2007 Accepted CINT User Proposals

Shocked photonic crystals: Frequency conversion in a new regime, Evan Reed, Lawrence Livermore National Laboratory; CINT Scientist(s): Toni Taylor

Periodic Coupled Nanostructures as Bloch Oscillator, Steve Brueck, University of New Mexico. CINT Scientist(s): Toni Taylor

Wetting and Self-Assembly of Nanoparticles, Alexander Levine, University of California, Los Angeles; CINT Scientist(s): Gary Grest

Magnetic Resonance Force Microscopy Studies of Sub-micron Ferromagnetic Particles, P. Chris Hammel, *Ohio State University*; CINT Scientist(s): Roman Movsovich

Determination of the Connection Between Discovery Platforms and Nano/Bio Interface Center Research, Dawn Bonnell, University of Pennsylvania; CINT Scientist(s): John Sullivan, Michael Lilly

Nanoscale Lithography of Organic Thin Films Adsorbed on GaAs (001), Amy Walker, Washington University; CINT Scientist(s): Julia Hsu, Aaron Gin

Nano and Microstructured Surfaces to Control Water and Biological Fluids, Antonio Garcia, Arizona State University; CINT Scientist(s): Tom Picraux

Molecular Orientation in organic films for Au-molecular layer-GaAs Diodes, Karsten Hinrichs, Institute for Analytical Sciences; CINT Scientist(s): Julie Hsu

Understanding the phase change dynamics of nano-scale chalcogenide materials for high density non-volatile random access memory applications, Ya-Hong Xie, University of California, Los Angeles; CINT Scientist(s): Alec Talin, Jianyu Huang, Aaron Gin

Near-field terahertz spectroscopy of the oxides of vanadium, Dimitri Basov, University of California, San Diego; CINT Scientist(s): Alexander Balatsky, Toni Taylor

Molecular Dynamics Simulation of Biopolymer Wigner Crystals, Gregory Grason, University of California, Los Angeles; CINT Scientist(s): Mark Stevens

The Virtual Scanning Tunneling Microscope: A Novel Technique for Imaging Two-Dimensional Electron Systems and Other Subsurface Electronic Structures, David Goldhaber-Gordon, Stanford University; CINT Scientist(s): Michael Lilly, John Reno

An atomistic multi-scale description of charge and excitation motion in conjugated materials, David Beljonne, University of Mons-Hainaut; CINT Scientist(s): Han Htoon, Normand Modine, Toni Taylor

Conducting-Polymer Mediated Chemical Deposition Of Nanostructured Metals, Hsing-Lin Wang, Los Alamos National Laboratory; CINT Scientist(s): Elshan Akhadov

Fabrication of cantilevers for magnetic resonance force microscopy with sub-micron magnetic tips, Evgueni Nazaretski, Los Alamos National Laboratory; CINT Scientist(s): Elshan Akhadov, Brian Swartzentruber

Quantum Control of Initiation in Nanoenergetics, David Moore, Los Alamos National Laboratory; CINT Scientist(s): Anatoly Efimov, Toni Taylor

Understanding nano- to micro-scale morphology in organic/inorganic hybrid solar cells, Jianzhing Wu, University of California, Riverside; CINT Scientist(s): Amalie Frischknecht

In-situ TEM on deformation process of metallic nanowires, Scott X. Mao, University of Pittsburgh; CINT Scientist(s): Jianyu Huang, John Sullivan, Sean Hearne, Brian Swartzentruber

Synthesis and Characterization of Individual Boron Nitride Nanostructures, Yoke Khin Yap, Michigan Technological University; CINT Scientist(s): Jianyu Huang

Composite Nanoparticles for Dual Magnetic-Bead-Labeling Biomolecules, Boris Khusid, New Jersey Institute of Technology; CINT Scientist(s): Sergei Ivanov, Dale Huber, Jianyu Huang

Quantitative Mechanical Property Measurement at the Nanoscale using Standards-Traceable Discovery Platforms, Robert Cook, National Institute for Standards and Health; CINT Scientist(s): Michael Nastasi, John Sullivan

Controlling electron-phonon coupling in semiconducting nanostructures, Jason Petta, Princeton University; CINT Scientist(s): John Reno, John Sullivan, Michael Lilly, Aaron Gin

Growth of heterostructures for scanning gate microscopy of quantum dots, Brian LeRoy, University of Arizona; CINT Scientist(s): John Reno

Nanoscale Plasticity within Energetic Molecular Single Crystals, Kyle Ramos, Los Alamos National Laboratory; CINT Scientist(s): Greg Swadener

Nanocomposite structures for high-efficiency photovoltaics and ligh-emitting diodes based on semiconductor nanocrystals, Valery Rupasov, Anteos Inc.; CINT Scientist(s): Victor Klimov

Modulating the Resonant Response of Metamaterials, Richard Averitt, Boston University; CINT Scientist(s): Toni Taylor

