

## **CINT 2017B Accepted Projects**

*A New Paradigm in Chem/Bio Threat Detection: Evaluating Threats Based on Biological Function Rather than Chemical Form; Ron Manginell, Sandia National Laboratories: Wally Paxton*

*A Platform for Identification of Exosomes via SECARS; Zirui Liu, University of California, Los Angeles: Anatoly Efimov*

*Advanced Functional Biomimetic Soft/Composite Nanoparticle Protocells; Darryl Sasaki, Sandia National Laboratories: Wally Paxton*

*Atomic Force Microscopy GaN Probes for NSOM application; Tito Busani, University of New Mexico: John Nogan (Integration Lab)*

*Atomic structure and photophysical properties of quantum emitters in GaN and 2D boron nitride; Milos Toth, University of Technology Sydney: Han Htoon*

*Brillouin-Mandelstam Spectroscopy on Free-Standing Two-Dimensional Transitional –Metal Dichalcogenide Membranes; Alexander Balandin, University of California at Riverside: Jinkyoun Yoo*

*Broadband terahertz quantum-cascade metasurface lasers; Benjamin Williams, University of California, Los Angeles: John Reno*

*Building blocks of quantum circuits based on single photon emitters in 2D boron nitride; Milos Toth, University of Technology Sydney: Igal Brener*

*Characterization of polyimide degradation under space-simulated radiation; Elena Plis, Assurance Technology Corporation: Stephen Doorn*

*CINT User Proposal - Self Assembly of Polymer-Grafted Nanoparticles; Brian Benicewicz, University of South Carolina: Amalie Frischknecht*

*Coarse-grained theory of ion solvation in liquids: comparison between theory and LAMMPS simulation; Issei Nakamura, Michigan Technological University: Amalie Frischknecht*

*Conducting Ceramic Nanophotonics; Michael Wood, Sandia National Laboratories: Willie Luk*

*Constraining Photoluminescent Defect States in Chirality-Sorted Covalently Doped Single-Walled Carbon Nanotubes; Avishek Saha, Los Alamos National Laboratory: Stephen Doorn*

*Continuation of Extended LaMer Synthesis of Metal Insulator Transition Nanoparticles; Bill Kurtz, IR Dynamics: Dale Huber*

*Continuation of the Investigation of magnetic structure at the interface of YBaCuO7 and SrTiO3; Jason Haraldsen, University of North Florida: Jian-Xin Zhu*

*Controlling formation of Pt nanoparticles from single atoms in doped CeO2; Abhaya Datye, University of New Mexico: Katie Jungjohann*

*Coupling of Plasmonic and Excitonic materials and its Near-Field characterization; Terefe Habteyes, University of New Mexico: Igal Brener*

*Coupling sidewall-functionalized carbon nanotubes to plasmonic nanocavities for on-chip quantum light applications; Stefan Strauf, Stevens Institute of Technology: Stephen Doorn*

*Deep reactive ion etched devices for acoustofluidic bio-analysis; Menake Piyasena, New Mexico Tech: Wally Paxton*

*Defect Evolution in Nanostructured Oxide-Dispersion-Strengthened Concentrated Solid Solution Alloys; Bai Cui, University of Nebraska, Lincoln: Khalid Hattar*

*Deposition and Mechanics of Nanobrick Walls; Erik Spoerke, Sandia National Laboratories: Katie Jungjohann*

*Deterministic Ion Implantation for Optimization of Donor-SET Tunneling Rates for Qubit Formation in Silicon MOS Devices; Edward Bielejec, Sandia National Laboratories: Mike Lilly*

*Developing a Solid State Technology for Electron Spin Qubits on Liquid Helium; Eric Shaner, Sandia National Laboratories: Tom Harris*

*Developing novel ceria nanostructures via perturbations in crystal growth during synthesis; Abhaya Datye, University of New Mexico: Katie Jungjohann*

*Development of Improved Theoretical Methods to Model Nanoscale Features of Ionic Liquids; Jonathan Brown, Ohio State University: Amalie Frischknecht*

*Dichroic Photoemission Electron Microscopy Imaging of Antiferromagnetic Materials; Calvin Chan, Sandia National Laboratories: Taisuke Ohta*

*Effects of Microstructure on Radiation Tolerance of Nanoporous Niobium; Thomas John Balk, University of Kentucky: Khalid Hattar*

*Electric Field-Controlled High-Order Harmonic Generation in Ferroelectric/Multiferroic Heterostructures; Michael Chini, University of Central Florida: Aiping Chen*

*Electrically driven room temperature single photon emission at telecom wavelengths from 1D-2D hybrid device architecture; Xiang Feng Duan, University of California at Los Angeles: Han Htoon*

