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Piecewise deterministic Monte Carlo

Abstract

In recent years piecewise deterministic Markov processes (PDMPs) have emerged as a promising alternative to classical MCMC algorithms. In particular these PDMP based algorithms have good convergence properties and allow for efficient subsampling. Many different PDMP based algorithms can be designed, but among the most fundamental ones are the Bouncy Particle sampler, the Zig-Zag sampler and the Boomerang Sampler. In this talk these algorithms will be introduced and a comparison of properties of these algorithms will be presented, such as e.g. results on efficient subsampling, ergodicity and scaling with respect to dimension.