Cao, Chongsheng; Titi, Edriss S.
Regularity criteria for the three-dimensional Navier-Stokes equations. (English)
Zbl 1159.35053

Summary: We consider the three-dimensional Navier-Stokes equations subject to periodic boundary conditions or in the whole space. We provide sufficient conditions, in terms of one component of the velocity field, or alternatively in terms of one component of the pressure gradient, for the regularity of strong solutions to the three-dimensional Navier-Stokes equations.

MSC:
\begin{align*}
35Q30 & \quad \text{Navier-Stokes equations} \\
76D05 & \quad \text{Navier-Stokes equations for incompressible viscous fluids} \\
76D03 & \quad \text{Existence, uniqueness, and regularity theory for incompressible viscous fluids}
\end{align*}

Keywords:
Navier-Stokes equations; periodic boundary conditions; regularity

Full Text: DOI arXiv Link