

1142-76-119

Animikh Biswas* (abiswas@umbc.edu). *Navier-Stokes equations in Gevrey classes*. Preliminary report.

We discuss existence time for the 3D Navier-Stokes equations (NSE) in a new functional class which is a subclass of smooth functions. This class appeared recently in the work of Foias, Jolly, Yong and Zhang in the study of the attractors for the 2D NSE. We show that for the 3D case, the differential inequality that one obtains in this class is very nearly linear. This leads to an existence time which is better than the reciprocal of any power of the norm of the initial data. Subsequently, we discuss blow up rates for solutions in analytic Gevrey classes. (Received August 31, 2018)