

Reconstruction of boosted di- τ topologies with CMS

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The precise measurement of the Higgs boson properties remain pivotal in understanding the fundamental principles of particle physics. For the CMS experiment, the reconstruction of boosted Higgs bosons presents unique challenges, demanding innovative techniques for accurate identification and analysis. We explore novel approaches leveraging graph neural networks (GNNs) to enhance the reconstruction of boosted Higgs bosons within the CMS experiment, particularly focusing on the Higgs decay channel into a pair of tau leptons. This channel holds significant promise owing to the strong Yukawa coupling between the Higgs boson and the tau lepton. The proposed GNN-based methodologies are targeted for the reconstruction of boosted Higgs boson decays within the Run-2 dataset of the CMS experiment.