ORNL User Week 2010

Center for Nanophase Materials Sciences User Meeting Poster Session

Tuesday, September 14, 2010
4:00 – 5:30 p.m.

P3HT Block Polymers: Synthesis and Charge Mobility

Xiang Yu[1], Kai Xiao[2], Jihua Chen[2], S. Michael Kilbey II[2], Jimmy W. Mays[1,2], Phillip F. Britt[1] and Kunlun Hong[2]
[1]Chemical Sciences Division, Oak Ridge National Laboratory
[2]Center for Nanophase Materials Sciences, Oak Ridge National Laboratory
Presenter: Kunlun Hong

Synthesis of Macrocyclic Polymer Brush and Their Utility Towards Janus Rings

Samuel H. Lahasky, Li Guo, Haoyu Tang, Chang-Uk Lee and Donghui Zhang
Louisiana State University
Presenter: Samuel H. Lahasky

Neutron Reflectivity of Stimuli-Responsive Brushes Based on Poly 2-Vinyl-4,4-Dimethylazlactone (PVDMA)

Brad Lokitz[1], Jamie Messman[1], John F. Ankner[2] and S. Michael Kilbey, II[1]
[1]Center for Nanophase Materials Sciences, Oak Ridge National Laboratory
[2]Spallation Neutron Source, Oak Ridge National Laboratory
Presenter: Brad Lokitz

Bifunctional PAMAM Dendrimers for Multivalent Drug Delivery to G Protein-Coupled Receptors

Jun Yang[1], Kunlun Hong[1], Deanna L. Pickel[1], S. Michael Kilbey II[1], Peter V. Bonnesen[1], Dilip K. Tosh[2] and Kenneth A. Jacobson[2]
[1]Center for Nanophase Materials Sciences, Oak Ridge National Laboratory
[2]National Institute of Diabetes & Digestive & Kidney Diseases, National Institutes of Health, Bethesda, MD
Presenter: Jun Yang

Patterning and Optoelectrical Properties of Poly(para-phenylene) Brushes

Jihua Chen[1], Jose Alonzo[2], Xiang Yu[2], Kunlun Hong[1], Jamie Messman[1], Ilia Ivanov[1], Harry M. Meyer III[3], Moloy Banerjee[4], Rajendra Rathore[4], Nickolay V. Lavrik[1], Jimmy W. Mays[1,2,5] and S. Michael Kilbey II[1,5]
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[2]Chemical Sciences Division, Oak Ridge National Laboratory
[3]Materials Science and Technology Division, Oak Ridge National Laboratory
[4]Department of Chemistry, Marquette University, Milwaukee
[5]Department of Chemistry, University of Tennessee, Knoxville
Presenter: Jihua Chen

Neutron Scattering Provides a New Model for Optimal Morphologies in Organic Photovoltaics: Rivers and Streams

Wen Yin[1], Nathan Henry[1], Kai Xiao[2], John Ankner[3] and Mark Dadmun[1,4]
[1]Chemistry Department, University of Tennessee, Knoxville
[2]Center for Nanophase Materials Sciences, Oak Ridge National Laboratory
[3]Neutron Scattering Sciences Division, Oak Ridge National Laboratory
[4]Chemical Sciences Division, Oak Ridge National Laboratory
Presenter: Mark Dadmun

Quasielastic Neutron Scattering (QENS) Study of Hydrogen Adsorption on Activated Carbon

Dipendu Saha, Cristian I. Contescu, Eugene Mamontov, Alexander I. Kolesnikov and Nidia C. Gallego
Oak Ridge National Laboratory
Presenter: Dipendu Saha

Piezoelectric Characterization of Lead Zirconium Titanate (PZT) Nano-Tubes Processed via Soft Template Growth

Ashley Bernal and Nazanin Bassiri-Gharb
G.W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology, Atlanta
Presenter: Ashley Bernal

Multimodal Scanning Probe Microscopy for Cell Mechanics

G.L. Thompson[1], V. Reukov[1], M. Nikiforov[2], S. Guo[2], O. Ovchinnikov[2], S. Jesse[2], J.W. Norris[3], C.E. Schwartz[3], S. Kalinin[2] and A. Vertegel[1]
[1]Clemson University, Department of Bioengineering
[2]Center for Nanophase Materials Sciences, Oak Ridge National Laboratory
[3]JC Self Research Institute, Greenwood Genetics Center
Presenter: Gary L. Thompson

Detection of an Intrinsic Transcriptional Frequency Across the Human Genome

Roy D. Dar[1], Brandon S. Razooky[7], Abyhudai Singh[7], Tom Trimeloni[6], James M. McCollum[6], Chris D. Cox[4,5], Michael L. Simpson[1,3] and Leor S. Weinberger[7]
[1]Center for Nanophase Materials Sciences, Oak Ridge National Laboratory,
University of Tennessee, Knoxville: Departments of Physics and Astronomy[2], Materials Science[3], and Civil and Environmental Engineering[4], and the Center for Environmental Biotechnology[5]
[6]Department of Electrical and Computer Engineering, Virginia Commonwealth University
[7]Department of Chemistry and Biochemistry, University of California San Diego, La Jolla
Presenter: Roy D. Dar

