

Nanotechnology Collaborative Infrastructure Southwest (NCI-Southwest)

NCI Southwest



Virtual Workshop CHIPS ACT of 2022

Microelectronics Semiconductor Research Community
Virtual Workshop, September 8 & 9, 2022

At its core, National Nanotechnology Coordinated Infrastructure (NNCI) exists to help scientists and engineers from around the country access the state-of-the-art resources necessary to participate in the nanotechnology revolution.

We build a southwest regional infrastructure for nanotechnology discovery and innovation, to address societal needs through education and entrepreneurship, and to serve as a model site of the NNCI.

www.ncisouthwest.org
Dr. Trevor Thornton



Join our semiconductor workforce development and academic infrastructure to hear about trends in semiconductor research and development and advanced manufacturing.

This two-day online workshop aims to examine how the National Nanotechnology Coordinated Infrastructure can interact with the various components of the CHIPS Act of 2022.

The workshop content will be used to create a report to inform CHIPS funding as it relates to USICA, NSTC, NAMP, the Microelectronics Commons, NSF Engines, and FuSe.

The workshop will combine invited talks by leading researchers in academia and industry with panel discussions to develop concrete action items to address the CHIPS initiative.

Additional Details & Registration:

https://nnci.net/sites/default/files/inline-files/Microelectronics%20Workshop%202022_2.pdf



Acknowledgement: This material is based upon work primarily supported by the National Science Foundation under award No. ECCS-2025490.



A Conversation with Dr. Trevor Thornton

U.S. Congress passing of the CHIPS and Science act has been widely covered in the news. The Conversation asked Trevor Thornton to explain to the public what these devices are and how they are made.

<https://theconversation.com/what-is-a-semiconductor-an-electrical-engineer-explains-how-these-critical-electronic-components-work-and-how-they-are-made-188337>



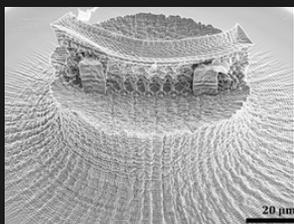
Science Outside the Lab (SOTL)

Meet Mara Karageozian, Geological Sciences Ph.D. Candidate at Arizona State University. By participating in NCI-Southwest's customized version of SOTL this summer, Mara explored the relationships among science, innovation, policy, and societal outcomes and investigated the context of nanotechnology decision-making in government and business. Learn more about Mara and SOTL on page 5 of our newsletter.



Research Outreach

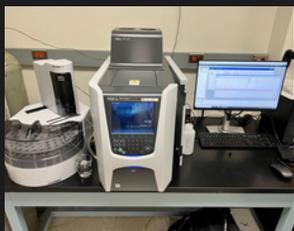
University of New Mexico graduate student Isaac Strickland from Dr. Tito Busani's research lab visits ASU Eyring Center for assistance with gallium nitride nanowires for scanning probe microscopy. UNM's Center for High Technology Materials collaborates with CORE facilities to support their commitment to training the next generation of scientists, engineers, discoverers, and entrepreneurs. <https://www.chtm.unm.edu/>



NNCI Image Contest 2022

In honor of National Nanotechnology Day, the NNCI hosts an annual image contest, "There's Plenty of Room at the Bottom." The contest celebrates the beauty of the micro and nanoscale and is open to images produced at an NNCI facility. Deadline to enter is September 26. For complete contest rules, visit <https://nnci.net/plenty-beauty-bottom>

Left. Image Credit, Artist: Zainab Patel, Graduate student, and Lucas Meza, University of Washington. Northwest Nanotechnology Infrastructure. Honorable Mention - Most Stunning. Nano-wrinkled Head



New CORE Tools at Arizona State

New on site at ASU CORE Facility Metal Lab, the Shimadzu Scientific Instruments TOC-L CSH is equipped with a high salts kit. Groups like Project Vesta (Vesta, PBC) will be utilizing this instrument for analysis of organic carbon in ocean water.

<https://cores.research.asu.edu/metals-environmental-and-terrestrial-analytical-laboratory/about>

SEED Funding Grants

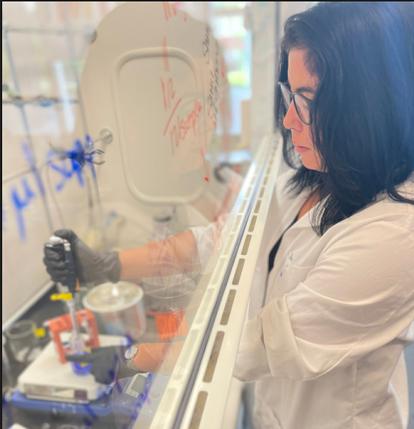
The NCI-Southwest supports external users of the NanoFab and Eyring Materials Center. If you are a potential new user from a university or small business you may be eligible for a Seed Funding grant. To learn more, visit <http://ncisouthwest.org/seed-grants/>



NCISW is now on LinkedIn. Connect with us!
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NAU Center for Materials Interfaces in Research & Applications- ¡MIRA!



