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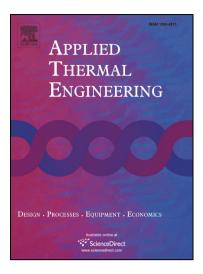
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ACCEPTED MANUSCRIPT

The effect of heating power distribution on the startup time and

overshoot of a loop thermosyphon with dual evaporators

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Abstract: Loop thermosyphon with multiple evaporators is a promising device in

multi-source heat transfer. The startup performance is very important for its thermal

control ability. In this paper, the effect of heating power distribution on the startup of a

loop thermosyphon with dual evaporators is investigated experimentally. The startup

time and stationarity under different power distributions are analyzed utilizing three

parameters: peak time, transition time and temperature (pressure) overshoot. The

results show that the startup process is faster and the overshoot of pressure and

temperature is larger when the distribution is more uneven; Heating on one evaporator

with the same heating power with the other evaporator makes the startup process

longer while it makes the overshoot smaller or even disappear; The transition time is

approximately twice as much as the peak time when the peak time exists.

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