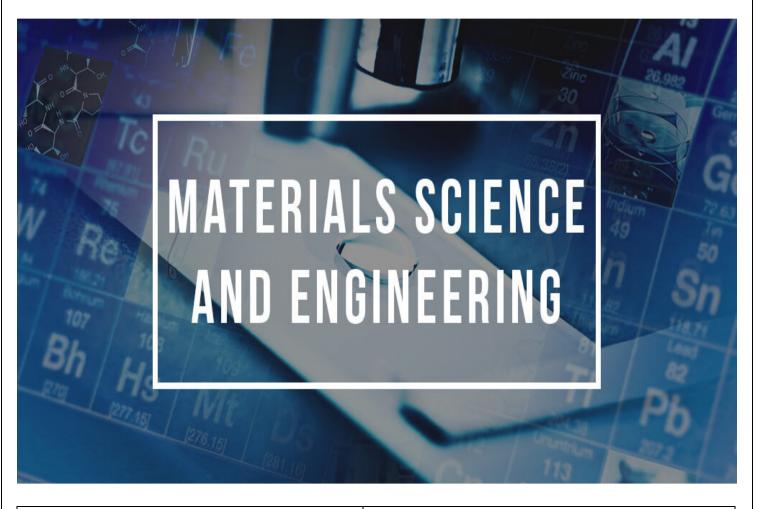
# **Pre-print Program**

## **5<sup>th</sup> International Conference on**



#### Dates

June 10-12, 2024 | San Francisco, CA June 13, 2024 | Virtual (Pacific Time)

#### Venue

DoubleTree by Hilton San Francisco Airport, 835 Airport Blvd, Burlingame, CA 94010, United States

Program Last Updated on: May 16, 2024

Last minute changes due to functional, private, or organizational needs can be necessary. The event organizer accepts no liability for any additional costs caused by a change of program. **Program is subject to change** 

### Day 1 | June 10, 2024 (In-Person)

08:00-08:30 Registrations & Badge Pickup 08:30-09:00 Opening Ceremony

### Plenary Presentations | 40 Minutes

Moderator: Manijeh Razeghi, Northwestern University, Evanston, IL

09:00-09:40		Semiconductor Quantum Science and Technology for Optoelectronics Devices from Deep UV to THZf Manijeh Razeghi, Northwestern University, Evanston, IL
09:40-10:20		To Be Announced Miquel Salmeron, Lawrence Berkeley National Laboratory & University of California, Berkeley, CA
10:20-10:40	Coffee Break	2
10:40-11:20 (Virtual)	G	3D/4D Printing of Nanostructured Polymer Materials and AI/ML Strategies Rigoberto C. Advincula, University of Tennessee, Knoxville, TN
11:20-12:00		Superior High-temperature Strength in a Refractory High- entropy Alloy Peter K. Liaw, University of Tennessee, Knoxville, TN
12:00-12:40		Multi-scaled Biomaterials to Regulate Stem Cells and Tissue Regeneration Peter X. Ma, University of Michigan, Ann Arbor, MI
12:40-12:50	Group Photo	
12:50-13:50	Lunch Break	
Oral Presentations   20 Minutes		
Advanced Materials & Applications Nano Materials   Composite Materials   Structural Materials   Magentic Materials		
Chair: Tej B. Limbu, University of Houston-Clear Lake - Houston, TX		
13:50-14:10	13:50-14:10 Metal Oxide Nanostructures for Heavy Metal Mitigation Wai Kian Tan, Toyohashi University of Technology, Japan	

