

## MONDAY, MARCH 9, 2015

### YOUNG LEADERS SESSION

Pegasus Ballroom G-H

Chair: Swetha Barkam, University of Central Florida

**8:00 am-8:17 am**

**"High-Aspect-Ratio Carbon Nanofibrous Microelectrode Array for In-Vitro Neuron Signal Detection"**

Sheng-Po Fang, University of Florida

**8:17 am-8:34 am**

**"Photosystem I (PSI)-Proteoliposome Formation: A Study on Detergent Mediated Protein Reconstitution Mechanism"**

Seyedeh Hanieh Niroomand, University of Tennessee

**8:34 am-8:51 am**

**"Resolving Susceptibility Loss into the Competing Néel and Brownian Relaxations in the Remote RF Heating of Thermo-Responsive Polymers Using Magnetite Nanoparticles for Targeted Drug Delivery"**

Daniel J. Denmark, University of South Florida

**8:51 am-9:08 am**

**"New Insight into Nanoprinting for High-Performance Electrochemical Capacitors"**

Zenan Yu, University of Central Florida

**9:08 am-9:25 am**

**"Thorough Analyses of Different Ways of Mapping Efficiency of Silicon Solar Cells with Photoluminescence"**

Kortan Ögütman, University of Central Florida

**9:25 am-09:42 am**

**"Color Tunable Metasurfaces for Reflective Displays"**

Daniel Franklin<sup>1</sup>, Shin-Tson Wu<sup>3</sup>, Debashis Chanda<sup>2,3</sup>, <sup>1</sup>Dept. of Physics, University of Central Florida, <sup>2</sup>NanoScience Technology Center, University of Central Florida, <sup>3</sup>CREOL, The College of Optics and Photonics, University of Central Florida

**9:42 am-09:59 am**

**"Synthesis of UV Block Polymers by Encapsulation of Lignin Based Nano Particles Via Miniemulsion Polymerization"**

Suguna Jairam, University of Florida

**10:00 am Coffee Break & Exhibits**

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Vendors and Equipment Exhibit-Pegasus Ballroom A-F

Monday: 10AM-7PM

Tuesday: 8AM-1PM

## OPENING AND KEYNOTE ADDRESS

Pegasus Ballroom G-H

**10:15 am-10:20 am Welcome and Introduction**

Program Chair: Helena Hagelin-Weaver, Dept. of Chemical Engineering, University of Florida

**10:20 am-11:15 am Keynote Address**

**“Atomic Layer Etching Using Sequential, Self-Limiting Thermal Surface Reactions”**

*(Invited)* Steven George, Depts. of Chemistry and Mechanical Engineering, University of Colorado

## ADVANCES IN INSTRUMENTATION

Pegasus Ballroom G-H

Chair: Nicholas Rudawski, University of Florida

**11:15 am-11:40 am**

**“The Hydro-Microtome: A New Instrument for Sectioning Fresh Stems, Roots, and Leaves”**

*(Invited)* John M. Herr Jr., Dept. of Biological Sciences, University of South Carolina

**11:40 am-12:05 pm**

**“Analytical Electron Microscopy Studies of CNT-Nanocomposites”**

*(Invited)* Yi-Feng Su, National High Magnetic Field Laboratory, Florida State University

**12:05 pm-12:30 pm**

**“Advances in EELS Instrumentation and Analysis: High-Speed Spectroscopy, with Extended Energy and Dynamic Range”**

*(Invited)* Paolo Longo, Gatan, Inc., CA

**12:30 pm-1:30 pm Lunch Break & Exhibits**

## CHARACTERIZATION OF NANO/BIO MATERIALS

Pegasus Ballroom G-H

Chair: Thomas Mullen, University of North Florida

**1:30 pm-2:00 pm**

**“Investigations of Anti-Malrial Molecular Orbitals via STM Imaging and Tunneling Spectroscopy of Molecular Monolayers”**

*(Invited)* Joel Olson, Dept. of Chemistry, Florida Institute of Technology

**2:00 pm-2:30 pm**

**“Probing the Effects of Marine Natural Products on Microbial Biofilms”**

*(Invited)* Amy Lane, Dept. of Chemistry, University of North Florida

**2:30 pm-3:00 pm**

**“Utilizing a WGM Sensor System to Understand Protein Adsorption and Denaturation on Modified Surfaces and How it Affects Subsequent Cell Culture”**

