Contribution ID: **357** Type: **Talk**

Gauge field digitization in the Hamiltonian limit

Monday, 29 July 2024 12:15 (20 minutes)

The use of quantum computers could circumvent the complex action problem hampering first-principles studies of gauge theories in real time or at finite density. One of the main bottlenecks of quantum computers is the limited number of available qubits. One approach to mitigate this bottleneck is the discretization of continuous gauge groups to their discrete subgroups, which introduces systematic uncertainties. Previously, discrete subgroups and dense subsets of gauge groups had been investigated, but only with isotropic Euclidean lattices. In this work, we take the first steps in studying the systematics associated with digitization by performing anisotropic Euclidean simulations and taking the Hamiltonian limit, where the temporal lattice spacing approaches zero while the spatial lattice spacing is kept fixed.

Primary authors: PASZTOR, Attila (University of Wuppertal); PESZNYÁK, Dávid (Eötvös Loránd University, HUN-REN Wigner Research Centre for Physics)

Presenter: PESZNYÁK, Dávid (Eötvös Loránd University, HUN-REN Wigner Research Centre for Physics)

Session Classification: Quantum computing and quantum information

Track Classification: Quantum Computing and Quantum Information