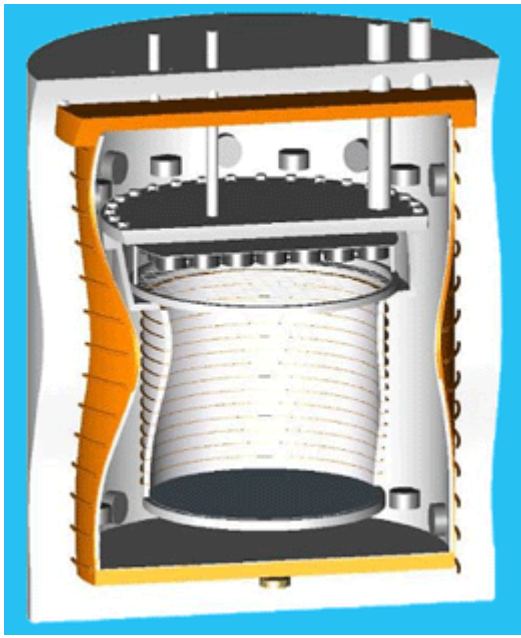
CU Physics Department Particle Seminar
Special Date & Time:
Monday, April 30, 2007 831 Pupin Hall 12:00 Noon

"First Results from the XENON10 Dark Matter Experiment at the Gran SassoLaboratory"

We report the first results from a search for Weakly Interacting Massive Particles (WIMPs) with the XENON10 experiment operating underground at the Gran Sasso Laboratory. XENON10 is the first dual phase (liquid/gas) xenon time projection chamber (XeTPC) module realized within the XENON program. The 3D-postion sensitive detector has an active mass of 15 kg of liquid xenon, viewed by two arrays of compact photomultipliers, which measure simultaneously the scintillation and the ionization, via proportional scintillation in the gas. Background rejection on an event-by-event basis is achieved through this measurement and 3D event localization. In-situ gamma and neutron calibrations have been carried out to define event selection and energy threshold for nuclear recoil candidates. A " blind " analysis of ~60 live-days of Dark Matter Search science data has been performed. Results of this analysis will be presented. Plans to improve the experiment sensitivity within 2007 as well as plans to initiate the next phase of the XENON program with a 100kg scale TPC will also be addressed.



Presented by: Prof. Elena Aprile

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