RUTGERS - CAMDEN MATH SEMINAR

11-12, FRIDAY APRIL 22ND, BSB 117

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Title: Convergence of Langevin Monte Carlo: The Interplay between Tail Growth and Smoothness

Abstract: We study sampling from a target distribution e^{-f} using the Langevin Monte Carlo (LMC) algorithm. For any potential function f whose tails behave like $|x|^\alpha$ for $\alpha \in [1,2]$, and has β-H\"older continuous gradient, we derive the sufficient number of steps to reach the $\eps$-neighborhood of a d-dimensional target distribution as a function of α and β. Our result is the first convergence guarantee for LMC under a functional inequality interpolating between the Poincar\'e and log-Sobolev settings (also covering the edge cases).

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