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Investigating the Hybrid Monte Carlo with coherent conjugate momenta

Tuesday 4 November 2025 15:50 (20 minutes)

In this talk, we discuss tests of the Hybrid Monte Carlo algorithm using four dimensional pure SU(3) gauge theory when the conjugate momenta are not chosen as random Gaussian variables of uniform variance for each lattice site, but instead are represented as different normal modes across the lattice volume, with variable variance. Generically, this involves simulating in a fixed gauge. One goal of this work is to investigate whether appropriate conjugate momentum modes can, for example, speed up a particular part of the evolution of the lattices, such as topological charge.

Parallel Session (for talks only)

Algorithms and artificial intelligence

Author: MAWHINNEY, Robert (Columbia University)

Presenter: MAWHINNEY, Robert (Columbia University)

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