



Rotating magnetoconvection in a planar layer fluid with anisotropic viscosity and thermal diffusivity

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Hydromagnetic instabilities, due to unstable stratification of the planar horizontal layer rotating about the vertical axis and permeated by the homogenous vertical magnetic field, are studied in dependence on various dimensionless numbers: Elsasser, Ekman, and Prandtl numbers. The thermal diffusivity and viscosity of fluid layer are anisotropic in the sense that their values in the vertical direction are different from values in the horizontal directions, keeping isotropy in horizontal directions. Linear stability studies are advanced into the weakly nonlinear analysis. The results are interpreted into the conditions in the Earth's core.