

Rutgers University
Hill Center - Room 705

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The Convergence to Equilibrium of Kinetic Equations

Abstract

The convergence to equilibrium of kinetic equations was first systematically studied by L. Desvillettes and C. Villani. A few different approaches have been developed to study the problem: Lyapunov functional technique, the pseudodifferential calculus, the macroscopic and microscopic decomposition. We introduce in this talk a new constructive approach for the problem of the convergence to equilibrium for a large class of kinetic equations. The approach consists of two types of weak coercive inequalities, which imply exponential or polynomial convergence rate. Our methods work very well not only for hypocoercive systems in which the coercive parts are degenerate but also for the linearized classical Boltzmann equation and the linearized quantum Boltzmann equation.