

**Symposium Program  
Monday March 13, 2006**

**OPENING AND KEYNOTE ADDRESS  
Pegasus Ballroom G-H**

- 8:00-8:05 **Welcome and Introduction**  
Luisa Amelia Dempere, University of Florida  
Program Chair
- KEYNOTE ADDRESS**
- 8:05-8:35 **Jay Jerome, Vanderbilt University Medical Center**  
President of the Microscopy Society of America (MSA)  
"Nano Initiatives within the Microscopy Society of America"
- 8:35-9:05 **Bill Appleton, University of Florida**  
Director of the Institute for Medical and Engineering Technologies  
"Overview and Future Plans for the UF Nanoscience Institute for Medical and Engineering Technology"
- 9:05-9:35 **James Hickman, University of Central Florida**  
Director of the Nanoscience Technology Center  
"Nanoscience Applications for Surrogate Biological Systems"
- 9:35-10:05 **Michael Kovac, University of South Florida**  
Director of the Nanomaterials and Nanomanufacturing Research Center  
"Overview of the "USF Nano-tool Box" Facility"
- 10:05-10:30 **Coffee Break sponsored by SCI Engineered Materials**

**THIN FIMS**

**Pegasus Ballroom G-H**

**Chair: Maggie Puga-Lambers, University of Florida**

- 10:30-11:00 **Carbon Nanosheets : A Novel, Free-Standing Two-Dimensional Carbon Nanostructure** (*Invited*) Brian Holloway, College of William and Mary
- 11:00-11:30 **Betavoltaics - Potential Implications for Long Lasting Power** (*Invited*) Viswanath Krishnamoorthy, Qynergy Corporation
- 11:30-12:00 **Towards a holistic understanding of optical, electrical and mechanical properties of metallic thin films** (*Invited*) Santosh Kurinec, Rochester Institute of Technology

**Vendors and Equipment Exhibit  
Pegasus Ballroom A-F  
11:00 am - 7:00 pm**

## MICROSCOPY IN THE BIOLOGICAL SCIENCES

Pegasus Ballroom I

Chair: Betty Loraamm, University of South Florida

- 10:30-11:00 Nano Meets Bio at the Electron Microscope (*Invited*) Gregory Erdos, University of Florida
- 11:00-11:30 Filming the Actions of Bionanomotors with Epi-Fluorescence Microscopy (*Invited*) Henry Hess, University of Florida
- 11:30-12:00 Defective Lysosomal Cholesterol Metabolism: An Example of the Correlation of Quantitative Light and Electron Microscopy and Biochemical Data (*Invited*) Jay Jerome, Vanderbilt University Medical Center
- 12:00-1:00 Lunch Break - FSM Annual Business Meeting

## ION IMPLANTATION AND ION BEAM ANALYSIS

Pegasus Ballroom G-H

Chair: Gabriel Braunstein, University of Central Florida

- 1:00-1:30 Ultra Shallow Dopant Activation Technologies (*Invited*) Kevin S. Jones, University of Florida
- 1:30-2:00 Ion Scattering Studies of High-K Gate Stacks: Thermal Stability and Interdiffusion (*Invited*) Erik Garfunkel, Rutgers University
- 2:00-2:30 Towards Molecular Electronic Circuitry: Selective Deposition of Metals on Patterned Self-Assembled Monolayer Surfaces (*Invited*) Amy Walker, Washington University

## MICROSCOPY IN THE PHYSICAL SCIENCES I

Pegasus Ballroom I

Chair: Kerry Siebein, University of Florida

- 1:00-1:30 Transmission Electron Microscopy in Materials Science: A Case Study Investigation of Ferromagnetic Doped Oxide (*Invited*) Yan Xin, Florida State University
- 1:30-2:00 Advanced Materials Engineering Research Institute (AMERI) (*Invited*) Kinzi Jones, Florida International University
- 2:00-2:30 A Corrected View of the Future (*Invited*) Mike Kersker, JEOL
- 2:30-3:00 Coffee Break sponsored by PANalytical