*Electrically driven single-photon emission in semiconducting carbon nanotubes for applications in on-chip quantum light sources.; Jeff Blackburn, National Renewable Energy Laboratory; Stephen Doorn*

*Electron Beam Induced Current Measurement on Monolithically Grown Arrays of Lateral p-n Junction GaAs planar Nanowires Diodes; xiuling Li, University of Illinois at Urbana-Champaign; Jinkyong Yoo*

*Energy-Efficient Ultrafast Photonic-Crystal Laser Transmitters; Marek Osinski, University of New Mexico; John Nogan (Integration Lab)*

*Enhancing Quantum Dot Spontaneous Emission with Multilayer Metamaterials; Jie Gao, Missouri University of Science and Technology; Willie Luk*

*Establishing a Link between Microstructure and Friction in BCC Metals; Nicolas Argibay, Sandia National Laboratories; Katie Jungjohann*

*Exploring Advanced Vertical Nanoscaffolds with Ferroelectric Matrix for Photoelectrochemical Water Splitting; Hyungkyu Han, Friedrich-Alexander University Erlangen-Nürnberg; Aiping Chen*

*Exploring Energy Transport in Nanoparticle Clusters Using Time-Resolved Superresolution Microscopy; Alan van Orden, Colorado State University; Peter Goodwin*

*Exploring nanoscale mechanical property maps at elevated temperatures; Nate Mara, University of Minnesota; Nan Li*

*Exploring Nonlinear Optics in Layered Polar Semiconductors with Large Spin-orbit Couplings; Sang-Wook Cheong, Rutgers University; Rohit Prasankumar*

*Exploring the forward, normal and lateral growth kinetics of deformation twins in Mg alloys by in situ nanoindentation in a TEM; Yue Liu, Shanghai Jiao Tong University; Nan Li*

*Fabrication and Optical Characterization of III-Nitride core-shell nanostructured light emitters; Daniel Feezell, University of New Mexico; Igal Brener*

*Fabrication of high reflectivity subwavelength grating structure for semiconductor disk lasers; Zhou Yang, University of New Mexico; John Nogan (Integration Lab)*

*Femtosecond Direct Laser Writing for Microfluidic Chips for the Implementation of Graphene Membranes; Eric Auchter, Los Alamos National Laboratory; Quinn McCulloch*

*Ferroelectric Oxide Nanowires for Understanding the Origin of Ferroelectric Photovoltaics; Sheng Xu, University of California, San Diego; Jinkyong Yoo*

*Fundamental investigation of radiation tolerance behavior of a stable bulk nanocrystalline Cu-Ta alloy; Kiran Solanki, Arizona State University; Yongqiang Wang*

*Fundamental Properties of MoS<sub>2</sub> Energy Funnels and Their Integration in Photovoltaic Devices; Francesca Cavallo, University of New Mexico: John Nogan (Integration Lab)*

*Hamiltonian on Demand with Machine Learning Methods; Kipton Barros, Los Alamos National Laboratory: Sergei Tretiak*

*High Performance and Low Noise MoS<sub>2</sub> Transistors Through Schottky barrier engineering and Channel Interface Passivation; Suprem Das, Kansas State University: Tom Harris*

*High-Index Nanocomposite Encapsulants for Light Emitting Diodes; Wouter Soer, Lumileds: Dale Huber*

*In situ observation of strain localization in Structural Amorphous Steels (SAS) using the SEM Picoindenter; Corinne Packard, Colorado School of Mines: Brad Boyce*

*In situ TEM liquid cell investigation of corrosion in Fe thin films; Joshua Kacher, Georgia Institute of Technology: Khalid Hattar*

*In-situ TEM analysis of sodiation and lithiation of selenium; David Mitlin, Clarkson University: Katie Jungjohann*

*In-situ TEM characterization of ion irradiation induced creep in nanostructured alloys; Shen Dillon, University of Illinois at Urbana Champaign: Khalid Hattar*

*Investigating Iron Nanoparticle Surface Oxidation using Titan E-TEM.; John Watt, Sandia National Laboratories: Katie Jungjohann*

*Investigation of Atom Trapping of Platinum Group Metals on CeO<sub>2</sub>; Abhaya Dartye, University of New Mexico: Katie Jungjohann*

*Investigation of hierarchically ordered polymeric ionic liquid [poly(IL)] scaffolds via terahertz route; Jennifer Hollingsworth, Los Alamos National Laboratory: Jennifer Hollingsworth*

