<<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 alldimensions even in two dimensions. Of course, the uniqueness of solutions is close to the regularity of solutions. It has been wellknown that the solution which is regular enough is unique and anyweak solution is equal to a strong one if the later 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 andhis collaborators. They assumed that μ is a constant and po isbounded away from 0 and proved the local existence of unique strongsolution 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 strongsolutions with nonnegative densities in case that μ is a constant. Recently, they proved the local existence of unique strongsolutions in a bounded domain of Rn(n = 2,3) for all initial datasatisfying a natural compatibility condition in the case when μ depends on p and the initial density p0 may vanish in an open subset of

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