## Vendors and Equipment Exhibit

Pegasus Ballroom A-F

11:00 am - 7:00 pm

## X-RAY CHARACTERIZATION OF SURFACES

Pegasus Ballroom G-H

Chair: Valentin Craciun, University of Florida

- 3:00-3:30 In-situ HTXRD Characterization for Thin Films (*Invited*) Andrew Payzant, Oak Ridge National Lab
- 3:30-4:00 X-ray scattering methods for the analysis of layered structures (*Invited*) Joaquim Voitok, PANalytical
- 4:00-4:15 Structural, Mechanical and Morphological Changes in Human Tooth Enamel due to Demineralization and Remineralization Processes (*Contributed*) Carmen Gaines, University of Florida
- 4:15-4:30 Strain Relaxation and Solid Phase Epitaxial Regrowth in Ion-Implanted Strained Silicon on Relaxed SiGe (*Contributed*) Michelle Phen, University of Florida

## MICROSCOPY IN THE PHYSICAL SCIENCES II

Pegasus Ballroom I

Chair: Kerry Siebein, University of Florida

- 3:00-3:30 Microscopy Examination of Multiphase Materials (*Invited*) Ke Han, Florida State University
- 3:30-4:00 Analytical Analysis of Next Generation Solid Electrolytic Capacitors (*Invited*) Matthew Olszta, The Pennsylvania State University
- 4:00-4:15 Microscopy and its Relationship to Concrete (*Contributed*) Tanya Riedhammer, University of Florida
- 4:15-4:30 Order Parameter Variability for Single FePt L1<sub>0</sub> Nanoparticles (*Contributed*) Romy Petrova, University of Central Florida

## POSTERS SESSION & RECEPTION

Reception Sponsors: JEOL USA, Physical Electronics & Turbo Vacuum

Pegasus Ballroom A-F

Mariana Sendova, Poster Coordinator

- 4:30-7:00 Student Poster Competition, Judging Round 2  
Student Union closes at 7:00 p.m.

## Vendors and Equipment Exhibit

Pegasus Ballroom A-F

11:00 am - 7:00 pm

**Symposium Program**  
**Tuesday March 14, 2006**

**PLENARY SESSION ON RENEWABLE ENERGY**

Pegasus Ballroom G-H

Chair: Neelkanth Dhere, University of Central Florida

- 8:00-8:30     **Soft X-Ray Spectroscopy of Compound Semiconductors: How to Reveal the Chemical and Electronic Properties of Buried Interfaces**  
*(Invited)*  
Clemens Heske, University of Nevada.
- 8:30-9:00     **Opportunities and Challenges in Material and Device Research in Renewable Energy Technologies** *(Invited)*  
Satyen K. Deb, National Renewable Energy lab
- 9:00-9:30     **Advanced Fuel Processing Catalyst Design and Testing** *(Invited)*  
Rakesh Radhakrishnan, United Technologies Research Center
- 9:30-10:00   **CIGS Thin Film Absorber Preparation and Characterization using a Lower Toxicity Selenium Precursor on Glass and Metallic Substrates**  
*(Invited)*  
Ankur A. Kadam, University of Central Florida
- 10:00-10:30   **Coffee Break**  
Sponsored by ICMAS, Inc. - Oxford Instruments Plasma Technology

**PLENARY SESSION ON NANO PROCESSING  
AND NANO CHARACTERIZATION**

Pegasus Ballroom I

Chair: Mariana Sendova, New College of Florida

- 10:30-11:00   **Shape and Internal Structure of Silver Nanoparticles in Glass**  
*(Invited)* Herbert Hofmeister, Max Planck Institute of Microstructure Physics
- 11:00-11:30   **Nanomaterials Based Chem.-Bio Sensors, Sensor Networks, and Advanced Therapeutics** *(Invited)*  
A. Vaseashta, Marshall University.
- 11:30-12:00   **Science and Technology of Multifunctional Nanocarbon Thin Films and Application to Micro and Nano Devices** *(Invited)*  
Orlando Auciello, Argonne National Laboratory
- 12:00-1:00     **Lunch Break**

