中国科学院数学与系统科学研究院

偏微分方程及其应用中心

学术报告

报告题目： **Compressible fluid limit for the Landau equation**

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摘　　要： We are concerned with the compressible Euler limit for smooth solutions to the Landau equation with Coulomb potentials in the whole space. Specifically, over any finite time interval where the full compressible Euler system admits a smooth solution around constant states, we construct a unique solution in a high-order weighted Sobolev space for the Landau equation with suitable initial data and also obtain the uniform estimates with the convergence rate $O(\varepsilon)$ for any small Knudsen number ε. The proof is based on the macro-micro decomposition around local Maxwellians and uniform estimates are established via an ε-dependent energy functional to capture the dissipation in the compressible fluid limit with feature that only the highest order derivatives are singular.