

Time-periodic Heating of a Rotating Horizontal Fluid Layer in a Vertical Magnetic Field

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Thermal instability in a horizontal layer of an electrically conducting fluid heated from below has been investigated under the effects of uniform rotation about a vertical axis and an applied uniform vertical magnetic field. The temperature field between the walls of the fluid layer consists of two parts; a steady part and a time-dependent part, which varies periodically. The effect of modulation of the walls temperature on the onset of convection has been studied using Floquets theory. Stabilizing and destabilizing effects on the onset of convective instability have been found. Some comparisons have been made. – 2000 Mathematics Subject Classification: 76E06, 76R10.

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