

中国科学院数学与系统科学研究院

应用数学研究所

华罗庚应用数学青年论坛

报告题目: **Incompressible limit of non-isentropic ideal MHD equations for a perfect conductor**

报告人: 章俊彦 博士 (新加坡国立大学)

时间: 2024年7月15日 (星期一) 下午 16:00--17:00

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摘要: We consider compressible non-isentropic ideal MHD equations in a reference domain where the magnetic field is tangential to the boundary. First, we prove the incompressible limit of the fixed-domain problem with well-prepared initial data. The key observation is a hidden structure contributed by Lorentz force in vorticity analysis, which motivates us to introduce certain anisotropic Sobolev norms with suitable weight of Mach number. Combining this observation with techniques in free-boundary problems, we can also establish the incompressible limit of current-vortex sheets with or without surface tension. Finally, we also introduce the methods to tackle the case for ill-prepared initial data under the fixed-domain setting.

个人简介: 章俊彦, 2017年本科毕业于中国科学技术大学, 2022年博士毕业于美国约翰霍普金斯大学数学系, 博士导师是 Hans Lindblad, 现为新加坡国立大学数学系博士后 (Peng Tsu Ann assistant professor), 合作导师是 Yao Yao。目前主要研究流体偏微分方程中的自由边界演化问题和奇异极限问题等, 主要学术论文发表在 Arch. Ration. Mech. Anal., Cal. Var. PDEs, SIAM J. Math. Anal. 等重要期刊上。