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Education

MIT	Ph. D. (Adviser: Prof. Gang Chen)	2006	Mechanical Engineering
UC Berkeley	M. S. (Adviser: Prof. Arun Majumdar)	2001	Mechanical Engineering
UC Berkeley	B. S. (with highest honors)	1998	Mechanical Engineering
U. of Auckland (New Zealand)	Foreign exchange student	1997	Mechanical Engineering

Appointments

Sept. 2006 - present	<i>Assistant Professor</i> , Department of Mechanical Engineering, UC Riverside.
June 2006 - Aug. 2006	<i>Postdoctoral Scholar</i> , Department of Mechanical Engineering, Massachusetts Institute of Technology (Adviser: Prof. Gang Chen).
June 1998 - June 1999	<i>Research Engineer</i> , Solo Energy Corp., Alameda, CA

Publications

Book Chapters

3. C. Dames, "Microscale Conduction," in the textbook *Heat Conduction*, 3rd edition, lead author Latif Jiji, Springer, 2009.
2. C. Dames, "Resistance Temperature Detectors," *Encyclopedia of Micro- and Nanofluidics*, Springer-Verlag, D. Li (Ed.), 2008.
1. C. Dames, G. Chen, "Thermal conductivity of nanostructured thermoelectric materials," *Thermoelectrics Handbook: Macro to Nano*, Chapter 42, CRC Press, ed. D. Rowe, 2005.

Edited Volumes

1. C. Dames and G. Chen, Guest Editors. "Special issue on Energy Nanotechnology", *ASME Journal of Heat Transfer*, 130, 040301 (April, 2008).

Refereed Journal Publications

11. Z. Chen, W. Jang, W. Bao, C. N. Lau, and C. Dames, "Thermal contact resistance between graphene and silicon dioxide," accepted for *Applied Physics Letters* (to appear).

10. C. C. Chen, W. Bao, J. Theiss, C. Dames, C. N. Lau, and S. Cronin, "Raman Spectroscopy of Ripple Formation in Suspended Graphene," accepted for *Nano Letters* (to appear).

9. W. Bao, F. Miao, Z. Chen, H. Zhang, W. Jang, C. Dames, and C. N. Lau, "Controlled ripple texturing of suspended graphene and ultrathin graphite membranes," *Nature Nanotechnology* **4**, 562 - 566 (2009).

8. C. Dames, "Solid-state thermal rectification with existing bulk materials" *ASME Journal of Heat Transfer* **131**, 061301 (2009).

7. C. Dames, S. Chen, C. T. Harris, J. Y. Huang, Z. F. Ren, M. S. Dresselhaus, G. Chen, "A hot wire probe for thermal measurements of nanowires and nanotubes inside a transmission electron microscope," *Review of Scientific Instruments*, 78, 10493 (2007).

6. B. Cord, C. Dames, K. Berggren, and J. Aumentado, "Robust shadow-mask evaporation via lithographically-controlled undercut," *J. Vac. Sci. Tech. B* **24**, 3139 (2006).

5. C. Dames and G. Chen, "1, 2, and 3 ω methods for measurement of thermal properties," *Rev. Sci. Instrum.* **76**, 124902 (2005).

4. B. Poudel, W. Wang, C. Dames, J. Huang, S. Kunwar, D. Wang, D. Banerjee, G. Chen and Z. Ren, "Formation of crystallized titania nanotubes and their transformation into nanowires," *Nanotechnology* **16**, 1935 (2005).

3. C. Dames, G. Chen, B. Poudel, W. Wang, J. Huang, Z. Ren, Y. Sun, J. I. Oh, C. Opeil, S.J., and M. J. Naughton, "Low dimensional phonon heat capacity of titanium dioxide nanotubes," *Appl. Phys. Lett.* **87**, 031901 (2005).

2. G. Chen, A. Narayanaswamy, and C. Dames, "Engineering nanoscale phonon and photon transport for direct energy conversion," *Superlatt. Microstruct.* **35**, 161 (2004).

1. C. Dames and G. Chen, "Theoretical phonon thermal conductivity of Si-Ge superlattice nanowires," *J. Appl. Phys.* **95**, 682 (2004).

Conference Proceedings

15. Z. Chen, W. Jang, W. Bao, C. N. Lau, C. Dames, "Heat transfer in encased graphene," *ASME Summer Heat Transfer Conference*, San Francisco, CA, July 2009.

