

2017 Joint Nanoscience and Neutron Scattering User Meeting

Poster Session

**denotes Student Poster*

Tuesday, August 1, 2017
5:30 – 7:00 p.m.

Poster Location:
Building 8600, Atrium

Posters will also be available for viewing on Wednesday, August 2

- 01. A Computational Design Framework for Silicon Donor Qubits**
Fahd A. Mohiyaddin^{1,2}, Jacek Jakowski^{1,2;3}, M. Nance Ericson^{1,4}, Jingsong Huang^{1,2;3}, Charles Britton^{1;5}, Franklin G. Curtis^{1,2}, Eugene F. Dumitrescu^{1,2;6}, Bobby G. Sumpter^{1,2;3}, and Travis S. Humble^{1,2;6}
¹Quantum Computing Institute, Oak Ridge National Laboratory, Oak Ridge, TN
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³Center for Nanophase Materials Science, Oak Ridge National Laboratory, Oak Ridge, TN
⁴Electrical & Electronics Systems Research Division, Oak Ridge National Laboratory, Oak Ridge, TN
⁵Nuclear Security & Isotope Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN
⁶Bredesen Center for Interdisciplinary Research, University of Tennessee, Knoxville, TN
- 02. A Dichotomy in the Metastable-to-Ground State Vortex Lattice Transition in MgB₂**
E. R. Loudon¹, C. Rastovski¹, L. DeBeer-Schmitt², C. D. Dewhurst³, N. D. Zhigadlo⁴, J. Karpinski⁴, and M. R. Eskildsen¹
¹Department of Physics, University of Notre Dame, Notre Dame, Indiana 46656, USA
²Oak Ridge National Laboratory, Oak Ridge, Tennessee 37831, USA
³Institut Laue-Langevin, 6 Rue Jules Horowitz, F-38042 Grenoble, France
⁴Laboratory for Solid State Physics, ETH, CH-8093 Zurich, Switzerland
- 03. Carbide-Phosphide Heterostructures for Electrochemical Water Splitting**
Yagya N. Regmil¹, Asa Roy², Laurie A. King³, David. A. Cullen⁴, Harry M. Meyer III⁴, Gabriel A. Goenaga², Thomas A. Zawodzinski Jr², Nicole Labbé¹, and Stephen C. Chmely¹
¹Center for Renewable Carbon, University of Tennessee, Knoxville, TN, 37996
²Department of Chemical and Biomolecular Engineering, University of Tennessee, Knoxville, TN, 37996.
³Department of Chemical Engineering, Stanford University, Stanford, CA, 94305.
⁴Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN, 37831, USA
- 04. Characterization of the Interaction between Oxygen-Passivated Porous Graphene and Cations**
Jonathan Heath and Marcelo A. Kuroda
Department of Physics, Auburn University

