

7:30	Registration and Exhibition - Pre Con Hallway			
8:00 - 9:00	Continental Breakfast - Sandia Ballroom IV			
Room	Piñon	Sandia Ballroom VI	Sandia Ballroom VII	Sandia Ballroom VIII
Session	Theory and Modeling	Electronics, Magnetics and Photonic Materials & Devices	Structural Materials and Failure Mechanisms	Biomaterials and Soft Materials
Chair	Deep Choudhuri	Bryan Kaehr	Ashok Ghosh	Nathan Brady
8:45			INVITED Ductile failure - from the nanoscale conditions for void nucleation to the mechanisms of ductile rupture, <i>Noell</i>	INVITED Genetic Engineering for Bio-inorganic Materials, <i>Butler</i>
9:00	INVITED Physics-based modeling of reactive charge-transfer in complex molecules and materials, <i>Atlas</i>	INVITED Functional MEMS Compatible Thin Film Piezoelectric Research: Paving the Way for the Future, <i>Jackson</i>		
9:15			Experiments and modeling of viscoelastic delamination through a transition in validity of small-scale-yielding, <i>Clarke</i>	INVITED The power of silica in nanomedicine and beyond, <i>Noureddine</i>
9:30	First-principles exploration of diffusion activation energy in CoCrNi and CoCrFeMnNi high-entropy alloys, with comparison to creep activation energy, <i>Lafferty</i>	Novel Antiferromagnetic FeTe ₂ Phase Formation at the Sb ₂ Te ₃ /Ni ₈₀ Fe ₂₀ Interface, <i>Will-Cole</i>	Extreme SEM, <i>Hattar</i>	
9:45	Investigation of in-liquid ordering mediated transformations in Al-Sc via ab initio molecular dynamics and unsupervised learning, <i>Choudhuri</i>	Synthesis and Design of Metal-Organic Framework Taggant Materials, <i>Reyes</i>	Applications of Force Tensiometry for Characterizing Complex Materials Surfaces, <i>Callaway</i>	Thermal Shock Effects on Phenolic Composite, <i>Schoell</i>
10:00	Experimentally Informed Model Development of Glass-Ceramic Materials, <i>Lester</i>	Optimizing Copper Deposition in High Aspect Ratio Through Silicon Vias, <i>McDow</i>	Characterization of Heterogeneity and Mechanical Properties of SiCf-SiCm Composites, <i>Nance</i>	Mycosynthesis of Zinc Oxide Nanoparticles Exhibits Fungal Species Dependent Morphological Preference, <i>Brady</i>
10:15	Formation of Secondary Gas Species During Acid Gas Adsorption in Rare-Earth Metal-Organic Frameworks, <i>Christian</i>	Interface trap state analysis of gate dielectrics on gallium nitride and silicon carbide using a modified C-ψ _S procedure, <i>Rummel</i>	Elevated Temperature Behavior of Pinch Welded 304 and 316L Tube, <i>Ghanbari</i>	High-Speed and High-Resolution 3D Printing of Self-healing and Ion-conductive Hydrogels via μCLIP, <i>Wang</i>
10:30	Particle Processing: Recent Developments Implementing Particle-based Simulations, <i>Silbert</i>	Regular: Stable Radical Doping of Dielectric Films, <i>Russell</i>	High Throughput Measurements of Coefficient of Thermal Expansion via Digital Image Correlation, <i>Conway</i>	Thermo-Rheometric Characterization of Nanolubricants for Space Applications, <i>Bakhtiyarova</i>
10:45	Break			
11:00	Kreidal Lecture - Sandia Ballroom V			
12:00	Lunch - Sandia Ballroom V			