**Vendors and Equipment Exhibit**

Pegasus Ballroom A-F

10:00 am - 3:00 pm

## NANO-BIO SENSING AND IMAGING

Pegasus Ballroom G-H

Chair: Swadesh Santra - University of Central Florida

- 1:00-1:30 Development of a Highly Water Soluble Bismuth Sulfide Nanoparticle Preparation as X-ray CT Imaging Agents (*Invited*) Manuel Perez, University of Central Florida
- 1:30-2:00 Organized Nano-Films for Bio-Sensing (*Invited*) Roger M. LeBlanc, University of Miami
- 2:00-2:30 Engineered Nanoparticles for Bioimaging Applications (*Invited*) Swadesh Santra, University of Central Florida

## FOCUSED ION BEAM - SESSION I

Pegasus Ballroom I

Chair: Lucille Giannuzzi - FEI

- 1:00-1:30 FIB Milling in the High-Temperature Performance Evaluation of SiAl on Ceramics (*Invited*) Kevin M. Fox, The Pennsylvania State University
- 1:30-2:00 Folded Cavity Surface Emitting Lasers Fabricated by Focused ion Beam Etching (*Invited*) Guy DeRose, California Institute of Technology
- 2:00-2:30 Reducing TEM Specimen Preparation Damage with Low Energy FIB Milling (*Invited*) Lucille Giannuzzi, FEI Company
- 2:30-3:00 Coffee Break sponsored by FEI Company

## SURFACES

Pegasus Ballroom G-H

Chairs: Paul Holloway, University of Florida  
and Neelkanth Dhere, University of Central Florida

- 3:00-3:30 Thin Film Ferromagnetism Studies with SPLEEM and XMCDPE (*Invited*) Ernst Bauer, Arizona State University
- 3:30-4:00 "Flexible" Surfaces: Structure and Reactivity of Nanoscale Faceted Surfaces (*Invited*) Theodore E. Madey, The State University of New Jersey

## Vendors and Equipment Exhibit

Pegasus Ballroom A-F

10:00 am - 3:00 pm

- 4:00-4:15 **High-Density Arrays of Conductive Nanowires in Porous Thin Films** (*Invited*)  
Kirk J. Siegler, University of Florida
- 4:15-4:30 **Are C<sub>60</sub> Ions the “Magic Bullets” for Organic Depth Profiles?** (*Contributed*)  
John Hammond, Physical Electronics

## **FOCUSED ION BEAM - SESSION II**

Pegasus Ballroom I

Chair: Lucille Giannuzzi - FEI

- 3:00-3:30 **Complementary Characterization of Inorganic Thin Films using the Dual Column FIB/SEM together with EBSD, TEM, and LEAP**  
(*Invited*)  
Brian P. Gorman, University of North Texas
- 3:30-4:00 **Important considerations for 3D reconstruction of serial FIB sections**  
(*Invited*)  
Daniel Phifer, FEI Company
- 4:00-4:15 **Focused Ion Beam Techniques for Analysis of Wear on Thin Films**  
(*Contributed*)  
Gerald Bourne, University of Florida
- 4:15-4:30 **Three Dimensional Reconstruction of Porous SOFC Cathodes**  
(*Contributed*)  
Danijel Gostovic, University of Florida

4:30-7:00

## **STUDENT POSTER COMPETITION**

### **AWARDS CEREMONY**

Pegasus Ballroom G-H

Luisa Amelia Dempere, Program Chair

## **FIB USERS GROUP MEETING**

Pegasus Ballroom I

Lucille Giannuzzi, Moderator

**Student Union closes at 7:00 p.m.**