Spectroscopic investigations of chemical defects in molecular-based optoelectronic devices, John Grey, University of New Mexico; CINT Scientist(s): Alec Talin, Michael Lilly

Morphology-dependent charge separation kinetics in polymeric photovoltaic systems, John Grey, University of Texas at Austin; CINT Scientist(s): Michael Lilly

Investigating the Potential of Rhenium Oxide as a New Plasmonic Material, Richard Averitt, Boston University; CINT Scientist(s): Quanxi Jia, Rohit Prasankumar, Toni Taylor

Heat Generation and Dissipation in Nanoscale Materials, Pawel Keblinski, Rensselaer Polytechnic Institute (RPI); CINT Scientist(s): Sergei Tretiak

Magneto-optical investigation of electromagnons in a new multiferroic material MnWO4, Woo Seok Choi, Seoul National University; CINT Scientist(s): Rohit Prasankumar

A Versatile Protein-based Nanobiosensor, Dung Vu, Los Alamos National Laboratory; CINT Scientist(s): Jennifer Martinez

Investigation and Characterization of MnGe magnetic properties for Spintronic Applications, Kosmas Galatsis, University of California, Los Angeles; CINT Scientist(s): Michael Lilly, Jianyu Huang

Nanoparticle Dispersion into Soft Condensed Phases, Sanat Kumar, Columbia University; CINT Scientist(s): Gary Grest

Ion Irradiation Effects on The Transport Properties and Degradation Mechanisms of Organic Field-Effect Transistors, Beatrice Fraboni, University of Bologna; CINT Scientist(s): Michael Nastasi, Toni Taylor

Ultrafast optical and terahertz quasiparticle dynamics of heavy fermion YbFe4Sb12 and CeRu4Sb12 films, Sasa Dordevic, University of Akron; CINT Scientist(s): Toni Taylor

Metamaterials for controlling the quantum vacuum, Diego Dalvit, Los Alamos National Laboratory; CINT Scientist(s): Toni Taylor

Novel Nanostructured Rare-Earth-Based Materials for Ultra-High Gain Optical Amplifiers & Lasers, Evgeny Vanin, Acreo; CINT Scientist(s): Quanxi Jia, Anatoly Efimov

Surface Emission Terahertz Quantum Cascade Lasers Utilizing Metamaterial Gates, Willie Padilla, Boston College; CINT Scientist(s): Rohit Prasankumar, John Reno, Toni Taylor, Rick Averitt

Chip Fabrication for Electronic Aptamer Based Sensing Platform, Jane Bearinger, Lawrence Livermore National Laboratory; CINT Scientist(s): Jennifer Martinez, Aaron Gin

Nanopatterning of pro-thrombotic recombinant adhesion molecules, Enrique Saldivar, La Jolla Bioengineering Institute; CINT Scientist(s): Sean Hearne, Aaron Gin, Dattelbaum

Irradiation effects on mechanical properties of carbon nanotube fibers, Igor Usov, Los Alamos National Laboratory; CINT Scientist(s): Michael Nastasi, Jianyu Huang

Coupling of Thermal and Mechanical Phenomena in Micro- and Nanosystems, Leslie Phinneyk Sandia National Laboratories; CINT Scientist(s): John Sullivan

Investigation of novel plasmonic and quantum Hall effect THz photodetectors, Nikolai Kalugin, New Mexico Institute of Mining and Technology; CINT Scientist(s): John Reno, Aaron Gin

3D THz Negative Index of Refraction Material (NIM) Design, Fabrication, and Testing, Hao Xin, University of Arizona; CINT Scientist(s): Elshan Akhadov, Toni Taylor

Magnetic Directed Assembly of Nanoscale Junctions for Electronic Measurements, James Kushmerick, National Institute for Standards and Health; CINT Scientist(s): Bruce Bunker

Fluorescent Microscopy of Quantum Dots Infiltrated into Synthetic Opals: Search for Negative Refraction., Anvar Zakhidov, University of Texas at Dallas; CINT Scientist(s): Victor Klimov, Han Htoon

Nanoindentation for Correlating Hardness Variations with Local Carbon Concentration Gradients as a Function of Microstructural Scale and Heating Rate in AISI 52100 Steel, Kester Clarke, Colorado School of Mines; CINT Scientist(s): Greg Swadener

FUNCTIONAL CARBON NANOTUBE ARCHITECTURES WITH ACTIVE NANO-CENTERS FOR APPLICATIONS IN NANO-STRUCTURED PHOTONIC DEVICES, Ildar Gabitov, University of Arizona; CINT Scientist(s): Anatoly Efimov

Developing High Efficiency and Low Operation-Temperature Thin Film SOFC using Smart Nanostructural Designs, Haiyan Wang, Texas A&M University; CINT Scientist(s): Greg Swadener, Quanxi Jia

