THE QUARK

Brought to you by The Society of Physics Students

2021 Conference for Undergraduate Women in Physics (CUWiP)

This year's 2021 Virtual Undergraduate Conference for Women was absolutely spectacular! Due to the Covid 19 impact the conference was held via virtual chat rooms. We cannot recommend enough for students to attend the CUWiP conference! And though Covid-19 has changed the overall experience. CUWiP still serves as the perfect environment for students to experience a firsthand approach to research careers including national labs and industry-based fields to the opportunity to ask advice directly from peers and speakers. With that said the chat rooms provided a welcoming environment and we were able to speak to such speakers like Zabrina Johal, Current Director of Strategic Development for the General Atomics Energy Group in San Diego as well as Crystal Bailey, Head of Career Programs at American Physical Society (APS Physics). Popular amongst students was interviews for the zoom age! Here students received advice firsthand from speakers. We hope that students will take action to apply for the CUWiP conference for 2022. At this time APS has not released details regarding if the conference will be held in person or virtually, we hope to hear from them in early December regarding their final decision and ask students to not hesitate in applying for next year's conference!

See what this year's CuWiP attendees had to say !

"CUWiP 2021 was a wonderful experience. It was a great opportunity for me to meet other students in my field despite the struggles of the pandemic. The workshop on "Research Careers in Academia vs National Labs vs Industry" was eye

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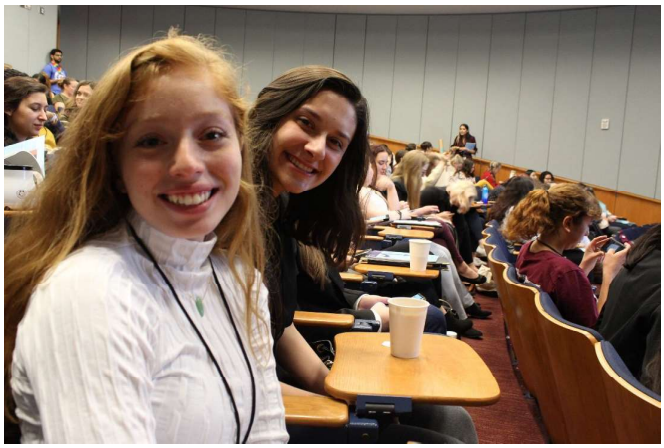
About The Quark

The Quark is a monthly newsletter produced by the Public Relations Committee of the Texas Tech chapter of the Society of Physics Students (SPS). Our goal is to help new students become more familiar with the Physics Department and provide returning students more insight on aspects of the department they might not have been aware about.

If you have any questions about The Quark or SPS, you can email our Public Relations Officer Rob Chambers at Robert.Chambers@ttu.edu .

opening for to the abundance of employment opportunities in our field. My favorite part was the Career Panels. It's inspiring to hear about the success of such phenomenal women in physics!".



- Madison Howard

Secretary, Women in Physics TTU Chapter

"This was my second CUWip that I've attended, the first being in person. CUWip always does such a good job of getting its attendees the opportunity to network with professionals in your field".

- Megan Cuevas

Vice President, Women in Physics TTU Chapter

"CUWiP 2021 virtual conference provided students with a most welcoming atmosphere! This was my first experience with CUWiP, I highly encourage students to attend. CUWiP provided virtual booths including: Navigating Graduate School, Research Frontiers, as well as a Plenary Session with CUWiP's keynote Lectureship speaker Millie Dresselhaus". After each session students were able to participate via small group networking chat rooms. Here students, peers and mentors enjoyed getting to meet attendees and celebrate Women in Physics.

- Linka V

President, Women in Physics TTU Chapter

What does the Conference offer to students?

•Opportunity to experience a professional conference.

•Offers information about graduate school and careers in physics.

