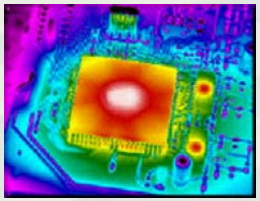


Microscale Ionic Wind for Local Cooling Enhancement

Faculty: T. S. Fisher, S. V. Garimella Student: D. B. Go

Objective

Design and fabricate a microscale ion wind engine for electrohydrodynamic convection enhancement of microelectronics

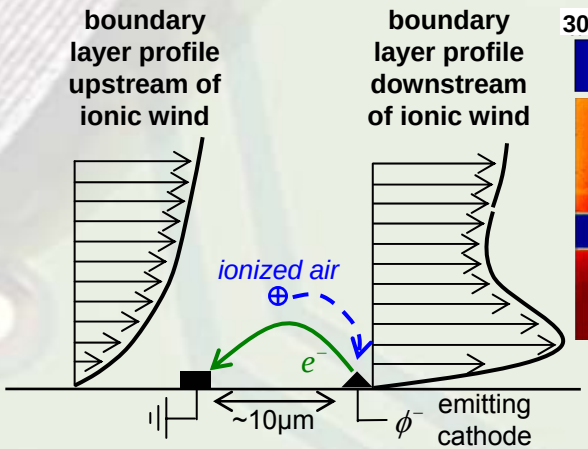
Impact

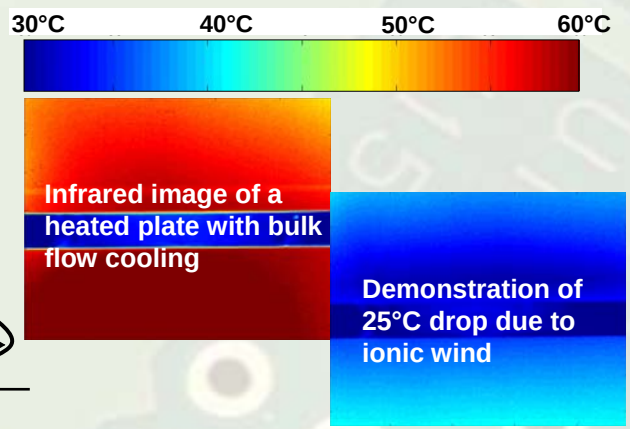
Chip-integrated, ionic wind convection enhancement will:

- Increase heat transfer over local, high-heat-flux regions
- Provide additional cooling capacity without impacting volume of overall cooling system
- Provide flexibility in thermal solutions for portable electronics

Approach

Modulate a bulk flow using a field emission-generated microscale ionic wind to increase the heat transfer at a surface.





Selected Publications

- D. B. Go, S. V. Garimella, T. S. Fisher & R. K. Mongia, *Journal of Applied Physics* – in review
- D. B. Go, R. A. Maturana, T. S. Fisher, & S. V. Garimella, HT2007-32379, Vancouver, Canada, 2007. – in review
- D. B. Go, T. S. Fisher, & S. V. Garimella, IMECE2006-14476, Chicago, IL, 2006.
- D. B. Go, S. V. Garimella & T. S. Fisher, ITherm 2006, San Diego, CA , 2006.

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