PLANCK-GESELLSCHAFT	Speaker	Registered
<b>FRANZ, DENNIS</b>	UNIVERSITY OF HAMBURG	Poster Presenter	Registered
<b>FREDERICK, MATTHEW T</b>	NORTHWESTERN UNIVERSITY	Poster Presenter	Registered
<b>FREDRICK, SARAH J</b>	COLORADO STATE UNIVERSITY	Poster Presenter	Registered
<b>FREUND, HANS-JOACHIM</b>	FRITZ HABER INSTITUTE OF THE MAX PLANCK SOCIETY	Speaker	Registered
<b>GAO, YUNAN</b>	DELFT UNIVERSITY OF TECHNOLOGUE	Poster Presenter	Registered
<b>GARZON, IGNACIO L</b>	UNIVERSIDAD NACIONAL AUTONOMA DE MEXICO	Speaker	Registered
<b>GASTON, NICOLA</b>	MACDIARMID INSTITUTE, IRL	Poster Presenter	Registered
<b>GHOSH, DEBRAJ</b>	UNIVERSITY OF CALIFORNIA, BERKELEY	Poster Presenter	Registered
<b>GREYTAK, ANDREW B</b>	UNIVERSITY OF SOUTH CAROLINA	Poster Presenter	Registered
<b>GUNARATNE, K. DON D</b>	PENNSYLVANIA STATE UNIVERSITY	Poster Presenter	Registered
<b>HA, DON-HYUNG</b>	CORNELL UNIVERSITY	Poster Presenter	Registered
<b>HAKKINEN, HANNU</b>	UNIVERSITY OF JYVASKYLA	Discussion Leader	Registered
<b>HAN, HEE-SUN</b>	MASSACHUSETTS INSTITUTE OF TECHNOLOGY	Poster Presenter	Registered
<b>HAN, MIN</b>	NANJING UNIVERSITY	Poster Presenter	Registered

<b>HARBICH, WOLFGANG</b>	ECOLE POLYTECHNIQUE	Discussion Leader	Registered
<b>HARMON, CHRISTOPHER</b>	PENNSYLVANIA STATE UNIVERSITY	Poster Presenter	Registered
<b>HARRIS, DANIEL K</b>	MASSACHUSETTS INSTITUTE OF TECHNOLOGY	Poster Presenter	Registered
<b>HARUTA, MASATAKE</b>	TOKYO METROPOLITAN UNIVERSITY	Speaker	Registered
<b>HUANG, JING</b>	UNIVERSITY OF CHICAGO	Poster Presenter	Registered
<b>HUANG, WEI</b>	ANHUI INSTITUTE OF OPTICS & FINE MECH., CAS	Attendee	Registered
<b>JACOBS, BENJAMIN</b>	PROTOCHIPS, INC.	Attendee	Registered
<b>JAIN, PRASHANT K</b>	UNIVERSITY OF CALIFORNIA BERKELEY	Poster Presenter	Registered
<b>JIANG, CHENGYANG</b>	UNIVERSITY OF CHICAGO	Poster Presenter	Registered
<b>JIANG, DE-EN</b>	OAK RIDGE NATIONAL LABORATORY	Poster Presenter	Registered
<b>JIMENEZ-DIAZ, LAURA M</b>	UNIVERSIDAD NACIONAL AUTONOMA DE MEXICO	Attendee	Registered
<b>JIN, RONGCHAO</b>	CARNEGIE MELLON UNIVERSITY	Poster Presenter	Registered
<b>JOHNSTON-PECK, AARON C</b>	NORTH CAROLINA STATE UNIVERSITY	Poster Presenter	Registered
<b>JONES, MARCUS</b>	UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE	Poster Presenter	Registered
<b>KALYUZHNY, GREGORY</b>	SAN DIEGO STATE UNIVERSITY	Poster Presenter	Registered
<b>KAMBHAMPATI, PATANJALI</b>	MCGILL UNIVERSITY	Poster Presenter	Registered
<b>KAPPES, MANFRED M</b>	KARLSRUHER INSTITUT FÜR TECHNOLOGIE (KIT)	Speaker	Registered
<b>KEBAILI, NOUARI</b>	UNIVERSITÉ PARIS-SUD 11 - CNRS	Poster Presenter	Registered
