

Curriculum Vitae

GANG CHEN

Warren and Towneley Rohsenow Professor
 Mechanical Engineering Department
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Research Interests:

Experimental, theoretical, and numerical study of fundamental energy conversion and transport mechanisms at micro- and nanometer scales, with applications to thermoelectrics, thermionics, photovoltaics, thermophotovoltaics, microelectronics and photonics; hydrogen storage and photo-water splitting; nanoengineered materials with high and low thermal conductivities; microelectromechanical systems and thermal sensors; radiation transport and electromagnetic metamaterials; nanofabrication.

Education:

- Ph.D., 1993 University of California, Berkeley, Mechanical Engineering.
 Dual Minors in Thermodynamics and Electrical Engineering.
 Thesis Advisor: NEC Distinguished Professor and Chancellor: Chang-Lin Tien.
 Thesis Title: "Thermal Phenomena in Optical and Optoelectronic Thin Film Devices."
- M.S., 1987 Huazhong University of Science and Technology, Power Engineering, China.
 Thesis Advisor: Professor and Chairman S. M. Cheng. Thesis Title:
 "Heat Transfer and Fluid Flow around Droplet-Shaped Cylinders."
- B.S., 1984 Huazhong University of Science and Technology, Power Engineering, China.

Professional Experience:

- 7/04-present Professor, Mechanical Engineering Department, MIT.
- 7/01-6/04 Associate Professor, Mechanical Engineering Department, Massachusetts Institute of Technology.
- 11/96-6/01 Associate Professor, Mechanical and Aerospace Engineering Department, University of California at Los Angeles.
- 9/93-6/97 Assistant Professor, Department of Mechanical Engineering and Materials Science, Duke University.
- 7/93-8/93 Research Assistant Professor, Duke University.
- 6/93 Visiting Postdoctoral Research Engineer, University of California, Berkeley.
- 6/90-5/93 Graduate Student Research Assistant, University of California, Berkeley.
- 10/89-5/90 Graduate Student Research Assistant, University of California, Irvine.
- 5/87 - 9/89 Lecturer, Huazhong University of Science and Technology, China.

Awards and Honors:

- 2008 R&D 100 Award for High Performance Thermoelectric Materials
- 2008 ASME Heat Transfer Memorial Award
- 2007 Honorary Professor, Huanan University of Science and Technology, China
- 2007 Guest Professor, Wuhan University of Science and Technology, China
- 2006 Fellow, ASME
- 2006 Warren and Towneley Rohsenow Professorship, MIT
- 2006 Chair, Advisory Board, ASME Nanotechnology Institute
- 2005 Best Paper Award (Research Category), InterPACK'05 (the ASME/Pacific Rim Technical Conference and Exhibition on Integration and Packaging of MEMS, NEMS, and Electronic Systems, July 17-22, San Francisco).
- 2005-2009 Guest Professor, Xian Jiaotong University, China.
- 2004 NASA Space Act Tech Brief Award
- 2003 Organizer of the National Academy of Engineering Frontier of Engineering Symposium.
- 2002-2003 Guggenheim Fellowship.
- 1994-2001 National Science Foundation Young Investigator Award.
- 2000 Asia/Pacific-Who's Who, Vol. 3, p. 357.
- 9/00 Phi Tau Phi Member (honor society of Asian Americans).
- 1999- Guest Professor, Huazhong University of Science and Technology, China.
- 1998 American Men and Women of Science.
- 1998 Marquis Who's Who in Science and Engineering, 4th Edition.
- 1994-1997 Outstanding Reviewer for Journal of Heat Transfer.
- 1996-1997 Warren Faculty Scholar, Duke University.
- 1995, 2002 Invited participant of the NAE First Ann. Symp. Frontiers of Engineering.
- Fall, 92 Arthur Gould Tasheira Scholarship, University of California, Berkeley.
- 10/89-10/92 Scholarship, K.C. Wong Education Foundation, Hong Kong.
- Winter, 90, Fellowship, Dept. Mechanical Engineering, University of California, Irvine.

Professional Activities:

- Editorial Committee: Journal of Nanotechnology and Precision Engineering, 2007
 - Editor, Journal of Nanomaterials, 2005.
 - Advisory Board, NSF Center of Scalable Integrated Nanomanufacturing, 2005
 - Board of Advisors, Center for Applied Science, Taiwan, 2004.
 - Editorial Board, Microscale Thermophysical Engineering, 2004.
 - Editorial Board, Journal of Computational and Theoretical Nanoscience, 2004.
 - Associate Editor, ASME Journal of Heat Transfer, July 2002-June 2005.
 - Co Editor, Annual Review of Heat Transfer, 2003-.
 - 2000, Guest Editor, Materials Science and Engineering A: Structural Materials: Properties, Microstructure and Processing, Vol. 292, No. 2.
- Chair, Advisory Board, ASME Nano Institute, Nov., 2005
 - Chair, Nanoscale Phenomena Committee, ASME Nano-Institute, 2003-2005
 - American Society of Mechanical Engineers, Member;
 - Materials Research Society, Member;

American Physical Society, Member;
 International Thermoelectrics Society, Member;
 American Association for the Advancement of Science, Member;
 ASME K-8 and K-16, Member.

