FRIDAY FLYER - October 12, 2012
Something to share—an interesting research project or kudos for a student, teacher or mentor? Contact Kris Whelan.

CENTER SPOTLIGHT: University at Buffalo - http://www.physics.buffalo.edu/hepcos/

Contact David McClary (dmclary@fnal.gov) or Larry Hiller (lehiller@verizon.net) to get a copy of the plans they used to build a wooden detector stand that allows them to change the angle of incidence of the incoming muons.

SUNY at Buffalo (UB) joined QuarkNet in early 2006. Mentors are Ia Iashvili and Avto Kharchilava. These two physicists joined the physics faculty recently and were charged with developing a new High Energy Physics program at UB. This year five teachers took part in the workshop: two lead teachers (David McClary and Larry Hiller) and three participating teachers. The teachers are from four different schools, two of which are public schools and the other two are private.

UB was happy to have been selected to try out the latest QuarkNet e-Lab by participating in a CMS e-Lab workshop facilitated by Tom Loughran, Notre Dame. The teachers analyzed CMS J/psi->mumu decays and studied the CMS muon system resolution in the barrel versus the endcaps. The corresponding e-Lab poster, created by the teachers, appears as “A Resolution Comparison of the Barrel and the End Caps in the CMS Detector” in the e-Lab portal. During Day 3, Avto and Ia gave talks on CMS and the evidence/discovery of the Higgs boson. This active group has also been a strong participant in the annual masterclass. Earlier this year, on March 10, the UB QuarkNet Center participated in the CMS masterclass. Twelve students from two high schools were divided into six groups to analyze Z->ee, Z->mumu, W->enu and W->munu events using the CMS event display. Different groups analyzed different batches of data and compared their findings. At the end of the data analyses session, students combined their data to measure the relative fraction of Z events compared to W events and to check lepton universality. They also created distributions of various quantities. Finally, students prepared a presentation based on their results and gave the presentation over Vidyo with other participating masterclass groups present (Detroit, Baltimore and Minneapolis). Students found the masterclass experience useful and informative about HEP as a whole and about the collaborative nature of the HEP experimental research. Although Ia and Avto are on sabbatical, the strong leadership present in the UB teachers will allow this center to continue providing exceptional opportunities for educators in the Buffalo area.

Resource of the week: Cloudy with a chance of muons
One of the best resources to show students how prevalent particles are is a cloud chamber. Teachers can order cloud chambers from most physics catalogs, however it is so easy and much cheaper to build your own. Here are two proven winners in cloud chamber design:
http://teachers.web.cern.ch/teachers/document/cloud-final.pdf
http://quarknet.fnal.gov/resources/QN_CloudChamberV1_4.pdf

Physics Experiment Roundup: What's the (Dark) Matter?
http://www.denverpost.com/news/ci_21711191/colorado-argon-will-be-at-heart-
Argon captured in Colorado plays a significant part in the search for dark matter. Read

about the experiment called Darkside-50 to learn more.

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