- 05. Characterizing Poplar Molecular Structure using Chemical Imaging Techniques**
E. Layden¹, Songkil Kim², U. Kalluri³, and O. Ovchinnikov²
¹Bredesen Center, University of Tennessee, Knoxville, TN
²Center for Nanophase Material Science, Oak Ridge National Laboratory, Oak Ridge, TN
³Plant Systems Biology, Oak Ridge National Laboratory, Oak Ridge, TN
- 06. Colloidal assembly in nanochannel confinement**
Roger Pynn¹, Rana Ashkar², Hao Feng¹, Nickolay Lavrik², Ivan Kravchenko²
¹Indiana University, ²Oak Ridge National Laboratory
- 07. Colossal Bunching in Nanodiamond Cathodoluminescence**
Matthew A. Feldman^{1,2}, Roderick Davidson^{1,2}, Jordan A. Hachtel^{1,2}, Eugene F. Dumitrescu², Raphael Pooser², Anming Hu³, Denzel Bridges³, Phil Evans², Richard F. Haglund¹, Ben Lawrie²
¹Vanderbilt University, Department of Physics and Astronomy 6301 Stevenson Center Lane, Nashville, TN 37235-1807
²Quantum Information Science Group, Oak Ridge National Lab, P.O. Box 2008 Oak Ridge, TN 37831
³University of Tennessee, Department of Mechanical, Aerospace and Biomedical Engineering, Knoxville, TN 37996
- 08. Crystal structures of Ca-rich plagioclase feldspars with $I\bar{1}$ symmetry**
Shiyun Jin*, Xiaoping Wang**, Huifang Xu*
*Department of Geoscience, University of Wisconsin–Madison, 1215 W. Dayton St., Madison, WI, 53706, United States (hfxu@geology.wisc.edu)
**Neutron Sciences Directorate, Oak Ridge National Laboratory, 1 Bethel Valley Road, Bldg. 8600, Mailstop 6475, Oak Ridge, TN 37831-6475, United States
- 09. Curvature-Mediated Effects in Topographically Tunable Lipid Bilayers**
Rana Ashkar¹, Roger Pynn², Nickolay Lavrik¹, Ivan Kravchenko¹, Jan-michael Carrillo¹, Bobby Sumpter¹, John Katsaras¹
¹Oak Ridge National Laboratory, ²Indiana University,
- 10. Effects of magnetic fields on the dynamics in a single-molecule magnet. Quasi-elastic neutron scattering studies**
Shelby E. Stavretis¹, Duncan H. Moseley¹, Eugene Mamontov², Ziling Xue¹
¹Department of Chemistry, University of Tennessee, Knoxville, TN, USA
²Chemical and Engineering Materials Division, Oak Ridge National Laboratory, Oak Ridge, TN, USA
- 11. Enhanced Light-Matter Interaction and Optical Modulation with Silicon Photonics**
F.O. Afzal, K. J. Miller, S. M. Weiss
Vanderbilt University
- 12. Evaluating the diffusion and translocation of antibacterial treatment in plant systems**
Nicholas Ciaffone¹, Briana Lee¹, Laurene Tetard^{1,2}
¹NanoScience Technology Center, University of Central Florida, Orlando, FL, 32826,
²Department of Physics, University of Central Florida, Orlando, FL, 32816

13. Experimental and Computational Investigation of Microstructures and Mechanical Behavior of High-Entropy Alloys (HEAs)

P. K. Liaw¹, H. Y. Diao¹, T. K. Liu¹, Y. F. Gao¹, L. J. Santodonato^{1,2}, Y. Zhang³, Jonathan Poplawsky², Wei Guo², M. Feygenson², C. M. Parish², M. C. Gao^{4,5}, R. J. K. Weber^{6,7}, J. C. Neuefeind², Z. Tang^{1,8}, Y. Zhang⁹, X. Xie¹, S. Y. Chen^{1,9}, T. T. Zuo^{1,9}, Y. Zhu¹, S. Kuo², M. Widom¹⁰, D. J. Keffer¹, K. An², D. Ma², A. Stoica², T. Egami^{1,2}, J. R. Morris^{1,2}, L. Collins², J. W. Yeh¹¹, C. W. Tsai¹¹, R. R. Unocic², K. Littrell², and K. A. Dahmen¹²

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¹²Dept. of Physics, University of Illinois at Urbana Champaign, USA

14. High volume sampling and data analysis for nanoscience: building an open-source toolkit for CNMS

P. Doak and P. Ganesh

Center for Nanophase Material Science, Oak Ridge National Laboratory

15. Impact of surface interaction on charge transport in ultra-thin films of polymerized ionic liquids

Maximilian Heres, Tyler Cosby, Joshua Sangoro

University of Tennessee, Knoxville, TN 37920

16. In Situ Dilatometry of Electrochemical Proton Intercalation into Hydrated and Anhydrous Tungsten Oxides

Ruocun (John) Wang¹, James B. Mitchell¹, Qiang Gao², Wan-Yu Tsai², Nina Balke², Veronica Augustyn¹

¹Department of Materials Science and Engineering, North Carolina State University, NC 27695

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17. Influence of Mesoscale Organization on Charge Transport and Dynamics in Ionic Liquids

Tyler Cosby¹, Zachariah Vicars¹, Yangyang Wang², and Joshua Sangoro¹

¹University of Tennessee, Department of Chemical and Biomolecular Engineering, Knoxville, TN 37902

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18. Ion Beam Induced Current - Stage Design and Experiment

R. Cannon Buechley, Olga Ovchinnikova, Matthew Burch, Songkil Kim, Stephen Jesse, Alex Belianinov

The Center for Nanophase Material Sciences, Oak Ridge National Laboratory, Oak Ridge, TN 37831

