

QuarkNet Oregon 2018

The Center for High-Energy Physics at the University of Oregon (UOCHEP) hosted the 2018 QuarkNet workshop June 20-21 on the UO campus. This was our 17th summer workshop. A printed version of the workshop web page is given on the next page and the URL (including live links) is here:

http://pages.uoregon.edu/rayfrey/QuarkNet/2018/QuarkNet_2018.html

The focus for the workshop this year was on recent updates on scientific discoveries and public outreach. We also had faculty updates on current research, including gravitational waves and LIGO and Atlas at the LHC. The full list of participants is given in the web page. The UOCHEP faculty participation was Ray Frey (lead mentor and co-PI), Ben Farr, Scott Fisher, Stephanie Majewski, Stan Micklavzina, Bryan Rebar, Eric Torrence, and Elly Vandegrift. The faculty talks were very well received and, following usual practice, the presentation files are linked on the web page above, where they are available to teachers. Seven high school science teachers joined us this year. Funds from the UO Center for High Energy Physics were used to cover local expenses (catering, parking, dorm rooms, misc equipment). Some comments on the main themes of the workshop:

Education and outreach. Bryan Rebar, co-Director of an organization at UO called STEM-CORE, talked about how this program encourages and promotes research carried out by K-12 teachers, much of it supported by external funding. Scott Fisher, Director of UO's Pine Mountain Observatory, talked about the scientific, education, and public outreach activities centered at the observatory. Elly Vandegrift introduced the UO Science Literacy Program. Stan Micklavzina highlighted the physics demonstrations he employed as one of the stars of the show "[Tesla: Light, Color, and Sound](#)," a major multi-media musical and dance program which played at large venues in Eugene, Portland, and Bend, Oregon. Finally, we had our popular teacher-led segment on "cool projects" from last year and plans for the coming year. This gives the participants a chance to benefit from each other's experiences and creativity.

Research updates. In 2017 there was a lot of excitement for advances in gravitational wave science from the discovery of the binary neutron star merger and the 2017 Nobel Prizes. Ray Frey gave an overview talk on the LIGO discoveries and the role of the UO LIGO group in this work. Faculty newcomer Ben Farr gave a talk on his work in LIGO about measuring black hole spins. Eric Torrence and Stephanie Majewski each gave talks about science at the CERN LHC, i.e. what motivates the upgrades to the Atlas detector and the search for dark matter at the LHC.