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Discriminating multiprong jet substructure

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A wide array of jet substructure based techniques have been used to discriminate large-radius jets coming from the hadronic decay of top quarks against those from light quark or gluons. However, discriminating jets with more than three-prongs have been much less explored. In this work, a new physics signal of a boosted right handed heavy neutrino decaying to a top-bottom quark along with a charged lepton is investigated. The aim is to see which jet substructure observables can be sensitive to identify this signal over the multijet and top quark pair production background processes.

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