

8:00	Registration and Exhibition (Franciscan)		
Session 1			
Room	Potters	Turquoise	Weavers
Session	Catalysis & Surfaces	2D Materials	Soft Additive Materials
Chair	Achraf Noureddine	Erik Spoerke	Ethan Secor
9:00	Facile Microwave Synthesis and Surface Modification of Rare Earth Oxide Nanospheres for Dispersion in Polymer Matrices , <i>Davis-Wheeler Chin</i>	2D-Dirt: A Low-Tech Material with High-Tech Potential , <i>Spoerke</i>	Tunable Polymeric Material Systems for the Advancement of Material Extrusion 3D Printing , <i>Roberson</i>
9:15	Deformation of interface dominated multiphase materials , <i>Choudhuri</i>		
9:30	Ligand-Free Ultra-small Metal Nanocluster Catalysts Confined in Mesoporous Silica Nanoparticles , <i>Noureddine</i>	High Energy Ion and Gamma Detection using the Graphene-Insulator-Semiconductor Junction , <i>Ruiz</i>	Relating Molecular Architecture to the Extensional Rheology of Flowing Polymers , <i>O'Connor</i>
9:45		Multi-dimensional van der Waals heterostructures , <i>Yoo</i>	
10:00	Acid Gas Stability and Selectivity of Rare Earth MOFs , <i>Henkelis</i>		Aerosol jet printing of functionally graded materials , <i>Secor</i>
10:15	Atom Trapping: Key to the Design of Thermally Stable and Regenerable Single Atom Catalysts , <i>Daty</i>	Metal guided selective growth of 2D Metal Dichalcogenides , <i>Tung</i>	
10:30			Hierarchical Approaches to Scalable Nanomanufacturing of Thin Film Electronics , <i>Scheidele</i>
10:45	Break		
11:00	Kreidl Lecture, Professor Marc Hersam (Franciscan)		
12:00	Lunch (Franciscan)		
Session 2			
Room	Potters	Turquoise	Weavers
Session	Student Oral Competition	Metals	Energy Storage
Chair	Michael Gallegos	Sakineh Chabi	Matthew Lim
1:00	Permselective Separators for Grid Storage Alkaline Zn/MnO₂ Batteries , <i>Arnot</i>	A More Generalized Method for the Interaction of Dislocations with Free Surfaces , <i>Khraishi</i>	Functionalized Poly(phenylene) for Advanced Electrochemical Process Applications , <i>Baca</i>
1:15	Investigating Anomalous Growth of Pt Particles during Accelerated Aging of Diesel Oxidation Catalysts , <i>Kunwar</i>	Influence of local lattice-level covalent character on diffusion and phase formation in a highly creep-resistant Mg-Nd-Zn alloy , <i>Choudhuri</i>	Really Cool Molten Sodium Batteries: Material Innovations to Enable Low Temperature Operation , <i>Spoerke</i>
1:30	Tuning Support Synthesis to Provide a Magnesium Aluminate Spinel Platform to Trap Thermally Stable Single Atoms of Platinum , <i>Canning</i>	The Effect of Various Geometrical Flaws on Additive Manufactured Component Performance , <i>Laursen</i>	

1:45	Artificial Foliage with Remarkable Quantum Efficiency in Converting Photons to Formate , <i>Pan</i>	Understanding Structure-Mechanical Properties Relations in Kevlar® Single Fiber , <i>Chabi</i>	Detection of residual macrostrain in Li metal thin films via Tilt-A-Whirl methodology and a Be-dome specimen holder , <i>Rodriguez</i>
2:00	Reduction of Metal Acetylacetonates Utilizing Lithium Metal Hydrides , <i>Reuel</i>	Influence of microstructure, stress, and temperature on the behavior of springs over time , <i>Deibler</i>	
2:15	Nanoparticle Immunotherapy: A Novel Vaccine Platform , <i>Tang</i>	Abnormal crystallization in glass-ceramic to metal seals , <i>White</i>	Effect of ZnO-Saturated Electrolyte on Rechargeable Alkaline Zinc Batteries at High Depth-of-Discharge , <i>Lim</i>
2:30	Infrared absorption cross-section in SiNx thin films , <i>DiGregorio</i>	Break	
Session 3			
Room	Potters	Turquoise	Weavers
Session	Semiconductor Devices	Solution Chemistry	Ceramic & Structural Materials
Chair	Luke Yates	James Elliott Fowler	Michael Melia
2:45	Break	Surface chemistry of the frog sticky-tongue mechanism , <i>Fowler</i>	Polymer Intercalation Synthesis of GlycoBoehmite Nanosheets , <i>Bell</i>
3:00	Design of an in-situ single quantum emitter detection platform for the nanolimplanter , <i>Titze</i>	Electronic and Structural Response of Rare-Earth Metal-Organic Frameworks with Acid Gases , <i>Vogel</i>	Evolution of He nanobubbles and nanocavities in Palladium , <i>Clark</i>
3:15	Electro-thermal Simulation and Performance Comparison of 1.2 kV, 10 A Vertical GaN MOSFETs , <i>Yates</i>	Anti-CRISPR Based Platform for Rapid Detection and Quantification of Cas9-RNP , <i>Johnston</i>	Reliability of Components that Contain Brittle Materials , <i>Strong</i>
3:30	Investigation of displacement damage induced leakage and annealing effects of SiC Schottky diodes , <i>Manuel</i>	Controlling Shear Thickening in SiC Suspensions using Surface Chemical Modification , <i>Bell</i>	
3:45	Poster Session (Fire Place Room), Exhibition open in Franciscan, coffee/snacks		
5:00	Awards Presentation and Closing, Franciscan Ballroom		

