

SEMINARI DE PROBABILITATS PROBABILITY SEMINAR Barcelona

Titles and abstracts 3-31/05/2006

Facultat de Matemàtiques, Universitat de Barcelona
Gran Via de les Corts Catalanes, 585; E-08007 Barcelona
Aula/Room IMUB-Facultat de Matemàtiques, 2nd floor
4 p.m.

3/05/2006 Samy Tindel, Institut de Mathématique Élie Cartan, Université Henri Poincaré, Nancy, France

Aplicació de la teoria de rough paths a SPDEs

Abstract: Estudiarem una manera de generalitzar la construcció clàssica dels rough paths per poder donar sentit i resoldre equacions d'evolució no lineals dirigides per un soroll irregular. Com a aplicació d'aquest mètode, analitzarem l'exemple de l'equació de la calor en dimensió 1 dirigida per un moviment brownià fraccionari espai-temps.

10/05/2006 Esko Valkeila, Helsinki University of Technology, Espoo, Finland

Stochastic partial differential equations driven by multi-parameter Lévy white noise

17/05/2006 Esko Valkeila, Helsinki University of Technology, Espoo, Finland

Fractional Brownian motion as a model in finance

24/05/2006 Eric Gautier, ENS de Cachan, antenne Bretagne, Bruz, and CREST, Paris, France

Large deviations for stochastic nonlinear Schrödinger equations and applications to the evaluation of error in soliton communications

Abstract: We consider nonlinear Schrödinger equations that appear as a model for the propagation of wave packets in weakly nonlinear and weakly dispersive media. In one space dimensions and with a cubic and focusing nonlinearity, localized solutions, called soliton, may propagate. They could be used as information carriers to transfer bits in fibers over long distances. Due to the loss in the fiber, an amplification procedure is used. Random perturbations of this equation have to be considered. We introduce some of the results available for the stochastic nonlinear Schrödinger equations along with sample path large deviations results. Due to noise, error in transmission may occur. We show that large deviations along with bounds on optimal

control problems can give interesting results on the behavior of the tails of the main processes responsible for these errors. We also compare these results with those obtained by physicists based on approximation of the solutions or of associated variational problems.

This work has been done in collaboration with Arnaud Debussche.

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31/05/2006 Jorge Len, CINVESTAV, Mxico

EDE lineales gobernadas por un movimiento browniano fraccionario con parametro de Hurst menor que 1/2

Abstract: En esta charla usaremos la descomposicion en caos para demostrar la existencia de una única solución para ecuaciones lineales fraccionarias en el sentido de Skorohod. Los coeficientes son deterministas.