



PHYSICS COLLOQUIUM

Double Beta Decay

The Key to Neutrino Properties

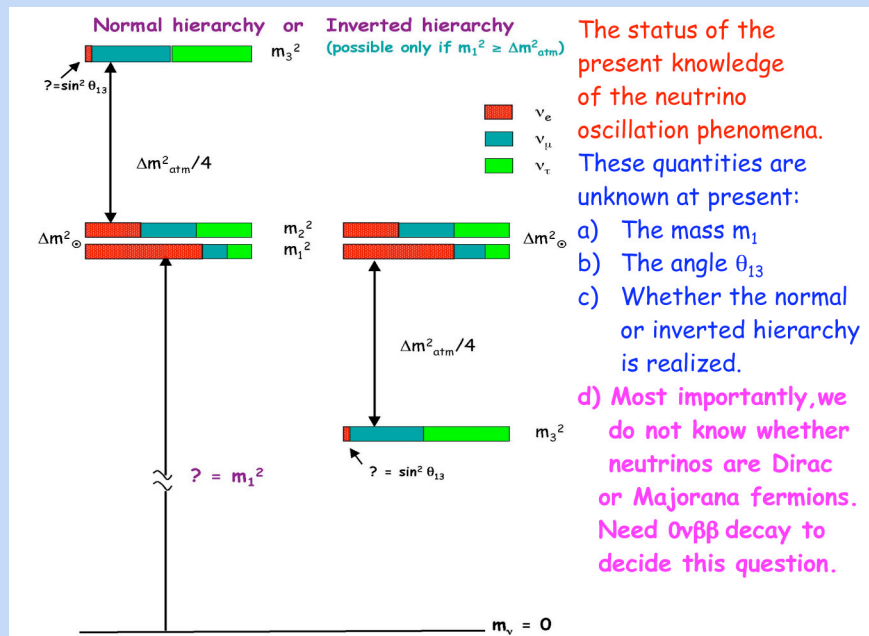


Petr Vogel

Caltech

Host: Ramsey-Musolf

Abstract: Experiments with solar, atmospheric, reactor and accelerator neutrinos convincingly show that neutrinos are massive and mixed. But why are neutrinos so extremely light? Perhaps their mass has a different origin, and they are Majorana fermions, unlike the charged leptons and quarks that are Dirac fermions? Neutrinoless BB decay is the most sensitive probe available to test these ideas. I will first review the history and status of the search for this mode of BB decay. Then I will describe my own work dealing with the evaluation of the nuclear matrix elements that govern the decay rate and the difficulties of such calculations. Finally, I will briefly review the worldwide program of experimental search for the neutrinoless BB decay and its relation to other searches for neutrino mass.



2241 Chamberlin Hall • Friday, September 12, 2008 • 4:00 P.M.
cookies & coffee served at 3:30 p.m.