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Exotic Higgs Decays at the LHeC

At the (HL-)LHC, the search of some important exotic Higgs decay processes such as invisible decay and Higgs to 4b suffers from large backgrounds and large pile-up effects. In this talk I will discuss the prospects of studying these exotic Higgs decays at the proposed Large Hadron Electron Collider (LHeC) which is expected to run synchronously with the HL-LHC. For the invisible Higgs decay, the LHeC is expected to deliver comparable sensitivity compared to the HL-LHC, while for the Higgs to 4b case, the LHeC sensitivity is much better than the HL-LHC. These results are very attractive for the study of exotic Higgs decays if no lepton collider with sufficient center of mass energy is available before the end of the HL-LHC.

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