1410 14 20	Confere Tabana d Danan Castoning Markanian and Canaing Applications of
14:10-14:30	Surface-Enhanced Raman Scattering Mechanism and Sensing Applications of
	2D MXenes
	Tej B. Limbu, University of Houston-Clear Lake - Houston, TX
14:30-14:50	Effect of high strain rate and temperature on the behaviour of 3D printed
	bio-based Nylon PA11
	Paul Wood, The University of Derby, UK
14:50-15:10	Metal Oxide-Based Photocatalysts and Photoelectrodes
	Go KAWAMURA, Toyohashi University of Technology, Japan
15:10:15:30	Precise Tumor pH-Functionalized Nanoparticles for Tailored Chemotherapy
	and miRNA Delivery in Cancer Treatment
	Yu-Li Lo, National Yang Ming Chiao Tung University, Taiwan
15:30-15:50	Functional Liposomes and Microfluidic Mixers
	Ion Stiharu, Concordia University, Canada
15:50-16:10	Impact Resistance of Thermoplastic Composites
	Beckry Abdel-Magid, Winona State University, Winona, MN
16:10-16:30	Break
16:30-16:50	Biologically Inspired Mechanical Reinforcement of Plastic Bonded Explosives
	Matthew J. Herman, Los Alamos National Laboratory, Los Alamos, NM
16:50-17:10	Interplay between crystal structure, magnetic order, and topological states in
	Co3Sn2S2
	Qiang ZHANG, Oak Ridge National Laboratory, Oak Ridge, TN
17:10-17:30	Abnormal Dynamic Strain Aging and Negative Strain Rate Sensitivity in
	Coarse-grained AlO.3CoCrFeNi High Entropy Alloy Under Hot Compression
	Kwangtae Son, Oregon state University, Corvallis, OR
17:30-17:50	Machine Learning Enabled Multiscale Modeling of Mechanical Deformation of
	Metal-Matrix-Nanocomposites
	Wenwu Xu, San Diego State University, San Diego, CA
17:50-18:10	Atomic Layer Deposition: Pursuit for the Nano Precision
	Tien-Chien Jen, University of Johannesburg, South Africa
18:10-18:30	Developing polymer matrix composite with enhanced mechanical properties
10.10 10.50	and self-healing
	Subodh Kumar, Indian Institute of Science, India
18:30-19:00	Poster Presentations & Drinks
P-01	Lanthanum Doped Magnesium Stannate Nano-Crystallites Based Photo-
	Anode for Dye-Sensitized Solar Cell
	Ramesh Kumar, National Institute Of Technology Kurukshetra, India
P-02	Effect of Carbonized Hulls and Calcifying microorganism on particulate
	matter removal
	Seokhyun Chin, Choate Rosemary Hall, Wallingford, CT
P-03	Evaluating Biocompatibility and Anti-Angiogenesis Efficiency of Anti-Integrin
	PEG-b-PPS Micelles in Danio rerio Diabetic Retinopathy model
	Aishwarya Gangadhar, University of Illinois at Chicago, Rockford, IL
P-04	Gold Anchored-Tryptamine Nanoliposomes (Trpn-Au-Lipo): An anti-
	inflammatory and anti-amyloidogenic nanomaterial for the treatment of

	Alzheimer's Disease
	Sakshi Jain, University of Illinois at Chicago, Rockford, IL
P-05	Mechanical tensile and Fatigue Behavior of Carbyne and Carbyne-C18
	Nanostructures: A Molecular Dynamics Study in Vacuum and Water
	Environments
	Milad Sangsefidi, University of Arkansas, Fayetteville, AR
P-06	Nanoscale Porosity Characterization of Tough and Conductive Double-
	Network Hydrogels for Multifunctional Sensors and Devices
	Megan Moglia, Santa Clara University, Santa Clara, CA
	Ryan Lang, Santa Clara University, Santa Clara, CA
	Julia Appleget, Santa Clara University, Santa Clara, CA

### Day 2 | June 11, 2024 (Parallel Session 1)

### Oral Presentations | 20 Minutes

### **Advanced Materials & Industrial Applications**

### Bio Materials | Sustainable Materials | Energy Materials | Carbon Materials | Ceramics & Glass | Polymers & Bipolymers

