

1098-65-88

Sergei Fomin, MD 20740, and **Ravi Shankar**, **Peter Haine** and **Abigail Gartrell***
(agartrel@terpmail.umd.edu), 6801 Preinkert Dr, 7713c, College Park, MD 20740, and **Alberto Mojica** and **Nate Loker**. *Linear Stability of Non-Newtonian Rimming Flow*. Preliminary report.

The linear stability of a thin film flowing inside a rotating horizontal cylinder is considered. The effects of non-Newtonian shear-thinning and viscoelasticity on stability are considered with two simple constitutive equations: the Generalized Newtonian fluid model and the Second Order Viscoelastic Fluid model. Using a lubrication approximation, it is found that non-Newtonian shear-thinning properties of the fluid have no effect on the neutral stability of rimming flow. Weak viscoelasticity, however, is found to stabilize the flow regime. (Received January 13, 2014)