

Abstract Submitted
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Gauging MRI¹ ISON HERRON, Rensselaer Polytechnic Institute, JEREMY GOODMAN, Princeton University — Axisymmetric stability of viscous resistive magnetized Couette flow is re-examined, with emphasis on flows that would be hydrodynamically stable according to Rayleigh’s criterion: opposing gradients of angular velocity and specific angular momentum. A uniform axial magnetic field permeates the fluid. In this regime, magnetorotational instability (MRI) may occur. It is proved that MRI is suppressed, in fact no instability at all occurs, with insulating boundary conditions, when the magnetic resistivity is sufficiently large. This shows conclusively that small magnetic dissipation is a feature of this instability for all magnetic Prandtl numbers. A criterion is provided for the onset of MRI.

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