

《黏性不可压流体建模》

图书基本信息

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章节摘录

版权页：插图： The uniqueness of weak solutions is completely open in all dimensions even in two dimensions. Of course, the uniqueness of solutions is close to the regularity of solutions. It has been well known that the solution which is regular enough is unique and any weak solution is equal to a strong one if the latter exists [38]. However, we can't expect full regularity results to be known since they would imply regularity results for the homogeneous Navier-Stokes equations (1.6). The existence of strong solutions was obtained by Kazhikov and his collaborators. They assumed that μ is a constant and p_0 is bounded away from 0 and proved the local existence of unique strong solution for all sufficiently regular data. This result was later extended by Ladyzhenskaya and Solonnikov, Padula, Salvi. But they all required that the initial density may not vanish (i.e. non-vacuum). Later, Choe and Kim obtained an local existence result on strong solutions with nonnegative densities in case that μ is a constant. Recently, they proved the local existence of unique strong solutions in a bounded domain of \mathbb{R}^n ($n = 2, 3$) for all initial data satisfying a natural compatibility condition in the case when μ depends on p and the initial density p_0 may vanish in an open subset of .

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《黏性不可压流体建模》适合偏微分方程专业的研究生、教师和有关的科学工作者参考。书末附有较详细的参考文献，便于读者在这一方向上开展研究工作。

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