
Convergence of occupation measure for diffusion processes on manifolds: An improved rate with convolution smoothing

Dinh-Toan Nguyen^{*1}

¹Université Gustave Eiffel – UQAM - Université du Québec à Montréal – France

Résumé

Let (M, d) be a connected compact Riemannian submanifold without boundary of \mathbb{R}^m , let $\mu(dx) = p(x)dx$ be a probability measure on M , where dx is the volume measure and d denotes the geodesic distance. Let $\mathcal{L}_p := \Delta + \frac{1}{\sqrt{p}} \nabla p$ be the generator of a diffusion process on M generated by the operator $\mathcal{L}_p := \Delta + \frac{1}{\sqrt{p}} \nabla p$, which can be regarded as the limit of geometric random walk over i.i.d. points.

In this talk, we consider the problem of recovering information on M , and in particular on the measure μ on M , from the occupation measure of $(X_t)_{t \geq 0}$ whose speed of convergence has been established.

Let $p_{T,h}(y) := \frac{1}{T} \int_0^T K_h(X_t, y) dt$, with $K_h(x, y) := \rho_h(x) \int_{\mathbb{R}^m} K(\frac{x-y}{h}, z) dz$ and $\rho_h(x) = \int_{\mathbb{R}^m} K(\frac{x}{h}, z) dz$.

*Intervenant