- Session Co-Chair--2nd US-Japan Meeting on Molecule and Microscale Transport Phenomena, Santa Barbara (1996);
 Session Co-Chair--ASME National Heat Transfer Conference, Houston (1996).
 Session Co-Chair--Workshop on Thermophysical Phenomena in Microscale Sensors, Devices, and Structures, Baltimore (1997);
 Organizer--2nd Microtherm Workshop, Albuquerque (1998);
 Session Chair—Materials Research Society Fall Meeting, Boston (1998);
 Session Organizer--5th International Conference on Solid-State and Integrated Circuit Technology, Beijing (1998);
 Advisory Board--Eurotherm 57: Microscale Heat Transfer, France (1998);
 Session Co-Chair--17th International Thermoelectrics Conference, Japan (1998);
 Session Co-Chair--40th Electronic Materials Conference, Charlottesville (1998);
 Program Chairman--18th International Thermoelectrics Conference, Baltimore (1999);
 Symposium Organizer--International Union of Materials Research Society-International Conference on Advanced Materials, Beijing, China (1999);
 Session Chair---Japan-US Seminar on Thermophysical Phenomena in Nanotechnology (Sendai, Japan, 1999).
 Session Chair---International Conference on Thermoelectrics, Baltimore (1999);
 Session Organizer---IMECE “Fundamental Heat Transfer Issues in Direct Energy Conversion,” Nashville (1999).
 Scientific Committee---Heat Transfer and Transport Phenomena in Microsystems, Canada (2000).
 Chair---MRS Spring Meeting (2000), San Francisco, Symposium Z.
 Session Co-Chair---IMECE (2000).
 Conference Co-Organizer---International Conference on Energy Conversion and Applications, China (2001).
 Session Chair---International Conference on Energy Conversion and Applications, June 17-20 (2001).
 Session Chair---International Conference on Thermoelectrics, Beijing, June 8-11, 2001.
 Session Organizer---IMECE panel “Nanoscale Transport” Fundamentals and Applications.” (2001).
 Scientific Committee---International Symposium on Micro/Nanoscale Energy Conversion and Transport, Turkey, April 14-19, 2002.
 Session Chair---International Conference on Thermoelectrics, August 25-29, 2002.
 Organizing Committee---ASME-JSME Joint Thermophysical Engineering Conference, March 16-20, 2003.
 Organizing Committee---International Conference on Thermoelectrics, August 24-29, 2002.
 Scientific Committee---Eurotherm Seminar No. 75, France, 2003
 Organizing Committee---National Academy of Engineering 9th Annual Symposium on Frontiers of Engineering, Irvine, California, 2003.
 Session Chair---Integrated Nanosystems 2002, September 18-20, Berkeley, CA.

Scientific Committee---First International Symposium on Micro&Nano Technology (ISMNT-1), Honolulu, Hawaii, March 15-17, 2004.

International Advisory Board---International Conference On Thermoelectrics, Adelaide, Australia, July 25-29, 2004.

Organizing Committee---The 2nd International Symposium on Nanomanufacturing ISNM 2004, November 17-19, 2004 / KAIST, Daejeon, Korea.

International Scientific Committee---2nd International Symposium on Micro/Nanoscale Energy Conversion and Transport, Seoul, Korea, August 8-13, 2004.

Organizing Committee, ASME Integrated Nanosystem Conference, Pasadena, CA, September 22-24, 2004.

Organizing Committee---International Forum of Heat Transfer, Kyoto, Japan, November 24-26, 2004.

Co-Chair--US-Japan Seminar on Nanoscale Heat Transfer, 2005.

International Advisory Committee---China Nano 2005: China International Conference on Nanoscience and Technology, June 9-11, 2005, Beijing.

International Organizing Committee---17th International Symposium on Transport Phenomena, September 17-21, 2006, Toyama, Japan.

Co-Chair, DOE Workshop on Solar Energy Utilization Workshop, Panel 3, Sub-panel on Thermal Utilization, April 18-21, 2005.

Session Co-Chair, National Heat Transfer Conference, Symposium in Honor of Mikic, July, 2005.

Advisory Committee, International Micro Energy Conference, Sanya, China, September 11-14, 2005.

Conference Co-Chair, ASME Nano-Institute Conference on Integrated Nanosystems, Berkeley, September 14-16, 2005.

Organizer, Symposium in Honor of Bora Mikic, National Heat Transfer Conference, San Francisco, July 18-23, 2005.

Conference Chair, International Conference on Energy Nanotechnology, MIT, June 25-28, 2006.

Organizing Committee: International Forum on Nanoscale Energy Conversion and Information Processing Devices, September 23-26, 2006, Nice, France.

Int. Scientific Committee, The 2nd Int. Symposium on Micro & Nano Technology, March 29-31, Hsinchu, Taiwan, 2006.

Co-chair, International Conference on Integration and Commercialization of Micro/Nano Systems, Sanya, China, January 10-13, 2007, ASME/CMES

Scientific Committee: Thermal Radiation at The Nanoscale: Forces, Heat Transfer, and Coherence (TR07), Les Houches, France, May 21-25, 2007.

Advisory Board, International and INCCOM-6 Conference on Future Trends in Composite Materials and Processing, IIT Kanpur, India, Dec. 12-14, 2007

Int. Sci. Committee: RAD-07: The 5th Int. Symposium on Radiative Transfer, June 17-22, 2007, Bodrum, Turkey.