*(Invited)* James Hickman, NanoScience Technology Center, University of Central Florida

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Vendors and Equipment Exhibit-Pegasus Ballroom A-F

Monday: 10AM-7PM

Tuesday: 8AM-1PM

3:00 pm-3:20 pm Coffee Break & Exhibits

## **MICROSCOPY IN THE BIOLOGICAL AND PHYSICAL SCIENCES/FIB**

Pegasus Ballroom G-H

Chair: Swadeshmukul Santra, University of Central Florida

3:20 pm-3:50 pm

### **"Non-Ga Focus Ion Beam Processing"**

*(Invited)* Brent P. Gila<sup>1</sup>, N. Garraud<sup>2</sup>, J. Fridmann<sup>3</sup>, P. Mazarov<sup>4</sup>, and D.P. Arnold<sup>2</sup>, <sup>1</sup>Nanoscale Research Facility, University of Florida, <sup>2</sup>Dept. of Electrical and Computer Engineering, University of Florida, <sup>3</sup>Raith America, Inc., NY, <sup>4</sup>Raith GmbH, Dortman, Germany

3:50 pm-4:20 pm

### **"Mitochondria Specific Conjugated Polymer Nanoparticles"**

*(Invited)* Joong-Ho Moon, Dept. of Chemistry and Biochemistry, Florida International University

4:20 pm-4:50pm

### **"Engineering Up-Conversion Emission Spectra using Plasmonic Nano-Cavities"**

*(Invited)* Mercedeh Khajavikhan, CREOL, Photonics, University of Central Florida

## **POSTER SESSION AND RECEPTION**

Pegasus Ballroom A-F

5:00 pm-7:00 pm

### **Poster Session and Competition**

Chair: Laurene Tetard, University of Central Florida

5:00 pm-7:00 pm Reception

## **TUESDAY, MARCH 10, 2015**

8:00 am-9:00 am

### **POSTER SESSION AND COMPETITION**

Pegasus Ballroom A-F

Chair: Laurene Tetard, University of Central Florida

### **RENEWABLE ENERGY (ALTERNATIVE ENERGIES)**

Pegasus Ballroom G-H

Chair: Neelkanth Dhere, Florida Solar Energy Center, University of Central Florida

9:00 am-9:30 am

### **"CdTe PV: From Point Defects to Advanced Manufacturing"**

*(Invited)* Chris Ferekides, Clean Energy Research Center, University of South Florida

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Vendors and Equipment Exhibit-Pegasus Ballroom A-F

Monday: 10AM-7PM

Tuesday: 8AM-1PM

**9:30 am-10:00 am**

**“Nanosecond Pulse Green Laser Scribing of Molybdenum Contact Layer for Photovoltaics**  
(Invited) Eric Schneller<sup>a</sup>, Neelkanth G. Dhere<sup>a</sup>, and Aravinda Kar<sup>b</sup>, <sup>a</sup>Florida Solar Energy Center, University of Central Florida, <sup>b</sup>CREOL, The College of Optics and Photonics, University of Central Florida

**10:00 am-10:30 am**

**“Recent Progress in Organic Solar Cells”**

(Invited) Franky So, Dept. of Materials Science and Engineering, University of Florida

**10:30 am-10:50 am Coffee Break & Exhibits**

## **SURFACE SCIENCE**

Pegasus Ballroom G-H

Chair: John Kuhn, University of South Florida

**10:50 am-11:20 am**

**“Heterogeneous Catalysis Research for Biofuel Production at NREL”**

(Invited) Matt Yung, NREL (National Renewable Energy Laboratory)

