Critical capsule deformation in several linear flows, modeled using the Immersed Boundary Method ALEX SZATMARY, CHARLES EGGLETON, UMBC — Elastic capsules are exposed to a variety of flows in microfluidic devices. Capsules can deform continuously to bursting when exposed to sufficiently intense flows. Here, this critical behavior is modeled for several linear flows, including Couette flow, and plane, axisymmetric, and biaxial extensional flows, as well as superpositions of these. Several membrane constitutive equations are used to model behavior of a variety of capsules and biological cells. Computational modeling results using the immersed boundary method are reported.

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