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Jet Origin id at Higgs factory (poster-ID81)

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We propose the concept of Jet Origin Identification that aims to identify from which colored SM particle an objective jet originated.

Using full simulated CEPC 2-jet events data, we realize this concept using Arbor and ParticleNet.

In this context, jet origin identification could simultaneously identify 11 different origins of a jet, corresponding to 5 quarks (UDSBC), 5 anti-quarks, and gluon.

It typically exhibits a flavor tagging efficiency of 90/80/70% for b/c/s jets, ~60% for gluon jets, and ~40% for U and D jets.

In addition, it controls the error rates for jet charge measurements ranging from 10-20% for all quark jets.

The impact on the physics program and detector design/requirements are also discussed.

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Session Classification: Poster Session (with Coffee)