

## Virginia QuarkNet Center 2018 Activity Report

November 6, 2018

The Virginia QuarkNet Center currently has around 10 active high school teachers from Richmond and northern Virginia. Several teachers share leadership responsibilities, with Teaching and Learning Fellow Deborah Roudebush acting as the lead teacher. LHC Fellow Mike Fetsko also assumes a large share of the organizational responsibilities. Hank Horn is active as a Leadership Fellow. Josh Erlich from The College of William and Mary, and Phil Rubin from George Mason University are the mentors.

### Masterclass 2018

The Virginia center scheduled two Masterclasses in March 2018. One was focused on CMS data and was held at George Mason University in northern Virginia on March 24, 2017. Phil Rubin acted as the mentor, and lead teacher Deborah Roudebush was the main organizer.

Another CMS masterclass took place at the College of William and Mary on March 17, 2018, with Josh Erlich mentoring and lead teacher Mike Fetsko organizing. In addition to the analysis of CMS data and videoconference, the students heard presentations about particle physics and cosmology; and they toured two atomic physics labs and an off-site control room for the MINERvA and NOvA neutrino experiments.

### Workshops

The Virginia center generally has a 2-3 day summer workshop and 2 or 3 Saturday workshops. Over the past year, they met at the Bryan Innovation Lab of The Steward School on November 18, 2017 and at Centreville High School on February 3, 2018.

The workshop at Centreville High School included discussions by Phil Rubin and Hank Horn, masterclass orientation, and a mass spectrograph simulation.

The workshop at The Steward School included a presentation by Josh Erlich about rocket science in the classroom and the LIGO neutron star merger, a cosmic ray activity, and a Lorentz force simulation.

The summer 2017 workshop took place August 6-8, 2018 at William & Mary and focused on the Neutrino Data Workshop and discussion of the MINERvA masterclass. Shane Wood visited along with Rick Dower and led the workshop. Jeff Nelson from W&M spoke about neutrinos and neutrino experiments, and assisted with the workshop.

### Additional Teacher Activities

Deborah Roudebush was appointed to the AAPT area Committee for Contemporary Physics. She attended the AAPT 2018 Winter meeting in San Diego and gave a talk on "Fusion activities in the classroom." She also attended the AAPT 2018 Summer meeting.

Photos from Masterclass at George Mason University:



Photos from the Neutrino Data Workshop:

