

Abstract Submitted
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Search for Long-lived Particles with Trackless Jets and Missing Transverse Energy (ECAL Timing) at LHC with CMS Detector JIAJING MAO, Caltech, CMS COLLABORATION COLLABORATION — We present a search for long-lived particles (LLPs) that decay to Higgs or Higgs-like bosons using a trackless and delayed jet signature. LLP decays that occur in the calorimeter systems will produce a jet object with no associated tracks and significant delays in arrival time. We combine the time stamps recorded in the CMS ECAL to reconstruct the arrival time of jets. Machine learning techniques are used to develop a trackless and delayed jet tagger based on deep neural networks. The results are based on data from proton-proton collisions at the Large Hadron Collider (LHC) at a center-of-mass energy of 13 TeV collected by the CMS experiment, corresponding to an integrated luminosity of 137 fb⁻¹. We achieve the best sensitivity for LLP decays that occur between a few tens of centimeters to about one meter from the interaction point.

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