

Constraints from Rare Higgs Decays on the TeV-scale Neutrino Mass Model

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The loop-mediated higgs decays constrain the model parameter space of the neutrino mass mechanism based on the fermionic quintuplet in conjunction with the scalar quadruplet. The most significant increase to the higgs to diphoton decay width comes from a doubly charged scalar component, which should be the lightest component in the scalar quadruplet. There is an anti-correlation to the $h \rightarrow Z \gamma$ decay width, a mild suppression by a factor 0.9 – 0.7 in the part of the parameter space where the $h \rightarrow \gamma \gamma$ decay width is enhanced by a factor 1.25 – 2.

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