



CU Physics Department Particle Seminar

Wednesday, March 5, 2008 705 Pupin Hall 1:00 PM



IceCube, The Neutrino Observatory at the South Pole

Neutrinos are unique cosmic messengers because they are neither appreciably attenuated by matter nor deflected by magnetic fields. Active galactic nuclei, gamma ray bursts, exotic particle decays, and cosmic rays interacting with the cosmic microwave background via the GZK process are all potential sources of ultra-high energy neutrinos. The IceCube detector, located near the geographic South Pole, is now the largest neutrino telescope in the world. IceCube currently consists of 40 strings with 60 digital optical modules per string, deployed between 1500 and 2500 meters deep in the Antarctic ice. Each string is complemented by two air shower detection tanks at the surface. The final detector, scheduled for completion in 2011, will contain 80 strings instrumenting a volume of 1 cubic kilometer. IceCube includes its predecessor, the AMANDA array, which has been fully operational since 2000. I will review the latest science results from AMANDA and the status and science capabilities of the full IceCube detector.



Dawn Williams, Penn State University

