



Axisymmetric hydromagnetic instabilities in the rotating planar layer permeated by vertical magnetic field influenced by anisotropic viscosity of fluid

T. Soltis (1), J. Brestensky (1) and S. Sevcik (1)

(1) Dept of Astronomy, Physics of the Earth and Meteorology, FMPH, Comenius University, Bratislava (brestensky@fmph.uniba.sk)

The stability of the horizontal planar layer, rotating about the vertical axis and permeated by homogeneous vertical magnetic field, is studied relating to axisymmetric instabilities torsionally oscillating in cylindrical surfaces with a common vertical axis of rotation. Shears among cylinders are determined by anisotropic viscosity. Much greater viscosity in the vertical direction than in the horizontal directions makes the instabilities feasible in a geophysically realistic range of parameters in such a way that they might be related to torsional oscillations of the Earth's core and to decadal variations of the geomagnetic field.