

1139-35-674

Dat T Cao*, Department of Mathematics and Statistics, Texas Tech University, Lubbock, TX 79409, and **Luan T Hoang**, Department of Mathematics and Statistics, Texas Tech University, Lubbock, TX 79409. *Asymptotic expansions for decaying solutions of Navier-Stokes equations.*

We investigate the long-time behavior of solutions to the three-dimensional Navier-Stokes equations with periodic boundary conditions. We show that if the force has an asymptotic expansion, as time goes to infinity, with respect to certain families of decaying functions in Sobolev-Gevrey space, then any weak solution admits an asymptotic expansion of the same type. In particular, we establish the expansions in terms of power decaying functions and the log or log(log) decaying ones. This is a joint work with Luan Hoang (Texas Tech University). (Received February 20, 2018)