

QuarkNet Center @ Colorado State University FY 2021-2022 Annual Report

Faculty mentors: Dr. Bob Wilson, Physics Professor, Department of Physics, Colorado State University

Lead teachers: Cherie Bornhorst; Adam Pearlstein, Little Shop of Physics Teacher in Residence, Colorado State University; and Zach Armstrong, Science Teacher, Greeley West High School

Masterclass@CSU:

Due to Covid-19 restrictions we were unable to host this event this year. We hope to host an in-person Masterclass in 2022!

Summer Quarknet@CSU Workshop:

We were excited to be able to hold a two-day in-person workshop this year on July 26 and 27 at the Little Shop of Physics (NESB 231) on the Colorado State University Campus after last year's Covid-19 restrictions prevented us from getting together in 2020.

Shane Wood, Quarknet staff member, came and led our group in a 2-day CMS Data Workshop. We had a couple new teachers in attendance as well as one undergraduate student who is a future middle school science teacher. Because of the recent updates to the workshop, we felt the CMS Data Workshop was a good choice to revisit.

We kicked things off by revisiting some classic CMS-related Data Portfolio activities including *Rolling With Rutherford* and *Shuffling the Particle Deck*; this made for a nice refresher for returning teachers and an excellent jumping-off point for our new participants. Then we had a share-a-thon: every teacher in attendance shared at least one activity or tool. Our mentor, Professor Bob Wilson, also gave an excellent talk on “What is mass - really? From Classical to Quantum” and answered many questions about his current research on neutrinos. Although only scheduled for one hour, Professor Wilson spent over two hours discussing physics with the participants. Our group is very much looking forward to a future field trip to DUNE in South Dakota where we can see Dr. Wilson's work in action. Finally, we went on a lab tour hosted by Senior Technician Jay Jablonski, who is involved in building and maintaining detectors on several projects including Dune and ProtoDUNE.

Participants in the summer workshop included:

- Shane Wood, Quarknet
- Cherie Bornhorst, Colorado State University
- Adam Pearlstein, Little Shop of Physics
- Zach Armstrong, Greeley West High School
- Taylor Plantt, Greeley West High School
- Matt Mehrian, Front Range Community College
- Matt Leach, Douglas County High School
- Mark McConnell, Mountain Vista High School
- Connor Leftwich, Colorado State University

