Journée Analyse Appliquée des Hauts-de-France

Rapport sur les contributions

https://indico.math.cnrs.fr/e/14415

ID de Contribution: **1** Type: **Non spécifié**

Fermions in a magnetic fields : derivation of Hartree-Fock dynamics and semiclassical commutators

jeudi 9 octobre 2025 10:30 (1 heure)

In this talk, we will discuss some recent results on the effective dynamical properties for interacting fermionic systems in a magnetic field, in the mean-field regime. This is a joint work with Niels Benedikter (Milan), Chiara Boccato (Pise) and Domenico Monaco (Rome).

Orateur: NGUYEN, Ngoc Nhi (Université de Lille)

ID de Contribution: **2** Type: **Non spécifié**

Acceleration in reaction diffusion models

jeudi 9 octobre 2025 11:30 (1 heure)

In this talk, I'll discuss recent and not-so-recent works involving acceleration phenomena in reaction diffusion and related models. This is from joint works with Coville, Legendre and Zhang.

Orateur: BOUIN, Emeric (Université Paris-Dauphine)

ID de Contribution: **3** Type: **Non spécifié**

About the quantum Navier-Stokes model

jeudi 9 octobre 2025 14:00 (1 heure)

The quantum Navier-Stokes model correspond to the classical Navier-Stokes model in which a quantum correction term called Bohm potential is added. It can also be seen as a particular case of the well-known Navier-Stokes Korteweg models. In this talk I will first present some results about the existence of weak solutions which is obtained using renormalized solutions. The results allow us to obtain also the semi-classical limit i.e. the limit when the parameter behind the Bohm potential tends to zero. This limit lead to the classical Navier-Stokes model. In a second part I will speak about the viscous limit of the model for which we use the previous existence result, the notion of dissipative solutions and relative entropy estimates. This limit leads to a dissipative solution for the quantum Euler model.

Orateur: LACROIX-VIOLET, Ingrid (Université de Lorraine)

ID de Contribution: **4** Type: **Non spécifié**

A Finite Volume Scheme for Compactly Heterogeneous Scalar Conservation Laws

jeudi 9 octobre 2025 15:00 (1 heure)

We present a new way of constructing finite volume schemes for heterogeneous scalar conservation laws. The main idea is to use the theory of discontinuous flux, which recents developments are discussed in the first part of the presentation. Then, the construction of the scheme and the convergence result are presented.

Orateur: SYLLA, Abraham (Université de Picardie Jules Verne)