Conference Co-Chair, International Conference on Energy Nanotechnology, Santa Clara, CA, September 5-7, 2007.

Technical Committee Member, Micro/Nanoscale Heat Transfer International Conference, Tainan, Taiwan, January 6-9, 2008.

Organizing Committee; ASME IMECE Nanoforum, Seattle, Nov. 12-15, 2007.

Organizing Committee, 1st International Forum on Advanced Thermoelectric Materials and Devices, Shanghai, China, November 11-12, 2007.

Co-Chair, 6th US-Japan Seminar on Nanoscale Transport Phenomena, Boston, July 13-16, 2008.

Co-chair, Second Integration and Commercialization of Micro and Nanosystems International Conference & Exhibition, June 3 - 5, 2007, Hong Kong, China

Conference co-chair: Third Energy Nanotechnology International Conference, Jacksonville, Florida, August 10-13.

- Referee for
 - AIAA Journal of Thermophysics and Heat Transfer,
 - Applied Optics,
 - Applied Physics A (2003)
 - Applied Physics Letters,
 - Applied Surface Science (2005)
 - ASME/IEEE Journal of Electronic Packaging,
 - ASME Journal of Heat Transfer,
 - ASME Journal of Applied Mechanics,
 - Entropy (2005)
 - European Physics Journal---Applied Physics (2004)
 - Experimental Thermal and Fluid Science,
 - Geophysical Journal International,
 - IEEE Transactions on Medical Imaging,
 - IEEE Transactions on Components and Packaging Technologies (2005-)
 - IEEE Journal of Quantum Electronics
 - International Journal of Heat and Mass Transfer,
 - International Journal of Multiscale Computational Engineering (2004)
 - International Journal of Numerical Methods for Heat & Fluid Flow
 - International Journal of Thermal Sciences,
 - International Journal of Thermophysics (2005-)
 - Journal of Applied Physics,
 - Journal of Mechanics of Materials and Structures (2006-)
 - Journal of Microelectromechanical Systems,
 - Journal of Microfluidics and Nanofluidics (2005-)
 - Journal of Nanoparticle Research (2001-)
 - Journal of Quantum Electronics (2004)
 - Materials Science and Engineering A,
 - Molecular Simulation (2006-)
 - Microscale Thermophysical Engineering
 - Numerical Heat Transfer
 - Nanoletters (2002-)
 - Nanotechnology (2005-)
 - Optical Engineering,
 - Optics Letters (2002-)
 - Optical Society of America B (2005)
 - Physica B (2004-)

Physica Status Solidi (2001-)
 Physics Letters A (2005-)
 Physical Review Letters (2006-)
 Philosophical Magazine (2005-)
 Thin Solid Films,
 Science,
 Various Conferences,
 NSF Career Panels (4 terms since inception)
 NSF, DOE, ARO, DOD EPSCOR, and NRC proposals
 The Royal Society of New Zealand (2002)
 Canada Foundation of Innovation
 California Energy Commission.
 Keck Foundation
 Petroleum Research Fund
 Research Grant Council, Hong Kong
 Swiss National Science Foundation, 2005.
 Foundation for Advancement of Outstanding Scholarship, Taiwan, 2005.

Books

1. G. Chen, Nanoscale Energy Transfer and Conversion, Oxford Press, ISBN 019515942X, 2005.
2. V. Prasad, Y. Jaluria, G. Chen, Editors, Annual Review of Heat Transfer, vol. 14, Begell House, 2005.

Invited Book Chapters:

- IB1. G. Chen, 1996, "Heat Transfer in Micro- and Nanoscale Photonic Devices," *Annual Review of Heat Transfer*, Ed., C.L. Tien, Vol. VII, 1-57.
- IB2. G. Chen, 2001, "Phonon Heat Conduction in Low-Dimensional Structures," **Semiconductors and Semimetals, Recent Trends in Thermoelectric Materials Research III**, Vol. 71, pp. 203-259, Ed. T. Tritt, Academic press, San Diego.
- IB3. G. Chen, B. Yang, and W.L. Liu, 2003, "Engineering Nanostructures for Energy Conversion," in **Heat Transfer and Fluid Flow in Microscale and Nanoscale Structures** Editors: M. Faghri and B. Sunden, pp. 45-92.
- IB4. B. Yang and G. Chen, 2003, "Phonon Heat Conduction in Superlattices," in **Chemistry, Physics, and Materials Science for Thermoelectric Materials: Beyond Bismuth Telluride**, Ed. M.G. Kanatzidis, T.P. Hogan, S.D. Mahanti, pp. 147-167, Kluwer Academic/Plenum Publisher, New York.
- IB5. G. Chen, D. Borca-Tasciuc, R.G. Yang, "Nanoscale Heat Transfer," **Encyclopedia of Nanoscience and Nanotechnology**, H.S. Nalwa, Ed., American Scientific Publishers, Vol. 7, pp. 429-459 (2004).

