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A simple method to optimize HMC performance

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We present a cheap strategy to optimize Hybrid Monte Carlo parameters in simulations of QCD and QCD-like theories. We specialize to the case of mass-preconditioning, with multiple-time-step Omelyan integrators. Starting from properties of the shadow Hamiltonian we show how the optimal setup for the integrator can be chosen once the forces and their variances are measured, assuming that those only depend on the mass-preconditioning parameter.

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