

Particle systems and the BGK-equation

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Abstract

The BGK-equation was developed for the purpose of numerical simulation of rarefied flows. It is a kinetic equation where the collision term of the Boltzmann equation is replaced by a non-linear relaxation term, which satisfies many important properties of the Boltzmann equation: conservation of mass, momentum and energy, entropy production and trend to equilibrium. However, it is essentially a phenomenological equation, and there seems to be very little literature attempting to make a rigorous derivation of the equation. In this talk I will discuss a possible approach to deriving the BGK-model from a particle system.