

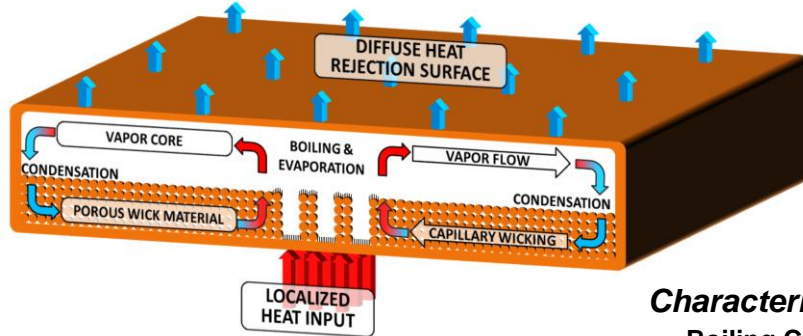
Characterization of Heat Pipe Wick Fluid Transport and Thermal Performance

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OBJECTIVE

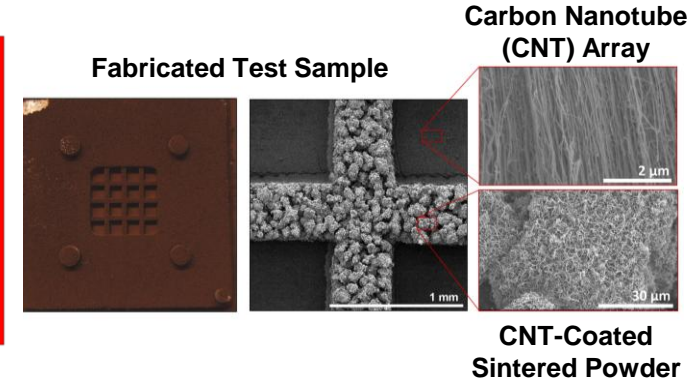
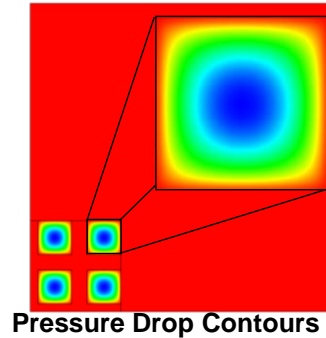
Experimentally determine the performance of wicks under typical heat pipe operating conditions



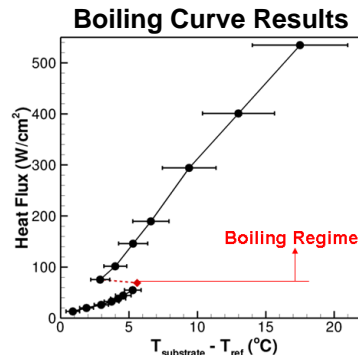
APPROACH

- Determine the capillary fluid transport properties of porous wick materials
- Parametrically characterize the evaporation/boiling thermal performance of conventional sintered copper powder
- Investigate the possible thermal performance enhancement due to nanostructuring of wick surfaces

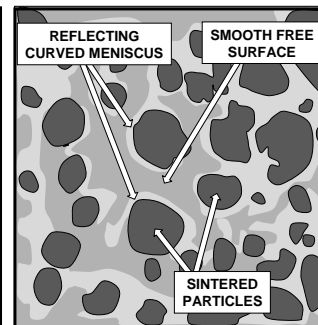
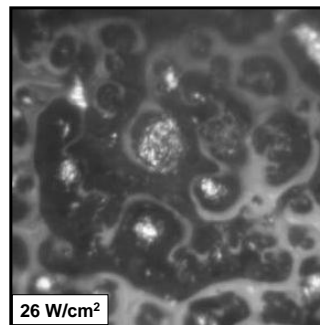
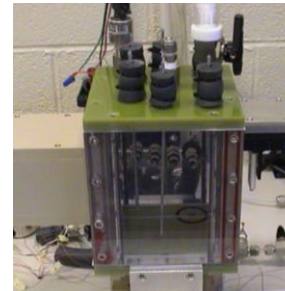
Design & Evaluation of Novel Nanostructured Wicks



Characterization of Sintered Copper Powder



Thermal Test Facility



Capillary-fed boiling in situ visualization

SELECTED PUBLICATIONS

- J.A. Weibel, S.V. Garimella, M.T. North, 2010, International Journal of Heat and Mass Transfer, 53, 4204-4215.
- S.S. Kim, J.A. Weibel, T.S. Fisher, S.V. Garimella, 2010, Proceedings of the 14th International Heat Transfer Conference, Washington, DC, IHTC14-22929.
- J.A. Weibel, S.V. Garimella, J.Y. Murthy, D.H. Altman, 2011, IEEE Transactions on Components, Packaging and Manufacturing Technology, 1, 859-867.