**11:20 am-11:50 am**

**“Surface Chemistry of Metal Oxide Nanoparticles: Implications for Chemical Sensing and Optoelectronic Devices”**

(Invited) James Whitten, Dept. of Chemistry, University of Massachusetts Lowell

**11:50 am-12:20 pm**

**“Smart Reconfigurable Nanostructures Enabled by Novel Stimuli-Responsive Shape Memory Polymers”**

(Invited) Peng Jiang, Dept. of Chemical Engineering, University of Florida

**12:20 pm-1:30 pm Lunch Break & Exhibits**

**Door Prize Drawing (Pegasus Ballroom A-F)**

## **THIN FILMS**

Pegasus Ballroom G-H

Chair: Debashis Chanda, University of Central Florida

**1:30 pm-2:00 pm**

**“Nanomaterial Based or Inspired Thin Film Electronics and Optoelectronics”**

(Invited) Yajie Dong, NanoScience Technology Center, University of Central Florida

**2:00 pm-2:15 pm**

**“Tungsten Oxide Thin Films and Nanorods Grown by AACVD with the Single-Source Precursor WO<sub>2</sub> (OCCH<sub>3</sub>(CF<sub>3</sub>)<sub>2</sub>)<sub>2</sub>•DME”**

Hankook Kim, Dept. of Chemistry, University of Florida

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Vendors and Equipment Exhibit-Pegasus Ballroom A-F

Monday: 10AM-7PM

Tuesday: 8AM-1PM

**2:15 pm-2:30 pm**

**“APCVD: An Enabling Technology for Manufacturing Silicon Solar Cells”**

Kristopher O. Davis<sup>1,2,\*</sup> and Winston V. Schoenfeld<sup>1,2,3</sup>, <sup>1</sup>Florida Solar Energy Center, University of Central Florida, <sup>2</sup>CREOL, College of Optics and Photonics, University of Central Florida, <sup>3</sup>Dept. of Electrical Engineering and Computer Science, University of Central Florida,

**2:30 pm-3:00 pm**

**“Laser-Doped Silicon Carbide for MWIR Detection without Electrical Signal”**

(Invited) Aravinda Kar<sup>1</sup>, Geunsik Lim<sup>2</sup>, and Tariq Manzur<sup>3</sup>, <sup>1</sup>CREOL, The College of Optics and Photonics, MAE and MSE Depts., University of Central Florida, <sup>2</sup>Corning Incorporated, New York, <sup>3</sup>S&T Lead, I&EW, Undersea Warfare Electromagnetic Systems Development, Newport, RI

**3:00 pm-3:20 pm      Coffee Break**

## **NEMS**

Pegasus Ballroom G-H

Chair: Daniel Santavicca, University of North Florida

**3:20 pm-3:50 pm**

**“Shedding Light on Surfaces: Nanoparticle-Film Fabrication for Biomaterial Applications”**

(Invited) Ellane J. Park\*, Tina Wagenaar<sup>†</sup>, Siyan Zhang<sup>‡</sup>, A. James Link<sup>‡</sup>, Robert K. Prud’homme<sup>‡</sup>, Jeff T. Koberstein<sup>§</sup>, Nicholas J. Turro<sup>†</sup>, \*Dept. of Chemistry, Rollins College, <sup>†</sup>Dept. of Chemistry and <sup>§</sup>Dept of Chemical Engineering, Columbia University, <sup>‡</sup>Dept. of Chemical Engineering, Princeton University

**3:50 pm-4:20 pm**

**“Room Temperature, Low Pressure, Hermetic Sealing for NEMS and MEMS Devices Using Metallic Nanorod Arrays”**

(Invited) Stephen Stagon<sup>1</sup>, Paul Elliott<sup>2</sup>, and Hanchen Huang<sup>3</sup>, <sup>1</sup>University of North Florida, Dept. of Engineering, <sup>2</sup>University of Connecticut, Dept. of Mechanical Engineering, <sup>3</sup>Northeastern University, Dept. of Mechanical and Industrial Engineering

**4:20 pm-4:50 pm**

**“Development of Chip-Scale Chemical and Biomedical Sensing Platforms”**

(Invited) Jing Wang, Dept. of Electrical Engineering, University of South Florida

## **SPECIAL EVENTS**

**5:00 pm-5:30 pm**

**Student Poster Competition Awards Ceremony - Pegasus Ballroom G-H**

Program Chair: Helge Heinrich, University of Central Florida

Poster Session Chair: Laurene Tetard, University of Central Florida

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