





NSF-DMR-Materials Innovation Platform Forum

User Experiences—New Capabilities—Easy Access

Join us for a half-day event featuring two NSF-supported Materials Innovation Platforms during the *in-person* 2022 MRS Fall Meeting in Boston.

Please let us know if you are considering attending the conference (Nov. 27 - Dec. 2) and this special event at [I plan on attending the forum](#).





Forum date:
(Wednesday, November 30, 2022)

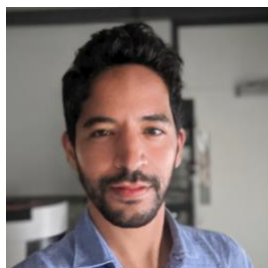
Say YES! Here.

Speaker Bios



Kaveh Ahadi (North Carolina State University)
 Assistant Professor
 Email: kahadi@ncsu.edu
 Website: <https://www.mse.ncsu.edu/ahadi/>

Prof. Ahadi's group focuses on thin films and heterostructures of quantum materials. He is using molecular beam epitaxy (MBE) to create and manipulate quantum materials. More specifically, the group is interested in the novel phases of matter at the intersection of non-trivial topology and emergent phenomena like superconductivity, magnetism and ferroelectricity. His group focuses on a wide range of transport phenomena and novel electronic device applications of high-quality thin films and heterostructures



Ismail El Baggari (Harvard University)
 Rowland Fellow
 Email: ielbaggari@rowland.harvard.edu
 Website: <https://www.elbaggari.com/>

El Baggari and his lab members use the STEM microscope to examine the unexpected and unpredictable properties of quantum materials as they undergo super cooling and then manipulate the materials. The findings may one day help scientists design new electronic devices for applications in quantum computing, efficient memory, and renewable energy. His lab seeks to understand a broad class of compounds that exhibit superb electronic, magnetic

and structural properties tied to the quantum-mechanical nature of electrons. To arrive at a microscopic understanding, Baggari and his team directly visualize the atomic-scale structure of these materials using cryogenic electron microscopy while simultaneously driving them with external stimuli such as temperature and electric current.



Manpreet Boora, Michigan Technological University
PhD Candidate, Applied Physics
mboora@mtu.edu

Manpreet Boora is a Ph.D. candidate in Prof. Jae Yong Suh's group at Michigan Technological University. She received her BS in Physics in 2015 and her MS in Physics degree from Panjab University, India in 2017. After that, she received an MS in Applied Physics from Michigan Technological University in 2020. Her research interests include 2D materials growth, plasmonics, and nonlinear optics.



Anita Botana (Arizona State University)
Assistant Professor
antia.botana@asu.edu

Antia Botana is an assistant professor in the Department of Physics. Prior to joining ASU, she was a postdoctoral fellow at Argonne National Lab and at the University of California, Davis. Her research employs density functional theory to direct the computational design of materials with novel functionalities. She works on topics ranging from superconductivity to frustrated magnetism, thermoelectricity, and confinement effects in nanostructures.



Sieun Chae (University of Michigan)
Post-doctoral researcher, Cornell University
Email: sc2832@cornell.edu

Sieun's research is to discover and realize new semiconductor materials with enhanced functional properties that can be utilized for energy-efficient high-power devices. Power-electronics seek to enhance energy efficiency by utilizing ultra-wide-band-gap ($E_g > 3.4$ eV, UWBG) semiconductors. The state-of-the-art materials (e.g., AlGaN/AlN, diamond, Ga₂O₃) are suffering from doping asymmetry and/or thermal management, which motivates alternative UWBG semiconductors. Through a high-throughput survey and first-principles calculation, Sieun discovered that materials having small cation radius, densely-packed crystal structure, and s-orbital conduction/valence bands tend to have wide E_g but small effective mass that enables semiconductivity. Her research demonstrates the first synthesis of single crystalline rutile-GeO₂ thin films using molecular beam epitaxy. Her dissertation research provides opportunities to realize promising UWBG semiconductors to overcome the current challenges in power-electronics.



Linda Caudill (Virginia Tech)
GlycoMIP Platform Managing Director
lcaudill@vt.edu
<https://glycomip.org/>

Linda C. Caudill is the Managing Director of GlycoMIP, a multi-university Materials Innovation Platform with user facility services at Virginia Tech and the University of Georgia. In her role, she manages scientific and administrative staff members and works with the GlycoMIP's leadership team to support user facility clients and GlycoMIP research participants. She is a graduate of the University of Massachusetts in Amherst, and Virginia Tech and has extensive experience managing NSF centers.



Jie Fang, The University of Texas at Austin
PhD Candidate, Materials Science & Engineering
j_fang@utexas.edu

Jie Fang is a 5th-year PhD candidate in Optics and Materials Science at the University of Texas at Austin. He received his bachelor degree in optical engineering at Fudan University. He joined Dr. Yuebing Zheng's group at UT Austin in 2018. His research interests lie in nanophotonics, light-matter interactions, and low-dimensional semiconductors.



