

iMIRA! MINUTE

WHAT IS THE iMIRA! MINUTE?

The iMIRA! Minute is a new communication updating the iMIRA! community of ongoing achievements, activities, opportunities and Center developments.

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Message from the PMT

Hello iMIRA! Team and Supporters! We are excited to welcome you to iMIRA!'s new biannual communication, the iMIRA! Minute and to another exciting calendar year of iMIRA! activities. Every issue, the iMIRA! Minute will highlight Center activities, including features of iMIRA! Students and Faculty and Outreach Activities. Staying true to iMIRA!'s dual mission as a materials science research and Diversity in STEM Center, the iMIRA! Minute will highlight scientific activities and accomplishments as well as activities that serve to enhance opportunity and increase diversity in STEM.

This year, Thursday, May 4th, iMIRA! will host our first-ever end-of-year celebration where we will celebrate the accomplishments of all iMIRA! members, including student awards. We're happy to announce that Prof. Gabriel Lopez will give this year's Celebration Keynote Address. Prof. Lopez was the founding director of the Center for Biomedical Engineering at the University of New Mexico, served as the Vice President of Research for UNM, was the founding director of the NSF's Research Triangle Materials Research Science and Engineering Center at Duke University, is an Internationally recognized expert in biomaterials science and engineering, with a demonstrated commitment to advancing diversity and inclusion in STEM, particularly in Engineering and the Physical Sciences. We are honored to have Prof. Lopez join us as our inaugural Keynote Speaker. Stay tuned for more info in the coming weeks.

Additionally, you will see new updates in iMIRA! beyond the iMIRA! Minute. If you visit our website, you will see a fresh interface that will continue to be updated over the coming months. iMIRA! also continues to grow. Below you will find the most exciting announcement- our growing team! With new iMIRA! faculty, staff, and our largest Cohort ever of iMIRA! Scholars- iMIRA! is continuing to build energy and work toward a powerful, diverse, inclusive, and equitable STEM future.

Andale iMIRA!

iMIRA! Scholars



Gabriel C.



James D.



Alisha L.



Ashley M.

Congratulations to the 2023 iMIRA! Scholars! The iMIRA! Scholars program was launched in 2020 as a mechanism to provide undergraduate students interested in performing undergraduate research in materials science-related areas an opportunity to do so through semester-long, financially supported research experiences. This year, iMIRA! received its highest number of applications for iMIRA! Scholars from students across STEM disciplines and majors. Congratulations to this year's cohort!



Jacqueline D.



Anthony U.



John H.



Belen R.



Ramiro V.

GETTING TO KNOW ¡MIRA!

WELCOME!

ANGEL MARTINEZ

Dr. Angel Martinez (APMS) joins us as an Affiliate member of ¡MIRA!. His research focuses on soft matter physics, liquid crystals, and colloids. Before joining NAU, Angel was an Assistant Research Professor of Physics at Penn State University.



CARLO DA CUNHA

Dr. da Cunha (SICCS) has become an Affiliate member of ¡MIRA!. His research focuses on the development of novel electronic devices for high-performance computing. Dr. da Cunha has over 17 years of experience and has recently moved to NAU from Brasil.



JENNIFER MEDELLIN

Jennifer joins ¡MIRA! as a PT Project Coordinator. She has 10 years of experience in K12 education, where she managed programs and has educational leadership experience. She is currently working on her Doctorate of Education and joins us in Flagstaff from South Texas.



DR. MARIA BOLAR-GASTONY

Dr. Maria Bolar-Gastony's future is electric! After obtaining her Ph.D. in Applied Physics and Materials Science with an emphasis in Materials Science, Dr. Bolar-Gastony, her husband, Alec, and their two dogs headed to the Midwest, where she has taken a position with Borregaard, USA, as a Research Associate in Batteries. We sat down with Maria before her departure to ask her some questions about her journey, future, and thoughts as she headed out for new adventures!

