

Asymptotic Behaviour of the Nonlinear Dynamical System Governing a Thermosyphon Model

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Abstract: Thermosyphons, in the engineering literature, is a device composed of a closed loop containing a fluid whose motion is driven by several actions such as gravity and natural convection. Their dynamics are governed by a coupled differential nonlinear system. In several previous works we show chaos in the fluid, even with a viscoelastic fluid. We study the asymptotic behavior depending on the relevant parameters and it is obtained through an inertial manifold.

Keywords: Thermosyphon, Asymptotic behaviour, Inertial Manifold.