

Poster Session
Pegasus Ballroom A-F
Poster Session Chair: Laurene Tetard, University of Central Florida

Monday, March 3, 5:00-7:00 pm
Tuesday, March 4, 8:00-9:00 am

P-01

COPPER (CU)-SILICA NANOCOMPOSITE CONTAINING VALENCE-ENGINEERED CU: A NEW STRATEGY FOR IMPROVING ANTIMICROBIAL EFFICACY OF CU BIOCIDES

Mikaeel Young,^{Y,H} and Swadeshmukul Santray,^{μ,λ,γ} Burnett School of Biomedical Sciences, ^HNanoScience Technology Center, ^λDepartment of Chemistry, University of Central Florida, 12424 Research Parkway, Suite 400, Orlando, FL 32826.

P-02

CARBON NANOTUBE - MoS2 P-N JUNCTION: FABRICATION AND TRANSPORT PROPERTIES

Udai Bhanu, Muhammad Islam, Saiful Khondaker, Department of Physics and Nanoscience and Technology Center University of Central Florida Orlando-Florida.

P-03

LIQUID CRYSTAL-BASED BIOSENSORS FOR THE DETECTION OF CHOLIC ACID

Sihui He¹, Wenlang Liang², Jiyu Fang², and Shin-Tson Wu¹, ¹CREOL, The College of Optics and Photonics, ²Department of Materials Science and Engineering, University of Central Florida, Orlando, Florida, 32816, USA.

P-04

REPULSIVE ELECTROSTATIC FORCE IN MEMS CANTILEVER

Imen Rezadad, Javaneh Boroumand, Evan M. Smith, Ammar Alhasan, Robert E. Peale, University of Central Florida, Physics Department, Orlando, FL, 32816.

P-05

ANNEALING OF RADIATION DAMAGE IN OLIVINE AND ORTHOPYROXENE STUDIED USING ATOMISTIC SIMULATION

Abrar H. Quadery¹, Patrick K. Schelling^{1,2}, ¹Department of Physics, University of Central Florida, University of Central Florida, 4000 Central Florida Blvd., Orlando, Florida 32816, USA., ²Advanced Materials Processing and Analysis Center, University of Central Florida, 4000 Central Florida Blvd., Orlando, Florida 32816, USA.

P-06

DESIGN OF TWO-PHOTON EXCITED PHOSPHORESCENT SENSOR FOR OXYGEN IMAGING

Héctor J. Rivera-Jacquez,¹ Tatiana V. Esipova,² Artëm E. Masunov,¹ Sergei A. Vinogradov,²
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P-07

PROBING THE CELLS-NANOPARTICLES INTERACTION USING FORCE-DISTANCE (F-D) SPECTROSCOPY

Anh Ly, Swetha Barkam, Soumen Das, Sudipta Seal, Advanced Materials Processing and Analysis Center, NanoScience Technology Center, University of Central Florida, Orlando, FL-32816.

P-08**INVESTIGATING THE EFFECTS OF GAMMA IRRADIATION ON DC PERFORMANCE OF AlGaIn/GaN HIGH ELECTRON MOBILITY TRANSISTORS**

Y.-H. Hwang¹, Y.-L. Hsieh¹, L. Lei¹, S. Li, F¹. Ren¹, S. J. Pearton², A. Yadav³, C. Schwarz³, M. Shatkhin³, E. Flitsiyani³, L. Chernyak³ and I. Kravchenko⁴, ¹Department of Chemical Engineering, University of Florida, Gainesville FL 32611, ²Department of Materials Science and Engineering, University of Florida, Gainesville, FL 32611, ³Department of Physics, University of Central Florida, Orlando, Florida 32816, ⁴Center for Nanophase Materials Science, Oak Ridge National Laboratory, Oak Ridge, Tennessee 37830.

P-09**OPTICAL SALISBURY SCREEN WITH DESIGN-TUNABLE RESONANT ABSORPTION BANDS**

Janardan Nath¹, Evan Smith¹, Douglas Maukonen¹, Farnood K. Rezaie¹, Isaiah O. Oladeji² and Robert E. Peale¹, ¹Department of Physics, University of Central Florida, 4000 Central Florida Blvd, Orlando, Florida, 32816, ²SISOM Thin films LLC, 1209 West Gore Street, Orlando, FL 32805.

P-10**ENHANCEMENT OF ALGAN/GAN HIGH ELECTRON MOBILITY TRANSISTORS OFF-STATE DRAIN BREAKDOWN VOLTAGE VIA BACKSIDE PROTON IRRADIATION**

Shun Li¹, Ya-Hsi Hwang¹, Camilo Velez², Mark Law², Erin Patrick², and Fan Ren¹, ¹Department of Chemical Engineering, University of Florida, Gainesville, FL 32611, ²Department of Electrical and Computer Engineering, University of Florida, Gainesville, FL 32611.