*Irradiation Effects on Electrochemical Charge Storage in Nanostructured TiO<sub>2</sub> Electrode for Li-ion Batteries; Hui Xiong, Boise State University: Yongqiang Wang*

*Machine learning interatomic potentials; Alexander Shapeev, Skolkovo Institute of Science and Technology: Sergei Tretiak*

*Magneto-electric effect on multiferroic layered systems in the Terahertz Frequency; Ruyan Guo, The University of Texas at San Antonio: Rohit Prasankumar*

*Magneto-Optical Spectroscopy of Multiferroic Rare-Earth Chromite Thin Films; Menka Jain, University of Connecticut: Rohit Prasankumar*

*Mapping Conductivity and Nanostructures of Solid Electrolyte Interphases in Li-Ion Batteries; Stephen Harris, Lawrence Berkeley National Lab: Katie Jungjohann*

*Maximizing Functionalities of ZnO Thin Films by Strain and Dopant; Don Lucca, Oklahoma State University: Yongqiang Wang*

*Metasurfaces for Highly Efficient Polarizing Beam Splitting at Terahertz and Infrared Frequencies; Li Huang, Harbin Institute of Technology: Hou-Tong Chen*

*mid-infrared diode lasers with curved grating; Chi Yang, Air Force Research Laboratory (AFRL): John Nogan (Integration Lab)*

*Modeling Geometric Frustration in Negatively-Curved Membrane Assemblies; Gregory Grason, University of Massachusetts : Mark Stevens*

*Multiplexed let microfluidic devices with gradient generators; Tania Konry, Northeastern University: George Bachand*

*Nanoscale Investigation of Selective Laser Melted Austenitic Stainless Steel Corrosion Pitting Mechanisms; Eric Schindelholz, Sandia National Laboratories: Katie Jungjohann*

*Near-field assisted direct wave vector excitation of Si axial nanowire heterostructure; Takashi Yatsui, The University of Tokyo: Jinkyong Yoo*

*Nonlinear intersubband polaritonic metasurfaces; Mikhail Belkin, The University of Texas at Austin: Igal Brener*

*Nonpolar GaN-Based Vertical-Cavity Surface-Emitting Lasers with Nanoporous Distributed Bragg Reflectors; Daniel Feezell, University of New Mexico: Willie Luk*

*Objective-first sorting and characterization of individual magnetic nanoparticles; Victor Acosta, University of New Mexico: Dale Huber*

*On the Study of Helium Diffusion in Bulk Amorphous Alloys; Steven Zinkle, University of Tennessee: Yongqiang Wang*

*Optical nanojet with enhanced light-matter interaction for use in bio-detection; Jean-Jacques DELAUNAY, The University of Tokyo: Jinkyong Yoo*

*Optical property characterization of laser shock imprinted graphene-metal hybrid metamaterials; Yaowu Hu, University at Buffalo: Hou-Tong Chen*

*Optical recording and stimulation of neurons via genetically encoded probes for prosthetic interfaces; Evan Perillo, Los Alamos National Laboratory: Anatoly Efimov*

*Optical spectroscopy of quantum dots on MoS<sub>2</sub> and WSe<sub>2</sub>; Kaustav Banerjee, University of California, Santa Barbara: Han Htoon*

*Optoelectronic Characterizations of Nanowire Heterojunctions; Heayoung Yoon, University of Utah: Jinkyong Yoo*

*Phase-Change Dynamics in Phase-Change Materials; Helena Silva, University of Connecticut: Katie Jungjohann*

*Phonon Lifetimes in Crystalline Hybrid Materials Using Time-Resolved Second Harmonic Generation; Joshua Caldwell, Vanderbilt University: Igal Brener*

*Phonon scattering effects on thermal transport in silicon and diamond studied via ion irradiation; Patrick Hopkins, University of Virginia: Khalid Hattar*

*Photoinduced electronic and vibrational energy transfer in light harvesting molecules; Sebastian Fernandez Alberti, Universidad Nacional de Quilmes: Sergei Tretiak*

*Photonic cavity enhanced carbon nanotube emission; Xuedan Ma, Argonne National Laboratory: Stephen Doorn*

*Photonic Metasurfaces for Light Emitting Diodes; Wouter Soer, Lumileds: Igal Brener*

*Pipeline Steel Corrosion: A Nanoscale Investigation of a Global-Scale Problem; Steven Hayden, Aramco Services Company: Katie Jungjohann*

*Polaritons in layered two-dimensional materials in phonon-transport state; Xian Zhang, University at Buffalo: Hou-Tong Chen*

*Polarization modulated tunable microwave transmission in LaAlO<sub>3</sub>/SrTiO<sub>3</sub> heterostructures; Eun Ju Moon, University of Missouri: Aiping Chen*

