



UNIVERSITÀ DI PARMA

DIPARTIMENTO DI SCIENZE MATEMATICHE, FISICHE E INFORMATICHE

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COLLOQUIUM del DIPARTIMENTO

Lunedì 29 maggio 2023, ore 16:30

Aula A - Plesso di Matematica

Prof. Luigi Barletti, Università di Firenze

Quantum mechanics in phase-space: how to move on the border between the classical and the quantum world

Abstract: In his celebrated 1932 paper, Eugene Wigner computed "quantum corrections" to the classical Maxwell-Boltzmann equilibrium distribution. The method he used was based on the representation of quantum states as pseudo-distributions in phase space. This "phase space representation of quantum mechanics" is today an active research field not only for theoretical reasons but also for applied purposes. Indeed, this classical-looking formalism finds its perfect application to systems, such as modern nano-devices, that lie at the border between classical and quantum behavior. Another interesting feature is the possibility to borrow mathematical tools from classical kinetic theory.

In this talk we briefly introduce Wigner's formalism and its relations with Boltzmann's kinetic theory, and present some recent applications to quantum diffusion and hydrodynamics.

Tutti sono invitati a partecipare.

Organizzatori: Proff. Adriano Tomassini, Alessandra Lunardi