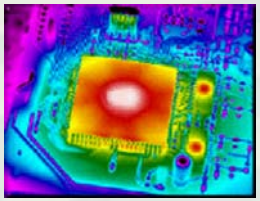


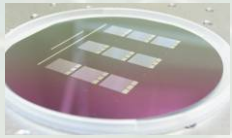
Micromechanical Electrohydrodynamic Pump

Faculty: S. V. Garimella Student: B. D. Iverson

Objective

Design and fabricate a pump that is scalable to the micro-domain for liquid pumping and electronics cooling

Impact

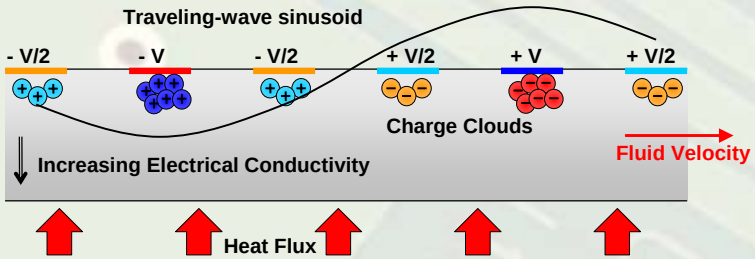


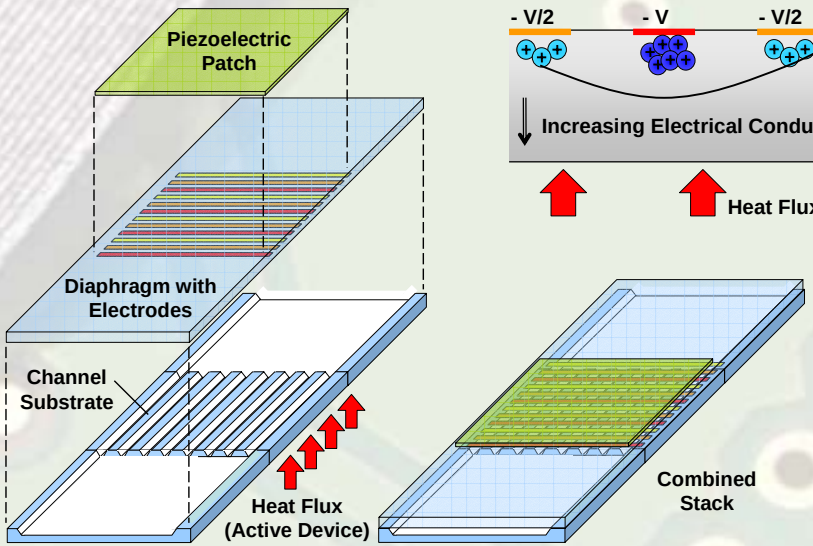
Chip-integration of micro-scale pumping can:

- Increase power dissipation while maintaining small form factor
- Significantly reduce packaging thermal resistance
- Provide flexibility in component constraints and layout

Approach

Enhance induction EHD with fluid motion from a vibrating diaphragm.





Selected Publications

- V. Singhal and S. V. Garimella, IEEE Trans Advanced Packaging **28**:216-230, 2005.
- V. Singhal, S. V. Garimella, and A. Raman, Applied Mechanics Reviews, **57**:191-221, 2004.

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