1145-35-284   **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. *Large-time asymptotic expansions in general systems of decaying functions for the Navier-Stokes equations.*

We study the large time behavior of solutions to the three-dimensional Navier-Stokes equations with periodic boundary conditions. It is shown 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 forces and the logarithmic and iterated logarithmic decaying ones. This is a joint work with Luan Hoang (Texas Tech University). (Received August 28, 2018)

1