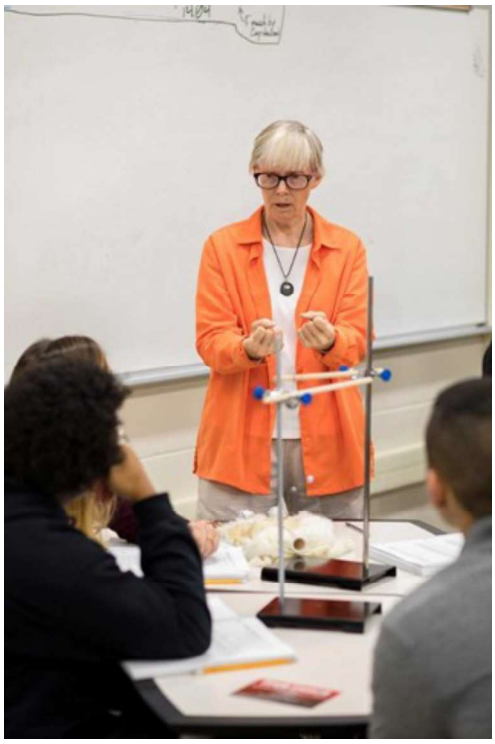
•Opportunity to meet other women in physics of all ages with whom they can share experiences, advice, and ideas.

•The national and local organizing committees of APS CUWiP strive to create a welcoming environment for all, including undergraduate women and gender minorities.

For more information regarding CUWiP please visit: https://www.aps.org/programs/women/cuwip/

Professor Spotlight: Dr. Beth Thacker

By Linka V



Dr Beth Thacker was born in Valenzuela and has lived most of her life in the USA. Her exploration of physics began in high school. She knew that she wanted to be an astronaut, but not what type of schooling she would use to get there. Dr Thacker was good at math, so she decided to pick the science with the most math in it, namely, physics.

She attended Davidson College in North Carolina, taking physics, math, and German courses. In her Junior year, Dr Thacker went abroad to study in Germany. She truly enjoyed the experience, so much so she wasn't sure she wanted to come back to the states! When she started studying abroad, her German skills were not as strong as her physics and math skills. To correct that, Dr Thacker started to sit in her dorm and said, "I'm just going to sit in the kitchen and start listening and talking in German".

While attending Davidson college, she attained her first position at Bell Labs, and though it was not a full-time position and did not involve physics, it was a summer job that involved the sciences, which was good enough for her.

After her undergrad, Dr Thacker once again worked at Bell Labs doing condensed matter physics. She worked there for three years until she was advised to go back to school to attain her MS of Physics. She was accepted to Cornell and began her MS program. At Cornell, Dr Thacker experimented with Oscillator Physics. She then moved on to HET- High Energy Theory to complete her degree. With that done, she was recommended to become an experimentalist, but she realized she wanted to be a theorist instead. She believes that you are in charge of making your own decisions and changing your own path, that you have to listen to what you want, and not what others say. As a theorist at Cornell, she did computer simulations in Fortran, right before C+ became popular.

After graduating from Cornell, Dr Thacker did her postdoc at Ohio State, where she met with Noble Prize winner Ken Wilson, who was doing Physics education. The experience showed her something she truly enjoyed, and she decided to do her post doc in Physics Education Research (PER). She did two years of postdoc work in High energy physics, and two years in PER.

After meeting her husband in Ohio, Dr Thacker took a job at Grand Valley State University, and later came to Texas Tech. She is now celebrating over 20 years in our department! Her current projects involve developing new resources for PER.

Dr. Thacker is also the current advisor for the TTU chapter of Women in Physics, and continues to

encourage students to continue their education, and to broaden their perspective when it comes to Physics and education.

The TTU Chapters of the Society of Physics Students and Women in Physics are proud to congratulate Madison Howard for being accepted to CERN Summer Program!

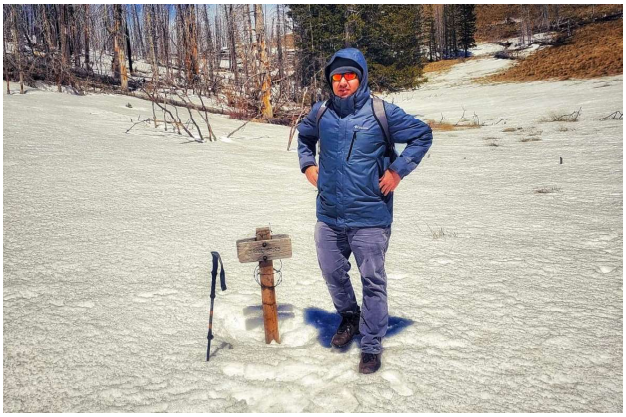
Madison Howard, our very own Women in Physics Secretary, and undergraduate working in the HEP (High Energy Physics) group has been accepted to CERN (European Organization for Nuclear Research) summer program! This is a highly prestigious and competitive program. Only 15-20 US students are selected each year to participate in the summer program. Madison will be working on an advanced technical project as part of an experimental, computing and/or engineering team! Congratulations Madison!

