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Evolution Anisotropic Periodic Variable-Coefficient Navier-Stokes Equations: Recent Progress

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Abstract

We consider the evolution (time-dependent) anisotropic Navier-Stokes equations with variable space-periodic tensor viscosity coefficient in $\mathbb{R}^n$, $n \geq 2$. Employing the Galerkin algorithm, we prove the existence of a global weak spatially-periodic solution for the Navier-Stokes system in a periodic Sobolev space. The solution uniqueness and regularity for small data or local in time are also discussed.