#### Chair: To Be Announced

08:40-09:00	Ir(III)/Ru(II)/Os(II) Bis-terpyridine Complex Based Photosensitizers for Photodynamic Therapy of Melanoma and Breast Cancer Cells Wenfang Sun, The University of Alabama, Tuscaloosa, AL
09:00-09:20	Effects of Heterogeneous Nucleation Site Particles on Microstructure and Mechanical Properties of Additively Manufactured Metal and Alloys Yoshimi Watanabe, Nagoya Institute of Technology, Japan
09:20-09:40	Surface Treatment of Medical Devices: Enhancing Biocompatibility and Bioactivity Craig Rosenblum, Himed, Old Bethpage, NY
09:40-10:00	Development of Injectable and Thermoresponsive Hyaluronic acid-HDI/PF127 Hybrid Multi-Functional Hydrogel for Improved Diabetic Wound Healing Yu-Hsiang Lee, National Central University, Taiwan
10:00-10:20	Functionalized Iron Sulfur and Gold-iron Oxide Nanocomposites in Cancer adiation Therapy Stefanie Klein, University of Erlangen-Nuremberg, Germany
10:20-10:40	Break
10:40-11:00	Phytoremediation using nanoscale Zerovalent iron (nZVI) and mangroves for decontamination process Keyla Soto Hidalgo, University of Puerto Rico, San Juan, PR
11:00-11:20	Feasible Technology of Rotataed Graphene Drastically Improves the Capacity of Li-Ion Batteries

	Tereza Paronyan, Hexalayer, LLC, Louisville KY
11:20-11:40	Laser ablation-induced microelectrodes in perovskite and perovskite/silicon tandem solar cells KAVYA KEREMANE, Penn State University, State College, PA
11:40-12:00	Energy-Efficient Electrified Reactive Capture via Engineering of Pore Radius and Penetration Depth in the Catalyst Support Ke Xie, Northwestern University, Evanston, IL
12:00-12:20	Atomistic modeling of Li-rich Mn-rich layered oxide cathode materials Hakim Iddir, Argonne National Laboratory, Lemont, IL
12:20-12:40	Intelligent Millimeter-Wave System for Human Activity Monitoring for Telemedicine Abdullah K. Alhazmi, University of Dayton, Dayton, OH
12:40-13:40	Lunch Break
Chair: To Be	
13:40-14:00	Platinum and carbon free multi-elemental nanostructures as novel catalyst- support conjugate materials in Fuel Cell catalysis Jayati Datta, Heritage Institute of Technology, India
14:00-14:20	Electrochemical performance of Mo-doped LiNiO2 cathodes for LithiumIon Batteries Misbah Mumtaz, University of Sheff, UK
14:20-14:40	Design of Conductive PLA Composite <i>via</i> Secondary Polymer-induced Particle Aggregation Jyh-Chiang Jiang, National Taiwan University of Science and Technology, Taiwan
14:40-15:00	Three important temperatures in silica glass transition Shangcong Cheng, Lawrence Berkeley National Laboratory, San Jose, CA
15:00-15:20	Alternatives to Traditional Plastic: PHB-Based Biodegradable Polymer Composites for Single-Use Plastics Kwansoo Lee, Los Alamos National Laboratory, Los Alamos, NM
15:20-15:40	Numerical Model and Computer Code for Online Prediction of Residual Stresses in Hot Rolled Profiles Considering Phase Transformations in Steel Andrij Milenin, ACK CYFRONRT AGH, Poland
15:40-16:00	Glass composition for coating and bonding of polycrystalline spinel ceramic substrates. Jacob Hormadaly, Ben Gurion University, Israel
16:00-16:20	Break
16:20-16:40	Glass/Aluminum Alloy Weld by Laser Transmission Welding
	Jeng-Rong Ho, National Central University, Taiwan
16:40-17:00	Development of High Strength and High Stress Corrosion Cracking Resistant AI-Zn-Mg(Cu) Alloy
17.00 17.00	Vngaranahali Srinivasan Raja, Indian Institute of Technology Bombay, India
17:00-17:20	Magnesium lime materials with polymerized polyester for the application of air

