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Stochastic equations in infinite dimensions. (English) [Zbl 0761.60052](#)

Encyclopedia of Mathematics and Its Applications. 44. Cambridge etc.: Cambridge University Press. xviii, 454 p. (1992).

This book gives a systematic presentation of stochastic equations in Hilbert and Banach spaces where the equations are defined by the semigroup concept. The following chapters are considered: 1. Random variables, 2. Probability measures, 3. Stochastic processes, 4. The stochastic integral, 5. Linear equations with additive noise, 6. Linear equations with multiplicative noise, 7. Existence and uniqueness for non-linear equations, 8. Martingale solutions, 9. Markov properties and Kolmogorov equations, 10. Absolute continuity and Girsanov's theorem, 11. Large time behaviour of solutions, 12. Small noise asymptotic. An appendix contains foundations on linear deterministic equations, control theory and nuclear and Hilbert-Schmidt operators.

Reviewer: [W.Grecksch \(Merseburg\)](#)

MSC:

60H15 Stochastic partial differential equations (aspects of stochastic analysis)

60-02 Research exposition (monographs, survey articles) pertaining to probability theory

60H30 Applications of stochastic analysis (to PDEs, etc.)

Cited in **23** Reviews
Cited in **1417** Documents

Keywords:

linear equations with additive noise; linear equations with multiplicative noise; stochastic equations in Hilbert and Banach spaces; Girsanov's theorem; control theory; nuclear operators; Hilbert-Schmidt operators

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