



# CINT Annual Meeting

September 24-25, 2018

La Fonda on the Plaza, Santa Fe, New Mexico

sponsored in part by



## Monday Morning, September 24

8:00 am	<b>Registration</b> <b>Beverage Station &amp; pastries</b>	<b>Mezzanine</b> <b>Ballroom North</b>
9:00 am	<b>Plenary Session</b> <b>Welcome</b> <i>Gus Sinnis, Deputy Associate Director, Los Alamos National Laboratory</i> <i>Susan Seestrom, Associate Lab Director, Sandia National Laboratories</i>	<b>Ballroom South</b>
9:15 am	<b>BES Update</b> <i>George Maracas, Program Manager Nanoscale Science Research Centers, Office of Basic Energy Sciences</i>	
9:25 am	<b>Introductions and CINT Update</b> <i>Andreas Roelofs, CINT Director</i>	
9:30 am	<b>Sir Fraser Stoddart</b> Northwestern University <i>"The Rise and Promise of Artificial Molecular Machines Based on the Mechanical Bond"</i>	<b>Ballroom South</b>
10:10 am	<b>Break</b>	<b>Ballroom North</b>
10:30 am	<b>Professor Philip Kim</b> Harvard University <i>"Interlayer Excitons and Magneto-Exciton Condensation in van der Waals Heterostructures"</i>	<b>Ballroom South</b>
11:10 am	<b>Professor Jun Lou</b> Rice University <i>"Quantitative In-Situ Nanomechanical Study of Low Dimensional Materials"</i>	<b>Ballroom South</b>
11:50 am	<b>Working lunch and poster review</b>	<b>Ballroom North</b>
12:00 pm	<b>UEC Sponsored working lunch:</b> <i>"How to Win Friends, Influence People, and Write Better User Proposals."</i> <i>Guest speaker: Jacquilyn Weeks, Ph.D., WordTree Consulting</i>	<b>Stiha Room</b> <i>(Please pick up your lunch from Ballroom North and bring to Stiha Room)</i>

**Monday afternoon, September 24**

**2018 CINT Annual Meeting - Parallel Symposia**

Symposia	Emerging Methods in in-situ Nano-mechanics	Soft Materials Imaging	Quantum Materials
	<b>Ballroom South</b>	<b>Stiha Room</b>	<b>New Mexico Room</b>
	<b>Moderators:</b> <i>Brad Boyce / Yongqiang Wang</i>	<b>Moderators:</b> <i>Peter Goodwin / Dale Huber</i>	<b>Moderators:</b> <i>Mike Lilly / Jinkyong Yoo / JianXin Zhu / Han Htoon</i>
<b>1:00 pm</b>	<b>Prof. Olivier Pierron</b> Georgia Institute of Technology <i>"In situ TEM Activation Volume Measurements"</i>	<b>Prof. C. Barry Carter</b> University of Connecticut & CINT <i>"Beam Effects in TEM"</i>	<b>Prof. Victor Acosta</b> The University of New Mexico <i>"Diamond quantum sensing"</i>
<b>1:30 pm</b>	<b>Dr. Remi Dingreville</b> CINT <i>"Modeling materials degradation in nanostructures: An example of the intersection of computational material science, experimental characterization and data analytics"</i>	<b>Prof. Phoebe Stewart</b> Case Western Reserve University <i>"Cryo-TEM Imaging of Perfluorocarbon Gas Nanobubbles"</i>	<b>Prof. Sergey Frolov</b> The University of Pittsburgh <i>"Status of the search for Majorana fermions in semiconductor nanowires"</i>
<b>2:00 pm</b>	<b>Dr. Curt Bronkhorst</b> Los Alamos National Laboratory <i>"Nano-mechanics questions related to damage in metallic materials"</i>	<b>Prof. Tim Yeh</b> The University of Texas at Austin <i>"Deep and high-resolution three-dimensional tracking of single particles using nonlinear and multiplexed illumination"</i>	<b>Prof. Qimiao Si</b> Rice University <i>"Magnetism and Topology of Strongly Correlated Quantum Materials"</i>
<b>2:30 pm</b>	<b>Dr. Nathan A. Mara</b> University of Minnesota <i>"In-situ TEM Investigation of Mechanically Induced Phase Transformations in Nanoscale Composites"</i>	<b>Dr. Karissa Sanbonmatsu</b> Los Alamos National Laboratory <i>"New cryo-EM tools and new biochemical studies of long non-coding RNAs"</i>	<b>Prof. Kang L. Wang</b> University of CA, Los Angeles <i>"Topological transitions - Majorana fermions"</i>
<b>3:00 pm</b>	<b>Break</b>	<b>Break</b>	<b>Break</b>
<b>3:30 pm</b>	<b>Dr. Katharine Harrison</b> Sandia National Laboratories <i>"Lithium deposition and stripping visualized through operando electrochemical transmission electron microscopy"</i>	<b>Prof. David Martin</b> The University of Delaware <i>"Direct Imaging of the Electrochemical Polymerization of Conjugated Polymers by Transmission Electron Microscopy"</i>	<b>Prof. Nick Bonesteel</b> Florida State University <i>"Simulating Anyons on a Quantum Computer"</i>
<b>4:00 pm</b>	<b>Dr. Nan Li</b> CINT <i>"Quantifying the role of grain boundaries in Ta"</i>	<b>Prof. Deborah Fygenon</b> Univ. of California, Santa Barbara <i>"Imaging single molecule bending using fluorescence videomicroscopy and DNA nanotechnology"</i>	<b>Prof. Richard Averitt</b> Univ. of California, San Diego <i>"Metastable and mesoscopic dynamics in quantum materials"</i>
<b>4:30 pm</b>	<b>Dr. Corrine Packard</b> Colorado School of Mines <i>"Persistent, inelastic cycling behavior in rare earth orthophosphate ceramic"</i>	<b>Dr. Haera Shin</b> CINT <i>"Self-Assembled Block Copolymer Membranes"</i>	<b>Prof. Liang Wu</b> University of Pennsylvania <i>"Giant nonlinear optical responses in polar Weyl semimetals"</i>
<b>5:00 pm - 7:00 pm</b>	<p><b>Poster Session</b> will be held on the <i>La Terraza Terrace</i>.</p> <p><i>1 Drink ticket per attendee provided courtesy of our sponsor, Rocky Mountain Vacuum Technologies</i></p> <p><i>Please see reception desk for your ticket.</i></p>		



