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Scalar content of nucleon with the gradient flow using machine learning

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We present the results of our determination of the scalar content of the nucleon using various techniques to address the large computational cost of a direct calculation. The gradient flow is employed to improve the signal, combined with the stochastic calculation of the all-to-all propagator using the standard Hutchinson trace method. By using supervised machine learning, decision trees in our case, we further reduce the numerical cost by having the ML algorithm model the correlations between different flow times, allowing us to compute the flow only on a small subset of the whole ensemble. Our results are validated against the "traditional" result and against established comparable results from FLAG.

Topical area

Algorithms and Artificial Intelligence

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