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On the geometric convergence of HMC on Riemannian manifolds

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On the geometric convergence of HMC on Riemannian manifolds.

In this presentation we apply Harris' ergodic theorem on Markov chains to prove the geometric convergence of Hamiltonian Monte Carlo: first on compact Riemannian manifolds, and secondly on a large class of non-compact Riemannian manifolds by introducing an extra Metropolis step in the radial direction. We shall use ϕ^4 theory as an explicit example of the latter case.

Primary authors: YU, Xinhao (University of Edinburgh); Prof. KENNEDY, Anthony (University of Edinburgh)

Presenter: YU, Xinhao (University of Edinburgh)

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