

The Physics Department Invites you to a: Seminar



Search for Neutrinoless Double Beta Decay in CUORE

Marissa Pedretti, universita' degli studi dell'insubria

The questions concerning the nature and origin of neutrino mass are among the most pressing issues in contemporary particle physics. CUORE is a ton-scale bolometric detector which will search for the Double Beta Decay of ^{130}Te , hence providing access to an unexplored range in the neutrino mass spectrum. CUORICINO, a 40kg prototype, has so far provided very stringent limits on the Majorana neutrino mass.

The CUORE R&D program is focused on the assessment and reduction of the radioactive background of the detector (which is the limiting factor in its sensitivity), as well as on the manifold issues concerning the scalability of the bolometric concept. The ongoing R&D effort will allow to push the ultimate sensitivity of the CUORE experiment into the inverted hierarchy region of the neutrino mass spectrum (few tens of meV in Majorana mass).

In my talk I will report the main results from CUORICINO, the highlights of the present R&D activity and the projections for the CUORE discovery potential in a 5 years exposure window.

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