XXVI DAE-BRNS High Energy Physics Symposium 2024



Contribution ID: 24

Type: Postar

Jet Energy Scale Uncertainty Using Single Particle Response Measurements

The study presents a generic approach that deals with jet constituents to derive the jet energy scale (JES) uncertainty. It uses single-particle E/p response measurements obtained from 13 TeV Run 2 LHC data from protonproton collisions. The E/p method offers a higher precision level than the traditional pT-balance method, but it is in good agreement with it. Both methods are combined to derive the JES. The final output of this combination results in a significant improvement in JES uncertainty across a wide range of jet pT values. The study unveils key insights and advancements in the precise determination of jet energy scales.

Field of contribution

Experiment

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Track Classification: Future experiments and detector development