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Searches of lepton-flavour-violating decays of the Higgs boson with the ATLAS detector at the HL-LHC

Monday, 15 May 2023 17:10 (15 minutes)

This talk presents a study of the prospects of searches for lepton-flavour-violating decays of the Higgs boson into e tau and mu tau final states with 3000 fb-1 of proton-proton collisions at sqrt(s) = 14 TeV using the ATLAS detector at the HL-LHC. The expected HL-LHC results are estimated by extrapolating the recently published ATLAS search in the Run 2 dataset to the HL-LHC conditions, accounting for, among others, the increase in the integrated luminosity and the potential reduction of uncertainties associated with particle reconstruction with the upgraded ATLAS detector. The signatures H->e tau and H->mu tau are treated as independent signals, and two independent approaches of the background estimation are employed and compared.

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