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Astrophysically Relevant Dipole Studies at WiPAL[1] DOUGLASS ENDRIZZI, CARY FOREST, JOHN WALLACE, University of Wisconsin-Madison, WIPAL TEAM — A novel terrella experiment is being developed to immerse a dipole magnetic field in the large, unmagnetized, and fully ionized background plasma of WiPAL (Wisconsin Plasma Astrophysics Lab). This allows for a series of related experiments motivated by astrophysical processes, including (1) inward transport of plasma into a magnetosphere with focus on development of Kelvin-Helmholtz instabilities from boundary shear flow; (2) helicity injection and simulation of solar eruptive events via electrical breakdown along dipole field lines; (3) interaction of Coronal Mass Ejection-like flows with a target magnetosphere and dependence on background plasma pressure; (4) production of a centrifugally driven wind to study how dipolar magnetic topology changes as closed field lines open. A prototype has been developed and preliminary results will be presented. An overview of the final design and construction progress will be given.

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