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The stability of a family of vortex rings[1] CLARA O'FARRELL, JOHN O. DABIRI, California Institute of Technology — Jetting swimmers, such as squid or jellyfish, propel themselves by forming axisymmetric vortex rings. In order to evaluate the performance of these swimmers, we must asses the optimality of the vortex wakes they produce, which requires an understanding of their stability. We consider the Norbury family of vortices[2] as a model for the vortex rings produced by jetting swimmers. Pozrikidis[3] has studied the stability of Hill's spherical vortex under axisymmetric prolate and oblate shape perturbations. However, the stability of other members of the Norbury family to axisymmetric perturbations of the type that might occur during the vortex formation process in jetting swimmers is unknown. In order to asses the stability of different members of the family, we introduce physically pertinent shape perturbations and simulate their development in a manner akin to Pozrikidis' analysis.

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[2]J. Norbury, J. Fluid Mech., **57**, 417-431, 1973.
[3]C. Pozrikidis, J. Fluid Mech., **168**, 337-367, 1986.

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