1151-35-95      **Animikh Biswas** and **Joshua Hudson**, MD , and **Jing Tian\*** (`jtian@towson.edu`), MD. *On the blow-up solutions of the 3D Navier-Stokes equations in Gevrey spaces.* Preliminary report.

We show that if a solution of the incompressible 3D Navier–Stokes equations leaves a Gevrey spaces in finite time, then it must do so exceeding a certain rate, determined by the regularity of the particular Gevrey space. By using a commutator estimate of the nonlinear term, we obtain the best known blow-up rate for $s > \frac{5}{2}$. In addition, by considering the vorticity formulation, we obtain results for $\frac{1}{2} < s < \frac{5}{2}$. We also show how our results extend to Sobolev spaces, $H^s$, for $\frac{1}{2} < s < \frac{5}{2}$ and $s > \frac{5}{2}$. (Received August 10, 2019)