- 19. Linking the Mechanisms of Na-Ion Binding to the Structure of Amorphous Hard Carbon**
T. W. Surta^a, Z. Lia, C. Bommier^a, X. Ji^a, P. A. Greaney^b, M. R. Dolgos^a
^aOregon State University, Corvallis, OR 97330
^bUniversity of California Riverside, Riverside, CA 92521
- 20. Measurement and Modeling of Structure and Dynamics in Doped Organic Semiconductors**
Adam Moule, Tucker Murrey, Ian Jacobs, Jun Li, Thomas Harrelson
University of California, Davis
- 21. Metallic Neutron Guides by Replication Superpolished Glass or Metal Mandrels**
Boris Khaykovich¹, Darrell Engelhaupt², Suzanne Romaine³, Mikhail Gubarev⁴
¹Nuclear Reactor Laboratory, Massachusetts Institute of Technology, Cambridge, MA 02139, USA
²Dawn Research, Inc., Huntsville, AL
³Smithsonian Astrophysical Observatory, Cambridge, MA 02138, USA
⁴Marshall Space Flight Center, NASA, Huntsville, AL 35812, USA
- 22. Microstructural Characterization on Novel Creep-Resistant Ferritic Superalloys**
Shao-Yu Wang¹, Zongyang Lyu¹, David C. Dunand², Gautam Ghosh², Sungil Baik², Peter K. Liaw¹
¹Department of Materials Science and Engineering, The University of Tennessee (UT), Knoxville, TN 37996, USA
²Department of Materials Science and Engineering, Northwestern University (NU), Evanston, IL 60208-3108, USA
- 23. Neutron vibrational spectroscopy and surface chemistry: catalysts and porous materials**
A.J. Ramirez-Cuesta, Y.Q. Cheng, A. Sharma, Z. Wu, D.A. Lutterman, M. Kidder, S. Tan, A.A. Savara, L.L. Daemen
Oak Ridge National Laboratory, Oak Ridge, TN
- 24. One-step Synthesis of Nb₂O₅/C/Nb₂C (MXene) Composites and Their Use as Photocatalysts for Hydrogen Evolution**
Tongming Su^{a,b,c}, Rui Peng^b, Zachary D. Hood^{b,e}, Michael Naguib^d, Ilia N. Ivanov^b, Jong Kahk Keum^b, Zuzeng Qin^{a,*}, Zhanhu Guo^{c,*}, and Zili Wu^{b,*}
^aSchool of Chemistry and Chemical Engineering, Guangxi University, Nanning 530004, China ^bCenter for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, Tennessee 37831, USA
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^dMaterials Science Technology Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee 37831, USA
^eSchool of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta, Georgia 30332, USA
- 25. Phase Stability and Transformation in a Light-weight High-entropy Alloy**
Rui Feng¹, Michael C. Gao^{2,3,*}, Chuan Zhang⁴, Wei Guo⁵, Jonathan D. Poplawsky⁵, Fan Zhang⁴, Jeffrey A. Hawk², Joerg C. Neuefeind⁶, Yang Ren⁷, and Peter. K. Liaw^{1,*}
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⁷Advanced Photon Source, Argonne National Laboratory, Argonne, Illinois 60439, USA