¡MIRA!: Congratulations on your recent defense, how does it feel to be done?

Maria: It feels really good, anticlimactic in the moment but feels like a really large weight has been lifted.

¡MIRA!: Can you give us an elevator pitch of your research?

Maria: I had a lot of fun doing my research! I worked on organic chemistry with polymers and studied how they performed as electrolytes which are used in energy storage devices like batteries.

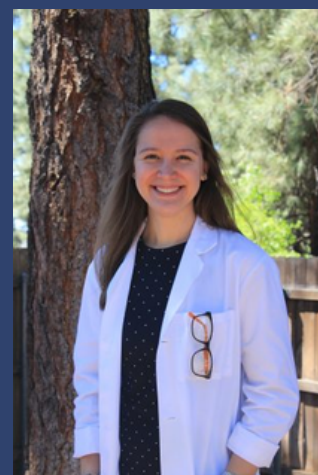
What was really cool about my research, that I'm really appreciating now is I feel like I did the whole circle... able to synthesize something out of simple molecules and characterize it and because of my award (DOE SCGSR) I was able to take my product of labor and put it into an application created an actual battery device! A lot of people get stuck in one area, but I got to go full circle which was awesome.

¡MIRA!: What was your path to get you where you are today like? Did you always dream of being a scientist getting a Ph.D.? Tell us what that was like?

Maria: No, definitely not! I remember back in high school and even junior high, I would come home super excited about whatever I learned in math or science, and my mom would say, "Ya, keep going! This will be a good track for you if you love it. If you love what you do, you'll never work a day in your life!"

When I came to NAU, I was studying exercise science because I loved the human body and anatomy, and athletics was always a huge part of my upbringing. I wanted to become a personal trainer. After my first semester, my mom said you can become a personal trainer without a degree if you're going to go to college, challenge yourself more, so I took a microbiology course and loved it and changed my major to microbiology. Then I took organic chemistry and thought it was fun and really challenging, more application than memorizing.

CONTINUES...



STUDENT SPOTLIGHT

It was too late to change my major but I talked to Dr. Browder which resulted in me pursuing a Masters Degree in Chemistry. She told me joining the APMS PhD program would be a great way for me to continue, so I did just that and I'm so happy I did. It has opened up so many doors.

¡MIRA! So, big changes coming, tell us about your new opportunity?

Maria: When I was at Oak Ridge (as a DOE SCGSR Fellow), one of the people that came to visit was from a company called Borregaard, USA, in Central Wisconsin. While having lunch, I was talking with Carter (Booregaard Scientist) and I realized how excited he was about Central Wisconsin and at the end of the conversation he said, "so we have an opening at our plant, would you be interested?" I then realized, "Oh that makes sense" (talking so much about Central Wisconsin!) However I was also offered a position at Oak Ridge National lab and was about to accept when I got in contact with Carter again. They flew me out and interviewed and the next thing I knew I was accepting a job at Borregaard!

¡MIRA! So, your DOE fellowship played a role in your connections can you tell us a bit about that experience? What did you learn about the non-academic world? Was this your first experience outside of academia in STEM?

Maria: I was very excited by the amount of collaboration that they do in their day to day lives. Every week a new person was there from international schools or from across the country just to learn and they would sit in our weekly group meetings and see what was going on, it was very cool. I didn't realize so many people from academics and industry constantly go to national labs. The collaboration is just astounding.

¡MIRA! What are you most excited about with your new adventure?

Maria: I'm excited to move and feel like I'm starting my adult life, not stuck in young adult, I'm excited for this really cool transition in my career to industry. Booregaard is an Norwegian company so this opens up opportunities to jump across the big puddle as part of my job so it's really exciting! I'm also really excited to go to a Packers-Vikings game, I don't care about either team, but I feel like it will be a good rivalry to watch from afar.

¡MIRA! Anything you're nervous about?

