Regularization result for an infinite-dimensional diffusion process

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Résumé

We construct a diffusion process on the Wasserstein space of probability measures. This process can be viewed as a continuum of massive particles starting at each point of the real line and evolving according to a Gaussian interaction kernel weighted by the mass associated to each particle. This process has two main features. First, we will present a regularization result on the semi-group associated to this process and characterize the size of the perturbation generated by a small modification of the initial measure mu_0. Second, if we let the range of interaction tend to zero, the limit process can be seen as a infinite-dimensional Brownian motion, for which we have an Itô formula.

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