

Abstract Submitted  
for the DPP10 Meeting of  
The American Physical Society

**Study of Astrophysical Magnetorotational Instability in a Couette-Taylor Flow of Polymer Fluids<sup>1</sup>** DON HUYNH, STANISLAV BOLDYREV, University of Wisconsin - Madison — We report in detail a visco-elastic instability from experimental observations and numerical simulations of a Couette-Taylor flow of a polymer fluid in a narrow gap between two rotating concentric cylinders with a Keplerian-like velocity profile, where the angular velocity decreases radially outward while the specific angular momentum increases radially outward. Under the considered parameters, the inertial Rayleigh instability and the purely elastic instability are not possible. It is proposed that this observed instability is analogous to the magnetorotational instability which plays a fundamental role in astrophysical Keplerian accretion discs.

<sup>1</sup>Supported by Wisconsin Alumni Research Foundation, by the NSF Center for Magnetic Self-Organization in Laboratory and Astrophysical Plasmas at UW Madison, and by the Department of Energy under grants: DE-FG02-07ER54932 and DE-SC0001794.

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Date submitted: 26 Jul 2010

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