- IB6. B. Yang and G. Chen, "Experimental Studies on Thermal Conductivity of Thin Films and Superlattice Materials," in **Thermal Conductivity: Theory, Properties, and Applications**, T.M. Tritt, Ed., Kluwar Press, New York, pp. 167-185 (2004).
- IB7. T. Borca-Tasciuc and G. Chen, "Thin-Film Thermal Conductivity Measurement Techniques," in **Thermal Conductivity: Theory, Properties, and Applications**, T.M. Tritt, Ed., Kluwar Press, New York, pp. 205-238 (2004).
- IB8. M. S. Dresselhaus, G. Dresselhaus, J. Heremans, and G. Chen. "Low Dimensional Thermoelectricity," In **CRC Handbook; Molecular and Nano-electronics: Concepts, Challenges, and Designs**," edited by Y. Gogotsi, CRC Press, Inc., Boca Raton, Florida, USA, 2005.
- IB9. A. Narayanaswamy and G. Chen, "Direct Computation of Thermal Emission from Nanostructures," *Annual Review of Heat Transfer*, Vol. 14, pp. 169-196, 2005.
- IB10. C. Dames and G. Chen "Thermal Conductivity of Nanostructured Thermoelectric Materials," *CRC Handbook*, edited by M. Rowe, pp.42-1 to 42-16, 2006, Taylor and Francis, Boca Raton.

Invited Conference/Workshop Presentations:

Keynotes and Plenary Lectures in Conferences

- IP1. G. Chen, V. Sabastian, S. Zhou, and T. Borca-Tasciuc, 1998, "Phonon Heat Conduction in Nanostructures," Plenary lecture, Eurotherm Conference, 57: Microscale Heat Transfer, Poitiers, France, July 8-10. In *Microscale Heat Transfer*, ed. J.B. Saulnier, D. Lemonnier, and J.-P. Bardon, pp. 59-72.
- IP2. G. Chen and S. Volz, 1999, "Molecular Dynamic Simulation from Nanoscale to Macroscale," Overview talk, 117th Xiangshan Conference: Thermophysics and Heat Transfer in Extreme Cases, conference abstract.
- IP3. G. Chen and T. Zeng, 2000, "Nonequilibrium Phonon and Electron Transport in Thin Films and Superlattices," Keynote address, *Proceedings of the International Heat Transfer and Transport Phenomena in Microscale*, pp. 1-11, Ed. G.P. Celata, Banff, Canada, October 15-20, 2000.
- IP4. G. Chen, "Engineering Thermophysical Properties of Micro- and Nanostructures," Keynote lecture on France National Heat Transfer Conference, Nantes, France, May 29-31, 2001.
- IP5. G. Chen, B. Yang, W.L. Liu, D. Borca-Tasciuc, D. Song, and A. Jacquot, "Energy Conversion and Transport in Nanostructures," presented at *International Symposium on Micro/Nanoscale Energy Conversion and Transport*, April 14-19, 2002, Antalya, Turkey, extended abstract book, pp. 42-43.
- IP6. G. Chen, A. Narayanaswamy, and C. Dames "Engineering Nanoscale Phonon and Photon Transport for Direct Energy Conversion," presented at *Eurotherm Seminar No. 75*, Reims, France, July 8-12, 2003.
- IP7. G. Chen, "Nanoscale Heat Transfer and Nanostructured Thermoelectrics," presented at 9th *Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic*

- Systems (ITHERM2004), Las Vegas, June 1-4, 2004, ITHERM 2004, pp.8-16, lunch speaker.
- IP8. G. Chen, “Integrating Nanoscale Effects into Micro and Macrosystems,” presented at 2nd International Conference on Microchannels and Minichannels, Rochester, NY, June 17-19, 2004.
- IP9. G. Chen, R.G. Yang, A. Narayanaswamy, and X.Y. Chen, “Thermally-Excited Nonequilibrium States between Electrons and Phonons for Energy Conversion,” International Symposium on Micro/Nanoscale Energy Conversion and Transport, Seoul, Korea, Extended Abstract, pp. 9-11, August 8-13, 2004.
- IP10. G. Chen, “Nanostructures for Direct Thermal to Electric Energy Conversion,” Proceedings of the First International Forum on Heat Transfer, November 24-26, 2004, Kyoto, Japan, pp. 1-3.
- IP11. G. Chen, “Nanostructures for Macroscale Energy Conversion,” Keynote at International Conference on Micro Energy Systems, September 11-14, 2005, Sanya, China.
- IP12. G. Chen, “Nanostructured Thermoelectric Materials and Devices,” 2006 Taipei International Thermal Management Forum, Taipei, July 11, 2006.
- IP13. G. Chen, “Nanoscale Heat Transfer Effects Enabled Energy Technologies,” 13th International Heat Transfer Conference, Sydney, Australia, August 13-18, 2006.
- IP14. G. Chen, “Energy Nanotechnology,” 2^{do} Taller Nacional Nanotecnologia, October 5-7, 2006, Vina de Mar, Chile.
- IP15. G. Chen, “Energy Technology Breakthroughs Enabled by Nanoscale Effects,” NSF Nanoscience and Engineering Grantee Conference, December 4-6, 2006, Virginia, VA.
- IP16. G. Chen, “Nanostructures and Their Thermal Properties,” EuroSimE: Thermal, Mechanical and Multiphysics Simulation and Experiments in Micro-Electronics and Micro-Systems, London, April 15-18, 2007.
- IP17. G. Chen, A. Narayanaswamy, Z. Chen, L. Hu, S. Sheng, and X.Y. Chen, “Radiative Heat Transfer in Nanostructures by Surface Phonon Polaritons,” Keynote Lecture at IEEE-Nano2007, The 7th IEEE International Conference on Nanotechnology, August 2-5, 2007, Hongkong.
- IP18. G. Chen, “Thermophysical Properties of Nanostructured Materials,” Keynote, Proceedings of the 8th Aisan Thermophysical Properties Conference, pp. 39-42, August 21-24, 2007, Kyushu University, Fukuoka, Japan.
- IP19. G. Chen, “Thermoelectric Energy Conversion in Nanostructures,” Keynote, 1st Int. Forum on Advanced Thermoelectric Materials and Devices, Nov. 10-11, 2007, Shanghai, China.
- IP20. G. Chen, “Nanoscale Heat Transfer and Energy Conversion,” Keynote, Chinese Annual National Heat and Mass Transfer Conference, Nov. 12-15, 2007, Guangzhou, China.
- IP21. G. Chen, “Thermoelectric Energy Conversion in Nanostructures,” Key Conference: The Future Prospects for the Compound Semiconductor Industry, March 2-4, 2008, Key West, Florida.