Culture Meets STEM

¡MIRA! is a Materials Science research & diversity center at Northern Arizona University and a member of the NCI-Southwest. ¡MIRA! offers discovery and diversity through revolutionary Materials Science by conducting world-class research and creating a world-class workforce that reflects the multicultural diversity of the Southwest and the emerging demographics of our Nation.

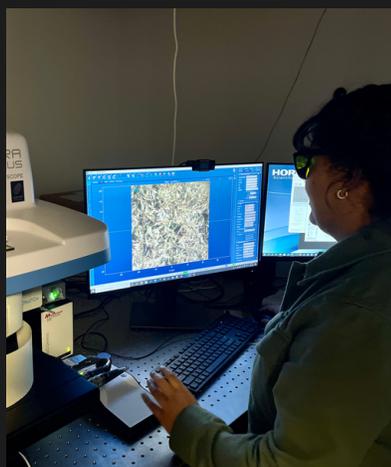
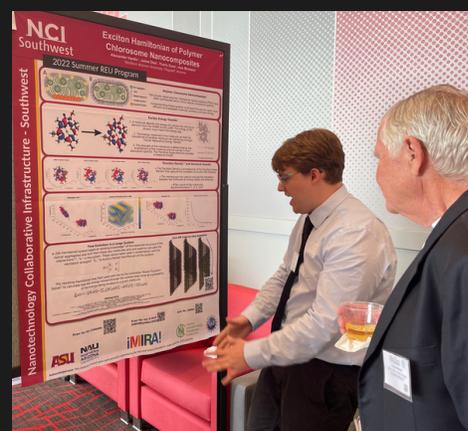
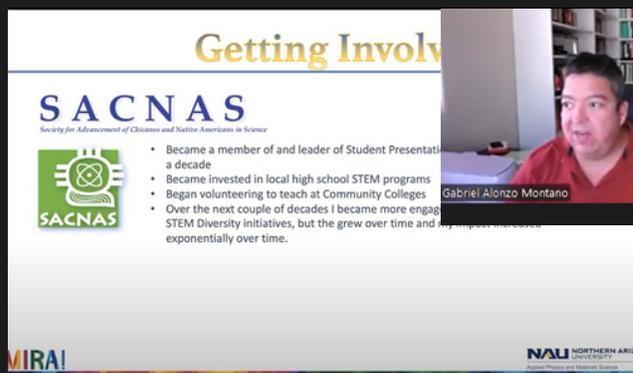
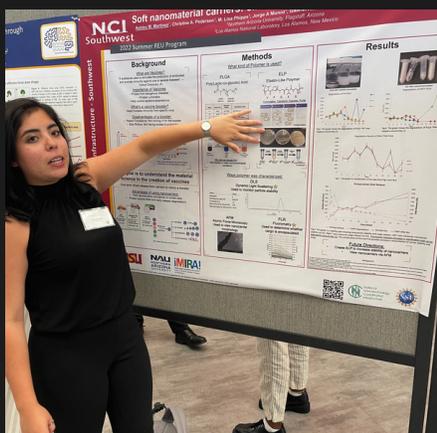
¡MIRA! faculty are diverse -50% underrepresented minority and 50% women. We are a center that is equally good at creating world-class materials, as nurturing a world-class diverse workforce. We recognize our multicultural surroundings, and that resonates in our science. Come join ¡MIRA!, and bring your whole self!

¡MIRA! Contact Information

Call: (928) 523-7541

Email: mira@nau.edu

NSF & NNCI Research Experience for Undergraduates



iMIRA! hosts REU @ Northern Az Univ

National Science Foundation supports Research Experiences for Undergraduates (REU) to expand student participation in research through partnerships with individual investigators, groups, centers, and national facilities. NCI-Southwest hosts REU within the broad umbrella of "nanotechnology" and projects studying solid state physics and chemistry, materials science, electronic devices and materials, and biology/biomedical engineering. This summer, iMIRA! hosted four REU students. Projects included simulating open quantum dynamics through quantum algorithms, soft nanomaterial carriers, exciton energy transfer in photosynthetic systems, and using surface-enhanced Raman spectroscopy (SERS) to detect breast cancer.