- 26. Phosphonium-Containing Block Copolymers from Living Anionic Polymerization of 4-Diphenylphosphino Styrene**
Philip J. Scott^a, Alison R. Schultz^a, Gregory B. Fahs^a, Chainika Jangu^a, Mingtao Chen^a, Robert B. Moore^a, David Uhrig^b, Bradley S. Lokitz^b, and Timothy E. Long^a
^aDepartment of Chemistry, Macromolecules Innovation Institute (MII), Virginia Tech
^bCenter for Nanophase Materials Sciences Division, Oak Ridge National Laboratory
- 27. Photoinduced Thermal Desorption Coupled with Atmospheric Pressure Chemical Ionization Mass Spectrometry for Multimodal Imaging**
Matthias Lorenz¹, Chance Brown¹, Roger Proksch², Mario Viani², Aleks Labuda², Stephen Jesse³, and Olga Ovchinnikova³
¹University of Tennessee, Knoxville; ²Oxford Instruments; ³Oak Ridge National Laboratory
- 28. Polymers Undergoing Pairwise Head-to-Head Association and Dissociation: Molecular Dynamics Model, Reaction Kinetics, and Linear Viscoelastic Relaxation**
Wen-Sheng Xu¹, Jan-Michael Y. Carrillo^{1,2}, and Yangyang Wang¹
¹Center for Nanophase Materials Sciences and ²Computer Science and Mathematics Division, Oak Ridge National Laboratory, Oak Ridge, TN 37831, United States
- 29. Radiation-Induced Correlated Disorder and its Impact on Ionic Conductivity**
Eric O'Quinn¹, Jacob Shamblin^{1;2}, Joerg Neufeind³, Maik Lang¹
¹Department of Nuclear Engineering, University of Tennessee, TN, 37996, USA
²Department of Physics & Astronomy, University of Tennessee, TN, 37996, USA
³Chemical and Engineering Materials Division, Spallation Neutron Source, Oak Ridge National Laboratory, Oak Ridge, TN 37831
- 30. Rapid Screening of Nanoporous Structures in SiO₂ Catalyst Particles via Helium Ion Microscopy**
Matthew J. Burch¹, Anton V. Ievlev¹, Holland Hysmith¹, Kyle Mahady², Philip D. Rack^{1,2}, Lubin Luo³, Alex Belianinov¹, Sergey Yakovlev³, and Olga S. Ovchinnikova^{1*}.
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³Global Product Research, ExxonMobil Chemical Company, Baytown, TX 77520, USA
- 31. Role of dipolar interactions on Flory-Huggins chi parameter**
Dr. KUMAR, Rajeev; Dr. SUMPTER, Bobby
J. P. Mahalik, Bobby Sumpter, and Rajeev Kumar
Center for Nanophase Materials Science, Oak Ridge National Laboratory, Oak Ridge, TN
- 32. SANS Investigation of Multiple Stage Self Assembly of Polythiophene Supramolecular Structures Prepared by Ex Situ Initiated Controlled Chain-Growth Polymerization**
C.P. Kei, C. Do and E.E. Nesterov
Department of Chemistry, Louisiana State University, Baton Rouge, LA 70803
Spallation Neutron Source, Oak Ridge National Laboratory, Oak Ridge, TN 37831

