A Wong-Zakai Approximation Scheme for Reflected Stochastic Differential Equations

Chris Evans

In a series of famous papers E. Wong and M. Zakai showed that the solution to a Stratonovich SDE is the limit of the solutions to a corresponding ODE driven by the piecewise-linear interpolation of the driving Brownian motion. In particular, this implies that solutions to Stratonovich SDE ”behave as we would expect from ODE theory”. Working with my PhD advisor, Daniel Stroock, we have shown that a similar approximation result holds, in the sense of weak convergence of distributions, for reflected Stratonovich SDE.