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Teaching to extract spectral densities from lattice correlators to a broad audience of learning-machines

Tuesday, 1 August 2023 16:20 (20 minutes)

I will present a new method, developed in collaboration with M. Buzzicotti and N. Tantalo and based on deep learning techniques, to extract hadronic spectral densities from lattice correlators. Hadronic spectral densities play a crucial role in the study of the phenomenology of strong-interacting particles and the problem of their extraction from Euclidean lattice correlators has already been approached in the literature by using machine learning techniques. In devising a new method the big challenge to be faced can be summarized in two pivotal questions: 1) is it possible to devise a model independent training strategy? 2) if such a strategy is found, is it then possible to quantify reliably, together with the statistical errors, also the unavoidable systematic uncertainties? We faced the challenge and our answers to these questions will be the subject of the talk.

Topical area

Algorithms and Artificial Intelligence

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