Poster Session (Fireplace Room)

Undergraduate Student Posters

U1	Leo	Epitaxial PZT Thin Films on Low Dielectric Constant, Single Crystal Substrates
U2	Livesay	Materials Visually Responsive to Physical Stimuli
U3	Kaufman	Realizing rugged and conformable printed devices via In-Mold-Electronics
U4	Garcia	Gripping mechanisms for micro-scale optical fiber holders
U5	Martin	Study of antimony alkoxy carboxylates as dopants for zinc oxide varistors.
U6	Padilla	Synthesis of Indium Tin Oxide Films and Nanoparticles
U7	Nguyen	The Synthesis of Barium and Strontium Oxides for Thin Films Production
U8	McDow	Evaluating Surface Tension Self-Alignment of Flip Chip Bonded Die
U9	Carpenter	Cathodic Reduction Kinetics on Stainless Steel Surfaces in Concentrated Magnesium Chloride Brines
U10	Tafoya	Digital Fabrication of Compositionally-Graded Nanocomposites by Multimaterial Aerosol Jet Printing
U11	Sorenson	Effects of Gap Filling, Surface Roughness, and Metal Work Function on LAC Breakdown Voltage
U12	Andrews	Characteristics of Varistor Particle Lightning Arrestor Connector Breakdown
U13	Metzner	Ultra-thin mesoporous silica-based membrane for high temperature hydrogen separation
U14	Vallejos	Microwave Synthesis of Oxidation-resistant Copper Nanoparticles for Additive Manufacturing Applications
U15	Bowman	Self-Assembly of Porphyrin Nanostructures
U16	Powers	Designer Depolymerizable Polymers Based on Ring-Closing Alkene Metathesis
U17	Duran	Influence of build orientation and surface finish on the corrosion of additively manufactured 316L
U18	Siska	Metallization of Polymers via Cold Spray
U19	Allers	Probing Heterogeneous Polymer Chain Dynamics Near the Glass Transition: A Solid State ¹ H NMR Investigation
U20	Huntley	Microstructure – Mechanical Strength Relationship of Aluminum Nitride
U21	Valdez	Relating Build Parameters, Density, and Structural Properties in Additively Manufactured 316L Stainless Steel
U22	Romero	Synthesis and characterization of tantalum precursors for the production of tantalum nanoparticles for radioactive shielding applications
U23	Guerrero	Synthesis of fcc-Metal Precursors and Nanoparticles for Radiation Hard Electronics
U24	Martin	Study of antimony alkoxy carboxylates as dopants for zinc oxide varistors.
U25	Padilla	Synthesis of Indium Tin Oxide Films and Nanoparticles
U26	Robinson	Lanthanide precursors and materials as surrogates for actinide-containing wastes.
U27	Russo	Bio-Inspired Selective Ion Transport Membranes

Poster Session (Fireplace Room)

Graduate Student Posters

G1	Nayak	Development of ceramics for electrochemical oxidative coupling of methane
G2	Siddique	Simulations of dislocation interaction with free surfaces
G3	Maestas-Olguin	The Endocytotic Fate of a Mesoporous Silica Nanoparticle Supported Lipid Bilayer CRISPR Delivery Vehicle
G4	Kopatz	In-Situ Pressure Monitoring Of Dual-Cure Thermoset Resins For Direct-Ink Writing

Professional Posters

P1	Peretti	Ceramic Sodium Ion-Conducting Separator Processing
P2	Gallegos	Direct write waveguides using multiphoton lithography
P3	Casias	Coloumbic Friction in Metamaterials to Dissipate Mechanical Energy
P4	Hickman	Laser weld hot cracking behavior of austenitic stainless steel with boron microalloying additions
P5	Park	Electrochemical Nitrogen Reduction on MXene (Ti ₃ C ₂ T _x) Nanosheets
P6	Imam	Extrusion of unilamellar lipid nanotubes by kinesin-powered microtubule filaments
P7	Williams	Solder Cup Wire Insertion Study
P8	Carmichael	Strength Testing of Ferrite E-Cores: Manufacturer Comparison
P9	Diebold	Wetting behavior of glass-ceramic on stainless steel under different atmospheric and surface conditions
P10	Melad	Characterization of commercial ceramic cements as a binder for thermopile fabrication