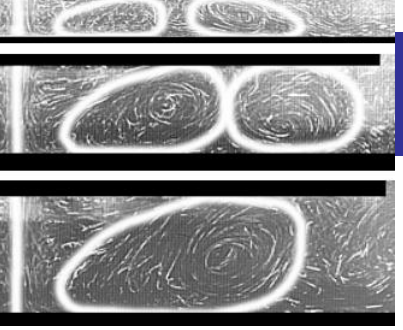


Confined and Submerged Jet Impingement

Faculty: Suresh V. Garimella

Objective

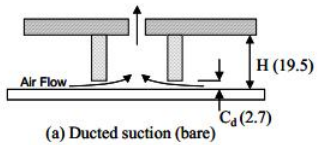
Develop a comprehensive understanding and design guidelines for use of confined air and liquid jet impingement for high heat flux cooling applications

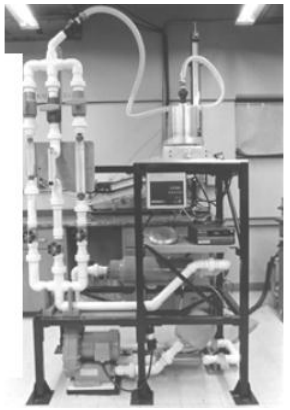
Approach

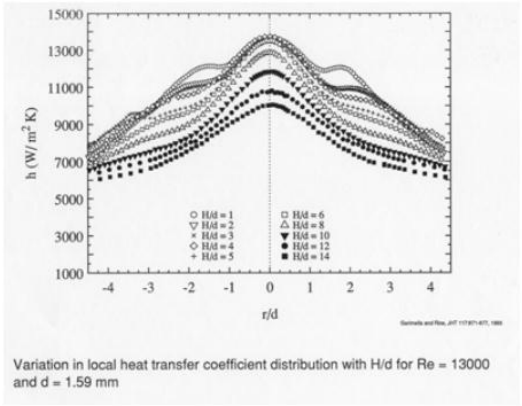
Experimentally and numerically investigate heat transfer, pressure drop, flow fields and flow patterns in air, water and fluorinert impingement, and propose predictive correlations for use in design and optimization

Impact

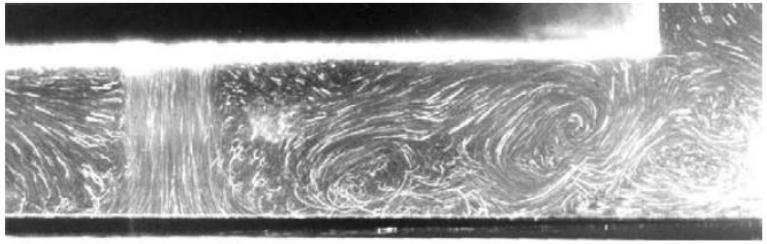
This wide-ranging study provides a complete toolkit for implementation of jet impingement for cooling electronics in confined spaces, including the use of surface enhancements







Variation in local heat transfer coefficient distribution with H/d for Re = 13000 and d = 1.59 mm



Past Project Page

Selected Publications

- S. V. Garimella, Ann Rev Heat Transfer, Vol. XI:413-494, 2000.
- C.-Y. Li, S. V. Garimella, Int J Heat Mass Transfer 44:3471-3480, 2001.
- S. V. Garimella, V. P. Schroeder, ASME J Electron Packag 123:165-172, 2001.
- L. A. Brignoni, S. V. Garimella, IEEE Trans Components Packaging Tech 22:399-404, 1999.
- J. A. Fitzgerald, S. V. Garimella, Int J Heat Mass Transfer 41:1025-1034, 1998.
- G. K. Morris, S. V. Garimella, R. S. Amano, ASME J Heat Transfer 118:562-569, 1996.
- S. V. Garimella, R. A. Rice, ASME J Heat Transfer 117: 871-877, 1995.

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