
Sampling from log-concave non-smooth densities, when Moreau meets Langevin*

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Abstract

In this talk, a new algorithm to sample from possibly non-smooth log-concave probability measures is introduced. This algorithm uses Moreau-Yosida envelope combined with the Euler-Maruyama discretization of Langevin diffusions. They are applied to a deconvolution problem in image processing, which shows that they can be practically used in a high dimensional setting. Finally, non-asymptotic convergence bounds (in total variation and wasserstein distances) are derived. These bounds follow from non-asymptotic results for ULA applied to probability measures with a continuously differentiable log-concave density. [A paper will be arxiv'd soon (updating <http://arxiv.org/abs/1507.05021>).]