

Abstract Submitted  
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**A spherical Couette experiment to observe linear MHD instabilities at medium Reynolds numbers** ELLIOT KAPLAN, BENJAMIN GOHL, THOMAS GUNDRUM, MARTIN SEILMAYER, FRANK STEFANI, Helmholtz Zentrum Dresden Rossendorf — Turbulent spherical Couette flows in a strong axial magnetic field ( $\text{Re} \in (10^4, 10^6)$ ,  $\text{Ha} \in (0, 3000)$ ) have given rise to a nonaxisymmetric instability that resembled the long sought-after, nonlinear, Magnetorotational Instability [Sisan (2004)]. Subsequent theoretical and numerical investigations have likened the observed instability to linear instabilities in either the Shercliff layer or the return flow [Hollerbach (2009), Gissinger (2011)]. These investigations also turned up a stability region in  $\text{Re}/\text{Ha}$  space between these (MHD) instabilities and the (HD) jet instability. Presented here are designs and plans for a spherical Couette experiment—presently under construction in Rossendorf—that aims to measure these instabilities in the space betwixt the simulations and the turbulent experiments ( $\text{Re} \in (10^3, 10^4)$ ,  $\text{Ha} \in (0, 160)$ ).

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