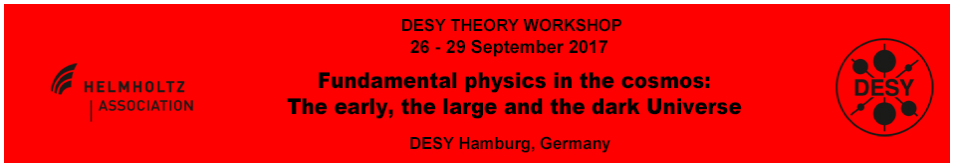

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Sensitivity of the triple Higgs coupling to heavy sterile neutrinos

Wednesday 27 September 2017 14:34 (17 minutes)

Massive neutrinos are required to explain the observation of neutrino oscillations. One of the simplest extension of the Standard Model that can successfully generate neutrino masses and mixing is the addition of fermionic gauge singlets or heavy sterile neutrinos. If an approximate lepton number symmetry is present, these sterile neutrinos can have a mass close to the TeV-scale with large Yukawa couplings, leading to a rich phenomenology. In a first study, we showed that they can induce corrections to the triple Higgs coupling as large as 30% in a simplified 3+1 model with Dirac neutrinos. These effects are potentially larger in low-scale seesaw models, as we showed by considering the inverse seesaw. I will discuss how fermionic singlets induce large corrections to the triple Higgs coupling and how they can be used to probe neutrino mass models in a regime otherwise difficult to access.

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