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Higgs mass corrections in the MSSM-seesaw scenario

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We present a full diagrammatic computation of the one-loop corrections from the neutrino/sneutrino sector to the renormalized neutral CP-even Higgs boson self-energies and the lightest Higgs boson mass, M_h , within the context of the so-called MSSM-seesaw scenario. This consists of the Minimal Supersymmetric Standard Model with the addition of massive right handed Majorana neutrinos and their supersymmetric partners, and where the seesaw mechanism is used for the lightest neutrino mass generation.

We explore the dependence on all the parameters involved, with particular emphasis in the role played by the heavy Majorana scale. We restrict ourselves to the case of one generation of neutrinos/sneutrinos.

We find sizeable corrections to M_h , which are negative in the region where the Majorana scale is large (10^{13} - 10^{15} GeV)

and the lightest neutrino mass is within a range inspired by data (0.1-1 eV). For some regions of the MSSM-seesaw parameter space, the corrections to M_h are substantially larger than the anticipated Large Hadron Collider precision.

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