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Bipolar barotropic non-Newtonian fluid. (English) Zbl 0809.76001

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Summary: The paper describes the special situation of barotropic non-Newtonian fluid, where stress tensor can be written in the form of potentials which depend on e_{ij} and $\left(\frac{\partial e_{ij}}{\partial x_k}\right)$. For this case, we prove the existence and uniqueness of weak solution.

MSC:

76A05 Non-Newtonian fluids

35Q35 PDEs in connection with fluid mechanics

Cited in 5 Documents

Keywords:

Galerkin method; method of characteristics; a priori estimates; Aubin lemma; stress tensor; existence; uniqueness; weak solution