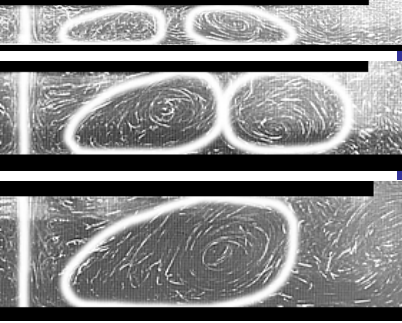


# Confined and Submerged Jet Impingement

Faculty: S. V. Garimella



## OBJECTIVE

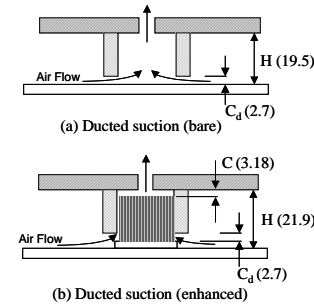
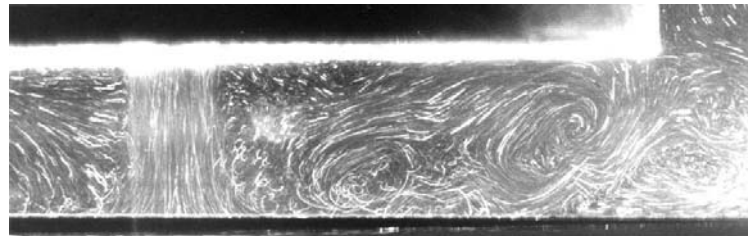
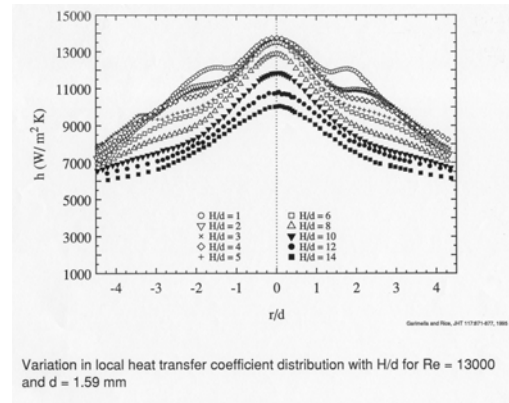
Develop a comprehensive understanding and design guidelines for use of confined air and liquid jet impingement for high heat flux cooling applications

## 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



## 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.