Da	y 2   June 11, 2024 (Parallel Session 2)	
Electron	Advanced Materials & Research ic Materials   Smart Materials   Hybrid Materials   Compution & Theory	
Chair: <mark>Mark A</mark>	twater, Liberty University, Lynchburg, VA	
09:00-09:20	Taguchi Grey Relational Multi-Objective Optimization of Dual Stage Hollow 3D- Printed Microneedles and Suitable Skin Phantom Selection For Microencapsulated Cell Extrusion Maryam Mobed-Miremadi, Santa Clara University, Santa Clara, CA	
09:20-09:40	Smart Polymeric Syntactic Foams Guoqiang Li, Louisiana State University, Baton Rouge, LA	
09:40-10:00	Water and energy sustainability via thermoresponsive hygroscopic acrylamide gel: Synthesis and water release kinetics Nasrollah Hamidi, South Carolina State University, Orangeburg, SC	
10:00-10:20	Broad band dielectric spectroscopy - challenges and results Juras Banys, Vilnius University, Lithuania	
10:20-10:40	Break	
10:40-11:00	Functional Materials and their synthesis using of in-liquid plasma method Chiaki Terashima, Tokyo University of Science, Japan	
11:00-11:20	Evaluation of Fatigue and Wear characteristics of Pure Titanium Surfaces by Energy-Intensive Multifunction Cavitation Treatment Masataka Ijiri, Tokyo Metropolitan University, Japan	
11:20-11:40	Environmentally Friendly Processing of Bulk Nanoporous Materials Mark Atwater, Liberty University, Lynchburg, VA	
11:40-12:00	Experimental feasibility study for radiofrequency heated set-up for CO2 capture with calcium looping Javier Fernandez Garca, IQS-School of Engineering, Spain	
12:00-12:20	Superconductor Exclusion Principle for Identifying a Room Temperature Ambient Pressure Superconductor Yong-Jihn Kim, University of Puerto Rico, MAYAGUEZ, PR	
12:20-12:40	Experimental and Modeling Challenges in the Computer-Aided Engineering of Polymers Michael Johlitz, University of Munich, Germany	
12:40-13:40	Lunch Break	

Chair: To Be Announced		
13:40-14:00	Harnessing the Potential of Y2W3O12 to Advance Thermal Expansion Engineering Hagay Hayun, Ben gurion university, Israel	
14:00-14:20	Investigation of phase transitions in a metastable Ti alloy Milos Janecek, Charles University, Czech Republic	
14:20-14:40	Characterization of TaOx-based Memristor Devices Integrated with an NMOS Transistor in a 1T1R Configuration Sangwook Sihn, University of Dayton Research Institute, Dayton, OH	
14:40-15:00	Aqueous corrosion fatigue of HVOF-WC/Co coatings deposited on top of laser peened or shot peened 300M steel Juan Carlos Nava, Curtiss-Wright Surface Technologies	
15:00-15:20	A 3D printed scaffold sensor using novel functionalized 2D MXene for advanced stage cancer monitoring Danling Wang, North Dakota State University, Fargo, ND	
15:20-15:40	Density functional theory calculations on Erbium and Praseodymium-doped Lithium Tantalate Compounds Nikolaos Dimakis, University of Texas Rio Grande Valley, Edinburg, TX	
15:40-16:00	High-performance electrodes by 3D printing for hydrogen generation Jun Ding, National University of Singapore, Singapore	
16:00-16:20	Break	
16:20-16:40	Diamond: The VersaOle Ultra-wide Bandgap Material for Quantum, Power Electronics and High-Frequency ApplicaOons Mamidanna Sri Ramachandra Rao, Indian Institute of Technology, India	
16:40-17:00	Machine learning-based design method for acoustic metamaterials Wenjing Ye, Hong Kong University of Science and Technology, Hong Kong	
17:00-17:20	Epidemics on large networks Oanh Nguyen, Brown University, Providence, RI	
17:20-17:40	Semiconductor moiré structures and their novel electronic transport properties Ning Wang, Hong Kong University of Science and Technology, Hong Kong	

