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Uniqueness criteria for the Vlasov-Poisson system and applications to mean-field and semiclassical problems.

Monday 3 June 2024 11:30 (1 hour)

The Vlasov-Poisson system is a non-linear PDE describing the mean-field time-evolution of particles forming a plasma or a galaxy.
In this talk I will present uniqueness criteria for the Vlasov-Poisson equation in the classical and semi-relativistic setting, emerging as corollaries of stability estimates in strong (L^p) topologies or in weak topologies (induced by Wasserstein distances), and show how they serve as a guideline to solve mean-field and semiclassical problems. Different topologies will allow us to treat different classes of quantum states.

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