

CURRICULUM VITA

DONG LIU

EDUCATION

Ph.D. Mechanical Engineering, Purdue University, West Lafayette, IN, August 2006

Dissertation: Thermal Transport in Microchannels

Advisor: Suresh V. Garimella

M.S. Thermal Engineering, Tsinghua University, Beijing, P. R. China, July 1999

Thesis: Investigation of Boiling Mechanism at the Microscale

Advisor: Xiaofeng (X. F.) Peng

B.S. Thermal Engineering, Tsinghua University, Beijing, P. R. China, July 1996

RESEARCH INTERESTS

- Coupled electro-mechanical effects in micro- and nanofluidics
- Microscale thermal transport phenomena
- Phase change and interfacial phenomena
- Convective heat transfer
- Thermal management in electronics packaging

RESEARCH EXPERIENCE

Assistant Professor, University of Houston

9/2007-present

Post-Doctoral Research Associate, Purdue University

8/2006-07/2007

Research Assistant, Purdue University

6/2000-08/2006

Research Assistant, Tsinghua University

9/1996-7/1999

TEACHING EXPERIENCE

Co-instructor, Purdue University

1/2005-5/2005

Teaching Assistant, Purdue University

1/2003-5/2003

Teaching Assistant, Tsinghua University

2/1997-7/1997

INDUSTRIAL EXPERIENCE

Summer Intern, Delphi Research Labs (Delphi Automation Systems)

5/2002-8/2002

GRANTS

- NSF Cooling Technologies Research Center (CTRC), \$ 80,000 (1/2008-1/2010)
- University of Houston, New Faculty Research Program, \$ 6,000 (4/2008-4/2009)
- University of Houston, Small Grant, \$ 9,000 (6/2008-6/2011)

INVITED PRESENTATIONS

University of Houston, Dept. Mechanical Engineering, Houston, TX, April 2007.

Binghamton University, Dept. Mechanical Engineering, Binghamton, NY, April 2007.

Rutgers University, Dept. Mechanical Engineering and Aerospace, Piscataway, NJ, March 2007.

Stony Brook University, Dept. Mechanical Engineering, Stony Brook, NY, March 2007.

University of Missouri, Dept. Mechanical Engineering and Aerospace, Rolla, MO, March 2007.

University of Arizona, Dept. Aerospace and Mechanical Engineering, Tucson, AZ, April 2006.

University of Illinois, Dept. Mechanical and Industrial Engineering, Urbana Champaign, IL, Feb 2006.

Clemson University, Dept. of Mechanical Engineering, Clemson, SC, Feb 2006.

Purdue University, School of Mechanical Engineering, West Lafayette, IN, Nov 2005.

PROFESSIONAL INVOLVEMENTS

Session co-chair on “Interfacial Thermal Behavior at Micro/Nano Scales”, *11th Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems (ITHERM)*, Orlando, Florida, 2008.

Reviewer: Journal of Heat Transfer, Experiments in Fluids, ASHRAE Journal, Energy and Fuels

Student Member: ASME, AIAA

Chair, Purdue Heat Transfer Seminar Series, 8/2002-12/2003.

Student organizer, Heat Transfer Celebration (the 70th anniversary), Purdue University, 4/2003.

JOURNAL PUBLICATIONS

1. **Liu, D.**, and Garimella, S. V., Microfluidic pumping based on traveling-wave dielectrophoresis, *Journal of Applied Physics*, in review, (2008).
2. **Liu, D.**, and Garimella, S. V., Flow boiling heat transfer in microchannels, *ASME Journal of Heat Transfer*, 129(10):1321-1331, (2007).
3. Garimella, S. V., Singhal, V., and **Liu, D.**, On-chip thermal management with microchannel heat sinks and integrated micropumps, *Proceedings of the IEEE*, (invited paper), 94(8):1534-1548 (2006).
4. **Liu, D.**, Lee, P. S., and Garimella, S. V., Prediction of onset of nucleate boiling in microchannels, *International Journal of Heat Mass Transfer*, 48(25):5134-5149 (2005).
5. **Liu, D.**, Lee, P. S., and Garimella, S. V., Nucleate boiling in microchannels, *ASME Journal of Heat Transfer*, 127(8):803 (2005).
6. **Liu, D.**, Garimella, S. V., and Wereley, S. T., Infrared micro-particle velocimetry of fluid flow in silicon-based microdevices, *Experiments in Fluids*, 38(3):385-392 (2005).
7. Lee, P. S., Garimella, S. V., and **Liu, D.**, Experimental investigation of heat transfer in microchannels, *International Journal of Heat Mass Transfer*, 48(9):1688-1704 (2005).
8. **Liu, D.** and Garimella, S. V., Optimization of the thermal performance of microchannel heat sinks, *International Journal of Numerical Methods for Heat and Fluid Flow*, 15(1):7-26 (2005).
9. **Liu, D.** and Garimella, S. V., Experimental investigation of fluid flow in microchannels, *AIAA Journal of Thermophysics and Heat Transfer*, 18(1):65-72 (2004).
10. Peng, X. F., **Liu, D.**, and Lee, D. J., Dynamic characteristics of microscale boiling, *Heat and Mass Transfer*, 37:81-86 (2001).
11. Peng, X. F., **Liu, D.**, Lee, D. J., Yan, Y., and Wang, B. X., Cluster dynamics and fictitious boiling in microchannels, *International Journal of Heat Mass Transfer*, 43(23):4259-4266 (2000).

CONFERENCE & PRESENTATIONS

1. **Liu, D.**, and Garimella, S. V., Microfluidic pumping based on dielectrophoresis for thermal management of microelectronics, *11th Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems (ITHERM)*, Orlando, Florida, 2008.
2. Garimella, S. V. and **Liu, D.**, Microscale thermal transport and electromechanical microfluidic actuation, (Keynote), *19th National and 8th ISHMT-ASME Heat and Mass Transfer Conference*, Hyderabad, India, 2008.

3. **Liu, D.**, and Garimella, S. V., Flow boiling in a microchannel heat sink, *ASME International Mechanical Engineering Congress and Exposition*, Orlando, Florida, 2005.
4. **Liu, D.**, Lee, P. S., and Garimella, S. V., Nucleate boiling in microchannels, Photogallery in *ASME International Mechanical Engineering Congress and Exposition*, Anaheim, California, 2004.
5. **Liu, D.**, Garimella, S. V., and Wereley, S. T., Infrared micro-particle velocimetry of fluid flow in silicon-based microdevices, *ASME Heat Transfer/Fluids Engineering Summer Conference*, Charlotte, North Carolina, 2004.
6. Singhal, V., **Liu, D.**, and Garimella, S. V., Analysis of pumping requirements for microchannel cooling systems, *International Electronic Packaging Technical Conference and Exhibition*, Maui, Hawaii, 2003.
7. **Liu, D.** and Garimella, S. V., Optimization of the thermal performance of microchannel heat sinks, *International Electronic Packaging Technical Conference and Exhibition*, Maui, Hawaii, 2003.
8. **Liu, D.**, and Garimella, S. V., Experimental investigation of fluid flow in microchannels, *the 8th AIAA/ASME Thermophysics and Heat Transfer Conference*, St. Louis, Missouri, June 2002.