Analysis and Differential Geometry Colloquium

Recent Progresses in Kinetic Equations

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Abstract: We will discuss recent mathematical results for the Landau and Boltzmann equation. Kinetic equations are used to describe evolution of interacting particles. The most famous kinetic equation is the Boltzmann equation: formulated by Ludwig Boltzmann in 1872, this equation describes motion of a large class of gases. Later, in 1936, Lev Landau derived a new mathematical model for motion of plasma. This latter equation was named the Landau equation. While many important questions are still partially unanswered due to their mathematical complexity, many others have been solved thanks to novel combinations of analytical techniques, in particular the ones developed by Hoermander, J. Nash, E. De Giorgi and Moser.

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WH 111

Mathematics
Emory University