ALMOST SURE AND MOMENT STABILITY OF STOCHASTIC PARTIAL DIFFERENTIAL EQUATIONS

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Abstract: We study the almost sure and moment stability of a class of stochastic partial differential equations and we present an infinite-dimensional version of a theorem proved for stochastic ordinary differential equations by Arnold, Oeljeklaus and Pardoux. We also investigate how adding a term with white noise influences the stability of a deterministic system. The outcome is quite surprising. It turns out that regardless whether the deterministic system was stable or unstable, after adding a term with sufficiently large noise, it becomes pathwise exponentially stable and unstable in the $p$-th mean for $p > 1$.

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