

PDE analysis of a class of thermodynamically compatible viscoelastic rate-type fluids with stress-diffusion

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We establish the long-time existence of large-data weak solutions to a system of nonlinear partial differential equations. The system of interest governs the motion of non-Newtonian fluids described by a viscoelastic rate-type model with a stress-diffusion term. We focus on the thermodynamical compatibility of the model and propose also the proper convergence scheme that will lead to the existence of a solution.