

Kansas State University QuarkNet Center, 2017-2018 Annual Report

The K-State group held a week-long workshop and a Master Class (and Master Class Orientation) in the last fiscal year.

In addition, some CRMD teachers took advantage of the total solar eclipse of 21 August 2017 and with their students they studied the effect of Moon blockage on muon emission rates from the direction of the Sun by making measurements in the direction of the Sun, before, during, and after totality. We are also now coordinating a research project that involves most of our CRMD teachers working with their students to correlate muon rates with atmospheric temperature and pressure changes (available from NASA) as weather fronts move through Kansas and Missouri.

The Master Class Orientation was held on March 3, 2018 and was attended by 13 teachers.

The Master Class was held on April 6, 2018 and was attended by 14 teachers and 94 students on site and 1 teacher and 23 students participated from their high school. KSU Physics hosted a short program of demos and hands-on physics activities and we also toured the KSU Nuclear Reactor. Most KSU HEP and Cosmology graduate students helped with the Master Class activities.

A week-long workshop was held at KSU on June 4-8, 2018. This was attended by 7 teachers. The workshop was devoted to cosmic ray muon detectors and six teachers brought their detectors and took data and measured the speed of muons, closing with short talks of their observations. The teachers plan to keep their cosmic ray detectors running in their schools. Martin Shaffer ran the CRMD activities. I gave 4 talks on waves (following up on the LIGO LA visit of last summer) and relativity (for the muon speed measurements).

On other fronts, KSU QuarkNet teachers continued to avail themselves of national QuarkNet and other HEP-related opportunities seeded by QuarkNet. Two teachers participated in the 2018 Data Camp at Fermilab.

The KSU group remains strong in its fifteenth year of existence. Approximately two and half dozen teachers participate, a core group of a dozen or so regularly, and the rest at the rate of once every other meeting. We continue to specialize in serving small rural high schools throughout the state of Kansas and have now started to get some inner-city high school teachers from Kansas City, MO. Plans for 2018-2019 include an early spring 2019 Master Class orientation workshop and participation in a Master Class in late spring 2019.