

Lightest Higgs boson decays $h \rightarrow MZ$ in the μ from ν supersymmetric standard model

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We study the lightest Higgs boson decays $h \rightarrow MZ$ in the μ from ν supersymmetric standard model ($\mu\nu$ SSM), where M is a vector meson ($\rho, \omega, \phi, J/\Psi, \Upsilon$). Compared to the minimal supersymmetric standard model (MSSM), the $\mu\nu$ SSM introduces three right-handed neutrino superfields, which lead to the mixing of the Higgs doublets with the right-handed sneutrinos. The mixing affects the lightest Higgs boson mass and the Higgs couplings. In suitable parameter space, the $\mu\nu$ SSM can give large new physics (NP) contributions to the signal strengths of $h \rightarrow MZ$ and $h \rightarrow \gamma\gamma$, which may be detected by a 100 TeV collider or the other future high energy colliders.

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