

QuarkNet Center @ Colorado State University

FY 2020-2021 Annual Report

Faculty mentors: Dr. Bob Wilson, Physics Professor, Physics Department, Colorado State University
Lead teachers: Cherie Bornhorst, Teacher in Residence, Colorado School of Mines; Adam Pearlstein, Teacher in Residence, Colorado State University; and Zach Armstrong, Science Teacher, Greeley West High School

The Colorado State Quarknet Center is now in its 9th year. In the first two years of our program, we focused on cosmic ray research, and deployed 4 detectors at high schools on the Front Range. In our third year we worked to expand our program; both in membership of teachers, and to include other aspects of high energy physics, and were trained on the use of the CMS e-Lab. The focus our fourth year was classroom application; to train our teachers on the use of their CRMD's with the new EQUIP program, and hosting students for our first annual Masterclass event. Our 5th year focus was to build on the strengths and skill sets of the teachers involved with our program, and to explore even more ways to bring high energy data into the classroom. In our 6th year we added Zach Armstrong as a Lead Teacher to our group, hosted a CMS Elab workshop, and took a fieldtrip to DUNE at the Homestake Mine in South Dakota! In 2018 we held a 3 day workshop using cosmic ray muon detectors and going through the LIGO eLab. This year we lost two veteran QN members when they retired from teaching, but gained a few new teachers for our summer workshop. And this year was an abnormality because of the Coronavirus.

Masterclass@CSU:

We were scheduled to hold a Masterclass at CSU in March, but due to Covid-19 restrictions we were unable to host this event this year. We are all looking forward to hopefully being able to host an in-person Masterclass next year!

Summer Quarknet@CSU Workshop:

Colorado State University did not allow on campus in-person events this summer, so we were unable to host this workshop as usual. However, on August 5th, we held a 1-day virtual workshop that was co-presented by Cherie Bornhorst (lead teacher) and Shane Wood. The focus of the workshop was on presenting the STEP UP curriculum materials. We also had a lunch time lecture and Q&A session from Professor Michael Mooney from the CSU High Energy group. Due to irregular schedules, some of our regular teachers were unable to make the online workshop this summer so we invited 3 new teachers to join (Mary, Michael, and Maranda) and they are eager to continue on with our group in the future!

Teachers participating in the summer workshop:

Shane Wood, Quarknet

Cherie Bornhorst, Colorado State University

Zach Armstrong, Greeley West High School

Taylor Plantt, Greeley West High School

Scott Kindt, Berthoud High School

Mary Bujaci, Northglenn High School

Michael McLaughlin, Regis Jesuit High School

Maranda Maher, Greeley Central High School