Initial conditions stability of a numerical approximation for Kolmogorov equations in infinite dimensions

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Abstract

We establish conditions to ensure stability of initial conditions for Kolmogorov equations associated to some kind of stochastic partial differential equations in infinite dimensions. Our approach consists in solving the associated Kolmogorov equation of the underlying SPDE with a spectral method. The numerical solution of the Kolmogorov equation results to be a weak approximation, in probability sense, of a parabolic type of SPDEs. We illustrate our results with numerical experiments.

Keywords: numerical stability, weak approximation, Kolmogorov, spectral methods, SPDs .

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