UNIVERSITÀ DI PARMA

DIPARTIMENTO DI SCIENZE MATEMATICHE, FISICHE E INFORMATICHE

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COLLOQUIUM di DIPARTIMENTO

Prof. François Golse

Ecole polytechnique, CMLS

Giovedì 7 novembre, ore 14:30

Aula A, Plesso di Matematica

Quantum Dynamics and Optimal Transport

Tutti sono invitati a partecipare.

Proff. Adriano Tomassini, Alessandra Lunardi

Abstract: *According to Bohr's correspondence principle in quantum mechanics, the evolution of a particle whose action is very large when compared to Planck's constant can be approximately described by Newton's laws of classical mechanics. In this asymptotic regime, the quantum density describing the state of the particle, which is an operator on a Hilbert space, « converge » to a « distribution function » on the particle classical phase space. The purpose of this talk is to explain how some ideas of optimal transport can be used to « metrize » the set of quantum densities, and to estimate the difference between quantum densities and distribution functions by a quantity which is nicely propagated by the quantum dynamics, and converges to the Euclidean distance between phase space points in the classical limit. (Based on works in collaboration with Clément Mouhot and Thierry Paul).*