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DK Seminar

June 22, 2016, 14:15 - 15:45
Vienna University of Technology,
Freihaus, green area, 4th floor, 101C

Pedro Sanchez

University of Vienna

Fractional diffusion limit for a fractional Vlasov-Fokker-Planck equation

This talk is devoted to the rigorous derivation of the macroscopic limit of a Vlasov-Fokker-Planck equation in which the Laplacian is replaced by a fractional Laplacian. The evolution of the density is governed by a fractional heat equation with the addition of a convective term coming from the external force. The analysis is performed by a modified test function method and by obtaining a priori estimates from quadratic entropy bounds. In addition, we give the proof of existence and uniqueness of solutions to the Vlasov-fractional-Fokker-Planck equation.