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Amplitude interpolation with equivariant neural networks

We present a detailed comparison of multiple interpolation methods to characterize the amplitude distribution of several Higgs boson production modes at the LHC. Apart from standard interpolation techniques, we develop a new approach based on the use of the Lorentz Geometric Algebra Transformer (L-GATr). L-GATr is an equivariant neural network that is able to encode Lorentz and permutation equivariant operations into a transformer architecture. Thanks to its symmetry awareness and the attention mechanism, we are able to obtain excellent results for the interpolation at tree-level and one-loop, specially at the low sample limit.

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