

Abstract Submitted  
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**Spinning viscous sheets** HOWARD A. STONE, BENOIT SCHEID, Harvard University — We study the extensional flow of a circular viscous sheet driven by centrifugal forces. For a liquid of constant extensional viscosity, we show the existence of a similarity solution for the thickness of the sheet and the radial speed of the liquid. The radius of the circular sheet is found to increase with time  $t$  as  $(1 - t)^{-1/2}$ , and hence becomes singular over a timescale sets by the kinematic viscosity of the liquid and the angular speed. We then investigate the case of a liquid that has the extensional viscosity that increases with increasing extension rate and investigate how the dynamics is affected by such “extensional thickening.”

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