

FSU QuarkNet: Year Summary 2017

FSU's QuarkNet center, now in its 18th year, presently has about 20 regular members, mainly from Leon County, but also a few from neighboring counties, as well as from counties farther away (Bay, St.Johns)

One of our new members, Amy Eardley, was selected to attend a Data Camp at Fermilab in the week before our summer workshop.

Our center's main event of the year was our summer workshop at FSU, 25 to 29 July 2016. It was attended by 13 school teachers, plus one master teacher from FSUTeach (Logan Chalfant) (<http://www.hep.fsu.edu/~wahl/Quarknet/summer2017/people.html>)

The program (<http://www.hep.fsu.edu/~wahl/Quarknet/summer2017/agenda.html>) included a two-day workshop on CMS ("CMS e-lab") led by Robert Shane Wood from QuarkNet. Teachers worked in pairs to investigate the proton-proton collisions at the Large Hadron Collider. A poster was created by each pair using the eLab tools. A presentation and discussion with an FSU faculty member involved with the CMS project preceded the eLab session.

In addition to the CMS workshop activities, we had a field trip to the new functional MRI facility at FSU's College of Medicine. This included an explanatory tour of signal-response model, viewing of images, maintenance concerns of the superconducting magnets, combination with EEG technologies, and career preparation. The field trip was preceded by a guest lecture dealing with the properties of matter and computational analysis associated with MRI.

We also had various lectures by FSU Physics Department faculty

- Brain Imaging (Per Rikvold) (in preparation for the fMRI tour)
- My favorite topics in Astronomy (Yi Chi Eric Hsiao),
- Introduction to Quantum Computing (Nick Bonesteel),
- Physics of Stars (Jorge Piekarewicz),
- Topics in Nuclear Astrophysics (Sergio Almaraz-Calderon),

In addition we had a number of activities which could be class room activities, led by teachers who are members of the local QN center (Brian McClain, Jasun Burdick):

- Using Science News in the class room
- Calorimetry
- Video tracker
- Electronic circuits with Arduino
- Cell phone sensors

We are going to have a few informal meetings during the school year, to keep in contact and discuss questions of mutual interest.