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Dynamic Study of a Two Phase Thermosyphon Loop

Authors : Selva Georgena D., Videcoq Etienne, Caner Julien, Benselama Adel, Girault Manu

Abstract : A Two-Phase Thermosyphon Loop (TPTL) is a passive cooling system which does not require a pump to function. Therefore, TPTL is a simple and robust device and its physics is complex to describe because of the coupled phenomena: heat flux, nucleation, fluid dynamics and gravitational effects. Moreover, the dynamic behavior of TPTL shows some physical instabilities and the actual occurrence of such a behavior remains unknown. The aim of this study is to propose a thermal balance of the TPTL to better identify the fundamental reasons for the appearance of the instabilities.

Keywords : Two-phase flow,passive cooling system,thermal reliability,thermal experimental study,liquid-vapor phase change
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