SEMINARIO MATEMATICA

Martedì 11 marzo 2014
ore 15:00

Scuola Normale Superiore
Pisa
Aula Mancini

Michael Roeckner

(University of Bielefeld)
joint work with Viorel Barbu (Romanian Academy, Iasi)

Terrà un seminario dal titolo:

"An operatorial approach to stochastic partial differential equations driven by linear multiplicative noise"

Abstract:
In this talk, we develop a new general approach to the existence and unique-ness theory of infinite dimensional stochastic equations of the form $dX(t) + A(t, X(t))dt = X(t)dW(t)$ in $(0, T) \times H$, where A is a time-dependent nonlinear monotone and demicontinuous operator from V to V^I, coercive and with poly-nomial growth. Here, V is a reflexive Banach space continuously and densely embedded in a Hilbert space H of (generalized) functions on a domain $O \subset R^d$ and V^I is the dual of V in the duality induced by H as pivot space. Furthermore, W is a Wiener process in H. The new approach is based on an operatorial re-formulation of the stochastic equation which is quite robust under perturbation of A. This leads to new existence and uniqueness results for a larger class of equations with linear multiplicative noise than the one treatable by the known approaches. In addition, we obtain regularity results for the solutions with re- spect to both the time and spatial variable which are sharper than the classical ones. New applications include stochastic partial differential equations, as e.g. stochastic transport equations.

Tutti gli interessati sono invitati a partecipare.

Classe di Scienze