Seminar/Talk

Long-time behavior of piecewise deterministic samplers: from energy to entropy, convergence and non-convergence

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Host: Giovanni Briganti

Abstract: In this talk, we discuss the long-time behavior of three most commonly used piecewise deterministic samplers, namely Randomized Hamiltonian Monte Carlo (RHMC), Zigzag process (ZZP) and Bouncy Particle Sampler (BPS). All of these, alongside kinetic Langevin dynamics, are second-order lifts of the overdamped Langevin dynamics. The kinetic samplers are advantageous due to its potentially accelerated long-time convergence rates and high accuracy in numerical implementation. We discuss the long-time behavior of these samplers, in both L^2 energy and relative entropy, and showcase the difference between these dynamics, as well as the difference between L^2 energy and entropy, explaining why the convergence results in entropy cannot be generalized to entropy. Joint works with Jianfeng Lu (Duke) and Pierre Monmarché (U Gustave Eiffel).

Tuesday, July 14, 2026 04:15pm - 06:00pm
Office Bldg West / Ground floor / Heinzel Seminar Room (I21.EG.101)

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