Topics course:
Boltzmann Equations and Hydrodynamics Limits

Course Information:

Instructor: Toan T. Nguyen
Class meeting time: Tuesdays and Thursdays, 9 - 10:20am at 180 G, room 102A
Office hours: by appointment

Course Plan:

So far, I plan to cover the followings:
- Formal derivation of Boltzmann (from [1])
- Elementary properties of Boltzmann
- Averaging lemmas
- Boltzmann near vacuum
- Boltzmann near Maxwellian (?)
- Various hydrodynamics limits (mostly formal).

Sources:

1. C. Cercignani, R. Illner, and M. Pulvirenti, *The Mathematical Theory of Dilute Gases.* Applied Mathematical Sciences.

2. B. Glassey, *The Cauchy problem in kinetic theory*, Society for Industrial and Applied Mathematics (SIAM), Philadelphia, PA, 1996. xii+241 pp.

3. F. Golse and D.C. Levermore, Hydrodynamic limits of kinetic models. *Topics in kinetic theory, 1-75, Fields Inst. Commun., 46.*

4. L. Saint-Raymond, *Hydrodynamic Limits of the Boltzmann Equation.* Series: Lecture Notes in Mathematics, Vol. 1971