1082-76-106 Chunfeng Zhou* (zhouc1@corning.com), SP-TD-01-1, Corning, NY 14831, Zheming Zheng (zhengz@corning.com), SP-PR-01-3, Corning, NY 14831, and Olus N Boratav (boratavon@corning.com), SP-TD-01-1, Corning, NY 14831. Draw resonance in non-isothermal non-Newtonian viscous sheets. Preliminary report.

We study the instability known in literature as the "draw resonance" for a non-Newtonian viscous sheet of glass with non-isothermal conditions. Both eigen-solutions and transient solutions are used in the stability analysis. We will focus our discussion on the effects of viscoelasticity and thermal conditions (local or global variations) on the draw resonance stability. Our study reveals that the stability can be enhanced by both viscoelasticity and thermal heating/cooling. It also demonstrated that the critical draw ratio is increasing significantly with viscoelasticity and is sensitive to how the sheet is heated or cooled. We will also present stability results comparing sheet draw and fiber draw. (Received June 30, 2012)