A model of closed-loop thermosyphon with a viscoelastic fluid

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Chaotic motion of a viscoelastic fluid confined in a closed loop thermosyphon is investigated. Various thermal gradients and viscoelastic coefficients produce different types of complex dynamical behaviors on the system. We study the dynamics of the system and the competition/cooperation of these mechanisms to provide different outcomes, from chaotic to stable behavior by means of inertial manifold techniques and numerical integration of the reduced dynamics in the manifold.

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