Du
**08**
JAN.
2024
au
 **22**
MARS.
2024


08h30
 -
20h30

### 2024-T1 QUANTUM MANY-BODY SYSTEMS OUT-OF-EQUILIBRIUM

**Quantum many-body systems out-of-equilibrium, Paris**

Institut Henri Poincaré
11, Rue Pierre et Marie Curie
75005 Paris

INSCRIPTION

**Thematic program held at the *Institut Henri Poincaré.***

**The conferences, the courses and the seminars of this program will also be accessible online:  https://www.ihp.fr/en/live  and/or https://univ-cotedazur.zoom.us/j/3777115746? omn=83887855821**

**Recordings will be available later on:  https://www.carmin.tv/en/**

**Registration is free but mandatory.**

URL de la page : https://www.ihp.fr/fr/agenda/quantum-many-body-systems-out-equilibrium-paris&amp;is_pdf=true

It does not give you an automatic registration for the workshops, so please also register for each workshop you wish to attend.

 

**Presentation of the trimester:**

The theoretical study of quantum many-body systems is a challenging task due to the amazing complexity induced by the huge number of degrees of freedom of these systems. Equilibrium properties of such systems have been deeply studied in the last decades. In particular, at one-dimension, it is possible for some systems to have access to exact solutions, for instance, within Bethe Ansatz methods. Where exact solutions are not accessible, it is possible to use field theoretical approaches or numerical techniques. Even if, formally, it is possible to have exact solutions both at zero and finite temperature, the case of finite (low) temperature can be exceptionally complicated for quantum mixtures, where one should solve an infinite number of coupled equations following a Bethe Ansatz scheme. Although equilibrium at zero temperature is an ideal situation, most of the physical systems are out-of-equilibrium and/or at finite temperature. Indeed in the last years, several communities have concentrated their effort in the study of quantum many-body systems out-of-equilibrium, both close and open. From the mathematical point of view, a lot of progress has been made recently regarding the asymptotic expansion of the many-body Schrödinger equation in macroscopic limits (correlation energies, quantum fluctuations...). Important challenges remain, in particular as regards applications to scaling limits most relevant for experiments, such as the so-called Gross-Pitaevskii limit for bosons.

The aim of this trimester is to give the possibility to the scientists of these different communities to meet, share their advances, create new collaborations and make theoretical frames and mathematical tools progress.

**Confirmed participants:**

- **Roberta Citro** (Salerno University)
- **Chitra R.** (ETH, Zurich)
- **Eugene Demler** (ETH Zurich)
- **Fabian Essler** (University of Oxford)
- **Dimitri Gangardt** (University of Birmingham)
- **Yuval Gefen** (Weizmann Institute)
- **Pietro Massignan** (ICFO Spain)
- **Giuseppe Mussardo** (SISSA - Trieste)
- **Maxim Olshanii** (University of Massachusetts)
- **Tomaz Prosen** (Université de Ljubljana)
- **Yuri Rubo** (Universidad Nacional Autonoma de Mexico)
- **Marzena Szymanska** (University College London)
- **Andrea Trombettoni** (SISSA - Trieste)

**Organizing committee:**

- **Rosario Fazio** (ICTP)
- **Thierry Giamarchi** (University of Geneva)
- **Anna Minguzzi** (University Grenoble-Alpes, CNRS)
- **Patrizia Vignolo** (University Côte d'Azur, CNRS)

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**Scientific committee:**

- **Jean-Sébastien Caux** (Amsterdam)
- **Jakob Yngvason** (Vienna)
- **Corinna Kollath** (Bonn, Germany)
- **Maxim Olshanii** (Boston, USA)
- **Marcos Rigol** (Philadelphia, USA)
- **Païvi Törmä** (Aalto University)
- **Nikolaj Thomas Zinner** (Aarhus University)

\* to be confirmed



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**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.

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