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Type: Talk

## Exotic Decays of Higgs Boson to Light Long-Lived Mediators at HL-LHC, FCC-hh and a Proposal of Dedicated LLP Detectors for FCC-hh

Monday 12 September 2022 15:20 (20 minutes)

We study the pair production of the long-lived mediator particles from the decay of the SM Higgs boson and their subsequent decay into standard model particles. We compute the projected sensitivity, both model-independently and with a minimal model, of using the muon spectrometer of the CMS detector at the HL-LHC experiment for ggF, VBF, and Vh production modes of the Higgs boson and various decay modes of the mediator particle, along with dedicated detectors for LLP searches like CODEX-b and MATHUSLA. Subsequently, we study the improvement with the FCC-hh detector at the 100 TeV collider experiment for such long-lived mediators, again focusing on the muon spectrometer. We propose dedicated LLP detector designs for the 100 TeV collider experiment, DELIGHT (Detector for long-lived particles at high energy of 100 TeV), and study their sensitivities.

### Is this abstract from experiment?

No

### Name of experiment and experimental site

N/A

### Is the speaker for that presentation defined?

Yes

### Details

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### Internet talk

Yes

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