

Viscosity solutions of second order PDE in Hilbert spaces and applications

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Abstract

We will give an overview of the recent developments in the theory of viscosity solutions of fully nonlinear second order partial differential equations in Hilbert spaces. Several applications, mostly related to optimal control of stochastic PDE and mathematical finance will be discussed. In particular, we will present recent results on applications of Hamilton-Jacobi-Bellman equations in Hilbert spaces to large deviations for solutions of stochastic PDE with small noise intensities.

Key Words: Viscosity solutions, Hamilton-Jacobi-Bellman equations, stochastic optimal control, stochastic PDE