

Victor Marx
(Leipzig University)

Smoothing properties of a diffusion on the Wasserstein space

Abstract

We study in this talk diffusion processes defined on the L_2 -Wasserstein space of probability measures on the real line. We will introduce the construction of a diffusion inspired by (but slightly different from) the modified massive Arratia flow, studied by Konarovskiy and von Renesse. Then, our aim is to show that this diffusion has smoothing properties, similar to those of the standard Euclidean Brownian motion. Namely, we will first show that this process restores uniqueness of McKean-Vlasov equations with a drift coefficient which is not Lipschitz-continuous in its measure argument, extending the standard results obtained by Jourdain and foll. Secondly, we will present a Bismut-Elworthy-Li integration by parts formula for the semi-group associated to this diffusion.