**Tuesday Morning, September 25**

8:00 am	<b>Registration Beverage Station &amp; pastries</b>		<b>Mezzanine Ballroom North</b>
Symposia	<b>Emerging Methods in in-situ Nano-mechanics</b>	<b>Soft Materials Imaging</b>	<b>Quantum Materials</b>
	<b>Ballroom South</b>	<b>Stiha Room</b>	<b>New Mexico Room</b>
	<b>Moderators:</b> <i>Brad Boyce / Yongqiang Wang</i>	<b>Moderators:</b> <i>Peter Goodwin / Dale Huber</i>	<b>Moderators:</b> <i>Mike Lilly / Jinkyong Yoo / JianXin Zhu / Han Htoon</i>
9:00 am	<b>Prof. Xinghang Zhang</b> Purdue University <i>"Mechanical behavior of irradiated nanostructured metals"</i>	<b>Prof. Shery Chang</b> University of Arizona <i>"Revealing unusual nanodiamond assembly in water using cryo- TEM"</i>	<b>Prof. Javier Del Valle Granda</b> University of CA, San Diego <i>"Vanadium oxides for neuromorphic computing"</i>
9:30 am	<b>Dr. David Frazer</b> University of California, Berkeley <i>"Small-scale mechanical testing on nuclear materials: challenges and opportunities"</i>	<b>Dr. Gang (Gary) Ren</b> Lawrence Berkeley National Laboratory <i>"3D Structure and dynamics of soft- and biomaterials by TEM"</i>	<b>Prof. Chris Palmstrøm</b> University of CA, Santa Barbara <i>"Development of Superconductor/Semiconductor Heterostructures for Topological Quantum Computation"</i>
10:00 am	<b>Prof. Don Lucca</b> Oklahoma State University <i>"Effects of ion irradiation on structural and mechanical properties of crystalline Fe/amorphous SiOC nanolaminates"</i>	<b>Prof. Doug Shepherd</b> University of Colorado Denver <i>"Quantifying the when and where of gene expression for myelin maintenance during murine brain development"</i>	<b>Prof. Shriram Ramanathan</b> Purdue University <i>"Animal intelligence from emergent physics"</i>
10:30 am	<b>Break</b>	<b>Break</b>	<b>Break</b>
11:00 am	<b>Prof. Lin Shao</b> Texas A&M University <i>"Ion radiation induced thermal and mechanical property changes of CNTs: Effects of inter-tube defects vs. intra-tube defects"</i>	<b>Prof. Keith Lidke</b> The University of New Mexico <i>"Fluorescence Nanoscopy for the Study of Membrane Protein Distributions and Associations"</i>	<b>Dr. Rohit Prasankumar</b> CINT <i>"Nonlinear optics: A powerful tool for studying topological materials"</i>
11:30 am	<b>Dr. Ben Eftink</b> Los Alamos National Laboratory <i>"Irradiation of additively manufactured stainless steels"</i>	<b>Dr. John Watt</b> CINT <i>"Investigating Magnetic Nanoparticle Interactions with Cryo-EM"</i>	<b>Dr. Malcolm Boshier</b> Los Alamos National Laboratory <i>"Atomtronics for quantum sensing"</i>
12:00 pm	<b>Dr. Shen Dillon</b> University of Illinois at Urbana- Champaign <i>"In situ TEM based measurements of high temperature mechanics and irradiation induced creep."</i>	<b>Concluding Remarks by Symposium Organizer</b> ****End of Symposium***	<b>Dr. Tzu-Ming Lu</b> Sandia National Laboratories <i>"Quantum phenomena in Ge hole systems"</i>
12:30 pm	<b>Concluding Remarks by Symposium Organizer</b> ****End of Symposium***	<b>Working lunch &amp; poster review</b>	<b>Concluding Remarks by Symposium Organizer</b> ****End of Symposium***
12:30 pm	<b>Working lunch &amp; poster review</b>		<b>Ballroom North</b>
12:30pm	<b>User Executive Committee Lunch &amp; photo (closed session)</b>		<b>Stiha Room</b>