1025-76-12   **Luan T Hoang***, School of Mathematics, Univ. of Minnesota, 127 Vincent Hall, 206 Church St. S.E., Minneapolis, MN 55455, **Ciprian Foias**, Department of Mathematics, Texas A&M Univ, 3368 TAMU, College Station, TX 77843-3368, and **Basil Nicolaenko**, Department of Mathematics, Arizona State Univ, Tempe, AZ 85287-1804. *Statistical solutions to the Navier–Stokes equations and long time behaviors of fluid flows.* Preliminary report.

We study the asymptotic behavior of the statistical solutions to Navier-Stokes equations using the normalization map which was introduced by Foias and Saut. It is then applied to the study of mean energy, mean dissipation rate of energy, and mean helicity of the spatial periodic flows driven by potential body forces. The statistical distribution of the asymptotic Beltrami flows are also investigated. We connect our mathematical analysis with the empirical theory of decaying turbulence.

This is a joint work with Ciprian Foias and Basil Nicolaenko. (Received November 06, 2006)