Maria: New things are always a little scary; I mean, seriously, I don't know about -40 degrees; that's terrifying, but the fun part is going to be exploring, two hours away from Madison, Green Bay, Minneapolis, not far from Chicago.

¡MIRA! What advice would you have for students thinking about a similar path to you?

Maria: It's ok to change your mind... please do; if you're enjoying a class that's specific, oftentimes you learn something that will be applicable to others. For high school students, keep everything open, don't close doors. I would also tell all the students to buy a "freakin" presentation clicker because I feel like it's life-changing, just buy one, and it will make your life easier! Oh ya, and stay on top of your paperwork!

¡MIRA! Those are excellent words of advice, and I'm sure you'll have many more when we're able to bring you back as a guest seminar speaker in the future! Best of luck, Maria, and we can't wait to see all the amazing things you accomplish!

CELEBRATING STUDENT SUCCESS

- **John Castañeda** (Gibbs group) was recognized for an outstanding oral research presentation in Physics at the National Diversity in STEM Conference- [SACNAS Best Oral Presentation in Physics Award](#).
 - In October, **Jorge Muñoz** (G. Moñtano group) was recognized for an outstanding oral research presentation at the [American Physical Society](#) Four Corners meeting in Albuquerque, NM.
 - **Macie Proctor Roser** (Lee group) was recognized at the 2022 AISES conference for her oral presentation titled, "Using MS2 Virus-Like Particles (VLPs) as Viable Platforms for Human Papillomavirus (HPV) Vaccine Development." Macie was supported by Dr. Lee's ¡MIRA! Exploratory Research Program pilot to synthesize VLPs for the project.
 - **Alex Weiss'** (Chen group) conference paper was a finalist for the best student paper award by the American Astronautical Society (AAS) 's at the 15th Wernher von Braun Memorial Symposium (Univ. of Alabama). Additionally, Alex was the Recipient of the NAU Jean Shuler Research Mini-Grant (2022)
 - **John Hardy** (Chen group) successfully landed a NASA/NAU Space Grant for 2022 to support his research with Dr. Chen.
 - **Ashley Martinez** (G. Moñtano group) was awarded the 2023 DBIO Travel Award from the Division of Biological Physics. The award will support her attendance and presentation at the 2023 APS March Meeting.
- Congratulations to these students and any others whose accomplishments were not noted here. We are so proud of the incredible things all members are doing and could not be more thrilled with the work coming out of ¡MIRA! teams.

DR. JENNIFER WADE

Dr. Jen Wade is focused on our future. As an Assistant Professor in the Department of Mechanical Engineering at Northern Arizona University, her research is focused on materials and new processes enabled by those materials to remove and permanently store carbon dioxide from the atmosphere. Jen's team has earned and enjoyed much support as of late in the form of [Department of Energy \(3 years; 4.8M\)](#) and National Science Foundation funding as they continue to tackle the critical and challenging processes of carbon removal and storage. ¡MIRA! recently asked Jen about her path and advice for the ¡MIRA! Community.

What made you decide to pursue your major and career?

Early in my undergraduate education, I knew I wanted to work on environmental or energy-related problems. I met a vibrant and dynamic faculty member who paired me with a terrific graduate student mentor, who became a supportive friend to work within an atmospheric chemistry lab, the rest fell in place from there.

What advice do you have for students pursuing a STEM degree, particularly in your field of study?

Immerse yourself in the rigor of the discipline and build relationships with others around you sharing the same experience. Also, build your life outside of the degree to give you balance. The work is hard, and the hours can be long, but the impact may be outstanding. You deserve another outlet when the science and communication of that work are not always going your way.

What interests/hobbies do you have outside of your research?

I am like many others who find themselves in Flagstaff. I love to run/hike in the mountains, play ultimate in the summer, and try my best at garden farming at high elevations. I bring my children along for the ride too.

What do you like most about your job?

I am a person who copes with challenges by working on solution. I like that I am trying to better understand, improve and innovate around new materials/processes to someday impact climate challenges. There is also joy in sharing this passion with my students. I find genuine joy when my students are succeeding.

