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Diffusion models for U(2) and SU(2) lattice field theory

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Recent works have shown diffusion models to be promising candidates for improving upon Monte Carlo methods in the context of lattice field theory. While these works have mostly focused on abelian groups, an application to QCD requires the extension to non-abelian gauge groups.
In this work, we consider U(2) and SU(2) lattice field theory, and further explore the extension of the method to U(3) and SU(3).
For generating field configurations, instead of the usual diffusion model sampling, we use the Metropolis-adjusted annealed Langevin scheme.
This may enable us to use a model which was trained at a specific coupling to extrapolate to stronger couplings where the usual Monte Carlo methods face problems.

Special requests

I think I mentioned it before, but please schedule my talk between monday and thursday, as I already have to leave on friday. Thank you! Thomas

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