- IP22. G. Chen, “Nanostructured Thermoelectric Materials for Solid-State Cooling,” Plenary Talk, Advanced Technology Workshop on Advanced Substrates and Next-Generation Semiconductors, April 30-May 1, 2008, Linthicum Heights, Maryland.
- IP23. Gang Chen, Q. Hao, A. Muto, D. Kramer, H. Lee, and A. Minnich, “Nanostructured Thermoelectric Materials, Devices, and Their Potential Applications,” Third Energy Nanotechnology International Conference, August 11-13, 2008.
- IP24. G. Chen, “Keys to Success,” Dinner Talk, at Chinese in America Thermal Engineering Association (CATEA), Jacksonville, Florida, August 11, 2008.

Invited Presentations in Conferences

- IP25. G. Chen, S. G., Volz, T. Borca-Tasciuc, T. Zeng, D. Song, K.L. Wang, and M.S. Dresselhaus, 1998, "Phonon Engineering in Superlattices," Invited paper at the MRS Fall Meeting, Boston, Massachusetts, 1998, MRS Proc. Vol. 545, pp. 357-368.
- IP26. G. Chen, 1998, "Heat Conduction in Low-Dimensional Structures," invited paper presented at 5th International Conference on Solid-State and Integrated-Circuit Technology, Beijing, China, October 21-23, Conference Proc., p. 860.
- IP27. G. Chen, T. Zeng, T. Borca-Tasciuc, and D. Song, 1999, “Phonon Engineering in Nanostructures for Solid-State Energy Conversion,” invited paper presented at International Union of Materials Research Society-International Conference on Advanced Materials, Beijing, China, June 14-18, 1999.
- IP28. G. Chen, 2000, “Thermal Consideration in Design of Heterostructure Electronic and Photonic Devices,” presented at 2000 SPIE Terahertz and Gigahertz Electronics and Photonics Conference, San Diego, July 30-August 4, 2000.
- IP29. G. Chen, B. Yang, W.L. Liu, T. Borca-Tasciuc, D. Song, D. Achimov, M.S. Dresselhaus, J.L. Liu, and K.L. Wang, “Thermoelectric Property Characterization of Low-Dimensional Structures,” Proc. 20th International Conference on Thermoelectrics, ICT’01, pp. 30-34, Beijing, China, June 8-11, 2001 (IEEE Press, IEEE Cat. No. 01TH8589, Piscataway, NJ).
- IP30. G. Chen, B. Yang, W.L. Liu, and T. Zeng, “Nanoscale Heat Transfer for Energy Conversion Applications,” International Conference on Energy Conversion and Applications, Wuhan, China, June 17-20, 2001, Conference Proceedings: Energy Conversion and Applications, Vol. 1, pp. 287-296, ed. W. Liu.
- IP31. G. Chen, “Heat Conduction in Low-Dimensional Structures,” 5th Gordon Conference on Photoacoustic and Photothermal Phenomena, Queens College, Oxford, UK, August 19-24, 2001.
- IP32. G. Chen, “Nano-to-Macroscale Energy Transport and Conversion---Bridging the Gaps in Length Scales and Disciplines,” Proceedings of Colloquium on Micro/Nano Thermal Engineering, pp. 205-232, Ed., S.J. Song, Feb. 17-19, 2002, Seoul National University, Seoul, Korea.
- IP33. G. Chen, “Micro and Nanoscale Heat Transfer---Tien’s Legacy,” presented at Chang-Lin Tien’s retirement ceremony, Berkeley, June 21, 2002.
- IP34. G. Chen and R.G. Yang, “Nano-to-Macroscale Modeling through Approximation,” presented at International Mechanical Engineering Congress, 2002.

