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24061-0123. *Linear and Nonlinear Controllability of Viscoelastic Shear Flows.*

Viscoelastic flows are an example of a system where only partial controllability is possible. The lecture reviews recent results on controllability of viscoelastic shear flows. We shall discuss results on exact and approximate linear controllability for fluids with one or several relaxation modes. The second part of the lecture will address the nonlinear problem for the special case of homogeneous shear flow. (Received August 09, 2005)