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Recent results from the Princeton MRI experiment ERIK SPENCE, Princeton Plasma Physics Laboratory, AUSTIN ROACH, ERIC EDLUND, Princeton Plasma Physics Laboratory, CHRISTOPHE GISSINGER, Princeton University, PETER SLOBODA, HANTAO JI, Princeton Plasma Physics Laboratory — The magnetorotational instability (MRI) is widely expected to be responsible for the observationally inferred accretion rates of astrophysical disks. The Princeton MRI experiment is a Taylor-Couette device used to generate conditions under which the MRI should be unstable: an externally applied magnetic field, and a radially decreasing angular velocity profile. The apparatus' unique feature is independently-rotating endcap rings, which are used to reduce Ekman circulation. The working fluid is GaInSn; its velocity field is measured using an ultrasonic Doppler velocimetry system. Though an ideal-Couette angular rotation profile can almost be attained, through careful choice of end-cap ring speeds, residual Ekman circulation remains. The instability's identification is complicated by this secondary circulation, since it moves in the same radial direction as the flow expected from the instability. Comparison of radial flows in MRI-stable and MRI-unstable regimes is used to search for the instability's signature, as determined by numerical simulations. An update on the search for the instability will be presented.

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