

Abstract Submitted
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Internal Pressure Measurements in Princeton Magnetorotational Instability Experiment MARC OSHERSON, ETHAN SCHARTMAN, MICHAEL BURIN, HANTAO JI, Princeton U. — The high rate of accretion which is observed in accretion disks must be accompanied by some efficient means of transferring angular momentum radially outward. One candidate mechanism for the momentum transfer is Magnetorotational Instability (MRI). The MRI experiment at the Princeton Plasma Physics Lab is attempting to study the mechanism experimentally. In the experiment, liquid gallium or water is used in Couette flows between two cylinders to simulate the conditions in the disks. Understanding the dynamics of the flow requires internal measurement of important physical quantities. One such diagnostic is to measure the pressure at various points. A thin probe, designed to have as little effect on the gallium flow as possible, was mounted with three small pressure sensors. By comparing the voltage across two wires, one with a variable resistance determined by the pressure, the sensors can detect pressures up to several atmospheres, and are precise to a tenth of an atmosphere. The probe was calibrated using simple air- pressure tests. Initial measurements will be obtained in gallium or water flows. Results will be reported if available.

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