

ALMOST SURE AND MOMENT STABILITY OF STOCHASTIC PARTIAL
DIFFERENTIAL EQUATIONS

Anna A. Kwiecińska

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 $p > 1$.

1991 AMS Mathematics Subject Classification: Primary: 60H15, 35K10; Secondary: 65N25.

Key words and phrases: Stochastic partial differential equation, almost sure stability, moment stability, deterministic partial differential equation, stabilization by noise, destabilization by noise.

THE FULL TEXT IS AVAILABLE [HERE](#)