中国科学院数学与系统科学研究院应用数学所

偏微分方程及其应用中心

学术报告

报告题目： **Asymptotic analysis of the system describing a small rigid body in viscous incompressible fluid**

报 告 人： **Pei Su(Université Paris-Saclay, Institut de Mathématique d'Orsay, France)**

时　　间： **2024年08月11日（星期日）17:00-18:00**

地　　点： **数学院南楼620**

摘　　要： We consider the evolution of a small rigid body immersed in an incompressible viscous fluid filling the whole space R^3. When the small rigid body shrinks to a "massless" point in the sense that it's density is constant, we prove that the solution of the fluid-rigid body system converges to a solution of the Navier-Stokes equations in the full space. Based on some L^p-L^q estimates of the fluid-structure semigroup and a fixed point argument, we obtain a uniform estimate of the velocity of the rigid body. This allows us to construct admissible test functions which plays a key role in the procedure of passing to the limit. This is based on a joint work with J. He (Paris-Sud).