### Day 3 | June 12, 2024 (In-Person)

Oral Presentations | 20 Minutes

Research

Material Chemistry | Material Physics | Surface Science | Material Recycling

Chair: RENGARAJ SELVARAJ, Sultan Qaboos University, Oman

08:20-08:40	Beyond Lotus Leaves: Deformable Super-repellent Surfaces with High Mechanical Resilience
	Tingyi "Leo" Liu, University of Massachusetts Amherst, Amherst, MA
08:40-09:00	Evolution of wear in binary titanium aluminum nitride coatings applied to
	cemented tungsten carbide pins dry sliding on hardened steel discs
	Abhijit Bhattacharyya, Mahindra University, India
09:00-09:20	Recycling of galvanic sludge for the production of materials for the ceramic
	industry
	Brian Felipe Mendez Bazurto, National University of Colombia, Colombia
09:20-09:40	Development of wire manufacturing technology for titanium and nickel
	shavings
	Michal Duchek, COMTES FHT a.s., Czech Republic
09:40-10:00	Additively Manufactured Steel with TWIP Effect and Enhanced Corrosion
	Resistance
	Pavel Podany, COMTES FHT a.s., Czech Republic
10:00-10:20	Synthesis of Low-Order Iron Oxide Nanoclusters: High-Performance Magnetic
	Bioimaging with Small Molecule Clearance Kinetics
	Christopher J. Butch, Nanjing University, China
10:20-10:40	Break
10:40-11:00	Plastic deformation: From macro to micro scales
	Michal Knapek, Charles University, Czech Republic
11:20-11:40	Intriguing High-Temperature High-Magnetic-Field Phase Boundary due to
	Valence Transition in CeOs4Sb12
	Pei Chun Ho, California State University, Fresno, CA
11:40-12:00	2D Nanostructured Materials and Solar Energy: A Great Combination for the
	Removal of VOCs and Toxic Organics present in Aqueous Solution
	<b>RENGARAJ SELVARAJ, Sultan Qaboos University, Oman</b>
12:00-12:20	Synergetic effect of alloying elements content and heat-treatment on
	mechanical properties and high temperature oxidation behavior of
	NiCoCrAIFe-based high entropy alloys
	Wojciech Jerzy Nowak, Rzeszow University of Technology, Poland
12:20-12:40	AITiSi (+Cr)N nano-structured coatings synthesized by HIPIMS for harsh
	environment applications thanks to high-thermal mechanical and oxidation
	coating properties
	Patrick Choquet, Luxembourg Institute of Science and Technology,
	Luxembourg
12:40-13:00	Louts-bud ZnO/g-C3N4 nanosheets composites for photo catalytic degradation
	of volatile organic compound presented in water
	Said Almamari, Sultan Qaboos University, Oman
13:00-	Lunch & Departures

### Day 4 | June 13, 2024 (Virtual Pacific Time) Virtual Presentations

virtual Fresentation

05:50-06:00 Opening Remarks & Introduction

### Keynote Presentations | 30 Minutes

### Moderator: To Be Announced

06:00-06:30		Title To Be Announced Prashant N. Kumta, University of Pittsburgh, Pittsburgh, PA
06:30-07:00		Heterogeneous Materials: Microstructure-property Connections and Cross-property Relations Mark Kachanov, Tufts University, Medford, MA
07:00-07:30		Solar Harvesting Through Multiple Transparent Cadmium Telluride Solar Panels for Collective Energy Generation Donglu Shi, University of Cincinnati, Cincinnati, OH
07:30-08:00		Lessons from Nature: Bioinspired Mechanically Durable and Self-healing Superliquiphilic/phobic Surfaces Bharat Bushan, The Ohio State University, Columbus, OH
08:00-08:10	Break	
Oral Presentations 1.20 Minutes		

### Oral Presentations | 20 Minutes

### Industry & Research

Carbon Materials | Ceramics & Glass | Polymers & Bipolymers | Material Chemistry | Computation & Theory | Material Physics | Surface Science | Material Recycling

### Chair: To Be Announced

08:10-08:30	A Proposed Mechanism for Bubble Formation in Quartz Glass
	Rafik Ayvazyan, Hayward Quartz Technology Inc., Fremont, CA
08:30-08:50	3D Printing of Glass Optics: Shaping the Future of Precision Optical Systems
	Rongguang Liang, University of Arizona, Tucson, AZ
08:50-09:10	High performance composite for hydrogen storage
	Lyazid BOUHALA, Luxembourg Institute of Science and Technology,
	Luxembourg

