

# **AGENDA**

## **2012 SRC/SEMATECH ERC REVIEW MEETING**

March 20-22, 2012

Marriott University Park Hotel, Tucson, AZ

### **Tuesday, March 20**

4:00 PM – Open Poster Set-Up [*Madera Room*]

### **Wednesday, March 21**

7:00 – 7:45 AM Continental Breakfast and Registration [*Pima/Sabino Foyer*]

7:30 – 7:50 AM TAB/PAG Caucus [*Ventana Room*]

7:50 – 8:15 AM Introduction and Overview: Farhang Shadman [*Pima/Sabino Rooms*]

8:15 – 8:35 AM Improvement of ESH Impact of Back End of Line (BEOL) Cleaning Formulations Using Ionic Liquids to Replace Traditional Solvents (425.034)  
Srini Raghavan (UA)

8:35 – 8:55 AM Development of an All-Wet Benign Process Based on Catalyzed Hydrogen Peroxide (CHP) Chemical System for Stripping of Implanted State-of-the-Art Deep UV Resists (425.033)  
Srini Raghavan (UA)

8:55 – 9:35 AM Fundamentals of Advanced Planarization: Pad Micro-Texture, Pad Conditioning, Slurry Flow, and Retaining Ring Geometry (425.032)  
Ara Philipossian (UA)  
Duane Boning (MIT)

9:35 – 9:50 AM Break [*Pima/Sabino Foyer*]

9:50 – 10:15 AM Supercritical Carbon Dioxide Compatible Additives: Design, Synthesis, and Application of an Environmentally Friendly Development Process to Next Generation Lithography (425.030 and 425.031)  
Chris Ober (Cornell)  
Juan dePablo (U. Wisconsin)

10:15 – 10:40 AM Sugar-Based Photoacid Generators (Sweet PAGs): Environmentally Friendly Materials for Next Generation Photolithography (425.029)  
Chris Ober (Cornell)  
Reyes Sierra (UA)

10:40 – 11:00 AM Low-ESH-Impact Gate Stack Fabrication by Selective Surface Chemistry (425.026)  
Anthony Muscat (UA)

11:00 – 11:30 AM Introduction: Projects on ESH Aspects of Nano-Materials, Jim Field (UA)

Environmental Safety and Health (ESH) Impacts of Emerging Nanoparticles and Byproducts from Semiconductor Manufacturing (425.023 and 425.024)  
Jim Field, Scott Boitano, Reyes Sierra, Farhang Shadman (UA)  
Buddy Ratner (U. Washington)

11:30 AM – 1:00PM Lunch [*Canyon Rooms*]

1:00 – 1:25 PM	Development of Quantitative Structure-Activity Relationship for Prediction of Biological Effects of Nanoparticles Associated with Semiconductor Industries (425.025) Yongsheng Chen (Georgia Tech) Jonathan Posner, Trevor Thornton (ASU)
1:25 – 1:50 PM	Predicting, Testing, and Neutralizing Nanoparticle Toxicity (425.027) Steven Nielsen, Rockford Draper, Paul Pantano, Inga Musselman, Gregg Dieckmann (UT-Dallas)
1:50 – 2:15 PM	High-Throughput Cellular-Based Toxicity Assays for Manufactured Nanoparticles and Nanostructure-Toxicity Relationship Models (425.035) Alex Tropsha (UNC-Chapel Hill)
2:15 – 2:30 PM	Summary of Results and Conclusions of Four Nano-Tox Projects Jim Field (UA)
2:30 – 2:40 PM	Break [ <b><i>Pima/Sabino Foyer</i></b> ]
2:40 – 2:55 PM	Lowering the Environmental Impact of High-k and Metal Gate-Stack Surface Preparation Processes (425.028) Yoshio Nishi (Stanford) Srini Raghavan, Farhang Shadman (UA) Bert Vermeire (ASU)
2:55 – 3:15 PM	<b><u>Customized Projects</u></b> Novel Methods for Reducing UHP Gas Usage in Fabs: Back Diffusion Minimization Roy Dittler (UA)  Other Customized Projects
3:15 – 3:30 PM	General Discussion
3:30 – 3:45 PM	Simon Karecki Award Presentation
3:45 – Open	Poster session [ <b><i>Madera Room</i></b> ]
4:30 – 5:15 PM	SRC Student/Industry Networking Event [ <b><i>Madera/Pima Rooms</i></b> ]
4:30 – Open	Hors d'oeuvres [ <b><i>Madera/Pima Rooms</i></b> ]
5:00 – Open	Cash bar [ <b><i>Madera/Pima Rooms</i></b> ]
5:15 – 7:45 PM	TAB/PAG Caucus w/ working dinner [ <b><i>Sabino Room</i></b> ]
5:30 – Open	Buffet Dinner [ <b><i>Canyon Foyer &amp; Canyon Rooms</i></b> ]
7:00 – Open	Special HVnM planning meeting [ <b><i>Ventana Room</i></b> ]
7:00 – Open	Meetings of Research Groups [ <b><i>Canyon Rooms</i></b> ]

