

Infinite Energy Solutions of the Boltzmann Equation: Recent Developments

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In the theory of the Boltzmann equation associated with Maxwellian cross sections, possibly singular, it is discovered by Bobylev and Cercignani about 15 years ago that there exists a family of self-similar solutions having infinite energy for all time. Since their work, there have been a list of noticeable work related with infinite energy solutions. In this talk, we present

- (1) self-similar solutions of Bobylev-Cercignani,
- (2) the Fourier theory of Cannone-Karch and Morimoto,
- (3) the most recent developments of Morimoto, Yang and Wang on the Fourier characterizations of the space of probability measures having finite moments.

We will also discuss about some open problems and future work. If time is allowed, we will talk about the analogous theory of the Boltzmann equation in the inelastic setting developed by Carrilo, Toscani et. al.