

Sampling strategies and diffusion maps

Zofia Trstanova (University of Edinburgh), Ben Leimkuhler

The main challenge for sampling Boltzmann-Gibbs distributions comes from the high dimensionality of the system and complicated (metastable) energies. In this talk, I will focus on Langevin dynamics, and diffusion maps. Diffusion maps are a dimension reduction technique that can provide an approximation of the generator of Langevin dynamics. This approximation can serve as an automatic tool for exploration of the local geometry of the underlying manifold. I will explain how this strategy can accelerate sampling and highlight these ideas by numerical simulations.