We hope you enjoyed this edition of the NCI-Southwest newsletter. If you would like to become a partner, please contact Trevor Thornton at t.thornton@asu.edu. For more information about our services please visit www.ncisouthwest.org.



Science Outside the Lab

Q & A interview with SOTL's Mara Karageozian

Hi Mara. Tell us a little about yourself.

Mara Karageozian: "I am originally from Detroit, Michigan and am currently a fifth-year Ph.D. student at ASU in the School of Earth and Space Exploration. I don't know that I ever decided to be a scientist. I think I make that decision every day. I wake up and say, 'I'm going to research today.' I also want to expand my research horizons past research in the lab, so I started my work in science policy. Policymakers need scientists to inform science policy decisions, but deciding how to incorporate science policy into research can be challenging. Now, bridging that gap by training scientists to engage with policy is the most important focus of my research."

What policy interests you or frustrates you enough to want to become active in changing policies?

Mara Karageozian: "My candidacy exam motivated my involvement in policy. I looked at the other students in my department and how some students struggled and felt unsupported preparing for the exams. Fixing that interested me. I now focus on advocating for graduate students' mental health. Specifically, I invest my time in equity-driven projects here at ASU, like our department's Diversity, Equity, Inclusion, and Justice Task Force Task Force."

What brought you to Science Outside the Lab?

Mara Karageozian: "One day, I was talking to a colleague and they suggested that I enjoyed policy work. I was a bit surprised by the comment until someone described to me what science policy was, which was not exactly what I had in mind. I had previously thought science policy was just tied to funding for research. After that conversation, I decided to enroll in an introductory graduate-level policy class at ASU. I loved it!"

"Now, science policy work makes me get out of bed in the morning and feel good about the work I'm doing. This excitement for science policy inspired me to apply to the RISES certificate program Responsible Innovation in Science, Engineering, and Society. I'm working towards that certificate now."

Tell us about the most memorable speakers in SOTL.

Mara Karageozian: "Oh gosh. SOTL. Every speaker was a wealth of knowledge. When I applied to science outside the lab, I felt lucky to have found an opportunity to pursue something I am passionate about. I didn't realize at the time that the participants would be some of the nation's most influential science policy leaders."

"Dr. Mahmud Farooque's work with participatory technology assessments was inspiring. Dr. Zach Pirtle from NASA, to hear exactly how he got involved with government agencies was helpful. He stepped into science policy from a science background, so it was interesting to hear his path from Grad school. Dr. Samantha Thompson works at the Smithsonian. She shared her passion for museums and teaching visitors. It was a joy to see how each came into policy from very different pathways- no matter where you are, you can get involved in policy if you want to."

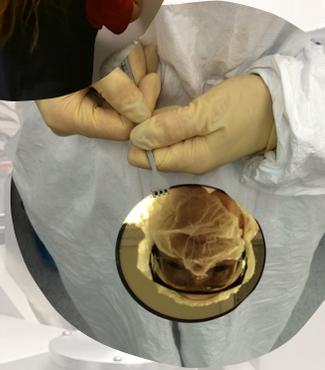
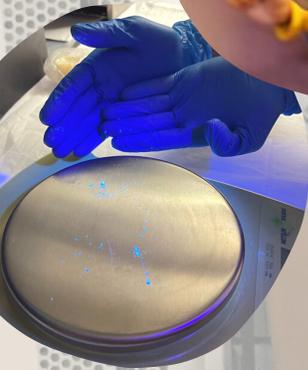
What advice can you give students and community members to become involved in policy?

Mara Karageozian: "Visit or volunteer at your local museums. Science and other museums are great stepping stones to becoming involved, and pieces of policy fund them. Pay attention to policies in your area because not all science policy is the kind of research I do. Read a local newspaper or go online and see what people are talking about. Paying attention during an election cycle is another way to be involved. Find friends and build a network to talk and visit museums! Social media is another avenue."

Science Outside the Lab provides an opportunity for graduate student scientists and engineers to access speakers and educational opportunities, exposing participants to many different viewpoints and helping them understand how people and institutions influence and learn from science. <https://nnci.net/science-outside-lab>



EXPLORE Nanotechnology



Virtual
Classroom Visits

Remotely Accessible
Instruments for
Nanotechnology (RAIN)

Tours of STEM
Research Facilities



National Nanotechnology
Coordinated Infrastructure

NCI
Southwest

