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Machine Learning the Top Mass

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Energy correlators have recently shown potential to improve the precision on the top mass precision measurement. However, existing measurement strategies still only use part of the information in the EEEC distribution and rely on arbitrary shape choices. In this talk, we explore the ability of Machine Learning to effectively optimize shape choice and reduce error on the top mass. Specifically, we utilize several simulation based inference approaches (both supervised and unsupervised) to learn the full 3D distribution in energy correlator space, and then use both regression and (energy-weighted) likelihood based approaches to extract the optimal value of the error on the Top Mass from this 3D distribution.

Track

Uncertainties

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