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Precision Machine Learning for the Matrix Element Method

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The matrix element method is the LHC inference method of choice for limited statistics, as it allows for optimal use of available information. We present a dedicated machine learning framework, based on efficient phase-space integration, a learned acceptance and transfer function. It is based on a choice of INN and diffusion networks, and a transformer to solve jet combinatorics. We showcase this setup for the CP-phase of the top Yukawa coupling in associated Higgs and single-top production.

Primary Field of Research

Author: HUETSCH, Nathan (Heidelberg)

Co-author: PLEHN, Tilman (Heidelberg University)

Presenters: HUETSCH, Nathan (Heidelberg); PLEHN, Tilman (Heidelberg University)

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