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Simulating low dimensional QCD on Lefschetz thimbles

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Non-perturbative lattice QCD calculations at non-vanishing baryon number density are hampered by the sign problem. The path integral becomes highly oscillating and standard Monte Carlo techniques cease working. One possible solution is the Lefschetz thimble approach. It requires a deformation of the original integration domain into a manifold embedded in complex space. For properly chosen integration manifolds (“thimbles”) the sign problem is drastically alleviated. For some bosonic and fermionic models this approach has been shown to work. In this talk we will discuss aspects of the thimble discretization of low dimensional QCD.

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