

Leray–Hopf solutions to a viscoelastic fluid model with nonsmooth stress-strain relation

Thomas Eiter (WIAS)

Subject of the talk is a fluid model including viscoelastic and viscoplastic effects. The state is given by the fluid velocity and an internal stress tensor that is transported along the flow with the Zaremba-Jaumann derivative. Moreover, the stress tensor obeys a nonlinear and nonsmooth dissipation law as well as stress diffusion. After a discussion of the model, the existence of global-in-time weak solutions, which satisfy an energy inequality, is shown under general Dirichlet conditions for the velocity field and Neumann conditions for the stress tensor.