Long-time behavior of weak solutions for compressible Navier-Stokes equations with degenerate viscosity

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报告时间：2022 年 4 月 26 日上午 09:30-10:30

腾讯会议 ID: 114 255 993

链接： https://meeting.tencent.com/dm/7Ui5vGCyOytj

报告摘要： The long-time regularity and asymptotic of weak solutions are studied for compressible Navier-Stokes equations with degenerate viscosity in a bounded periodic domain in two and three dimensions. It is shown that the density keeps strictly positive from below and above after a finite period of time. Moreover, higher velocity regularity is obtained via a parabolic type iteration technique. Since then the weak solution conserves its energy equality, and decays exponentially to the equilibrium in L2 -norm as time goes to infinity. In addition, assume that the initial momentum is zero, the exponential decay rate of the derivatives is derived, and the weak solution becomes a strong one in two-dimensional space.

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西北大学数学学院
2022 年 4 月 22 日