

# Vanishing viscosity limit of the 3D incompressible micropolar equations in a bounded domain

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## Abstract

In this paper, we study the vanishing viscosity limit for the 3D incompressible micropolar equations in a flat domain with boundary conditions. We prove the existence of the global weak solution of the micropolar equations and obtain the uniform estimate of the strong solution. Furthermore, we establish the convergence rate from the solution of the micropolar equations to that of the ideal micropolar equations as all viscosities tend to zero (i.e.,  $(\varepsilon, \chi, \gamma, \alpha) \rightarrow 0$ ).

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