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| Titolo | Stochastic PDE's and Kolmogorov Equations in Infinite Dimensions : Lectures given at the 2nd Session of the Centro Internazionale Matematico Estivo (C.I.M.E.)held in Cetraro, Italy, August 24 - September 1, 1998 // by N.V. Krylov, M. Röckner, J. Zabczyk ; edited by G. Da Prato |
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| Soggetti | Probabilities Differential equations Probability Theory Differential Equations |
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| Nota di contenuto | N.V. Krylov: On Kolmogorov's equations for finite dimensional diffusions: Solvability of Ito's stochastic equations; Markov property of solution; Conditional version of Kolmogorov's equation; Differentiability of solutions of stochastic equations with respect to initial data; Kolmogorov's equations in the whole space; Some Integral approximations of differential operators; Kolmogorov's equations in domains -- M. Roeckner: LP-analysis of finite and infinite dimensional diffusion operators: Solution of Kolmogorov equations via sectorial forms; Symmetrizing measures; Non-sectorial cases: perturbations by divergence free vector fields; Invariant measures: regularity, existence and uniqueness; Corresponding diffusions and relation to Martingale problems -- J. Zabczyk: Parabolic equations on Hilbert spaces: Heat equation; Transition semigroups; Heat equation with a first order term; General parabolic equations; Regularity and Quineness; Parabolic equations in open sets; Applications. |
| Sommario/riassunto | Kolmogorov equations are second order parabolic equations with a finite or an infinite number of variables. They are deeply connected |

with stochastic differential equations in finite or infinite dimensional spaces. They arise in many fields as Mathematical Physics, Chemistry and Mathematical Finance. These equations can be studied both by probabilistic and by analytic methods, using such tools as Gaussian measures, Dirichlet Forms, and stochastic calculus. The following courses have been delivered: N.V. Krylov presented Kolmogorov equations coming from finite-dimensional equations, giving existence, uniqueness and regularity results. M. Röckner has presented an approach to Kolmogorov equations in infinite dimensions, based on an LP-analysis of the corresponding diffusion operators with respect to suitably chosen measures. J. Zabczyk started from classical results of L. Gross, on the heat equation in infinite dimension, and discussed some recent results.
