

Muon conversion to electron in nuclei in type-I seesaw models

Tuesday 21 May 2013 17:00 (15 minutes)

The talk will be based on the paper arXiv:1209.2679, in which is computed the $\mu \rightarrow e$ conversion in the type-I seesaw model, as a function of the right-handed neutrino mixings and masses. The definite predictions will be presented and discussed. In particular, the ratios between the $\mu \rightarrow e$ conversion rate for a given nucleus and the rate of two other processes which also involve a $\mu - e$ flavor transition: $\mu \rightarrow e\gamma$ and $\mu \rightarrow eee$. Indeed, for a quasi-degenerate mass spectrum of right-handed neutrino masses -which is the most natural scenario leading to observable rates- those ratios depend only on the seesaw mass scale, offering a quite interesting testing ground. Furthermore, it turns out that planned $\mu \rightarrow e$ conversion experiments would be sensitive to masses as low as 2 MeV. Finally, taking into account other experimental constraints, future $\mu \rightarrow e$ conversion experiments will be fully relevant to detect or constrain sterile neutrino scenarios in the 2 GeV–1000 TeV mass range.

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