<b>KIM, DAVID K</b>	UNIVERSITY OF PENNSYLVANIA	Poster Presenter	Registered
<b>KIPP, TOBIAS</b>	UNIVERSITY OF HAMBURG	Poster Presenter	Registered
<b>KNAPPENBERGER, KENNETH L</b>	FLORIDA STATE UNIVERSITY	Poster Presenter	Registered
<b>KNOWLES, KATHRYN E</b>	NORTHWESTERN UNIVERSITY	Poster Presenter	Registered
<b>KOVALENKO, MAKSYM V</b>	ETH ZÜRICH	Poster Presenter	Registered
<b>KRAUSS, TODD D</b>	UNIVERSITY OF ROCHESTER	Vice Chair	Registered
<b>KROMMENHOEK, PETER J</b>	NORTH CAROLINA STATE UNIVERSITY	Poster Presenter	Registered
<b>KUNNEMAN, LUCAS T</b>	DELFT UNIVERSITY OF TECHNOLOGY	Poster	Registered

		Presenter	
<b>LEE, JUNGMIN</b>	MASSACHUSETTS INSTITUTE OF TECHNOLOGY	Poster Presenter	Registered
<b>LEI, YU</b>	ARGONNE NATIONAL LABORATORY	Poster Presenter	Registered
<b>LI, ZIYOU</b>	UNIVERSITY OF BIRMINGHAM	Poster Presenter	Registered
<b>LI, WEILI</b>	BROWN UNIVERISTY	Poster Presenter	Registered
<b>LIEBER, CHARLES M</b>	HARVARD UNIVERSITY	Speaker	Registered
<b>LIEVENS, PETER</b>	K.U.LEUVEN	Discussion Leader	Registered
<b>LIU, YING</b>	UNIVERSITY OF ILLINOIS AT CHICAGO	Poster Presenter	Registered
<b>LIU, HENG</b>	UNIVERSITY OF CHICAGO	Poster Presenter	Registered
<b>LIU, HAITAO</b>	UNIVERSITY OF PITTSBURGH	Poster Presenter	Registered
<b>LIU, HONGTAO</b>	BROWN UNIVERSITY	Poster Presenter	Registered
<b>LOOMIS, RICHARD A</b>	WASHINGTON UNIVERSITY IN ST. LOUIS	Poster Presenter	Registered
<b>LU, JUNLING</b>	ARGONNE NATIONAL LAB	Poster Presenter	Registered
<b>LUO, ZHI-XUN</b>	PENN. STATE UNIVERSITY	Poster Presenter	Registered
<b>MARTIN, CHRISTIAN A</b>	MACMILLAN PUBLISHERS LTD	Attendee	Registered
<b>MCCARTHY, DAVID N</b>	DANISH TECHNICAL UNIVERSITY	Poster Presenter	Registered
<b>MEULENBERG, ROBERT W</b>	UNIVERSITY OF MAINE	Poster Presenter	Registered
<b>MEYER, JENNIFER</b>	UNIVERSITY OF KAISERSLAUTERN	Poster Presenter	Registered
<b>MILLIRON, DELIA J</b>	LAWRENCE BERKELEY NATIONAL LABORATORY	Speaker	Registered
<b>MOONEY, JONATHAN D</b>	MCGILL UNIVERSITY	Poster Presenter	Registered
<b>MORGENSTERN, KARINA</b>	UNIVERSITAET HANNOVER	Speaker	Registered
<b>MORRIS-COHEN, ADAM J</b>	NORTHWESTERN UNIVERSITY	Poster Presenter	Registered
<b>MOSCATELLO, JASON</b>	MOUNT HOLYOKE COLLEGE	Attendee	Registered
<b>MURRAY, CHRISTOPHER B</b>	UNIVERSITY OF PENNSYLVANIA	Speaker	Registered
<b>NARAYANAN, RADHA</b>	UNIVERSITY OF RHODE ISLAND	Poster Presenter	Registered
<b>NEALE, NATHAN R</b>	NATIONAL RENEWABLE ENERGY LABORATORY	Poster Presenter	Registered
<b>NIERHOFF, ANDERS</b>	CINF - DTU PHYSICS	Poster	Registered

		Presenter	
<b>OWEN, JONATHAN S</b>	COLUMBIA UNIVERSITY	Poster Presenter	Registered
<b>PALMER, RICHARD E</b>	UNIVERSITY OF BIRMINGHAM	Chair	Registered