14. J. Miller, W. Jang, C. Dames, "Thermal rectification by ballistic phonons in asymmetric nanostructures," *ASME Summer Heat Transfer Conference*, San Francisco, July 2009.
13. J. Miller, W. Jang, C. Dames, "Thermal rectification by ballistic phonons," *Proceedings of 3rd Energy Nanotechnology International Conference*, Jacksonville, FL, August 2008.
12. C. Dames, "A broad range of phonon mean free paths is important for heat conduction," *Micro/Nanoscale Heat Transfer International Conference*, Tainan, Taiwan, January 2008.
11. G. Chen, C. Dames, A. Henry, "Thermoelectric Energy Conversion in Nanostructures," *Electron Devices Meeting, 2006. IEDM '06. International*, San Francisco, CA, December 2006.
10. C. Dames, S. Chen, C. T. Harris, J. Y. Huang, Z. F. Ren, M. S. Dresselhaus, G. Chen, "A modified high-resolution TEM for thermoelectric properties measurements of nanowires and nanotubes," *Proceedings of SPIE Optics East Conference*, Boston, MA, October 2006.
9. C. Dames, G. Chen, " 1ω , 2ω , and 3ω methods for thermal measurements (of single nanowires)," *2005 ASME Summer Heat Transfer Conference*, San Francisco, CA, July 2005, Paper HT2005-72780, 2005.
8. C. Dames, G. Chen, B. Poudel, W. Wang, J. Huang, Z. Ren, Y. Sun, J.I. Oh, C. Opeil, M.J. Naughton, "Low dimensional phonon heat capacity of titanium dioxide nanotubes," *ASME Integrated Nanosystems*, Pasadena, CA, September 2004, 2004.
7. C. Dames, M. S. Dresselhaus, G. Chen, "Phonon Thermal Conductivity of Superlattice Nanowires for Thermoelectric Applications," *Thermoelectric Materials 2003. Research and Applications, Proc. of Mater. Res. Soc. Fall Meeting*, G.S. Nolas, J. Yang, T.P. Hogan, D.C. Johnson (Eds.), 2004.
6. G. Chen, C. Dames, D. Song, C. T. Harris, "Thermal Conductivity of Complex Nanostructures," *Thermal Conductivity 27 Conference (ITCC27)*, Oak Ridge, TN, October 2003, 2003.
5. G. Chen, C. Dames, T. Harris, D. Borca-Tasiuc, R.G. Yang, B. Yang, W.L. Liu, D. Song, M. Takashiri, "Thermal Conductivity Reduction Mechanisms in Superlattices," *Intl. Conference on Thermoelectrics*, La Grande Motte, France, August 2003, 2003.
4. C. Dames, G. Chen, "Theoretical phonon thermal conductivity of Si-Ge superlattice nanowires," *ASME Summer Heat Transfer Conference*, Las Vegas, NV, July 2003, 2003.
3. Y. M. Lin, M. S. Dresselhaus, C. Dames, G. Chen, "Theoretical Investigation of Thermoelectric Properties of Superlattice Nanowires," *American Physical Society*, Austin, TX, March 2002, 2002.
2. C. Dames, G. Chen, "Modeling the Thermal Conductivity of a SiGe Segmented Nanowire," *International Conference on Thermoelectrics*, Long Beach, CA 2002, 2002.
1. C. Dames, G. Wu, H. Lin, A. Majumdar, "Multiplexed detection of nanoscale microcantilever deflections for high-throughput biomolecular analysis," *ASME International Mechanical Engineering Congress and Exposition*, New York, NY, November 2001, 2001.

Invited Conference Talks, Seminars, and Workshop Presentations

12. "Heat Transfer in Encased Graphene," invited seminar at Wright-Patterson AFB (AFRL), Dayton, OH, Aug. 25, 2009 (Host: Karla Strong).
11. "Thermal Rectification by Ballistic Phonons in Asymmetric Nanostructures," invited seminar at Wright-Patterson AFB (AFRL), Dayton, OH, Aug. 25, 2009 (Host: Karla Strong).
10. "Thermoelectric Refrigeration using Thin-Film Superlattices and Thermal Rectification", invited workshop presentation at "Recent Advances in Peltier Cooling in the Range Including 10 K" at Kirtland AFB (AFRL), Albuquerque, NM, April 23, 2009.
9. "Thermal Rectification by Ballistic Phonons in Asymmetric Nanostructures," invited talk at the MRS Spring Meeting, San Francisco, April 17, 2009.
8. "Thermal Rectification by Ballistic Phonons in Asymmetric Nanostructures," invited poster at the 6th US-Japan Joint Seminar on Nanoscale Transport Phenomena - Science and Engineering, Boston, MA, July 13-16, 2008.
7. "Thermal properties of nanostructures: thermoelectric applications," invited seminar to the Electrical Engineering Department, UC Riverside, May 5, 2008.
6. "Thermal properties of nanostructures: thermoelectric applications," invited presentation to UT Austin IGERT Seminar Series on Nanotechnology and Materials Science, Austin, TX, Oct. 17, 2007 (Host: IGERT PhD students).
5. "Thermal Properties of Nanowires & Nanotubes: Modeling and Experiments," invited seminar to the Thermal-Fluids Systems Group, UT Austin, TX, June 8, 2007 (Host: Li Shi.)
4. "A modified TEM for thermoelectric properties measurements of nanowires and nanotubes," invited talk at ASME Applied Mechanics and Materials Conference, Austin, TX, June 7, 2007.
3. "Thermoelectric properties of nanowires & nanotubes used for energy conversion," invited poster at the 4th U.S.-Korea Forum on Nanotechnology, Honolulu, HI, April 26-27, 2007.
2. "Thermal Properties of 1-Dimensional Nanostructures: Modeling and Experiments," invited seminar at YTC America Corp., Camarillo, CA, April 2, 2007.
1. "A modified high-resolution TEM for thermoelectric properties measurements of nanowires and nanotubes," invited talk at SPIE Optics East, Boston, MA, Oct. 2, 2006.