## Thursday, March 22

- 6:30 – 7:30 AM Continental Breakfast [*Pima/Sabino Foyer*]
- 7:30 – 7:35 AM Dean's message (Jeff Goldberg, Dean of Engineering, UA)
- 7:35 – 7:50 AM **Update on New Proposals and Initiatives** [*Pima/Sabino Rooms*]  
Intel/ERC High-Volume Nano-Manufacturing Initiative  
Other Initiatives
- 7:50 – 10:00 AM **Presentation of New Projects:**
- 7:50 – 8:00 425.037: Cell-based Toxicity Assay-on-Chip for the Next-Generation CMOS Technology (Shyam Aravamudhan, NC A&T; Adam Hall, UNC/Greensboro; Ethan Taylor, UNC/Greensboro; Shanthi Iyer, NC A&T)
- 8:00 – 8:20 425.038: Non-PFC Plasma Chemistries for Patterning Complex Materials and Structures (Jane Chang, UCLA)
- 8:20 – 8:30 425.039: 'Pad-in-a-Bottle': Planarization with Slurries Containing Suspended Polyurethane Beads (Ara Philipossian, UA; Duane Boning, MIT)
- 8:30 – 8:40 425.040: Detection of Engineered Nanomaterials at Semi-Conductor Facilities and Consumer Products (Paul Westerhoff, ASU; Jonathan Posner, U.Washington; Pierre Herckes, ASU; James Ranville, Colorado School of Mines; Chris Higgins, Colorado School of Mines)
- 8:40 – 8:55 AM Break [*Pima/Sabino Foyer*]
- 8:55 – 9:05 425.041: Interactions of Chemical Mechanical Planarization Nanoparticles with Model Cell Membranes: Implications for Nanoparticle Toxicity (Peng Yi, Johns Hopkins; Kai Loon Chen, Johns Hopkins)
- 9:05 – 9:15 425.042: Dispersion, Bioaccumulation, and Mechanisms of Nanoparticle (NP) Toxicity (Steven Nielsen, U.Texas/Dallas; Rockford Draper, UT/Dallas; Paul Pantano, UT/Dallas; Inga Musselman, UT/Dallas; Gregg Dieckmann, UT/Dallas)
- 9:15 – 9:25 425.043: ESH-Friendly Cleaning and Rinsing of Multi-Material Surfaces and Structures (Srini Raghavan, UA; Farhang Shadman, UA; Manish Keswani, UA)
- 9:25 – 9:35 425.044: Computer-Aided Design of Nanomaterials with the Desired Bioactivity and Safety Profiles (Alex Tropsha, UNC/Chapel Hill; Denis Fourches, UNC/Chapel Hill)
- 9:35 – 10:00 AM Q/A and Comments on New Projects
- 10:00 – 11:20 AM IAB Meeting [*Ventana Room*]
- 10:00 – 11:00 AM Meetings of Research Groups [*Canyon Rooms*]
- 11:00 – 11:20 AM ISMI program on ESH (Hsi-An Kwong, ISMI) [*Pima/Sabino Rooms*]
- 11:20 – 12:00 AM IAB Feedback to PIs [*Pima/Sabino Rooms*]
- 12:00 – 2:00 PM Buffet Lunch [*Pima/Sabino Foyer & Canyon Rooms*]
- 12:30 – 2:00 PM Executive Advisory Board Meeting [*Board Room*]
- 2:00 PM Program End