- IP35. G. Chen, "Thermal Design of Photonic Devices," presented at 1st Symposium on Photonics, Networking, and Computing, March 12-13, 2002, Durham, North Carolina (no paper submitted).
- IP36. G. Chen, "Diffusion-Transmission Interface Condition," presented at 4th US-Japan Nanotherm, Berkeley, June 22-26, 2002.
- IP37. G. Chen, "Thermally Engineered Nanostructures for Energy Conversion," presented at The International Conference on Micro and Nanosystems 2002, Kuming, China, August 11-14, 2002.
- IP38. G. Chen, "Electron and Phonon Transport and Energy Conversion in Nanostructures," Integrated Nanosystems 2002, Sponsored by ASME Nano-Institute, Berkeley, CA, September 18-20, 2002.
- IP39.** G. Chen and R.G. Yang, "Nano-to-Macroscale Transport Modeling Through Approximation," November 17-22, 2002, Proceedings of International Mechanical Engineering Congress and Exhibitions (IMECE2002), New Orleans, LA, paper IMECE2002-32120.
- IP40. G. Chen, "Exploring Nanoscale Heat Transfer Effects for Energy Conversion," presented at MRS Spring Meeting, San Francisco, April 21-25, 2003.
- IP41. G. Chen, "Reducing Phonon Thermal Conductivity Through Nanostructures for Thermoelectric Energy Conversion," presented at Internal Conference on Thermoelectrics, Heraut, France, August 17-21, 2003.
- IP42. G. Chen, C. Dames, D. Borca-Tasciuc, T. Harris, and D. Song, "Thermal Conductivity of Complex Nanostructures," presented at International Conferences on Thermal Conductivity, Knoxville, Tennessee, Oct. 26-29, 2003.
- IP43. G. Chen, "Nanostructure-Based Direct Thermal-to-Electric Power Generation Technologies," American Filtration & Separation Society, Diesel and Gas Engine Emission Solution, Oct. 2, 2003.
- IP44. G. Chen, "Basic Heat Transfer Characteristics at Nanoscale," presented at Tutorial on Micro- Nanoscale Heat Transfer, IMECE 2003, Nov. 15-21, 2003.
- IP45. G. Chen, "Thermal Conductivity and Heat Conduction in Nanostructures: Modeling, Experiments, and Applications," Paper No. AIAA-2004-2463; presented at 37th AIAA Thermophysics Conference, Portland, Oregon, June 28-July 1, 2004.
- IP46. G. Chen, "Nonequilibrium Electron-Phonon Transport Near Sharp Potential Barriers," International Conference on Thermoelectrics, Adelaide, Australia, July 25-29, 2004 (proceeding in press).
- IP47. G. Chen, "Nanoscale Heat Transfer and Thermal-Electric Energy Conversion," presented at 13th International Conference on Photoacoustic and Photothermal Phenomena, Rio de Janeiro, Brazil, 5-8 July 2004.
- IP48. G. Chen, A. Schmidt, H. Lee, and X. Y. Chen, "Exploring Nanoscale Heat Transfer Effects for Nanomanufacturing," presented at 2nd International Symposium on Nanomanufacturing, KAIST, Korea, Nov. 3-5, 2004.

- IP49. G. Chen, L. Hu, A. Narayanaswamy, and Z. Chen, "Nanoscale Thermal Radiation: Fundamental Issues and New Opportunities," Japan-US Joint Seminar, Nanoscale Transport Phenomena, Matsushima, Japan, July 4-7, 2005.
- IP50. A. Henry and G. Chen, "Extracting Phonon Properties from Molecular Dynamics Simulations," Japan-US Joint Seminar, Nanoscale Transport Phenomena, Matsushima, Japan, July 4-7, 2005.
- IP51. J.B. Wang and G. Chen, "Electrothermal Heat Conduction in Nanofluids," Japan-US Joint Seminar, Nanoscale Transport Phenomena, Matsushima, Japan, July 4-7, 2005.
- IP52. G. Chen, R.G. Yang, H. Lee, Q. Hao, M.-S. Jeng, M. Tang, M.S. Dresselhaus, B. Poudel, S. Kumar, D.Z. Wang, Z.F. Ren, P. Gogna, and J.-P. Fleurial, "Design, Modeling, and Synthesis of Nanocomposites for Solid-State Energy Conversion," SPIE's International Symposia on Optics East 2005, Symposium SA119, Symposium SA 111, Nanofabrication: Technologies, Devices, and Applications II, October 23-26, Boston, MA (no paper submitted).
- IP53. G. Chen, C. Dames, S. Chen, J.Y. Huang, and Z.F. Ren, "Thermal and Thermoelectric Characterization of Nanostructures," SPIE's International Symposia on Optics East 2005, Symposium SA119, Nanosensing: Materials and Devices II, on October 23-26, Boston, MA (no paper submitted).
- IP54. G. Chen, "Role of Nanotechnology In Energy," MIT Energy Forum, May 3, 2006.
- IP55. G. Chen, "Thermoelectric Energy Conversion with Nanostructured Materials," MIT Energy Conference, May 13, 2006.
- IP56. G. Chen, "Heat Transport in Superlattices and Nanocomposites for Thermoelectric Applications," International Conferences on Materials and Technologies, Sicily, Italy, June 4-9, 2006.
- IP57. C. Dames, S. Chen, C.T. Harris, J.Y. Huang, Z.F. Ren, M.S. Dresselhaus, and G. Chen, "A Modified High-Resolution TEM for Thermoelectric Property Measurements of Nanowires and Nanotubes," SPIE Optics East, Oct. 2, 2006.
- IP58. G. Chen and X.Y. Chen, "Solar to Electric Energy Conversion via Thermoelectric Devices," MRS Fall Meeting, Symposium CC: Solar Energy Conversion, November 27-December 1, 2006, Boston, MA (no paper submitted).
- IP59. G. Chen, A. Henry, and C. Dames, "Thermoelectric Energy Conversion in Nanostructures," International Electron Devices Meeting, San Francisco, December 11-12, 2006, IEDM Technical Digest, pp. 20.1.1-20.1.4, 2006, IEEE Cat. No. 06CH37807.
- IP60. G. Chen, "Thermoelectric Energy Conversion in Nanostructures," 2nd Int. Conference on Nano/Micro Engineered and Molecular Systems, Bangkok, Thailand, January 16-19, 2007.
- IP61. G. Chen, L. Hu, Z. Chen, A. Narayanaswamy, and X.Y. Chen, "Thermal radiative transport in nanostructures and its application in energy technology," MRS Spring Meeting, Symposium II: Nanoscale Heat Transport--From Fundamentals to Devices, April 9-13, 2007.

