RJ Lee*Group*, Inc.
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# Electron Microscopy & Microanalysis Workshop

*Problem Solving in the Nanotechnology World*

Sponsored by Hitachi High Technologies America, Inc. and RJ Lee Group, Inc.

June 16-17, 2009: Speaker Series and Breakouts
June 18, 2009: Optional: Pre-scheduled Meetings –
Hitachi Instrumentation and RJLG Consulting Services

The agenda has been released for the Electron Microscopy & Microanalysis Workshop, hosted by RJ Lee Group (RJLG) and Hitachi. This event, '*Problem Solving in the Nanotechnology World*', will be held June 16-17, 2009, at the Comfort Inn Conference Center and RJLG's headquarters' in Monroeville, PA. A third day, Thursday, June 18, 2009, will be open for pre-scheduled one-on-one meetings with Hitachi and RJ Lee Group experts regarding Hitachi instrumentation and RJLG consulting services.

The sessions will provide a forum on the most recent advances in nanomaterial characterization, nanoparticle characterization and related sample preparation. A high-profile list of leading scientists and researchers in the industry have been scheduled for the workshop. Additional time has been scheduled for breakout sessions, laboratory tours and demonstrations of state-of-the-art Hitachi instrumentation. Posters are strongly encouraged on a variety of nanotechnology topics and will be displayed at the Sessions. Please direct any inquiries to info@rjlg.com.

## Workshop Agenda:

### Day 1 (Total Speakers: 6)

| | |
|---|---|
| 7:30 AM | Continental Breakfast: Ballroom - Comfort Inn Conference Center |
| 8:00 AM | Welcome – **Alex Sciulli, President and COO, RJLG** |
| 8:15 AM | I. The Past, Present and Future of Computer Controlled Scanning Electron Microscopy (CCSEM)<br>**Speaker: Gary Casuccio, RJLG** |
| 8:45 AM | II. Use of CCSEM (or ASCAT) Inclusion Analysis for Improved Understanding Steel Castability and Quality<br>**Speaker: Dr. Scott Story, U.S. Steel (USS)** |
| 9:15 AM | III. The World's Highest Resolution SEM<br>**Speaker: Steve Joens, Hitachi High Technologies, Inc.** |
| 10:00 AM | Morning Coffee Break |
| 10:15 AM | IV. Nanocharacterization Using the HD-2300: World Class Resolution Provides a Great Image<br>**Speaker: Kevin McIlwrath, Hitachi High Technologies, Inc.** |

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| | |
|---|---|
| 11:00 AM | IV. Graded Sampling Approaches for Nanoparticle Safety and Health<br>**Speaker: Dr. Mark Hoover, National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention (NIOSH/CDC)** |
| 11:45 AM | V. The Surface Kinetics of the Initial Stages of Cu and Cu Alloy Oxidation<br>**Speaker: Dr. Judith Yang, University of Pittsburgh** |
| 12:30 PM | Lunch |
| 1:30 PM | Transfers to RJLG for Breakout Sessions |
| 2:00 PM | ***Break Out Session 1** |
| 3:30 PM | Transfers to and from RJLG for Breakout Sessions |
| 4:00 PM | ***Break Out Session 2** |
| 5:30 PM | Transfers to Hotel |
| 6:00PM | **Dinner Banquet:** Ballroom - Comfort Inn Conference Center |
| 9:00 PM | Good Night |

## Day 2 (Total Speakers: 5)

| | |
|---|---|
| 7:30 AM | Continental Breakfast: Ballroom - Comfort Inn Conference Center |
| 8:15 AM | Welcome |
| 8:30 AM | I. Nanoparticles Generated by Friction Stir Welding: First EM/EDS Results<br>**Speaker: Dr. Jon McCarthy, University of Wisconsin-Madison** |
| 9:15 AM | II. Using Focused Ion-Beam Milling and X-ray Microanalysis in the SEM to Assess the Internal Structure and Composition of Climatically-Relevant Atmospheric Particles<br>**Speaker: Dr. Joseph Conny, National Institute of Standards (NIST)** |
| 10:00 AM | Morning Coffee Break |
| 10:15 AM | III. Nanoparticle Characterization for Toxicology Studies: A Case Study with Ceria<br>**Speaker: Dr. Eric Grulke, University of Kentucky** |
| 11:00 AM | IV. The Characterization of Degradation Mechanisms in Metallization for High-temperature SiC-based Sensors<br>**Speaker: Dr. Lisa Porter, Fang Liu, and Ariel R. Virshup, Carnegie Mellon University** |

