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Applying the Worldvolume Hybrid Monte Carlo method to lattice gauge theories

Monday 3 November 2025 14:50 (20 minutes)

The numerical sign problem remains one of the central challenges in first-principles simulations. The Worldvolume Hybrid Monte Carlo (WV-HMC) has recently emerged as a reliable and computationally efficient algorithm, and, crucially, avoids the ergodicity issues inherent in Lefschetz-thimble approaches. In this talk, after outlining the key ideas behind WV-HMC, I will present its extension to group-manifold configuration spaces and report on recent progress in its application to lattice gauge theories. [Based on arXiv:2506.12002 [hep-lat] and ongoing work.]

Parallel Session (for talks only)

Algorithms and artificial intelligence

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