

# Large-time behavior of solutions to the inflow problem of the non-isentropic micropolar fluid model

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May 5, 2020

## Abstract

We investigate the asymptotic behavior of solutions to the initial boundary value problem for the micropolar fluid model in a half line  $\mathbb{R}_+ := (0, \infty)$ . Inspired by the relationship between micropolar fluid and Navier-Stokes, we prove that the composite wave consisting of the transonic boundary layer solution, the 1-rarefaction wave, the viscous 2-contact wave and the 3-rarefaction wave for the inflow problem on the micropolar fluid model is time-asymptotically stable under some smallness conditions. Meanwhile, we obtain the global existence of solutions based on the basic energy method.

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