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Jet Calibration with Uncertainty-Aware Precision Networks

Abstract: Utilizing modern ML-techniques, we address the challenge of multi-dimensional correlated calibration of topological calorimeter-cell clusters (topo-clusters). Our Bayesian neural network (BNN) approach not only yields a continuous, unbinned calibration function that improves performance relative to the standard calibration but also provides single-cluster uncertainties. A boosted training of the BNN further improves the uncertainty estimate and the network precision in critical phase-space regions.

Authors: Mr VOGEL, Lorenz (Heidelberg University); LOCH, Peter (University of Arizona (US)); PLEHN, Tilman

Presenter: Mr VOGEL, Lorenz (Heidelberg University)

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