Lauren Garten - (Georgia Tech)
Assistant Professor
Email: lauren.garten@mse.gatech.edu
<https://www.mse.gatech.edu/people/lauren-garten>

Lauren Garten is an assistant professor in the School of Material Science and Engineering at the Georgia Institute of Technology. Her group focuses on developing new materials for energy and electronic applications, particularly at the nexus between ferroelectricity, ferromagnetism, and photovoltaics. Lauren received her B.S. in ceramic engineering from the Missouri University of Science and Technology and her Ph.D. in material science from the Pennsylvania State University. She was post-doc at the National Renewable Energy Laboratory and then a staff scientist at the U.S. Naval Research Lab. Lauren has won the Intel Rising Star Award, the Office of Naval Research Young Investigator Award, the Air Force Office of Scientific Research Young Investigator Award, the National Research Council Fellowship, the DOE-BES Postdoctoral Research Award, and the CalTech Young Investigator Lectureship.



Rafael Jaramillo (MIT)
Associate Professor of Materials Science and Engineering
rjaramil@mit.edu
<https://jaramillo.mit.edu/>

Rafael Jaramillo is the Thomas Lord Associate Professor of Materials Science and Engineering at MIT. His research sits in the big, fun space between materials science, solid state physics, and opto-electronic technologies. His current interests can be characterized as defect and phase engineering of chalcogenide semiconductors, with emphasis on developing processing methods to control sulfide and selenide thin films. Prior to joining the faculty at MIT, he worked as a postdoc at Harvard and at MIT on topics in oxide electronic materials and chalcogenide thin-film solar cells. He earned his PhD from The University of Chicago for work on antiferromagnetism and quantum phase transitions in chromium. Dr. Jaramillo is the recipient of numerous awards including the Rosalind Franklin Young Investigator Award from the Advanced Photon Source at Argonne National Laboratory, the Department of Energy SunShot Postdoctoral Fellowship, and the National Science Foundation Faculty Early Career Development Award (CAREER). He lives in Cambridge, MA with his wife and kids.



Betül Pamuk (PARADIM, Cornell University)
PARADIM Staff Scientist Computational Physics
Email: betul.pamuk@cornell.edu

Betül Pamuk has obtained her B.S. degree from Bilkent University; and M.A. and Ph.D. from Stony Brook University. She was a postdoctoral researcher at Pierre et Marie Curie Campus of Sorbonne Université and is currently a research associate staff scientist for PARADIM at Cornell University. She has been working on computational condensed matter physics using first-principles calculations. Her research has been focused on oxides. PbTiO₃ perovskite thin films / water interactions and importance of van der Waals forces on the lattice distortions of metal-organic frameworks (MOFs) and ethane absorption. In addition to her research, Betül

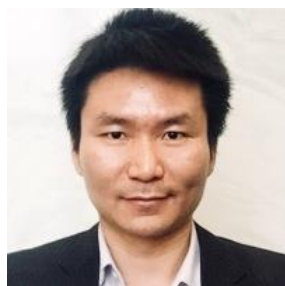
has an interested in communicating science to the public and women in science. Her research is focused on understanding the effect of phonons on the atomic and electronic structure.



Eleni Papananou BioPacific-MIP Platform
User Coordinator
<https://biopacificmip.org/>
hellen@ucsb.edu

Eleni Papananou earned her B.S. degree in Physics from University of Crete in 2005, her MSc in Chemical Engineering from Aristotle University of Thessaloniki in 2008 and her PhD in Chemistry from University of Crete in 2017. For her graduate research she studied polymer structure and dynamics under confinement in polymer nanocomposites. During her postdoc, in the Segalman group at UCSB, she focused on polymer functionalization to improve thin film adhesive properties as well as achieve selective deposition of films for the semiconductor industry.

In her role as the BioPACIFIC MIP User Coordinator, Eleni is responsible for the User Program's leadership, management, and development. Eleni serves as the point of contact for users coming to BioPACIFIC MIP, helping to recruit new users, connecting users to the MIP resources, and reporting and highlighting the products of their research at BioPACIFIC MIP to the NSF.



Jian Shi (Rensselaer Polytechnic Institute)
Associate Professor
Email: shij4@rpi.edu
Website: <https://homepages.rpi.edu/~shij4/>

Jian Shi is an assistant professor of materials science and engineering at Rensselaer Polytechnic Institute where he joined the Rensselaer faculty in 2014 after doing postdoctoral work at Harvard University. Shi recently won a Young Investigator Research Program (YIP) award from the Air Force Office of Scientific Research (AFOSR). Shi's AFOSR YIP project is

titled “Nanoscale Pyroelectric Hybrid Materials Undergoing Structural Phase Transition.” Shi and his research group will use the grant to pursue fundamental research on nanoscale complex materials involving electronic symmetry breaking and hybrid domain physics. In addition to the AFOSR YIP award, Shi has received funding from the National Science Foundation, the Office of Naval Research, and IBM Corporation.



Shuolong Yang (University of Chicago)

Assistant Professor

Email: yangsl@uchicago.edu

<https://yanglab.uchicago.edu/>

Shuolong Yang obtained his BS in physics at Stanford University. He continued to pursue his PhD in applied physics at Stanford University. Before coming to the Pritzker School of Molecular Engineering at the University of Chicago as assistant professor of molecular engineering in 2018, Prof. Yang was a Kavli postdoctoral fellow at Cornell University, working at the interface between condensed matter physics and materials science. Yang has received the Department of Energy’s (DOE) Early Career Research Program award and an NSF CAREER award.

Professor Yang’s research utilizes molecular beam epitaxy to engineer quantum materials layer-by-layer and characterizes the electronic properties of these materials using equilibrium and non-equilibrium photoemission spectroscopies. He studies the quantum phenomena emerging at material interfaces, such as interfacial superconductivity and topological orders.