<b>PEDEN, CHARLES</b>	PACIFIC NORTHWEST NATIONAL LABORATORY	Speaker	Registered
<b>PEDERSON, MARK R</b>	OFFICE OF BASIC ENERGY SCIENCES	Discussion Leader	Registered
<b>PELAYO, JESUS JJ</b>	UNIVERSIDAD NACIONAL AUTONOMA DE MEXICO	Poster Presenter	Registered
<b>PELZER, ADAM W</b>	CENTRAL MICHIGAN UNIVERSITY	Poster Presenter	Registered
<b>PEREZ, LUIS A</b>	UNIVERSIDAD NACIONAL AUTONOMA DE MEXICO	Poster Presenter	Registered
<b>PETTIBONE, JOHN M</b>	NIST	Poster Presenter	Registered
<b>PIAZZA, ZACHARY A</b>	BROWN UNIVERSITY	Poster Presenter	Registered
<b>PLASS, KATHERINE E</b>	FRANKLIN & MARSHALL COLLEGE	Poster Presenter	Registered
<b>POLANYI, JOHN C</b>	UNIVERSITY OF TORONTO	Speaker	Registered
<b>POLTE, JOERG</b>	FEDERAL INSTITUTE FOR MATERIAL RESEARCH	Poster Presenter	Registered
<b>PREZHDO, OLEG V</b>	UNIVERSITY OF ROCHESTER	Speaker	Registered
<b>PRIETO, AMY L</b>	COLORADO STATE UNIVERSITY	Poster Presenter	Registered
<b>RIVEST, JESSY B</b>	UNIVERSITY OF CALIFORNIA BERKELEY	Poster Presenter	Registered
<b>ROBINSON, RICHARD D</b>	CORNELL UNIVERSITY	Poster Presenter	Registered
<b>ROMANESCU, CONSTANTIN</b>	BROWN UNIVERSITY	Poster Presenter	Registered
<b>ROSS, MATTHEW W</b>	PENN STATE UNIVERSITY	Poster Presenter	Registered
<b>RYAN , KEVIN M</b>	UNIVERSITY OF LIMERICK	Poster Presenter	Registered
<b>SAARI, JONATHAN I</b>	MCGILL UNIVERSITY	Poster Presenter	Registered
<b>SADTLER, BRYCE</b>	CALIFORNIA INSTITUTE OF TECHNOLOGY	Poster Presenter	Registered
<b>SAHU, AYASKANTA</b>	ETH ZURICH	Poster Presenter	Registered
<b>SATTAR, ABDUL</b>	UNIVERSITY OF CANTERBURY	Poster Presenter	Registered
<b>SAUCEDA-FELIX, HUZIEL E.</b>	UNIVERSIDAD NACIONAL AUTONOMA DE MEXICO	Poster Presenter	Registered
<b>SCHAEFER, SEBASTIAN</b>	UNIVERSITAET HAMBURG	Poster Presenter	Registered

<b>SCHEELE, MARCUS</b>	UNIVERSITY OF BERKELEY	Poster Presenter	Registered
<b>SCHULLER, JON A</b>	COLUMBIA UNIVERSITY	Poster Presenter	Registered
<b>SELINSKY, RACHEL S</b>	UNIVERSITY OF WISCONSIN, MADISON	Poster Presenter	Registered
<b>SFEIR, MATTHEW Y</b>	BROOKHAVEN NATIONAL LABORATORY	Poster Presenter	Registered
<b>SHINDE, RAVINDRA L</b>	INDIAN INSTITUTE OF TECHNOLOGY BOMBAY	Poster Presenter	Registered
<b>SHIRASAKI, YASUHIRO</b>	MIT	Attendee	Registered
<b>SKRABALAK, SARA E</b>	INDIANA UNIVERSITY - BLOOMINGTON	Poster Presenter	Registered
<b>SMITH, JORDAN C</b>	THE PENNSYLVANIA STATE UNIVERSITY	Poster Presenter	Registered
<b>SNEE, PRESTON T</b>	UNIVERSITY OF ILLINOIS AT CHICAGO	Poster Presenter	Registered
<b>SON, DONG HEE</b>	TEXAS A&M UNIVERSITY	Poster Presenter	Registered
