

Abstract Submitted
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Study of Magnetorotational Instability in Helicon Plasma¹

JOSEPH MCDONALD, Washington & Lee University, HANTAO JI, PPPL, ALEX GURAK — Magnetorotational instability (MRI) as a mechanism for the fast outward angular momentum transport that occurs in accretion disks has been studied primarily in experiments utilizing a Couette flow in liquid metals. We intend to achieve MRI in a rotating plasma and observe the effects beyond incompressible MHD that are not allowed in liquid metal experiments. The plasma is created by heating argon gas with helicon RF waves in a weak axial magnetic field which is believed to be a characteristic of accretion disks. A set up of two ring electrodes concentric about a center electrode, each of which can be biased to specific potentials, establishes an electric field that can effectively rotate the plasma, and radial profiles of density and potential can be obtained by a motor-driven Langmuir probe. Detailed setup and results will be reported.

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