- IP62. G. Chen, "Energy Nanotechnology," The Fourth U.S.-Korea Forum on Nanotechnology: Sustainable Energy, April 26-27, 2007.
- IP63. G. Chen, "Nanoscale Phonon and Phonon-Polariton Heat Transfer and Related Coherence Issues," Thermal Radiation at The Nanoscale: Forces, Heat Transfer, and Coherence (TR07), Les Houches, May 21-25, 2007.
- IP64. G. Chen, "Energy Technology Enabled by Nanoscale Effects," NSF Workshop on Frontiers in Transport Phenomena Research and Education: Energy Systems, Biological Systems, Security, Information Technology and Nanotechnology, University of Connecticut, Storrs, May 17-18, 2007.
- IP65. G. Chen, L. Hu, S. Shen, and A. Narayanaswamy, "Breakdown of Planck's Law at Nanoscale," Presented at 38th Physics of Quantum Electronics, Snowbird, Utah, January 6-10, 2008.
- IP66. G. Chen, A. Minnich, H. Lee, Q. Hao, and A. Henry, "Thermoelectric Transport in Nanostructured Bulk Materials," MRS, Spring Meeting, R Symposium San Francisco, March 23-27, 2008.
- IP67. G. Chen, M. Chiesa, A. Muto, D. Kramer, H. Lee, Q. Hao, A. Minnich, X.Y. Chen, and H. Lu, "Potential Applications of Nanostructured Thermoelectric Materials," MRS Spring Meeting, LL Symposium, San Francisco, March 23-27, 2008.
- IP68. G. Chen, S. Shen, L. Hu, and A. Narayanaswamy, "Breakdown of Planck's Blackbody Radiation Law at Nanoscale," 2nd Integration and Commercialization of Micro and Nano Systems International Conference and Exhibition, June 3-5, 2008, Clear Water Bay, Hong Kong.
- IP69. G. Chen, "Solar Thermoelectrics and Thermophotovoltaics," Solar Energy: New Materials and Nanostructured Devices for High Efficiency, Stanford, CA, June 24-25, 2008.
- IP70. S. Shen, L. Hu, X.Y. Chen, A. Narayanaswamy, and G. Chen, "Breakdown of the Planck's blackbody radiation law at nanoscale gaps" Invited poster presented by S. Shen, Julius Springer Forum on Applied Physics 2008, Harvard, 2008. Win best poster award.
- IP71. Vincent Berube, Mildred Dresselhaus, Gang Chen, Costas P. Grigoropoulos, Samuel S. Mao; "Hydrogen storage in nanostructured materials," Invited poster presented by V. Berube, Julius Springer Forum on Applied Physics 2008, Harvard, 2008.

Invited Panelist

- IP72. G. Chen, 1996, "Thermal Issues in Semiconductor Lasers," Panel presentation at the 1996 International Mechanical Engineering Congress, Atlanta, Georgia, November 17-22.
- IP73. G. Chen, 1998, "Microscale Heat Transfer in Photonic Structures and Devices," Panel Presentation at 1998 IMECE, Anaheim, CA, Nov. 14-20.
- IP74. G. Chen, "Thermoelectric Micro-Coolers and Micro Power Generators," panel presentation (Thermal MEMS Panel) at 1999 National Heat Transfer Conference, Albuquerque, New Mexico, August 15-17, 1999.