<b>SONG, LIJUN</b>	TOKYO INSTITUTE OF TECHNOLOGY	Poster Presenter	Registered
<b>STODDART, J. FRASER</b>	NORTHWESTERN UNIVERSITY	Speaker	Registered
<b>STRASFELD, DAVID B</b>	MASSACHUSETTS INSTITUTE OF TECHNOLOGY	Poster Presenter	Registered
<b>STRELOW, CHRISTIAN</b>	UNIVERSITY OF HAMBURG	Poster Presenter	Registered
<b>SU, DONG</b>	BROOKHAVEN NATIONAL LAB	Poster Presenter	Registered
<b>SUN, SHOUHENG</b>	BROWN UNIVERSITY	Speaker	Registered
<b>SUN, XIAOLIAN</b>	BROWN UNIVERSITY	Poster Presenter	Registered
<b>TEN CATE, SYBREN S</b>	DELFT UNIVERSITY OF TECHNOLOGY	Poster Presenter	Registered
<b>TICE, DANIEL B</b>	NORTHWESTERN UNIVERSITY	Poster Presenter	Registered
<b>TRACY, JOSEPH B</b>	NORTH CAROLINA STATE UNIVERSITY	Poster Presenter	Registered
<b>TYAGI, POOJA</b>	MCGILL UNIVERSITY	Poster Presenter	Registered
<b>URBAN, JEFFREY J</b>	LBNL	Poster Presenter	Registered
<b>VELA, JAVIER</b>	IOWA STATE UNIVERSITY AND US DOE AMES LABORATORY	Poster Presenter	Registered
<b>VILHELMSSEN, LASSE B</b>	AARHUS UNIVERSITY	Poster Presenter	Registered
<b>VINOKUROV, KATHY</b>	HEBREW UNIVERSITY OF JERUSALEM	Poster Presenter	Registered
<b>VOZNYI, OLEKSANDR</b>	NATIONAL RESEARCH COUNCIL	Poster	Registered

	CANADA	Presenter	
<b>VURA-WEIS, JOSHUA A</b>	UNIVERSITY OF CALIFORNIA, BERKELEY	Poster Presenter	Registered
<b>WANG, CHAO</b>	ARGONNE NATIONAL LABORATORY	Poster Presenter	Registered
<b>WANG, YANG</b>	UNIVERSITY OF PITTSBURGH	Poster Presenter	Registered
<b>WANG, DUNWEI</b>	BOSTON COLLEGE	Poster Presenter	Registered
<b>WANG, LAI-SHENG</b>	BROWN UNIVERSITY	Chair	Registered
<b>WANG, ROBERT Y</b>	ARIZONA STATE UNIVERSITY	Poster Presenter	Registered
<b>WANGER, DARCY</b>	MIT	Attendee	Registered
<b>WEI, HELEN S</b>	UNIVERSITY OF ROCHESTER	Poster Presenter	Registered
<b>WEISS, PAUL S</b>	UNIVERSITY OF CALIFORNIA, LOS ANGELES	Speaker	Registered
<b>WEISS, EMILY A</b>	NORTHWESTERN UNIVERSITY	Speaker	Registered
<b>WOOD, VANESSA C</b>	ETH ZURICH	Attendee	Registered
<b>XIE, SU-YUAN</b>	XIAMEN UNIVERSITY	Poster Presenter	Registered
<b>YANG, SHIHE SY</b>	THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY	Poster Presenter	Registered
<b>YAREMA, MAKSYM</b>	UNIVERSITY LINZ	Poster Presenter	Registered
<b>YE, XINGCHEN</b>	UNIVERSITY OF PENNSYLVANIA	Poster Presenter	Registered
<b>YIN, CHUNRONG</b>	ARGONNE NATIONAL LABORATORY	Poster Presenter	Registered
<b>ZAMKOV, MIKHAIL</b>	BOWLING GREEN STATE UNIVERSITY	Poster Presenter	Registered
<b>ZHAI, HUA-JIN</b>	BROWN UNIVERSITY	Poster Presenter	Registered
<b>ZHANG, HAITAO</b>	CORNELL UNIVERSITY	Poster Presenter	Registered
<b>ZOLOTAVIN, PAVLO M</b>	UNIVERSITY OF CHICAGO	Poster Presenter	Registered

**174 Attendees**