

## Kansas State University QuarkNet Center, 2021-2022 Annual Report

The K-State group held a four-day workshop, a Master Class (and Master Class Orientation), and four CRMD Zoom sessions in the last fiscal year.

In addition, we are also coordinating a research project with QuarkNet Fellow Martin Shaffer that involves our dozen 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 Arkansas.

The Master Class Orientation was held on March 5, 2022 and was attended by 8 teachers.

The Master Class was held on April 1, 2022 and was attended by 8 teachers and their students. KSU Physics hosted a talk on HEP, CERN, CMS.

A four-day workshop was held at KSU on May 31 to June 3, 2022. This was attended by 9 teachers, including QuarkNet Fellows Maria Niland and Martin Shaffer. The workshop was devoted to prototyping the Higgs@10 workshop, neutrino activities, CMS activities, and cosmic ray muon detectors, and some teachers brought their detectors for repair. The teachers plan to keep their cosmic ray detectors running in their schools. Martin Shaffer ran the CRMD activities and Shane Wood, Ken Cecire, and Jose Alvarez ran the Higgs@10 activities, and Shane Wood ran the CMS and neutrino activities. Brett DePaola of KSU Physics lectured on and discussed material from his “Physics for Policy Makers” course.

On average 5 CRMD teachers attend the Zoom meetings.

On other fronts, KSU QuarkNet teachers continued to avail themselves of national QuarkNet and other HEP-related opportunities seeded by QuarkNet.

The KSU group remains strong in its nineteenth 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 high school teachers from Kansas City, MO, as well as one from Arkansas. Plans for 2022-2023 include hour-long Zoom meetings for CRMD teachers, an early spring 2023 Master Class orientation workshop, participation in a Master Class in late spring 2023 and a summer 2023 teacher workshop or trip (give the funding and covid situations).