

# CU Physics Department Particle Seminar

Wednesday, December 3, 2008 705 Pupin Hall 1:00 PM

## A search for neutrinoless double beta

## decay with NEMO-3 and SuperNEMO detectors

The observation of neutrino oscillations has proved that neutrinos have mass. This discovery has renewed and strengthened the interest in neutrinoless double beta decay experiments which provide the only practical way to determine whether neutrinos are Majorana or Dirac particles. NEMO-3, located in the Modane Underground Laboratory in the Frejus Tunnel under the French-Italian Alps, is an ongoing experiment looking for neutrinoless double beta decays using a powerful technique for detecting a two-electron final state by employing an apparatus combining tracking, calorimetry, and the time-of-flight measurements. We will present results from NEMO-3 and will discuss the status of SuperNEMO, the next generation experiment that will exploit the same experimental technique to extend the sensitivity of the current search.

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