

CU Physics Department Particle Seminar

Wednesday, April 18, 2012

705 Pupin Hall 1:00 PM

Craig Dukes,
University of Virginia

Mu2e: Using Rare Particle Decays to Probe the Energy Frontier



Although there is great excitement in particle physics these days, with the inauguration of the Large Hadron Collider and the great discoveries we hope it will bring, for the first time in some seventy years there are no plans for any new accelerators to take us to the next energy regime. Hence, in order to find out what may be lurking beyond what we can directly produce in collisions at particle accelerators we will need to look for indirect signs such as rare and forbidden particle decays. There is a long history of such searches, a history that predates particle physics itself. I will show how such searches can probe mass scales unobtainable by direct searches at any conceivable particle accelerator and describe an experiment, Mu2e, that intends to use a novel technique to search for new physics through lepton flavor violation in muon decays with sensitivities a factor of 10,000 over existing limits.