09:10-09:30	Layered and highly porous biopolymer structures enriched with active
	compounds for potential use in regenerative medicine
	Ewelina Pabjanczyk Wlazlo, Lodz University of Technology, Poland
09:30-09:50	Dendritic Antioxidants
	Choon Y. Lee, Central Michigan University, Mount Pleasant, MI
09:50-10:10	Application of Polymeric Nanomaterials and their Nanocomposite in the
	Construction of Ion-selective Electrodes with Solid Contact
	David Lingerfelt, Oak Ridge National Laboratory, Oak Ridge, TN
10:10-10:30	The ExB Thermoelectric Effect Optimized for Solid State
	George Samuel Levy, Entropic Power, Irvine, CA
10:30-10:35	Study of the Structural, Optical, and Electrical Properties of Polyethylene
Poster	Oxide/ Polyvinylidene Fluoride (PEO/PVDF) Blend Dispersed with Silver
	Oxide (Ag2O) Nanoparticles as an Advanced Multifunctional Matrix for
	Flexible Electronic Devices
	Lamiaa Alharbe, Umm Al-Qura University, Saudi Arabia
10:35-10:40	Break

Advanced Materials & Applications Nano Materials | Composite Materials | Bio Materials | Energy Materials | Magentic Materials | Smart Materials | Hybrid Materials

#### Chair: Robert Guidoin, University of Laval, Canada

10:40-11:00	Hydrogen-induced cracking - differentiation between damage mechanisms in high-strength spring steel wires using acoustic emission Mathias Lorenz, Hochschule Wismar, Germany
11:00-11:20	A novel nanocarrier for targeted therapy of anxiety and depression diseases Neeraja Revi, University of Illinois at Chicago, Rockford, IL
11:20-11:40	Antibacterial activity of metal oxides nanoparticles and thin films Rabah AZOUANI, School of Industrial Biology, France
11:40-12:00	Eco-aware pressure-induced approach (CO2) to selectivity drive gold- nanoparticle into hierarchical scaffold BOYER SEVERINE A.E., MINES Paris PSL – CNRS, France
12:00-12:20	Approach for Non-Destructive Disassembly of Bonded CFRP Structures Janko Kreikemeier, German Aerospace Center, Germany
12:20-12:40	Mimicking Tumors as a S.M.A.R.T.E.R. Way to Treat Transplant Rejection and Inflammatory Diseases Steven R. Little, University of Pittsburgh, Pittsburgh, PA
12:40-13:00	Xenopericardia are the most select sourcing to manufacture percutaneous heart valves Robert Guidoin, University of Laval, Canada
13:00-13:05 Poster	Synergistic Effects of Ca and Co Co-Doping on Barium Hexaferrite: A Computational Study in Magnetic Materials Abdalla Obeidat, Jordan University of Science and Technology, Jordan

13:05-13:10	Synthesis and characterization of nanoparticles of NiMo prepared by
Poster	Microwave method in supports of ZnO evauated in Hydroteating of light gas
	oil
	Nancy Edith Castillo Hernanez, ESIQIE, Mexico
13:10-13:20	Break
Chair: To Be Announced	
13:20-13:40	Color Control of Electrochromes by Structural Modification
	Will Skene, Université de Montréal, Canada
13:40-14:00	Dynamic Interfacial Mechanisms of Cathode Lithium Cobalt Oxide under
	Varying Potential Conditions by Electrolyte Additive and Artificial Layer
	Meihua Hong, Sungkyunkwan University, South Korea
14:00-14:20	Optical and structural characterization of p-type and n-type GaAs thin films
	via magnetron sputtering technique
	Sofia Hoyos-Restrepo, Universidad Nacional de Colombia, Colombia
14:20-14:40	Thermal and microstructural assessment of dissimilar joints between
	twinninginduced plasticity steel and austenitic/duplex stainless teels:
	numerical and experimental analysis
	Victor Garcia Garcia, Tecnologico Nacional de México/Instituto
	Tecnológico de Morelia, Mexico
14:40-15:00	Enhancing the Performance of Flexible and Wearable Zinc-Ion Batteries
	through 3D-Printable Polymer Electrolytes
	Chuanchom Aumnate, Chulalongkorn University, Thailand
Titles to Be Announced	
Benjamin Savitzky, h-Bar Instruments, Pawtucket, RI	
Pradeep Rohatgi, University of Wisconsin Milwauke, Milwaukee, WI	
Alex Chortos, Purdue University, West Lafayette, IN	
Lei Xu, The Chinese University of Hong Kong, Hong Kong	

### Presentation Slots Available!!!