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On scale-invariant solutions of the Navier-Stokes equations

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Abstract

In this talk we will consider various classes of the Navier-Stokes solutions which are invariant under the natural scaling symmetry of the equations. These include the forward self-similar solutions and the Landau solutions. We will outline the proof of a recent result with Hao Jia that, under natural assumptions, any scale-invariant data give rise to a global, scale-invariant solutions. Connections with the problem of uniqueness of the Leray-Hopf weak solutions will also be discussed.

AMS Classification: .

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