Contribution ID: **17**   Type: **not specified**

Normalizing Flows for Effective String Theory

Monday, 26 June 2023 15:30 (25 minutes)

Effective String Theory (EST) is a non-perturbative framework used to describe confinement in Yang-Mills theory through the modeling of the interquark potential in terms of vibrating strings. An efficient numerical method to simulate such theories where analytical studies are not possible is still lacking. However, in recent years a new class of deep generative models called Normalizing Flows (NFs) has been proposed to sample lattice field theories more efficiently than traditional Monte Carlo methods. In this talk, we show a proof of concept of the application of NFs to EST regularized on the lattice. Namely, we use as case study the Nambu-Goto string in order to use the well-known analytical results of this theory as a benchmark for our methods.

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