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The Higgs: supersymmetric partner of the neutrino

Recent LHC searches have provided strong evidence for the Higgs, a boson whose gauge quantum numbers coincide with those of a SM fermion, the neutrino. This raises the question of whether Higgs and neutrino may be related by supersymmetry. I will show explicitly the implications of models where the Higgs is the sneutrino: from a theoretical point of view an R-symmetry, acting as lepton number is necessary; on the experimental side, squarks exhibit novel decays into quarks and leptons, allowing to differentiate these scenarios from the ordinary MSSM.

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