

Regularization by noise in ordinary differential equations and applications.

Christian Olivera*

Abstract

In this course we present the new advances in the theory of stochastic differential equations. We discuss existence and uniqueness of SDEs with non-degenerate additive diffusion and singular drift. We also present applications in stochastic partial differential equations.

Pre requirements :MM597-Stochastic Calculus, MM635 Partial Differential Equations II, MM758 Semigroups of Operators.

References

- [1] F. Flandoli, Random perturbation of PDEs and fluid dynamic models. Lectures from the 40th Probability Summer School held in Saint-Flour, 2010. Lecture Notes in Mathematics, 2015. Springer, Heidelberg, 2011.
- [2] C. Olivera, Regularization by Noise in Ordinary an Partial Differential Equations, publicações matemáticas, IMPA, ISBN 978-85-244-0438-2.

*Departamento de Matemática, Universidade Estadual de Campinas, Brazil. E-mail: *colivera@ime.unicamp.br*.