

Enhancement of Boiling in Microchannels

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OBJECTIVE

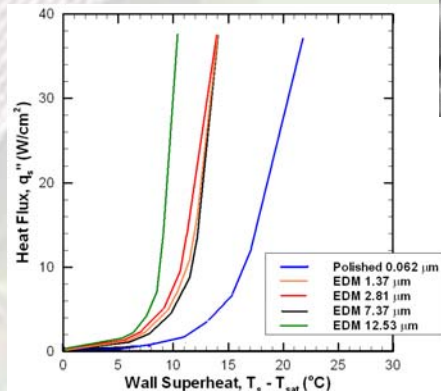
To develop techniques for enhancing two-phase heat transfer in microchannel flows.

IMPACT

- Develop a better understanding of the role of surface effects on boiling in microchannels.
- Develop techniques to enhance the boiling process in microchannels.

APPROACH

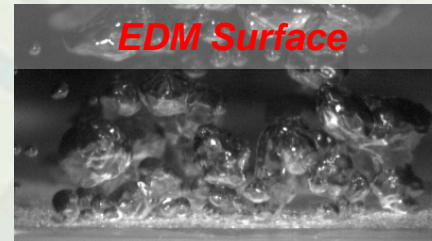
Experiments are performed using flat surfaces (pool boiling) and microchannels (flow boiling) with varying surface characteristics.



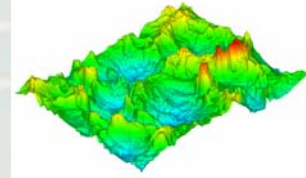
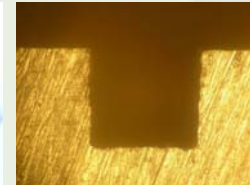
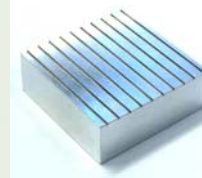
Pool boiling curves for surfaces with varying roughness.



Polished Surface



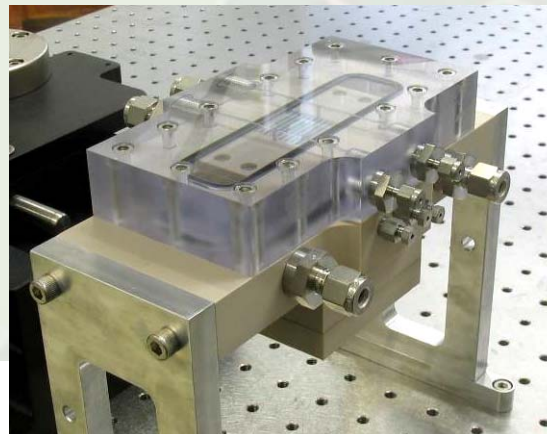
EDM Surface



Microchannel Test Piece

SELECTED PUBLICATIONS

- B. J. Jones and S. V. Garimella, 2007 ASME-JSME Thermal Eng Conf and Summer Heat Trans Conf, Vancouver Canada, (in review).



Experimental Setup