

Abstract Submitted
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Viscoelastic bells LUC LEBON, JEAN-SEBASTIEN ROCHE, LAURENT LIMAT, PMMH - ESPCI/CNRS, ANDREW BELMONTE, Penn State University — We performed experiments on liquid bells resulting from the impact of a viscoelastic fluid on a circular obstacle larger than the jet diameter, in the way of water bells by Savart¹. We used polymer solutions or giant-micelle solutions as viscoelastic fluid. In the regime of closed bell, we observed a particular shape of bells, very different from the shape of water bells as observed and predicted by Clanet². The bells shape is essentially controlled here by the viscoelastic rheology. It appears also very sensitive to the pressure gap through the liquid film. For higher flow rate, the bells do not close anymore and form liquid sheets. Their desintegration is very different from the one observed for Newtonian liquid : filaments structure extends the sheet without any drops formation. An original behaviour of growth of circular holes with a thick rim is also observed.

¹F. Savart, *Ann. Chim.* **54** (1833)

²C. Clanet, *J. Fluid Mech.* **430** (2001)

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