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ParticleNet and its application at CEPC Jet Flavor Tagging

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ParticleNet, a customized neural network architecture based on Dynamic Graph Convolutional Neural Network, has achieved significant improvements over all existing methods in two jet tagging tasks in proton-proton collisions: top tagging and quark-gluon tagging. Currently, it is widely used in physics analyses conducted by CMS. In this study, we employ ParticleNet in the CEPC and analyze its performance in jet flavor tagging for different configurations of the CEPC vertex detector, which has a significant impact on flavor tagging. The obtained results provide solid evidence for the efficacy of ParticleNet in the CEPC.

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