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 Woitok, 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 \(L_{10}\) Nanoparticles \((Contributed)\) Rumy 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
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 C₆₀ 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.