Thermal Modulation of Rayleigh-Benard Convection

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Thermal convection in a fluid layer confined between two horizontal rigid boundaries has been studied with the help of the Floquet theory. The temperature distribution consists of a steady part and an oscillatory time-dependent part. Disturbances are assumed to be infinitesimal. Numerical results for the critical Rayleigh numbers and wave numbers are obtained. It is found that the disturbances are either synchronous with the primary temperature field or have half its frequency. Some comparisons have also been made.

Key words: Modulation; Stability; Rayleigh Number; Galerkin Method; Thermal Convection.