University of Macau

Faculty of Science and Technology

Department of Mathematics

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Large deviations from the stationary measure for randomly forced Navier-Stokes equations

By

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Date: 3 September 2015 (Thursday)

Time: 10:30 a.m. - 11:30 a.m.

Venue: E11- 1040

Abstract

We consider 2D Navier-Stokes equations perturbed by a non-degenerate kick force acting at integer times. It is well known that the discrete-time Markov process obtained by restriction of solutions to the integer lattice has a unique stationary measure μ, which is exponentially mixing in the Kantorovich-Wassertein metric. Our goal now is to study the large deviations of the occupation measures rom μ. To tackle this problem, we develop a general approach based on the Kifer criterion of large deviations for random probability measures and a multiplicative ergodic theorem for generalised Markov semigroups. As a consequence of our main result, we establish the large deviations principle for various observables, including the energy and enstrophy. This is a joint work with V. Jaksic, V. Nersesyan, and C.-A. Pillet.

Biography

Prof. Armen Shirikyan obtained his PhD in mathematics at Moscow State University, and now the first class full professor in University of Cergy Pontoise, France. He has published nearly 50 papers in the top journals such as communication in pure and applied mathematics, communication in mathematical physics, journal of fluid mechanics, probability theory and related fields and so on.

All are Welcome!

FST Seminar - MAT - " Large deviations from the stationary measure for randomly forced Navier-Stokes equations " at 10:30am on 3 September 2015 (Thursday), E11-1040