P-11**CHARACTERIZATION OF THE ADSORPTION INTERFACE OF POLYELECTROLYTE COATING ON REDOX ACTIVE NANOPARTICLES USING SOFT PARTICLE ELECTROKINETICS AND ITS BIOLOGICAL ACTIVITY**

Shashank Saraf[†], Craig J. Neal[†], Soumen Das[†], Swetha Barkam[†], Rameech McCormack[†], and Sudipta Seal^{†‡}, [†]Advanced Materials Processing and Analysis Center (AMPAC), Materials Science Engineering (MSE), University of Central Florida, 4000, Central Florida Boulevard, Orlando, FL 32816, USA, [‡]NanoScience Technology Center (NSTC), Materials Science Engineering (MSE), University of Central Florida, 4000, Central Florida Boulevard, Orlando, FL 32816, USA.

P-12**EFFECT 340keV PROTON IRRADIATION ON DC PERFORMANCE OF CIRCULAR-SHAPED AlGaIn/GaN high HIGH ELECTRON MOBILITY TRANSISTORS**

Y.-L. Hsieh¹, Y.Y. Xi¹, Y.-H. Hwang¹, Ren¹, S. J. Pearton², ¹Department of Chemical Engineering, University of Florida, Gainesville FL 32611, ²Department of Materials Science and Engineering, University of Florida, Gainesville, FL 32611.

P-13**NATURAL CONVECTION IN A QUASI ONE-DIMENSIONAL FLUID CELL**

Jun Huang¹, Tianshu Liu² and Weili Luo¹, ¹Department of Physics, University of Central Florida, Orlando, FL 32816; ²Department of Mechanical and Aeronautical Engineering, Western Michigan University, Kalamazoo, MI 49008.

P-14**THERMOMECHANICAL CHARACTERIZATION IN A RADIANT ENERGY IMAGER USING NULL SWITCHING**

Javaneh Boroumand, Evan Smith, Imen Rezadad, R. E. Peale, University of Central Florida, Physics Department, Orlando, Florida 32816.

P-15**HIGH-ASPECT-RATIO CARBON NANOFIBROUS MICROELECTRODE ARRAY**

Sheng Po Fang, Pit Fee Jao, Eric Franca, Bruce Wheeler and Yong-Kyu Yoon, University of Florida, Gainesville, FL, USA.

P-16**SYNTHESIS AND STUDY OF CORE-SHELL ZINC SILICA NANOPARTICLES**

Megan Berroth^Y, and Swadeshmukul Santra^{Y,μ,λ, *}, ^YBurnett School of Biomedical Sciences, ^μNanoScience Technology Center, ^λDepartment of Chemistry, University of Central Florida, 12424 Research Parkway, Suite 400, Orlando, FL 32826.

P-17**ELECTROSPUN POLYELECTROLYTE COMPLEXES AS NANOREACTORS**

Astha Malhotra^{†,ξ}, Lei Zhai^{†,ξ}, [†]NanoScience Technology Center, ^ξDepartment of Chemistry and University of Central Florida, 12424 Research Parkway, Suite 400, Orlando, FL 32826.

P-18**SCANNING TUNNELING MICROSCOPY OF INDOLO[2,1-B]QUINAZOLIN-6,12-DIONE (TRYPTANTHRIN) AND ITS ANALOGS**

Xixuan Guo, Joel A. Olson, J. Clayton Baum, Mark J. Novak, Department of Chemistry, Florida Institute of Technology, 150 West University Boulevard, Melbourne Florida 32901.

P-19**CHEMO-HYDROTHERMAL SYNTHESIS AND CHARACTERIZATION OF WATER-SOLUBLE CHITOSAN AND CHITOSAN-COPPER NANOCOMPOSITES FOR POTENTIAL ANTIMICROBIAL APPLICATIONS**

Srijita Basumallick^{1,2}, Parthiban Rajasekaran¹, Mona Doshi^{1,2}, Jeremy Tharkur^{1,6}, Andre Gesquiere^{1,2,3,4}, Laurene Tetard^{1,5} and Swadeshmukul Santra^{1,2,3,6,*}.

P-20**FABRICATION AND CHARACTERIZATION OF CARBON NANOTUBE/GRAPHENE HYBRID FOAMS**

Teng Liu, Shengjuan Li, Mei Zhang, High-Performance Materials Institute, Florida State University, Industrial and Manufacturing Engineering, FAMU-FSU College of Engineering, 2525 Pottsdamer St., Tallahassee, FL 32310.

