Texas Tech University. Analysis Seminars.

Long-time asymptotic expansions in general systems of decaying functions for the Navier-Stokes equations. Part I.

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Room: MATH 109. Time: 4:00pm.

ABSTRACT. We discuss the long-time behavior of solutions to the three-dimensional Navier-Stokes equations with periodic boundary conditions. We introduce appropriate systems of decaying functions and the asymptotic expansion with respect to those systems. We then show that if the force has a long-time asymptotic expansion in Sobolev-Gevrey spaces in such a general system then any Leray-Hopf weak solution admits an asymptotic expansion of the same type. Particularly, we obtain the expansions in terms of the logarithmic and iterated logarithmic decay and recover the case of power decay obtained earlier. This is a joint work with Luan Hoang (Texas Tech University).