

LOCAL EXISTENCE AND GEVREY
REGULARITY OF 3-D PERIODIC NSE WITH
 ℓ_p INITIAL DATA

Animikh Biswas

Preprint no. 2003-10

Abstract

We obtain local existence and Gevrey regularity of 3-D periodic Navier-Stokes equations with ℓ_p ($p < 3/2$) initial data. The ℓ_p norm and the analogous Gevrey norm of the solution remains bounded on a time interval whose size depends only on the body force and the ℓ_p norm of the initial data. The control on the Gevrey norm produces explicit estimates on the analyticity radius of the solution as in Foias and Temam (1989).