

Particle flow and flavor tagging with Graph Neural Network

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Particle flow and flavor tagging are the key algorithms determining physics performance at reconstruction for Higgs factory detectors. Particle flow is the reconstruction of individual particles inside jets, which requires precise track-cluster matching in addition to clustering of calorimeter hits. We are implementing a track-cluster matching algorithm on top of GravNet-based calorimeter clustering algorithm developed in the context of CMS HGCAL reconstruction. The first statistical analysis with ILD full simulation will be presented. We are also working on advanced flavor tagging based on GNN such as ParticleNet or ParticleTransformer whose are developed at LHC experiments. Since FCCee colleagues reported much better performance (but with fast simulation) than existing software for Higgs factories (LCFIPlus) with those algorithms, we would like to confirm it with ILD full simulation. The first results will be presented in this talk as well.

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