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09h00
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18h00

Conference Inhomogeneous Random Systems (IRS)

IHP
Amphithéâtre Hermite

URL de la page : https://www.ihp.fr/fr/agenda/conference-inhomogeneous-random-systems-irs

INHOMOGENEOUS RANDOM SYSTEMS

Systèmes Aéatoires Inhomogènes

January 23-24, 2024

Institut Henri Poincaré (also online) 11-13, rue Pierre et Marie Curie, Paris

The aim of this annual workshop is to bring together mathematicians and physicists working on disor- dered 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 2024 session is planned as follows.

Tuesday 23 January:

Large scale limits of particle systems: kinetic theory and applications.

Moderator: Sergio Simonella (Roma)

Large-scale limits allow us to give a rigorous explanation of the link between non-equilibrium phe- nomena occurring in complex systems as fluids and gases, and microscopic modelling based on a few first principles. Kinetic theory has a privileged role in this enterprise. Some of its archetype models can be obtained directly from the deterministic dynamics of large systems of particles, with random initial data. One encounters several challenges, both of physical and mathematical nature, such as: the overcoming of perturbative results, the combination of long range and collisional effects, the understanding of the relation between particle and wave behaviour. The objective of the day is to provide a view of the latest research directions in the field, including the interplay between more fundamental aspects and the impact of kinetic theory in applications.

Speakers: Lorenzo Bertini (Roma), Pierre Degond (Toulouse), Rossana Marra (Roma), Sylvia Serfaty (New York), Herbert Spohn (Mu¨nchen), Raphael Winter (Cardiff).

Wednesday 24 January:

Boundaries in driven systems: Duality, hydrodynamics, and large deviations.

Moderator: Gunter M. Schu¨tz (Juelich)

In the mathematical modelling of many-body systems one usually imposes periodic boundary conditions for their analytical treatment. However, real physical systems have boundaries subject to boundary fields and/or exchange of mass, energy and other quantities that are conserved by the bulk dynamics. Especially in one space dimension and far from thermal equilibrium this has dramatic and often unexpected effects, ranging from causing long-range correlations to inducing non-equilibrium bulk phase transitions. This day of the workshop is devoted to discussing recent developments in the study of steady states, hydrodynamics, and fluctuations in the presence of boundaries as well as related problems.

Speakers: Bernard Derrida (Paris), Chiara Franceschini (Modena), Patricia Gon¸calves (Lisboa), Frank Redig (Delft), Tridib Sadhu (Mumbai)($*$), Ali Zahra (Lisboa).

($*$) : To be confirmed.

The conference and online participation are free and open to all. To facilitate local organization, please register in advance by sending an e-mail with your name, affiliation, mail address, and your choice to be on site or online, to:

inter@math.cnrs.fr with subject: IRS 2024

You may also consult the conference web page at: http://irs.math.cnrs.fr

Giambattista Giacomin Mathématiques, LPSM Université Paris Cité

Christian Maes Theoretische Fysica KU Leuven, Belgium

Ellen Saada Mathématiques, MAP5 CNRS, Université Paris Cité

Partially supported by CNRS, Université Paris Cité and KU Leuven.

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INSTITUT HENRI POINCARÉ - UAR839

Sorbonne Université / CNRS
11 rue Pierre et Marie Curie
75231 Paris Cedex 05

HORAIRES

L'institut :
• lundi au vendredi de 8h30 à 18h,
• fermé les jours fériés.

Le musée - Maison Poincaré :
• lundi, mardi, jeudi et vendredi
de 9h30 à 17h30,
• samedi de 10h à 18h,
• fermé le mercredi et le dimanche.