Session	Theory and Modeling	Electronics Magnetics and Photonic Materials Devices / Energy Nuclear Materials	Structural Materials and Failure Mechanisms	Advanced and printed Manufacturing
Chair	Brian Lester	Eric Lang	Zhara Ghanbari	Elliot Fowler
1:00	Determination of FDTR Lateral Resolution for Heterogeneously Integrated Micro Electronics, <i>Herkenhoff</i>	Lattice multipole resonances in periodic nanostructures and metasurfaces, <i>Islam</i>	INVITED Comparative investigation of high temperature behavior of uncoated and aluminum coated DADI substrates, <i>Tsurtsumia</i>	INVITED Lattices: Multi-Functional, Reliable (meta) Materials, <i>White</i>
1:15	Modeling the Stability of FePc-Functionalized Graphene and Enhanced ORR Activity of Ligand Exchanges and Substrate Variations, <i>Hesel</i>	Controlling Interface Interactions in Granular Metal Thin Films, <i>Gilbert</i>		
1:30	Silicon Heterojunction solar cell device optimization using TCAD simulations and machine learning models, <i>Jaiswal</i>	INVITED Process Development of Ferritic Steels for High Dose Fast Reactor Applications, <i>Maloy</i>	The Influence of Dimensional Deviations on the Performance of Welded 316 and 17-4 Stainless Steels, <i>Foster</i>	Characterization of solid propellant for additive manufacture, <i>Purcell</i>
1:45	Extracting Anisotropy Strength and Interfacial Free Energy of Al-Mg Alloy Using Molecular Dynamics Simulations, <i>Dolce</i>		Development of a high-temperature and high-pressure electrical feedthrough, <i>Arata</i>	A New Paradigm in Metal Surface Prep. for High-Throughput Materials Characterization, <i>Fowler</i>
2:00	Extracting Solid-Melt Interfacial Free Energy and Anisotropy Strength of Al-Cu Alloy Using Molecular Dynamics Simulations, <i>Swamy</i>	Current and future advances in plasma-facing materials to enable nuclear fusion, <i>Lang</i>	Underwater High Frequency Characteristics of Fluid-Filled Cellular Composites, <i>Ghosh</i>	Analysis of Pitting Corrosion on Wrought and Additively Manufactured 316L Stainless Steel, <i>Renner</i>
2:15	Break / Refreshments			
Session	Theory and Modeling / Low Dimension 2D Materials	Energy Nuclear Materials	Other Advanced Materials	Advanced and Printed Manufacturing
Chair	Stan Chou	James Nance	Tina Nenoff	Kaitlynn Fitzgerald (Conway)
2:30	Phase Field Simulation of Aluminum Alloy solidification, <i>Rahman</i>	INVITED Radiation Damage in Nuclear Materials: Helium Effects, <i>Wang</i>	Exploring a Battery Worth Its Salt: Ceramic-Salt Interactions in a Low-Temperature Molten Sodium Battery, <i>Spoerke</i>	INVITED Design of Novel Shape Memory and Self-healing Polymer Systems for Additive Manufacturing: Potential Areas of High Impact, <i>Roberson</i>
2:45	Thermodynamic properties of body-centered-cubic (BCC) refractory, BCC, high-entropy alloys: NbTaTiV, TaNbHfZrTi, VNbMoTaW, <i>Moreno</i>		Evacuated photovoltaic thermal (PVT) system for sustainable and efficient cogeneration of heat and electricity, <i>Roshanzadeh</i>	
3:00	INVITED Two-dimensional Silicon Carbide: An Emerging Semiconducting Material, <i>Chabi</i>	Electrolyte Design for Stable Multivalent Metal Anodes, <i>McClary</i>	Hydrogen Production by Water/Steam Splitting at Room/Intermediate Temperatures, <i>Zhou</i>	Rapid 3D printing of Nd:YAG ceramic for lasing media, <i>Liu</i>
3:15		Diffusion-mitigated preservation of Mn and void swelling response under heavy ion irradiation at high temperature, <i>Parkin</i>	Design and Realization of Nanoporous Materials for Acid Gas Separations and Sensing, <i>Hurlock</i>	Heat treatment effects on mechanical properties of Wire Arc Additive Manufactured Ti-6Al-4V, <i>Saiz</i>
3:30	GROWTH AND DRY TRANSFER OF GRAPHENE ON SAPPHIRE, <i>Liechti</i>	Improved Electrostatic Modeling of Wind-Turbine Lightning Receptors and Evaluation of Novel Designs, <i>Arun kumar</i>	Mechanochemical synthesis of metal-organic frameworks, <i>Gao</i>	Building Microwave Dielectric Ceramics and Metallization via Dry Aerosol Deposition, <i>Valdez</i>
3:45	Engineering of Nanoscale Heterogeneous Transition Metal Dichalcogenide-Au Interfaces, <i>Boehm</i>	Ceramic/Metal Hybrid Membranes for High Temperature H ₂ Separation, <i>Ibarra</i>	Pressure-less Sintering Approach for Manufacturing NbMoTaWVTiX Refractory High Entropy Alloys and First Principles Investigation of the Cohesive Energy and Elastic Properties of Molybdenum, <i>Bijjala</i>	Process-Structure-Property Evaluation of Laser-Hot Wire CP-Ti Grade 2, <i>Sims</i>
4:00	Poster - Pre Con Hallway			
5:15	End / Award Announcements			

Poster Session (Main Lobby)