How would you like to see your field and STEM change/develop over the next decade?

I would like to move away from carbon removal because economic and sustainable solutions emerge to manage the problem. I hope to see more environmental justice connections to technology transitions.

Is there anything in addition you'd like to share with the ¡MIRA! community, i.e. words of inspiration, advice, and warnings!

Scientific inquiry and understanding requires perseverance and advice! Accept the challenges, embrace the critique, and continue to find ways to improve understanding and performance.

NAU CARES 2022

Dr. Naomi Lee wrapped up the third year of her NAU Cultural and Academic Research Experience (CARE) this summer. NIH supports the CARE program, and its goal is to increase the number of Native American and underrepresented students in STEM, including medical fields, by engaging high school students in culturally relevant training in chemistry, biology, and healthcare. Who better to guide these students in what might be their first experience in a lab than Naomi. Her program this year saw a group of high school students grow and learn for the entire summer, where they were on campus most days of the week and received mentorship from the best NAU has to offer. If you are interested in partnering with her program or learning more about how you can get involved, contact Naomi! (naomi.lee@nau.edu)



SparCQS

SHAKING UP STEM OUTREACH - COMMUNITY BY COMMUNITY



SparCQS Team at MoA



Indigenous Peoples' Day



AZ STEM & Innovation Summit

SparCQS has been everywhere. Sparking Curiosity in Quantum Science (SparCQS) is an educational outreach initiative- launched as part of the NSF-funded Center for Quantum Networks (CQN). SparCQS brings hands-on quantum science education and experiences to communities WHERE THEY ARE! During the last months, SparCQS, in collaboration with ¡MIRA! partners, CQN (UArizona), Nanotechnology Collaborative Infrastructure- Southwest (NCI-SW), and the Center for Broadening Participation in STEM (ASU), was all over Arizona and beyond, including Indigenous Peoples' Day Phoenix Fest, 100 Yards of Education hosted by the Arizona Super Bowl Host Committee and Education Forward Arizona, and the AZ STEM & Innovation Summit at the AZ Science Center. The SparCQS team even traveled to Minnesota for Experience STEAM, a large-scale science, technology, engineering, arts, and mathematics event celebrating the Mall of America (MoA) 30th Anniversary Celebration, where 17 team members, including ¡MIRA! undergraduates, graduates, faculty, and staff engaged over 4,000 children, parents, and community members and introduced them to foundational principles of quantum science through fundamental photonics-based experiences and activities in both English and Spanish. One of the unique SparCQS giveaways is the Quantum Science ID badge which provides SparCQS participants a constant reminder to see themselves as scientists! In addition to these larger community outreach events, SparCQS continues to have a packed schedule of school and community outreach events, mainly targeting schools from rural and low-socioeconomic communities. SparCQS is determined to ensure that every kid and every community is part of the quantum future!



"DISRUPTING THE STATUS QUO IN STEM"

The Arizona Hispanic Chamber of Commerce (AZHCC) invited ¡MIRA! to submit an article in this year's DATOS: The State of Arizona's Hispanic Market publication, which is celebrating the 26th anniversary of DATOS, is the most comprehensive compilation of secondary research on Hispanic consumers. The article skillfully highlights what makes ¡MIRA! so impactful, our unique model and mission. We were one of two education programs highlighted in the publication out of the entire state! Please read the insightful article linked [here](#).



SAVE THE DATE

END OF YEAR CELEBRATION

MAY 4TH 5:00-8:00PM,

ASHURST HALL

**WANT A FEATURE IN THE NEXT
¡MIRA! MINUTE?**

FILL OUT THE FORM LINKED BELOW

<https://forms.gle/QpU9k4bVWyWy5XNa8>

Contribute To ¡MIRA! Program Funds:

[¡MIRA! Research Center](#) [¡MIRA! SparCQS](#)

[¡MIRA! Scholars](#)