Logarithmically Improved Extension Criteria Involving the Pressure for the Navier-Stokes Equations in $\mathbb{R}^3$

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Abstract

In the talk, several new extension criteria involving the pressure for the non-stationary 3D Navier-Stokes equations are presented. We shall show that, for example, if a strong solution $u$ on $[0, T)$ and the pressure $\pi$ associated with $u$ satisfy the condition

$$\int_0^T \frac{\|\pi(\tau)\|_{B^{-\frac{3}{p}}_\infty}^{\frac{2}{r}}}{\log(e + \|u(\tau)\|_{H^s})} d\tau < \infty$$

for $2 \leq p \leq \infty$, then there is $T' > T$ such that $u$ can be continued to the strong solution on $[0, T')$. Our method of the proof is based on the interpolation inequality in Besov spaces due to Gérard-Meyer-Oru [1]. This is a joint work with Dr. Ryo Kanamaru.

References