P-21**INVESTIGATION OF THE MECHANISM OF WET-CHEMICAL ETCHING ALUMINUM AND COPPER**

Chen Dong¹ and Fan Ren¹, ¹Department of Materials Science and Engineering, University of Florida, Gainesville, FL 32611, ¹Department of Chemical Engineering, University of Florida, Gainesville FL 32611.

P-22**TRANSLOCATION OF N-ACETYL-CYSTEINE COATED CdS:Mn/ZnS QDOTS INTO Pisum sativum PLANT**

Smruti Das¹, Laurene Tetard^{1,4}, Jeremy Tharkur^{1,5}, Karishma Cantarero^{1,5}, and Swadeshmukul Santra^{1,2,3,5,*}, ¹NanoScience Technology Center, ²Department of Chemistry, ³Department of Materials Science and Engineering, ⁴Department of Physics and ⁵Burnett School of Biomedical Sciences, University of Central Florida, 12424 Research Parkway, Suite 400, Orlando, FL 32826.

P-23**OHMIC CONTACT TO N-ALGAAS MEASUREMENT BY REFINED TRANSMISSION LINE MEASUREMENT**

W. Zhu, G.-C Ting, Y.-L. Hsieh, S. Li, F. Ren, Department of Chemical Engineering, University of Florida, Gainesville FL 32611.

P-24**GRAPHENE NANORIBBONS AND 2D CARBON NANOSTRUCTURED MATERIALS FROM MULTIWALLED CARBON NANOTUBES**

Hai Hoang Van, Kaelyn Badura, Mei Zhang, Department of Industrial and Manufacturing Engineering, FAMU-FSU College of Engineering; High-Performance Materials Institute, Florida State University, 2525 Pottsdamer Street, Tallahassee, FL 32310, U.S.A.

P-25**INVESTIGATING INGAAS SELECTIVELY WET ETCHING**

L. Lei¹, Y.-H. Hwang², F. Ren², S. J. Pearton¹, ¹Department of Materials Science and Engineering, University of Florida, Gainesville, FL 32611, ²Department of Chemical Engineering, University of Florida, Gainesville, FL 32611.

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TAILORING ANTIOXIDANT ACTIVITY BY TUNING THE SURFACE CHEMISTRY OF CERIUM OXIDE NANOPARTICLE

Ankur Gupta, Soumen Das, Sudipta Seal, Advanced Materials Processing and Analysis Center, NanoScience Technology Center and Department of Materials Science and Engineering, University of Central Florida, Orlando, FL-32816.

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LARGE-AREA, FLEXIBLE NANOSTRUCTURED ELECTRODES FOR ENHANCED SUPERCAPACITOR PERFORMANCE

Zenan Yu,^{1,2} Binh Duong,¹ Danielle Abbitt,¹ and Jayan Thomas^{1,2,3}, ¹NanoScience Technology Center, ²Department of Materials Science, ³CREOL and College of Engineering, University of Central Florida, Orlando, FL 32826, United States.

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FINITE ELEMENT ANALYSIS STUDY OF ELECTRIC FIELD AND LEAKGE CURRENTS IN PV MODULE PACKAGING MATERIALS

Narendra Shiradkar¹, Eric Schneller¹, Neelkanth G. Dhere¹, ¹Florida Solar Energy Center, University of Central Florida, 1679 Clearlake Road, Cocoa, Florida-32922, USA.

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MARTENSITIC TRANSFORMATION AND DIFFUSION BEHAVIOR IN NICKEL MANGANESE GALLIUM ALLOYS

Le Zhou¹, Anit Giri², Kyu Cho², Helge Heinrich³, Yongho Sohn¹, ¹Department of Materials Science and Engineering and Advanced Materials Processing and Analysis Center, University of Central Florida, Orlando, FL, 32816, USA, ²Weapons and Materials Research Directorate, US Army Research Laboratory, Aberdeen Proving Ground, Maryland, 21005, USA, ³Department of Physics, University of Central Florida, P.O. Box 162385, Orlando, FL 32816, USA.

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FERROELECTRIC OXIDES FOR VISIBLE LIGHT ABSORBINBG

Farnood K. Rezaie^{1,*}, Doug Maukonen¹, Janardan Nath¹, Isaiah O. Oladeji² and Robert E. Peale¹, ¹Department of physics, University of Central Florida, Orlando, FL 32816, ²SISOM thin films LLC, Orlando, FL 32805.