Undergraduate Posters

ID	Last Name	Title
U1	Silva	Development of a pyrotechnic initiator ink for additive manufacturing methodology
U2	Monk	Additive Manufacturing (AM) Of Thermoset Polymers
U3	Roshanzadeh	Evacuated photovoltaic thermal (PVT) system for sustainable and efficient cogeneration of heat and electricity
U4	Morgan-Smith Myers	Viscosity Characterization and Modeling of Thermite Energetic for 3D Printing
U5	Rogers	Soldered Tensile Failure Stress of Ceramics in Multilayered Ceramic Capacitors
U6	Zapfen	Rapid Detection of Viruses via Metal Organic Frameworks (MOFs)
U7	Schnebly	Electron Backscatter Diffraction Analysis of Additively Manufactured Steel Grains
U8	Escarcega Herrera	Impact of Relative Humidity and Salt Loading Densities on the Localized Corrosion Behavior of Additively Manufactured and Wrought Stainless Steels
U9	Tsala Ebode	Assessing Cellular Internalization Pathways for Lipid Coated Silica Nanoparticle Mediated Nucleic Acid Delivery Platforms
U10	Olewine	Mesoporous Organosilica Nanoparticles as a promising carrier to enhance efficacy/safety ratio for advanced ovarian cancer
U11	Heinrich	Development of long wavelength quantum dots for single photon applications.
U12	Maguire	Applications of Coatings for the Mitigation and Repair of Stress Corrosion Cracking on Spent Nuclear Fuel Canisters
U13	Jansen	Improving Anti-Icing Coatings Through the Exploration of Ionomer Film Blends
U14	Snow	Inhibiting Effect of Nitrate on Chloride Induced Corrosion of Stainless Steel 304

Graduate Poster

ID	Last Name	Title
G1	Baker	Characterization of Polyacrylamide Hydrogel Formulations as an Optimal Biomimetic Material for Traumatic Brain Injuries
G2	Galindo	High frame rate acoustic and optical imaging of a polyacrylamide human head model under blunt impact for cavitation detection
G3	Kaufman	Fiber Optic Tethered Micro-Tools Built from Stiff/Soft Composites
G4	Caravello	Formation and Interrogation of a Modeling Excel Database for Sorbent Preconcentration
G5	Whiteside	Fatigue Life of Welded 304L Stainless Steel
G6	Herman	Fundamental Studies and Functional Applications of Mechanotropic Phase Transitions
G7	Hayes	Synthetic Biology Enabled Modification of Bone Cells and the Impact on Bone Mineral Formation.
G8	Saha	Development and characterization of recyclable epoxy/refractory plasmonic nanoparticles for additive manufacturing

Poster Session (Main Lobby)

G9	Finale	Optimizing Composition and Solar Light Conditions for the Reversible Diels-Alder Reaction in Titanium Nitride Nanoparticle-Laden Epoxy
G10	Khan	Enhancing immunogenicity by displaying a Universal T cell Epitope On the Surface of A Virus Like Particle
G11	Maestas-Olguin	Rational Design of Silica-Based Nanoparticles for Overcoming Barriers of siRNA Delivery in Prostate Cancer Applications
G12	Manz	Optimizing the Combination of Natural Pigments for Co-sensitization of Panchromatic TiO ₂ Dye Sensitized Solar Cells
G13	Domrzalski	Synthesis and Functionalization of Barium Titanate Nanoparticles and Their Incorporation into Epoxy Composites
G14	Li	Analysis of the effect of indentation spacing, specimen thickness and edge distance on the results of indentation tests
G15	Hubert	Nanoscale magnetic imaging with nitrogen vacancy centers in diamond

Professional Poster

ID	Last Name	Title
P1	Schuster	Femtosecond Laser-based Machining of Small Scale Tensile Specimens
P2	Huntley	Redesigning Micro-Electromechanical Systems for Additive Manufacturing
P3	Van Bastian	Integrating Blue Laser Manufacturing into LENS for Greater Material Flexibility
P4	Carmichael	Bonding of Bismuth Telluride Thermoelectrics with Lead-Borosilicate Glass
P5	Anderson	Integrating atomic layer doping (ALDo) with CMOS circuitry for reduced contact resistance
P6	Hoyt	Exploring iron nitride-based soft magnetic composites for electric vehicle technologies
P7	Williams	Dry Electropolishing - A New Way to Prepare Metal Surfaces for Characterization
P8	McGarry	Impedance Characteristics of Mo-SiNX and Mo-YSZ Granular Metals
P9	Kopatz	Thermomechanical Properties of Polyurea Nanocomposites Over Extreme Strain Rates