

First Neural-Network Extraction of Unpolarized Transverse-Momentum-Dependent Distributions

Tuesday 14 October 2025 10:30 (25 minutes)

We present the first extraction of transverse-momentum-dependent distributions of unpolarized quarks from experimental Drell-Yan data using neural networks to parametrize their nonperturbative part. We show that neural networks outperform traditional parametrizations providing a more accurate description of data. This work establishes the feasibility of using neural networks to explore the multi-dimensional partonic structure of hadrons and paves the way for more accurate determinations based on machine-learning techniques.

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