Evaluating Molecular Trafficking within Cells Using Biofunctionalized Magnetic Nanoparticles, David Bear, University of New Mexico; CINT Scientist(s): Dale Huber

Nanomechanics of carbon nanotubes, Boris Yakobson, Rice University; CINT Scientist(s): Jianyu Huang

Terahertz Time Domain Spectroscopy of Charge Dynamics in Organic Field-Effect Transistors, Dimitri Basov, University of California, San Diego; CINT Scientist(s): Stuart Trugman, Toni Taylor

Research and Development of a High Density Adaptive Synaptic Element,; CINT Scientist(s): Alec Talin

III-V Nanopillar Array Development for Photonic and Electronic Applications, Diana Huffaker, University of New Mexico; CINT Scientist(s): Alec Talin, Brian Swartzentruber, Aaron Gin

Biophotonic crystal fibers, Fiorenzo Omenetto, Tufts University; CINT Scientist(s): Anatoly Efimov, Toni Taylor

Cantilever Oscillators for Chemical Vapor Sensors, Michele Miller, Michigan Technological University; CINT Scientist(s): John Sullivan

Optical Characterization of Ultrathin Organic Interface Layers, Mike Sinclair, Sandia National Laboratories; CINT Scientist(s): Julia Hsu, Dale Huber, Rohit Prasankumar

Slow light on Silicon Chip: Optical Group Delay Device with Vertical Gratings, Yeshaiahu Fainman, University of California, San Diego; CINT Scientist(s): Aaron Gin

In situ characterization of microtubule-templated nanowires, Bruce Dunn, University of California, Los Angeles; CINT Scientist(s): Jianyu Huang, Aaron Gin, Elshan Akhadov, Michael Lilly

Merging IMF technology with LEEM prepared step-free Si for a new generation of monolithically integrated III-Sb devices on CMOS platforms., Diana Huffaker, University of New Mexico; CINT Scientist(s): Gary Kellogg

THz Multifunctional Ferroelectromechanics, Keith Nelson, Massachusetts Institute of Technology; CINT Scientist(s): Elshan Akhadov, Quanxi Jia, Toni Taylor

Experimental Investigation and Simulation of Irradiation-Induced Effects on Q Factor of Microresonators, Albert To, Northwestern University; CINT Scientist(s): John Sullivan

Fabrication of multilayer magnetic nanodisks for biosensing applications using physical templated growth, Yaowu Hao, University of Texas at Arlington; CINT Scientist(s): Aaron Gin

CONTROLLING THE FAR-FIELD EMISSION EFFICIENCY OF QUANTUM-DOT LUMINESCENT LAYERS, Igal Brener, Sandia National Laboratories; CINT Scientist(s): Jennifer Hollingsworth

Mechanics and Materials Approach to Quantitative Assessment of Bone Quality, Surya Kalidindi, Drexel University; CINT Scientist(s): Amit Misra, Greg Swadener

TED and B clustering: the role of the surface recombination studied by LEAP microscopy in B doped Si nanowires., Lucia Ramono, University of Florida; CINT Scientist(s): Tom Picraux

Characterization of Excitonic Dynamics within Single CdSe Quantum Wires at Low Temperature, Richard Loomis, Washington University in St. Louis; CINT Scientist(s): Victor Klimov, Han Htoon

Characterization of Reactions between Metal and Semiconductor Nanowires and the Corresponding Electrical Properties, Jane Chang, University of California, Los Angeles; CINT Scientist(s): Tom Picraux

New Terahertz metamaterials and their application as chem-bio sensors, Xomalin Peralta, Sandia National Laboratories; CINT Scientist(s): Jennifer Martinez, Toni Taylor, Aaron Gin

Design principles of RNA-based molecular switches, Kevin Sanbonmatsu, Los Alamos National Laboratory; CINT Scientist(s): Peter Goodwin

Understanding the chemistry behind electrical switching behavior in molecular and metal oxide materials for nanowire crossbar logic circuits, L Zhiyong, Hewlett-Packard Company; CINT Scientist(s): Alec Talin, Aaron Gin

Synthesis of Novel Quantum Dots/Conducting Polymer Composites for Photoinduced Charge Transfer Study, John Ferraris, University of Texas at Dallas; CINT Scientist(s): Victor Klimov, Sergei Ivanov

Micro-Photoluminescence Spectroscopy of Carbon Nanotubes in Magnetic Fields, Junichiro Kono, Rice University; CINT Scientist(s): Han Htoon

Large Scale Semiconductor Nanowire Device Integration on a CMOS compatible platform, P Yang, University of California, Berkeley; CINT Scientist(s): Alec Talin, Aaron Gin

Assembling Carbon Nanotubes Using Molecular Motors, Robert Haddon, University of California, Riverside; CINT Scientist(s): Bruce Bunker, George Bachand