What is Women in Physics?

Women in Physics seeks to increase the recruitment and retention of women in physics and other STEM-related fields to create a more diverse and accepting STEM environment. We do this by offering a variety of events/opportunities. These events can include, but are not limited to, workshops to help students hone certain skills and general meetings where students can interact with their peers and learn more about soft skills that will help them in a professional setting, and potentially get in contact with speakers who work directly with the TTU Physics Department. All are welcome regardless of gender!

Student Spotlight: Mohammad Moosajee

By Samuel Cano



Growing up in Karachi, Pakistan, Mohammad's first draw to science came from watching how quickly the winds and weather would shift, going from extreme heat to flooding rainfall suddenly. His childhood home was also near Karachi International Airport to the East and an Air Force Base towards West, some of his earliest memories were of him sitting on his balcony watching massive planes pass by. In High School Mohammad was very active in sports and had a lot of fun playing for his school's soccer, cricket and rowing teams; watching the sun rise up on the Arabian Sea with his teammates was always the best part of the day. After High School, he pursued Commerce, an equivalent to Business Administration, in Pakistan. Towards the end of this program he was approved to come to the United States, and took advantage of his opportunity, leaving the program early to pursue his dream in America. Once he arrived with his family in Houston, Mohammad earned his G.E.D. and an Associates of Engineering from Houston Community College. He actually knew of Texas Tech (TTU) before arriving in the states because of their research in weather and wind energy which was featured in several documentaries he had seen. Because of this, Texas Tech seemed like the natural next step for him.

Mohammad came to Texas Tech initially wanting to study Mechanical Engineering, and ultimately jumped around to Industrial Engineering before eventually settling down with Applied Physics with a concentration in Wind Energy. Outside of the classroom he got involved with the Raider Aerospace Society (RAS) and quickly fell in love with the process of designing, planning, and testing rockets. RAS has been a great experience and Mohammad is currently the Safety Officer of the program. At the same time Mohammad was working as a student assistant for the Department of Environmental Health & Safety and was essentially able to tour every research lab at TTU and talk to professors and graduate students. Soon after, he got involved with research in the Physics Department, joining the High Energy Physics Group working under Dr. Kunori and Dr. Akchurin from the past few years. A lot of the same skills he learned with RAS have come in handy as he worked with other undergraduates creating a prototype Muon Telescope from the ground up. Mohammad had his hands in many aspects of the project and was most involved in designing, testing, and integrating the hardware of the telescope, with his work culminating in a publication in the Journal for Undergraduate Reports in Physics in 2020. He was able to present this work at several TTU research conferences and at the International Conference for Physics Students held at the University of Cologne in Germany. Mohammad owes a lot of his personal growth as a researcher and person to the support, opportunity, and patience shown to him by Dr. Kunori, Dr. Akchurin, and Dr. Whitbeck.

Outside of physics, Mohammad loves taking a break from technology and exploring nature in his free time. He is an experienced hiker and often goes to Palo Duro Canyon, Caprock Canyon, and the Guadalupe Mountains. In his last semester, Mohammad is applying for jobs as an Aerospace or Systems Engineer. He is interested in pursuing graduate school after spending some time in industry. As far as advice goes, Mohammad really stresses the importance of a social balance. Early on he struggled as an introvert trying to find study partners and avoiding asking questions in his classes. Once he started putting in the effort to reach out to professors with questions and to his classmates to organize study sessions, he found himself succeeding as a student and feeling much more confident as he tackled tougher and tougher courses.

Acknowledgements

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- Dr. Beth Thacker
- Mohammad Moosajee

Writers

- Linka V
- Samuel Cano

Editors

- Robert Chambers (Editor in Chief)