Nanostructured Silicon Membranes for Control of Molecular Transport

Bernadeta R. Srijanto[1], Scott T. Retterer[1,2], Jason D. Fowlkes[1] and Mitchel J. Doktycz[1,2]
[1]Center for Nanophase Materials Sciences, Oak Ridge National Laboratory
[2]Biosciences Division, Oak Ridge National Laboratory
Presenter: Bernadeta Srijanto

Nanotransfer Printing and Surface-Enhanced Raman Scattering Detection

Deepak Bhandari[1], Sabrina M. Wells[1], Alessia Polemi[2], Ivan I. Kravchenko[3], Kevin L. Shuford[2], and Michael J. Sepaniak[1]
[1]University of Tennessee, Department of Chemistry
[2]Drexel University, Department of Chemistry
[3]Center for Nanophase Materials Sciences, Oak Ridge National Laboratory
Presenter: Deepak Bhandari

Relationship Between Morphology and Nano-Mechanical Responses of Pd-Based Films in Presence of H_2 and O_2

James F. Patton[1], Scott R. Hunter[3], Nickolay V. Lavrik[2], Michael J. Sepaniak[1], Panos G. Datskos[3] and D. Barton Smith[3]
[1]University of Tennessee, Department of Chemistry
[2]Center for Nanophase Materials Sciences, Oak Ridge National Laboratory
[3]Oak Ridge National Laboratory
Presenter: James F. Patton

High-Aspect-Ratio Enclosed Silicon Oxide Pillar Structures in Microfluidic Liquid Chromatography

Lisa Taylor[1], Nickolay Lavrik[2] and Michael Sepaniak[1]
[1]University of Tennessee, Knoxville
[2]Center for Nanophase Materials Sciences, Oak Ridge National Laboratory
Presenter: Lisa Taylor

Towards the World's Smallest Chemical Reactors: On-Demand Generation and Fusion of Femtoliter Aqueous Droplets

Seung-Yong Jung, Scott T. Retterer and C. Patrick Collier
Center for Nanophase Materials Sciences, Oak Ridge National Laboratory
Presenter: Seung-Yong Jung

Low-temperature Exfoliation of Graphene Sheets from $FeCl_3$ and CH_3NO_2 Co-intercalated Graphite Compound

Wujun Fu,[1] Jim Kiggans,[2] Steve H. Overbury,[1,3] Viviane Schwartz,[1] Chengdu Liang[1]
[1]Center for Nanophase Materials Sciences, [2]Materials Science and Technology Division, and
[3]Chemical Sciences Division, Oak Ridge National Laboratory
Presenter: Wujun Fu

Aqueous-Phase Hydrogenation of Acetic Acid on Monometallic Catalysts: A Combined Experimental and Theoretical Study

Hakan Olcay[1], Lijun Xu[2], Ye Xu[2] and George Huber[1]
[1]Center for Nanophase Materials Sciences, Oak Ridge National Laboratory
[2]Department of Chemical Engineering, University of Massachusetts,
Presenter: Ye Xu

Creation and Assessment of "Gold Standard" Benchmarks for Intermolecular Interactions of Biologically Relevant Molecules

Alvaro Vazquez-Mayagoitia[4,2], Lori Burns[3], C. David Sherrill[3] and Bobby G. Sumpter[1]
[1]Center for Nanophase Materials Sciences, Oak Ridge National Laboratory
[2]University of Tennessee
[3]Georgia Tech;
[4]Computer Science and Mathematics Division, Oak Ridge National Laboratory
Presenter: Alvaro Vazquez-Mayagoitia

Tailoring of the Electronic Properties of Carbon Nanostructures with Phosphorus and Nitrogen Doping

Eduardo Cruz-Silva[1], Bobby G. Sumpter[1], H. Terrones[2], M. Terrones[3] and V. Meunier[1,4]
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[3]Carlos III University of Madrid, Avenida Universidad 30, 28911 Leganés, Madrid, Spain
[4]Rensselaer Polytechnic Institute, 110 8th Street, Troy, NY
Presenter: Eduardo Cruz-Silva

Controlling Edge Morphology in Graphene Layers Using Electron Irradiation

E. Cruz-Silva[1], A.R. Botello-Mendez[2], Z. Barnett[1,3], X. Jia[4], M.S. Dresselhauss[4], H. Terrones[2], M. Terrones[5], B.G. Sumpter[1] and V. Meunier[1,6]
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[6]Rensselaer Polytechnic Institute, 110 8th Street, Troy, NY
Presenter: Eduardo Cruz-Silva

Theoretical Modeling of Carbon-Based Supercapacitors

Jingsong Huang[1], Bobby G. Sumpter[1], Vincent Meunier[2], Guang Feng[3] and Rui Qiao[3]
[1]Center for Nanophase Materials Sciences Oak Ridge National Laboratory
[2]Department of Physics, Applied Physics, and Astronomy, Rensselaer Polytechnic Institute
[3]College of Engineering and Science, Clemson University
Presenter: Jingsong Huang

Cyclo-Biphenalenyl Biradicaloid Molecular Materials: Conformation, Tautomerization, Magnetism, and Thermochromism

Jingsong Huang[1], Bobby G. Sumpter[1], Vincent Meunier[2], Yong-Hui Tian[3] and Miklos Kertsz[3]
[1]Center for Nanophase Materials Sciences Oak Ridge National Laboratory
[2]Department of Physics, Applied Physics, and Astronomy, Rensselaer Polytechnic Institute
[3]Department of Chemistry, Georgetown University
Presenter: Jingsong Huang