

Meeting: 1001, Evanston, Illinois, SS 11A, Special Session on Stability Issues in Fluid Dynamics

1001-76-10 **Michael Renardy*** (renardym@math.vt.edu), Department of Mathematics, Virginia Tech,
Blacksburg, VA 24061-0123. *Are viscoelastic flows under control or out of control?*

Controllability is the question whether a system can be steered to a prescribed state by a control input within a given class. In this talk, we show that linear viscoelastic flows can be controlled only partially when the control inputs are restricted to forcing terms in the momentum equation and no control is permitted in the constitutive laws governing the material. Difficult questions arise when nonlinear terms are added to the equations. (Received April 28, 2004)