High-dimensional scaling limit of some piecewise deterministic Markov processes for Monte Carlo methods

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Abstract:
Recently, piecewise deterministic Markov processes have gained interest in the Monte Carlo community in the context of scalable Monte Carlo integration methods. In this talk, I will discuss some high-dimensional scaling limit for some piecewise deterministic Markov processes that are useful for Monte Carlo methods. I will describe these analyses using multiscale analysis, which is useful for describing the scaling limit of Markov processes. I will also highlight two types of scaling limits corresponding to the tangential direction and the linear direction to the log-density contour. I will comment on some conjectures related to the high-dimensional scaling limit. A part of this talk is joint work with Joris Bierkens and Gareth O. Roberts.