*Polyelectrolyte elasticity; Omar Saleh, University of California at Santa Barbara: Mark Stevens*

*Polymer Diffusion in Nanoscale Confinement; Karen Winey, University of Pennsylvania: Barney Doyle*

*Precise Polymer and Ionomer Synthesis, Characterization and Simulations; Karen Winey, University of Pennsylvania: Dale Huber*

*Predictable Lifetime Devices; Bryan Kaehr, Sandia National Laboratories: Wally Paxton*

*PVD Synthesis and Nanomechanics of Metallic Nanocomposite Thin Films; Amit Misra University of Michigan: Jon Kevin Baldwin*

*Quantapore chip fabrication; Brian Conn, Quantapore, Inc.: Dale Huber*

*Quantifying the Polymer Bound Layer in Polymer Nanocomposites; Karen Winey, University of Pennsylvania: Barney Doyle*

*Quantitative in-situ TEM testing on 2D materials; Jun Lou, Rice University: Khalid Hattar*

*Recording action potentials in live neurons through intrinsic nonlinear optical excitation; Evan Perillo, Los Alamos National Laboratory: Anatoly Efimov*

*Search for quantum many body effects in 2D dopant layers in Silicon; Shashank Misra, Sandia National Laboratories: Tom Harris*

*Simulations of Structure in Semi-Crystalline Precise Ionomers and Comparisons with Experiments; Karen Winey, University of Pennsylvania: Mark Stevens*

*Single-Photon Sources Based on Carbon Nanotube Solitary Dopants; Xiaowei He, Los Alamos National Laboratory: Han Htoon*

*Spin qubits in Ge/Si core/shell nanowires; Dharmraj Kotekar Patil, Nanyang Technological University: Jinkyong Yoo*

*Strain Control of Super Ionic Conductivity; Michael Francis, Los Alamos National Laboratory: Aiping Chen*

*Stratification and Self-assembly in Nanoparticle Solutions during Solvent Evaporation; Shengfeng Cheng, Virginia Tech: Gary Grest*

*Study of surface interactions between water and uranium oxides thin-films; Xiaofeng Guo, Washington State University: Aiping Chen*

*Superparamagnetic Nanoparticles for Biomagnetic Imaging; Erika Vreeland, Imagion Biosystems Inc.: Dale Huber*

*Synthesis, characterization, and application of size-controlled, air-stable copper nanoparticles for conductive ink printing; Brian Billstrand, Sandia Nano Inks: Sergei Ivanov*

*Temporal Evolution of the Charge-Density-Wave Phase Transitions in Two-Dimensional 1T-TaS<sub>2</sub> Devices; Guanxiong Liu, University of California at Riverside: Rohit Prasankumar*

*Terahertz investigation of desirable metasurface by polymer assisted deposition; GUIFU ZOU, Soochow University, China: Hou-Tong Chen*

*Terahertz Time-Domain Spectroscopy in Extreme Magnetic; David Hilton, University of Alabama Birmingham: Rohit Prasankumar*

*The PbSe/CdSe and PbS/CdS quantum dots for bioimaging; Qinchao Sun, Stanford University:  
Jennifer Hollingsworth*

*The role of cation stoichiometry on strain accommodation and functionality in thin films; Erik  
Enriquez, Los Alamos National Laboratory: Aiping Chen*

*The Role of Grain Boundaries on Fatigue Behavior in Nanocrystalline Metals; Brad Boyce, Sandia  
National Laboratories: Doug Pete*

*Thermionic emission from nanotextured substrates; Karun Vijayraghavan, Nanohmics, Inc.: Taisuke  
Ohta*

*Time-resolved and non-linear optical study of Weyl semimetals; Yaomin Dai, Nanjing University:  
Rohit Prasankumar*

*Top-Down Fabrication and Properties of Semiconductor Nanostructures; George Wang, Sandia  
National Laboratories: Igal Brener*

*Triplet Excitons in Doped Carbon Nanotubes; Sofie Cambre, University of Antwerp: Stephen Doorn*

*Ultra-bright, chip-integrated, high-purity heralded single photon sources operating at ambient  
conditions; Ronen Rapaport, Racah Institute of Physics: Jennifer Hollingsworth*

*Understanding the Effect of Engineered Nanoparticles in Agriculture; Soubantika Palchoudhury,  
University of Tennessee: Katie Jungjohann*

*Understanding the Morphological Impact of Sulfonate Concentration and Hydration on the  
Effectiveness of SDAPP as a Proton Conductor; Erik Santiso, North Carolina State University: Amalie  
Frischknecht*