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Random dynamical systems of billiard type

Billiard systems, broadly understood, are Hamiltonian systems on manifolds with boundary. When some of the dynamical variables are assumed random and kept at a fixed statistical state, we are led to consider Markov chains whose stochastic dynamics reflect the underlying geometric features of the system. This talk will focus on the interplay between geometry and the diffusion properties of (limits of) Markov chains derived from billiard systems. It will also indicate how such systems can help illuminate the foundations of stochastic thermodynamics.