Title: Non-explosion by Stratonovich noise for ODEs

Abstract:

For an ODE where the drift has superlinear growth, explosion may occur in finite time. Here we show that, in dimension two or higher, the addition of a suitable multiplicative noise of Stratonovich type prevents explosion almost surely. We also show the existence of an invariant measure and the geometric ergodicity for the corresponding SDE. The results and the proofs extend previous results and proofs on non-explosion by noise for ODEs.