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DEFECT-PRONE REGIONS IN Cu(In,Ga)Se₂ THIN FILM SOLAR CELLS FOR TEM ANALYSIS

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THE EFFECT OF FILM PROPERTIES AND LASER PROCESSING PARAMETERS ON THE LASER ABLATION OF MOLYBDENUM THIN FILMS

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FUNCTIONAL GRAPHENE AEROGELS

Matthew McInnis^{†,§}, Joe Zuyus^{†,§}, Jean Calderon^{†,§}, Lei Zhai^{†,§}, [†]NanoScience Technology Center and [§]Department of Chemistry at University of Central Florida, 12424 Research Parkway, Suite 400, Orlando, FL 32826.

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MULTIPLEXING SUPERCONDUCTING TRANSITION-EDGE SENSORS USING COMPACT SUPERCONDUCTING RESONATORS

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SELF-ASSEMBLY OF CERIA NANOPARTICLES IN DIFFERENT CHAIN LENGTHS OF POLY(ETHYLENE GLYCOL)
Craig J. Neal¹, Soumen Das^{1,2}, Shashank Saraf¹, Sudipta Seal^{1,2}, ¹Surface Science and Nanotechnology Facility, Advanced Materials Processing and Analysis Center, University of Central Florida, 4000 Central Florida Blvd, Eng I, Room 381 Orlando, Florida 32816, ²NanoScience and Technology Center University of Central Florida, 12424 Research Parkway Suite 400 Orlando, FL 32826.

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DEVELOPMENT OF A TERAHERTZ INTERFEROMETER FOR CHARACTERIZING NANOSCALE SAMPLES

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FUNCTIONALIZATION OF SINGLE-LAYER MOLYBDENUM DISULFIDE WITH PEPTIDES

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DETECTION OF COPPER CONTAMINATION IN DRINKING WATER USING LIGAND COATED CDS:MN/ZNS QUANTUM DOTS

Rikhav Shah^{1,2}, Jeremy Tharkur^{2,3}, Swadeshmukul Santra^{2,3,4,5,*}, ¹Lake Highland Preparatory School, 901 Highland Ave, Orlando, FL 32803, ²NanoScience Technology Center, University of Central Florida, 12424 Research Parkway, Suite 400, Orlando, FL 32826, ³Burnett School of Biomedical Sciences, University of Central Florida, ⁴Department of Materials Science and Engineering, University of Central Florida, ⁵Department of Chemistry, University of Central Florida.

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IDENTIFICATION

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STUDY OF ACTIVE SITES ON INDIVIDUAL REDOX ACTIVE NANOPARTICLE

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HARNESSING THE RESISTIVE-ELASTIC BEHAVIOR OF NOVEL CNT-GRAPHENE HYBRID FOAMS FOR PRACTICAL SENSING APPLICATIONS

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CERIA'S OXIDATION STATE DEPENDENT PHOSPHATE ION INTERACTION AND ITS BIOLOGICAL IMPLICATION Rameech McCormack^{1,4}, Priscilla Mendez^{2,4}, Swetha Barkam^{3,4}, Craig Neal², Soumen Das^{4,5}, and Sudipta Seal^{3,4,5}, Department of Mechanical and Aerospace (MAE)¹, Engineering Department of Molecular Biology and Microbiology², Department of Material Science and Engineering (MSE)³, Advanced Material Processing and Analysis Center (AMPAC)⁴, NanoScience and Technology Center (NSTC)⁵ at University of Central Florida (UCF).

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FABRICATION OF GRAPHENE NANORIBBONS USING LASER TECHNOLOGY

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P-44**SYNTHESIS AND STUDY OF ZINC SILICA NANOGEL FOR DRINKING WATER APPLICATIONS**

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P-45**TUNGSTEN OXIDE GROWTH BY AEROSOL-ASSISTED CHEMICAL VAPOR DEPOSITION FOR OLED AND OPV BUFFER LAYERS**

Hankook Kim¹, Richard O. Bonsu², Christopher O'Donohue¹, Roman Y. Korotkov³, Lisa McElwee-White², and Timothy J. Anderson¹, ¹Department of Chemical Engineering, University of Florida, Gainesville, Florida, 32611-6005 United States, ²Department of Chemistry, University of Florida, Gainesville, Florida, 32611-7200 United States, ³Arkema Inc., 900 First Ave., King of Prussia, PA 19406 United States.

P-46**PHOTOELECTROCHEMICAL ANALYSIS OF NANOSTRUCTURED TITANIUM OXIDE CONJUGATED TO ORGANIC MOLECULES FOR HYDROGEN EVOLUTION**

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