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LFV Higgs decays in low-scale seesaw models within the mass insertion approximation

Tuesday 24 October 2017 16:00 (25 minutes)

In this talk I present a new computation of the Lepton Flavor Violating Higgs decays that are generated radiatively to one-loop from heavy right-handed neutrinos. We work within the context of the Inverse Seesaw model with three right-handed neutrinos and three extra singlets, but the results could be generalized to other Low Scale Seesaw models. The novelty of our computation is that it uses a completely different method by means of the Mass Insertion Approximation which works with the electroweak interaction states instead of the usual 9 physical neutrino mass eigenstates of the Inverse Seesaw model. This method also allows us to write the analytical results explicitly in terms of the most relevant model parameters, that are the neutrino Yukawa coupling matrix and the right-handed mass matrix, which is very convenient for a phenomenological analysis.

We also study numerically the goodness of the Mass Insertion Approximation results. In the last part we present the computation of the relevant one-loop effective vertex for the Lepton Flavor Violating Higgs decay which is derived from a large right-handed neutrino mass expansion of the form factors. We believe that our simple formula found for this effective vertex can be of interest for other researchers who wish to estimate the corresponding rates in a fast way in terms of their own preferred input values for the relevant model parameters.

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