

Abstract Submitted
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Rodless Weissenberg effect O.R. ENRIQUEZ, E. SOTO, R. ZENIT, O. MANERO, Universidad Nacional Autonoma de Mexico — The climbing effect of a viscoelastic fluid when stirred by a spinning rod is well documented. It is often called the Weissenberg effect. This phenomenon is related to the elasticity of the fluid. We have observed that the fluid can also climb when stirred without a rod. In this work, a comparison of the flow around a spinning disk immersed in a shallow fluid layer between a Newtonian and a non-Newtonian liquid is presented. The flow is visualized with dye and bubbles as fluid path tracers. For Newtonian fluids, a classical parabolic surface profile is observed; for the non-Newtonian case, the fluid rises near the center. The height of the fluid hump increases with rotational speed and the fluid elasticity. The flow visualization indicates that a source-like flow pattern appears on top of the rotating disk for the non-Newtonian fluid. The toroidal vortices which appear in the flow, spin in opposite directions for Newtonian and non-Newtonian cases.

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