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A Visco-Elastic Instability Analog of Magnetorotational Instability[1] DON HUYNH, STANISLAV BOLDYREV, University of Wisconsin-Madison — We report in further detail a proposed visco-elastic instability that is analogous to the magnetorotational instability. Numerical simulations of a Couette-Taylor flow of a polymer fluid in a narrow gap between two rotating concentric cylinders with a Kepelerian-like velocity profile, where the angular velocity decreases radially outward while the specific angular momentum increases radially outward, shows a visco-elastic instability that cannot possibly be the inertial Rayleigh instability and the purely elastic instability under these considered parameters. It is proposed that this observed instability is analogous to the magnetorotational instability which plays a fundamental role in astrophysical Keplerian accretion disks.

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Don Huynh
University of Wisconsin-Madison

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