

## MHD SELFGRAVITATIONAL INSTABILITY OF OSCILLATING STREAMING FLUID CYLINDER

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## Abstract

The magnetodynamic selfgravitational instability of an oscillating fluid cylinder has been studied. The problem is formulated and the non-singular solutions of the perturbed basic equations are identified. The stability criterion is derived and the stability states are argued. The magnetodynamic forces interior and exterior the fluid cylinder are strongly stabilizing not only in the axisymmetric mode but also in those of non-axisymmetric the oscillating streaming of the fluid has strong stabilizing tendency. The selfgravitating forces interior the fluid cylinder and in the region surrounding the fluid have destabilizing effect in small domain of axisymmetric mode while they are stabilizing in all other perturbation modes. The destabilizing character of the present model could be shrinked, suppressed and then stability sets in.

Keywords and phrases: magnetodynamic selfgravitational instability, oscillating fluid.

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