- 33 Soft Nanostructures for Energy Storage**
Jihua Chen
- 34 STEM and HIM Investigations of Carbon Nanostructures in Copper Covetic Materials**
Beihai Ma¹, Uthamalingam Balachandran¹, Jianguo Wen², Jie Wang², and Adam J. Rondinone³
¹Energy Systems Division, Argonne National Laboratory, Argonne, IL 60439
²Nanoscience and Technology Division, Argonne National Laboratory, Argonne, IL 60439
³Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN 37831
- 35 Structural and electronic complexity in a model cathode material NaMnO₂**
Rebecca Dally and Stephen D. Wilson
Materials Department, University of California, Santa Barbara, Santa Barbara, California 93427
- 36 Structural disorder study of Ce(Rh,T) across the ferromagnetic phase transition**
Jean-Guy Lussier¹, Adane Gebretsadik¹, Almut Schroeder¹, Katharine Page²
¹Department of Physics, Kent State University, Kent, OH.
²Spallation Neutron Source, Oak Ridge National Laboratory, Oak Ridge, TN
- 37 Synthesis and Characterization of New High Temperature Multigraft Copolymer Superelastomer: Polyisoprene-graft-polybenzofulvene**
Huiqun Wang, Weiyu Wang, Wei Lu, Nam-Goo Kang*, Jimmy Mays*
Department of Chemistry, University of Tennessee, Knoxville, TN 37996
- 38 Understanding and Controlling Dynamics of Graphene Milling Process Using Helium Ion Beam**
Songkil Kim^{1,2}, Anton V. Ievlev^{1,2}, Ivan V. Vlassiuk³, Matthew J. Burch^{1,2}, Ondrej E. Dyck^{1,2}, Xiahn Sang^{1,2}, Raymond R. Unocic^{1,2}, Alex Belianinov^{1,2}, Sergei V. Kalinin^{1,2}, Stephen Jesse^{1,2} and Olga S. Ovchinnikova^{1,2}
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³Energy & Transportation Science Division, Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA
- 39 Unique Capabilities for Neutron Investigations of Surface and Materials Chemistry**
Christopher Crain, Daniele Paradiso, Nicholas Strange, Fatema Wahida, J.Z. Larese
Department of Chemistry, University of Tennessee, Knoxville
- 40 Waste-to-Biofuel Conversion Using Carbon-Based Acid Catalysts Derived from Recycled Tires**
S. P. Adhikari^{1,2}, Z. D. Hood^{3,4}, M. Wright¹, M. P. Paranthaman,^{5,6} and A. Lachgar^{1,2}
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- 41* Ab Initio Explorations of a New Class of Quaternary ZrBCN Nanocomposite Coatings for Harsh Environments**
Chongze Hu¹, Jingsong Huang², Bobby G. Sumpter², Jiechao Jiang³, Efstathios Meletis³, and Traian Dumitrica¹
¹Department of Mechanical Engineering, University of Minnesota-Twin Cities, 111 Church Street SE, Minneapolis, Minnesota 55455
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³Department of Materials Science and Engineering, University of Texas at Arlington, Arlington, Texas 76019
- 42* All Acrylic Multigraft Copolymer Superelastomer**
Wei Lu¹, Andrew Goodwin¹, Yangyang Wang², Weiyu Wang², Panchao Yin², Xinyi Lu¹, Kunlun Hong², Nam-Goo Kang¹, Jimmy Mays¹
¹Department of Chemistry, University of Tennessee, Knoxville, TN 37996, United States
²Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN 37831, United States
- 43* Centrifugal-driven, reduced-dimension, planar chromatography**
Rachel Strickhouser¹, Nahla Hatab¹, Nikolay Lavrik², Michael Sepaniak¹
¹University of Tennessee
²Center of Nanophase Materials Sciences
- 44* Exploring Ferroelectric/Ferromagnetic Interactions Created by Hybrid Organic-Inorganic Perovskites and Nickel**
Yongtao Liu, Kai Xiao, Scott T. Retterer, Bin Hu, Olga S. Ovchinnikova
Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN
Department of Materials Science and Engineering, University of Tennessee, Knoxville, TN
- 45* Inverse Estimation of Surface Fractal Dimension and Aperture Width for Rock Fractures Imaged with Neutron Radiography**
J.W. Brabazon^a, E. Perfect^a, C.-L. Cheng^b, H.Z. Bilheux^c, A.S. Tremsin^d, and L.J. Santodonato^e
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^cChemical and Engineering Materials Division, Oak Ridge National Laboratory, Oak Ridge, TN
^dSpace Sciences Laboratory, University of California, Berkeley, CA
^eInstrument and Source Division, Oak Ridge National Laboratory, Oak Ridge, TN
- 46* Investigation on crystal structure of deuterated schwertmannite using Z-contrast images and neutron pair distribution function analysis**
Seungyeol Lee and Huifang Xu
Department of Geoscience, University of Wisconsin – Madison
- 47* Microstructural Evolution and Mechanical Behavior of NbTaTiV Refractory High-entropy Alloy at Elevated Temperatures**
Chanho Lee¹, Gian Song², Michael C. Gao³, Chuan Zhang⁴, Rui Feng¹, Peiyong Chen¹, Yan Chen⁵, Ke An⁵, Wei Guo⁶, Jonathan Poplawsky⁶, Choo Hahn¹, and Peter K. Liaw^{1*}
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48* Nanoscale functional characterization of 2D materials

Chance Barrett^{a,b}, Yi Ding^{b,c}, Laurene Tetard^{a,b,c}

^aPhysics Department, ^bNanoScience Technology Center, ^cMaterials Science and Engineering Department, University of Central Florida, Orlando, FL

49* Nanoscale investigation of biophysicochemical responses to multivalent nanoparticle treatment on Xanthomonas perforans

Briana Lee¹, Ali Ozcan², Swadeshmukul Santra^{1,2}, Laurene Tetard^{1,3}

¹NanoScience Technology Center, University of Central Florida, Orlando, FL, 32826,

²Department of Chemistry, University of Central Florida, Orlando, FL, 32816,

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50* Ni/Al-Based Reactive Multilayer Films for Low Temperature Brazing in Microgravity Environments

D. Bridges¹, C.M. Rouleau², D.B. Geohegan², Y. Bar-Cohen³, A. Hu¹

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²Center for Nanoscale Materials Sciences, Oak Ridge National Laboratory

³Jet Propulsion Laboratory

51* Palladium diselenide, a new 2D semiconductor with tunable bandgaps and high mobility for electronics