Patents and Intellectual Property

UC Disclosure of Invention

1. C. Dames, G. Chen, S. Chen, C. T. Harris, Z. F. Ren, "Hot wire probe for electron microscopy". UC Case # 2007-729. Disclosed May 2006

Patent Application Filing with US Patent & Trademark Office

1. A. Majumdar, M. Yue, C. Dames, R. Cote, H. Lin, R. Datar, S. Satyanarayana, "System and method for multiplexed biomolecular analysis," United States Patent Application # 20040152211. Filed Nov. 2003.

Funding: Current

DARPA: "YFA (Young Faculty Award): Ballistic-Elastic Thermal Rectification in Asymmetric Nanostructures," September 2009 - September 2010. PI.

NSF: "Measuring the thermal conductivity of graphene," July 2009 - June 2012. PI.

DOE: "Heat Transfer and Latent Heat Storage in Inorganic Molten Salts for Concentrating Solar Power Plants," June 2009 - December 2011. Co-PI of a UCR subcontract to Terrafore Inc.

DAPRA: "Nano-Materials for Power," May 2008 - May 2013. PI of a subcontract to RTI International.

Funding: Completed

NSF: "SPIRIT: Success Partnership for Increasing Recruitment into Technology," July 23-24, 2009. Workshop leader.

NSF: "SGER: Thermal and thermoelectric properties of graphene," July 2008 - June 2009. PI.

UCR: "Regents' Faculty Fellowship: Thermal Rectification," July 2008 - June 2009. PI.

ONR/DARPA STTR: "Miniaturized Thermal Energy Harvesting System", Feb 2008 - May, 2008. PI of a subcontract with Advanced Ceramics Manufacturing (ACM).

UCR: "Interdisciplinary Teams and Networks: Nanowire-Based Thermoelectric Generator", Jan 2007 - Dec. 2007. PI.

Professional Activity

Reviewing Proposals:

NSF-CBET (National Science Foundation - Chemical, Bioengineering, Environmental, & Transport Systems Division).

ACS-PRF (American Chemical Society - Petroleum Research Fund)

Reviewing Journal Articles:

Advanced Functional Materials
Physical Review Letters
Applied Physics Letters
ASHRAE Journal
ASME Journal of Heat Transfer
Heat Transfer Engineering
International Journal of Heat and Mass Transfer
International Journal of Thermal Sciences
International Journal of Thermophysics
International Journal of Transport Phenomena
Journal of Applied Physics
Journal of Chemical Physics
Journal of Materials Research
Journal of Physics D
Measurement Science & Technology
Nanoscale and Microscale Thermophysical Engineering
Nanotechnology
Numerical Heat Transfer
Review of Scientific Instruments
Superlattices and Microstructures

Journal Editorial Activities

Guest Editor (1 of 2) for a special issue of the *ASME Journal of Heat Transfer*, including but not limited to submissions at the first Energy Nanotechnology International Conference, Cambridge, MA, June 2006. Issue published in April 2008.

Conference Organizational Activities

Co-organizer (1 of 3) for a DMP Focus Topic on “Thermoelectric Materials and Phenomena” for the 2010 March APS Meeting (in Portland OR). We expect 5 sessions and 5 invited speakers.

Session Chair, ASME IMECE, Nov. 2009, Florida.

Session Co-Chair (1 of 2), 2009 ASME Summer Heat Transfer Conference, July 19-23, 2009, San Francisco, CA.

Session Co-Chair (1 of 3), ASME/Pacific Rim Technical Conference and Exhibition on Packaging and Integration of Electronic and Photonic Systems, MEMS, and NEMS (InterPACK), Vancouver, Canada, July 2007.

Teaching

Course	Level	Offerings Taught	Average Student Evaluations (Out of 5)	
			“Instructor was effective as a teacher overall”	“The course overall as a learning experience was excellent”
ME 100A: Thermodynamics	Junior Level, req'd	3	4.6	4.4
ME 116B: Heat Transfer	Technical Elective	2	4.8	4.6
ME 241A: Fundamentals of Heat and Mass Transfer	Graduate	2	4.9	4.8
*ME 244: Nanoscale heat transfer and energy conversion	Graduate	1	4.9	4.8

*ME244: Developed new course.