Abstract Submitted
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1:2 Resonance and Pattern Formation in Thermal Convections
KAORU FUJIMURA, Tottori University — Resonant interaction of steady modes having wavenumbers in the ratio 1:2 was re-examined on a hexagonal lattice in two-layered Rayleigh-Benard convection, where the exact resonance may take place between critical modes. Amplitude equations were derived by means of the center manifold reduction. Numerical examination of the equations reveals that the heteroclinic orbit of AGH-type exists, but loses its stability with respect to disturbances in four-dimensional complex space. Instead, a new type of heteroclinic cycle arises in rather narrow range of parameters. The cycle is a connection between rolls and hexagons.

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