Akinola Oyedele^{1,2}, Shize Yang³, Liangbo Liang², Alexander A Puzov², Chris Rouleau², Bobby G. Sumpter², David B. Geohegan², Kai Xiao^{2,1*}

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³Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN 37830, USA

52* Photoinduced Bulk Polarization in Perovskite Solar Cells via Photoinduced Impedance and Kelvin-Probe Force Microscopy Study

Ting Wu¹, Liam Collins², Stephen Jesse², Bin Hu^{1,*}

¹Department of Materials Science and Engineering, University of Tennessee, Knoxville, Tennessee, 37996, USA

²Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, Tennessee 37831, USA

53* Physical properties of the cubic spinel LiGaCr4S8

Ganesh Pokharel¹, Andrew Christianson², David Mandrus¹, Ashfia Huq², Georg Ehlers², Andrew May², Lekhanath Poudel¹, Suriya Arachichige Hasitha¹

¹University of Tennessee, ²Oak Ridge National Laboratory

- 54*** **Stress Effect on Electronic and Thermoelectric Properties of Skutterudite**
Chongze Hu^{1,2}, Huijuan Zhao¹, Tritt M. Terry³, Jian He³, Jingsong Huang⁴, and Bobby G. Sumpter⁴
¹Department of Mechanical Engineering, Clemson University, 201 Fluor Daniel EIB, Clemson.
South Carolina 29634
²Department of Mechanical Engineering, University of Minnesota-Twin Cities, 111 Church Street
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³Department of Physics & Astronomy, Clemson University, 118 Kinard Laboratory, Clemson.
South Carolina 29634
⁴Center for Nanophase Materials Sciences and Computational Sciences & Engineering Division,
Oak Ridge National Laboratory, Bethel Valley Road, Oak Ridge, Tennessee 37831
- 55*** **Synthesis and characterization of defect-laden h-BN for applications in heterogeneous catalytic reactions**
Yi Ding, Laurene Tetard
NanoScience Technology Center, University of Central Florida, Orlando, FL
- 56*** **Tailoring Thermomechanical and Actuation Properties of Liquid Crystalline Elastomers**
Hyeongho Yoon and Suk-kyun Ahn
Department of Polymer Science and Engineering
Pusan National University, Busan, Korea 46241
- 57*** **TOF-SIMS Investigation of Tip-Surface Chemical Interactions in Atomic Force Microscopy on a Combined AFM/ToF-SIMS Platform**
C.C. Brown^{1,2}, A. Ilevlev², P. Maksymovych², M.J. Burch, S. Kalinin², and O. Ovchinnikova²
¹The Bredesen Center, University of Tennessee, Knoxville, TN
²Center for Nanophase Materials Science, Oak Ridge National Laboratory, Oak Ridge, TN
- 58*** **Tracking the Uptake and Translocation of Zinc-based Treatments Designed to Combat Citrus Greening Disease**
Mikhael Soliman^{a,b}, Warren Edmunds^c, Parthiban Rajasekaran^a, Mikael Young^a, Nicole Labbe^c,
Swadeshmukul Santra^{a,d}, Laurene Tetard^{a,b,e}
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Knoxville, TN 37996
^dChemistry Department, University of Central Florida, 4111 Libra Drive, Orlando, FL, 32816
^ePhysics Department, University of Central Florida, 4111 Libra Drive, Orlando, FL, 32816
- 59*** **Two-dimensional $Jeff = 1/2$ antiferromagnetic insulator unraveled from interlayer exchange coupling in artificial perovskite iridate superlattices**
Junyi Yang, Lin Hao, Clayton Frederick, Nathan Traynor, Jian Liu
Department of Physics and Astronomy, University of Tennessee, Knoxville, TN 37996, USA

60* **Understanding Nano-scale Electro-response: Ionic Liquid Containing Diblock Copolymers Synthesis**
Mingtao Chen¹, Jason W. Dugger², Wei Li², Rajeev Kumar², Bradley S. Lokitz², and Timothy E. Long¹

¹ Department of Chemistry, Virginia Tech, Blacksburg, VA

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61* **Yb₂Si₂O₇ Understanding Magnetic Correlations in a Novel Honeycomb Structure**
G. Hester¹, H.S. Nair¹, T. Reeder¹, J.A. Quilliam², J.R. Neilson¹, G. Sala³, and K.A. Ross¹

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