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11:45 AM V. X-ray Photoelectron Spectroscopy (XPS): The Original Nano-Analytical Technique for Materials Surface Characterization
**Speaker: Dr. Brian Strohmeier, RJLG**

12:30 PM Lunch

1:30 PM Transfers to RJLG for Breakout Sessions

2:00 PM *__Break Out Session 3__

3:30 PM Transfers to and from RJLG for Breakout Sessions

4:00 PM *__Break Out Session 4__

## Day 3

9:00 AM **At RJLG: One-on-One Meetings, Tour, Instrument Time (Must Pre-register)**

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There are 4 scheduled breakout sessions available during the workshop in which you can attend the following round table discussions, presentations, hands-on instrument time, and/or RJLG facility tours. Not all options are available during each breakout session.

## *Breakout Sessions

1. Round Table Discussion: **The Future of Automated Microscopy for Nanoparticle Characterization**
   - Dr. Bob Willis, **EPA** and Dr. Scott Story, **USS**
   - Location: Hotel
   - Breakout Session 1

2. Round Table Discussion: **Data Management**
   - Gino Leovac, Jeff Thorsen, and Steve Schlaegle, **RJLG**
   - Location: Hotel
   - Breakout Session 2

3. Round Table Discussion: **Nanoparticles: Environmental Safety & Health (ES&H) Considerations**
   - Gary Casuccio, **RJLG**
   - Location: Hotel
   - Breakout Session 3

4. Round Table Discussion: **Wrap-Up/Open Discussion**
   - Dr. Richard J. Lee, CEO, **RJLG**
   - Alex Sciulli, President and COO, **RJLG**
   - Location: Hotel
   - Breakout Session 4

5. Presentation/Discussion: **The Future of MEMS Technologies for In-Situ Electron Microscopy**
   - Dr. David Nackashi and Rich Fiore, **Protochips, Inc.**
   - Location: Hotel
   - Breakout Sessions: 1, 2, 3

6. Presentation/Discussion: **Metallographic Specimen Preparation for Electron Backscatter Diffraction (EBSD)**
   - Dr. Tim Weber, **Buehler Ltd.**
   - Location: Hotel
   - Breakout Sessions: 1, 2, 3

7. Presentation/Discussion: **Sample Preparation for SEM and TEM using Broad Beam Ion Guns**
   - Drew Erwin and Paul Miller, **Gatan, Inc.**
   - Location: RJLG-HQ
   - Breakout Sessions: 1, 2, 3

8. Presentation/Discussion: **Challenges in EDS Nanoanalysis**
   - Ted Juzwak and Doug Skinner, **Bruker AXS, Inc.**
   - Location: Hotel
   - Breakout Sessions: 1, 2, 3

9. Presentation/Discussion: **X-ray Photoelectron Spectroscopy (XPS) Role in Nanocharacterization**
    - Dr. Brian Strohmeier, **RJLG**
    - Location: RJLG-HQ
    - Breakout Sessions: 1, 2, 3

10. Hands-On Instrument Time: **Hitachi TM-1000, Tabletop SEM**
    - Bob Sommerville, Evan Slow, and Lindsey Grinstead, **Hitachi High Technologies America, Inc.**
    - Location: Hotel & RJLG-HQ
    - Breakout Sessions: 1, 2, 3, 4

11. Hands-On Instrument Time: **Hitachi HD-2300, 200 kV Field Emission Dedicated STEM**
    - Kevin McIlwrath, **Hitachi High Technologies America, Inc.**
    - Location: RJLG-HQ
    - Breakout Sessions 1, 2, 3, 4

12. Hands-On Instrument Time: **Hitachi S-5500, Field Emission SEM/STEM**
    - Bill Roth, **Hitachi High Technologies America, Inc.**
    - Location: RJLG-HQ
    - Breakout Sessions 1, 2, 3, 4

13. Hands-On Instrument Time: **Hitachi S-3400VP, Variable Pressure SEM equipped with dual silicon drift detectors (SDDs) and Gatan hot/cold stage, tensile stage**
    - Steve Joens, **Hitachi High Technologies America, Inc.**
    - Location: RJLG-HQ
    - Breakout Sessions 1, 2, 3, 4

14. RJLG Facility Tour
    - Ryan Hall, **RJLG**
    - Location: RJLG-HQ
    - Breakout Sessions 1, 2, 3, 4