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Wrinkling of a collapsing viscous bubble JAMES BIRD, Boston University, HOWARD STONE, Princeton University, JOHN BUSH, Massachusetts Institute of Technology — Thin-sheets of sufficiently viscous liquid can behave similar to elastic sheets and buckle under certain external forces. A classic example is the “parachute instability” for which a ruptured viscous bubble wrinkles as it relaxes, with the explanation for the wrinkles being based on the liquid film falling under its own weight. In this talk we revisit the viscous bubble-bursting experiments and demonstrate that gravity is responsible for neither the collapse nor the resulting wrinkling instability. Using a combination of experiments and theory, we highlight the importance of capillary forces and elucidate their role in the wrinkling instability.

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