

Friday Flyer - May 25, 2012

Thanks for the positive feedback from last week's flyer! Have you given a talk at a conference about QuarkNet? Have you been honored by a group for your outstanding accomplishments? If you have something to share, please let us know.

CENTER SPOTLIGHT: University of Illinois at Chicago and Chicago State University

<http://physicsweb.phy.uic.edu/quarknet/>

<http://physicsweb.phy.uic.edu/quarknet/map.html>

Contact Mark Adams (UIC) and Edmundo Garcia (CSU) to learn about studies that students and teacher have done!

The University of Illinois at Chicago joined QuarkNet in 2000, and Chicago State began working with UIC in 2009. Teachers and mentors have developed a high school lab module that ties particle physics to kinematic concepts. Using typical high school kinematic equipment (carts and tracks), the students measure velocities and uncertainties. They took cosmic ray data and did a time of flight for muons. Students and teachers at Thornton High School were captivated by the results.

The UIC/CSU QuarkNet program focuses on training and mentoring high school students to carry out cosmic ray experiments with scintillation detectors to experience challenges and rewards of doing real science. Students and teachers from 10 high schools participate in the summer workshop and data taking throughout the academic year. The teachers worked through the CMS e-Lab last year. This group has done cosmic ray experiments over the Greater Chicago area including the roof of Sears Tower and the John Hancock Observatory. They have also hosted several very successful detector parties during which 24 scintillators and 6 readout systems were operated together. If you need some ideas on what to do with your detectors, this group can help!

News from QuarkNet Central

Staff and fellows are preparing for summer center visits. We make an effort to visit each center at least once per year. When you e-mail or call us, keep in mind that we may be "on the road." Several of us will also be attending the AAPT Summer Meeting. Have you registered yet?

Where do those great cosmic ray detector kits come from?

Dave Hoppert is the gatekeeper! This year we are making 50 new DAQ circuit boards, 30 of which will go into full detector kits. Overall, we have produced more than 750 DAQ boards and nearly 400 full detector kits. Most kits have gone to QuarkNet teachers, but other institutions have found our equipment useful. IceCube Neutrino Observatory researchers in Antarctica use our DAQs. Others are preparing for the Cubic Kilometer Neutrino Telescope at the bottom of the Mediterranean Sea. Boards are found in educational cosmic ray exhibits in planetariums and science centers. Starting next week we'll provide a brief description of the detector components.

Particle Physics Experiment Roundup

MAJORANA Experiment, South Dakota

<http://www.rdmag.com/News/2012/05/General-Science-An-Unmistakable-Signal-That-Could-Rewrite-The-Standard-Model/>

In a cavern almost a mile underground in the Black Hills, Lead, South Dakota, the MAJORANA DEMONSTRATOR, 40 kg of pure germanium crystals enclosed in deep-freeze cryostat modules, will soon set out to answer a most persistent question in physics: are neutrinos their own antiparticles? If the answer is yes, it will require rewriting the Standard Model, our basic understanding of the physical world. The MAJORANA Collaboration is comprised of more than 100 researchers from 19 institutions in the United States, Canada, Russia, and Japan.

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