

# Experimental Investigation of Boiling Regimes in a Capillary-Fed Two-Layer Evaporator Wick

S. Sudhakar, J.A. Weibel, S.V. Garimella, IJHMT vol. 135, pp. 1335-1345, 2019.

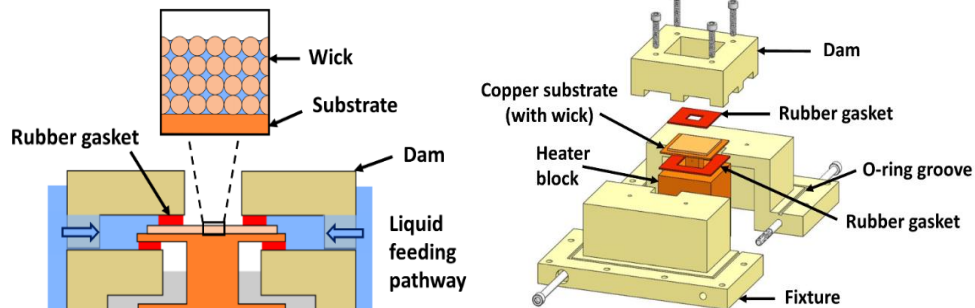
## Objective

To study the boiling characteristics of a novel two-layer evaporator wick in comparison to a conventional single-layer wick, for application in vapor chambers.

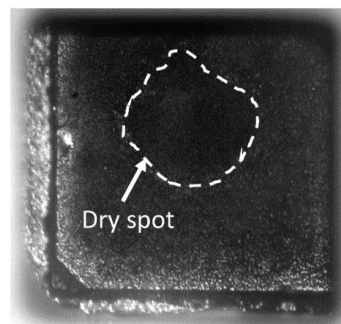
## Highlights

- Conventional single-layer and novel two-layer wick designs were fabricated and tested.
- A facility is developed to test wicks in a saturated environment, while avoiding flooding.
- Visualizations showed a dry spot forming for the conventional wick, that degrades performance.
- Two-layer wicks avoided the dry spot formation due to distributed liquid-feeding.
- Two-layer wicks provided > 400 % enhancement in dryout limit compared to conventional single-layer wick.

Test facility showing liquid-feeding pathway and sealing



Conventional wick



Two-layer wick

