Abstract Submitted
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Finite Larmor Radius Effects on the Magnetorotational Instability N.M. FERRARO, Princeton Plasma Physics Laboratory — The linear dispersion relation for the magnetorotational instability (MRI) has been derived including gyroviscosity, which represents finite Larmor radius (FLR) effects in the Braginskii equations [1]. It is shown that FLR effects are the most important effects in the limit of weak magnetic fields for ionized disks, and are much more important than the Hall effect when $\beta_i \gg 1$, where β_i is the ratio of the ion thermal pressure to the magnetic pressure. FLR effects may completely stabilize even MRI modes having wavelengths much greater than the ion Larmor radius. Some implications for astrophysical accretion disks are discussed. The results of fluid simulations of accretion disks using M3D-C^1, a toroidal axisymmetric extended-MHD code which includes two-fluid and gyroviscous effects, are presented.
[1] N. M. Ferraro, *ApJ* **662**(1):512 (2007)

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