Abstract Submitted
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Magnetorotational instability with Hall effect in nonuniform magnetic field[1] VICTOR ILGISONIS, Russian Research Centre "Kurchatov Institute", IVAN KHALZOV, DALTON SCHNACK, FATIMA EBRAHIMI, Center for Magnetic Self-Organization, University of Wisconsin, Madison — Magnetorotational instability (MRI) is a possible mechanism of turbulence in rotating plasma, e.g., in accretion disks. Originally MRI was found as an axisymmetric magnetofluid instability. It appears if plasma angular velocity exceeds a threshold value determined by imposed magnetic field. There are two physical effects able to modify MRI threshold value. The first is the Hall effect which makes MRI threshold depending on direction of fluid rotation.[2] The second is magnetic field inhomogeneity which can decrease MRI threshold.[3] Here we study the combined influence of these two effects on a linear stability of incompressible Keplerian rotating fluid. Both axisymmetric and non-axisymmetric modes which have quite different instability thresholds are considered.

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[2]S. A. Balbus, C. Terquem, ApJ, **552**, 235 (2001)
[3]V.I.Ilgisonis, I.V.Khalzov, JETP Lett., **86**, 705 (2007)

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