

Quantitative derivation of Darcy's law for some non-Newtonian fluids

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Abstract

We prove the homogenization limit of incompressible Navier-Stokes equations to Darcy's law for a class of non-Newtonian fluids. Additionally, error estimates are obtained. This is a collaboration with Yong Lu (Nanjing) and Richard Höfer (Regensburg).

Keywords: Homogenization, Darcy's law, non-Newtonian fluid