

INHOMOGENEOUS RANDOM SYSTEMS

Systèmes Aléatoires Inhomogènes

January 28-29, 2014

Institut Henri Poincaré
11, rue Pierre et Marie Curie, Paris

The aim of this annual workshop is to bring together mathematicians and physicists working on disordered or random systems, and to discuss recent developments on themes of common interest. Each of the two days is devoted to a specific topic; the 2014 session is planned as follows.

Tuesday 28 January:

Synchronization.

Moderator: Giambattista Giacomin (Paris).

Synchronization is a crucial mechanism which appears in a variety of real world phenomena, when a number of units (particles, cells, oscillators, individuals, circuits, ...) show a synchronous, or approximately synchronous, dynamical activity. Synchronicity may have different origins: it is often the result of interactions between units, or may be due to an external pacemaker. Synchronicity may be identified in systems made of just a few or very many units, like in multicellular organisms or in colonies of organisms. Moreover the onset of synchronicity may lead to enhancing the characteristics of the interacting units, while in other instances synchronicity may induce substantial changes of the behavior of the single units. The purpose of this day is to give snapshots of ideas, of research directions and of unifying concepts in this field, that uses tools of dynamical systems (random and deterministic, finite and infinite dimensional) and that often demands novel probabilistic ideas, coming from random graph theory and nonequilibrium statistical mechanics.

Preliminary list of speakers: Nils Berglund (Orléans), Paolo Dai Pra (Padova), Bastien Fernandez (Marseille), Jürgen Jost^(*) (Leipzig), Khashayar Pakdaman (Paris), Arkady Pikovsky (Potsdam).

Wednesday 29 January:

Time delays in stochastic systems.

Moderator: Jacek Miękisz (Warszawa)

It is known that time delays may cause oscillations in solutions of ordinary differential equations. In biological systems it takes time for biochemical reactions to be completed and for signals to be transmitted between various parts of the system. We will discuss combined effects of time delays and stochasticity on the behaviour of gene regulatory and neural networks and other systems.

Preliminary list of speakers: Fatihcan Atay (Leipzig), Tobias Galla (Manchester), Axel Hutt (Villers-lès-Nancy), Andre S. Ribeiro (Tampere), Raúl Toral (Palma de Mallorca), Janek Wehr (Tucson).

The conference is free and open to all. To facilitate local organization, please register in advance by sending an e-mail with your name, affiliation and mail address to:

inter@math.cnrs.fr with subject: **IRS 2014**

or mail to Ellen Saada, Laboratoire MAP5, Université Paris Descartes
45 Rue des Saints Pères, 75270 Paris cedex 06, France.

You may also consult the conference web page at:

<http://irs.math.cnrs.fr>

Hotel reservations and other practical informations are available on request.

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(*) : To be confirmed.