- IP75. G. Chen, "Thermophysical Engineering in Nanostructures," round-table discussion, Heat Transfer and Transport Phenomena in Microsystems Conference, Banff, Canada, October 15-20, 2000.
- IP76. G. Chen, "Thermoelectric Micro-Power Generators," Panel on Miniature Energy, Chemical and Biological Systems (session # AES-11, J. Kapat and L. Chou), IMECE2000, at IMECE2000, Orlando, ASME HTD-Vol. 366-2, pp. 245-251.
- IP77. G. Chen, "Teaching Nanoscale Transport at MIT," Panel on Micro/Nanoscale heat transfer education, IMECE'2002.
- IP78. G. Chen, Panel member at MIT Materials Unlimited Seminar, Seminar Speaker Y.-M. Lin on Thermoelectric Materials. 12/16/02
- IP79. G. Chen, "Micro- Nanoscale Heat Transfer Education," presented at Purdue Heat Transfer Celebration, paper in conference proceedings, April 3-5, 2003.
- IP80. G. Chen, "Nanoscale Heat Transfer and Information Technology," presented at Rohsenow Symposium on the Future of Heat Transfer, paper in conference CD-ROM, May 16, 2003.
- IP81. R.G. Yang and G. Chen, "Recent Development In Nanostructured Thermoelectric Materials and Devices," presented at 9th Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems (ITHERM2004), Las Vegas, June 1-4, 2004, ITHERM 2004 pp. 731-732.
- IP82. G. Chen, A. Narayanaswamy, and L. Hu, "Thermal Radiation inside and outside Nanostructures," Panel on Fundamental Questions in Multiscale Thermophysics and Transport, IMECE 2004, Anaheim, November 14, 2004 (Chair: van Carey).
- IP83. G. Chen, "Design and Manufacturing of Solid-State Energy Conversion Materials," Panel on Challenges and Opportunities in Electronic/Photonic Materials Manufacturing, ASME Summer Heat Transfer Conference, July 17-22, 2005, San Francisco, CA.
- IP84. G. Chen, "Thermoelectric Materials: From Superlattices to Nanocomposites," Panel on Challenges and Opportunities of Solid-State Technologies for Electronic Cooling and Power, ASME InterPACK'05, July 17-22, 2005, San Francisco, CA.
- IP85. G. Chen, "Nanoscale Thermal Radiation: Fundamental Issues and New Opportunities," presented at IMECE2005, Nov. 6-11, Orlando, FL (Chairs: Z.M. Zhou, P. Meguc).
- IP86. G. Chen, "Engineering Nanocomposites for Thermoelectric Energy Conversion," presented at IMECE2005, Nov. 6-11, Orlando, FL (Chairs: W. Chiu and R. Mahajan).
- IP87. G. Chen, Panelist, Advanced Technology Workshop on Advanced Substrates and Next-Generation Semiconductors, April 30-May 1, 2008, Linthicum Heights, Maryland.

Invited Presentations in Workshops

- IP88. G. Chen, 1995, "Thermal Phenomena at Micron and Nanoscale," NSF/DOE Workshop on Advanced Thermal Manufacturing and Materials Processing, Leesburg, Virginia, May 25-26.

- IP89. G. Chen, 1997, K.L. Wang, and M.S. Dresselhaus, "Quantum Structures for Thermal Management of Microelectronic Devices," DARPA Workshop on Microelectronics Thermal Management, Arlington, December 11-12.
- IP90. G. Chen, 1998 "Towards Phonon Engineering in Microelectronic and Microthermoelectric Devices," invited presentation at the DSRC/DARPA Study: Thermal Management for Compact Systems, Arlington, Virginia, February 5-6.
- IP91. G. Chen, 1998, "Perspective of Thermoelectric Cooling for Internal Cool Electronics," invited presentation at the IEEE Workshop on Internal Cool Electronics, Marriot Hotel, Washington, DC., Oct. 15-16.
- IP92. G. Chen, "Report on the 2nd Microtherm Workshop and Tutorial," presented to the DOE Council of Engineering Energy Research, Santa Monica, CA, 1999.
- IP93. G. Chen, "Phonon Engineering in Nanostructures," Office of Naval Research Workshop on Thermally Engineered Materials, Dec. 10, 1999.
- IP94. G. Chen, "Phonon Engineering and Heat Transfer in Nanostructures," Department of Defense Workshop on Applied Physics of Nanostructures and Nanomaterials, Dec. 16-17, 1999.
- IP95. G. Chen, "Engineering Nanostructures for Energy Transport and Conversion," UC Berkeley Nanoengineering Workshop, Berkeley, August 4-5, 2000 (Sponsored by DOE CEER).
- IP96. G. Chen, ARO workshop, invited participant, Nanoscience for Soldiers, Research Triangle Park, NC, Feb. 8-9, 2001.
- IP97. G. Chen, "Nanoscale Engineering of Heat Transfer and Energy Conversion Processes," ONR workshop, Thermal Materials: Processing and Performance, University of Cambridge, UK, May 30-June 1, 2001.
- IP98. G. Chen, "Solid-State Energy Conversion---From Physics to Systems," presented at DARPA/ONR Workshop on Direct Energy Conversion, Alexandria, Dec. 4&5, 2001 (Dr. Pazik and Browning).
- IP99. B. Yang and G. Chen "Phonon Transport in Superlattices," presented at New Thermoelectric Materials Workshop: Chemistry, Physics and Materials Science of Thermoelectric Materials: Beyond Bismuth Telluride, Traverse City, Michigan, August 17-21, 2002.
- IP100. G. Chen, "Nanoscale Heat Transfer for Thermoelectric Energy Conversion," presented at Department of Energy/Electric Power Research Institute (DOE/EPRI) High Efficiency Thermoelectrics Workshop, San Diego, CA, February 17-20, 2004.
- IP101. G. Chen, "Nanoscale Heat Transfer: Enabling Efficient Direct Thermal-to-Electric Energy Conversion," presented at National Nanotechnology Initiative Workshop on "Nanoscience Research Needs for Energy," Arlington, VA, March 16-18, 2004.
- IP102. G. Chen, "Thermal Conductivity and Heat Conduction Mechanisms in Superlattices," Presented at JST-CREST Koumoto Meeting, Fukuoka, Japan, November 26-27, 2004.

- IP103. The Air Force/Army/NSF Joint Workshop on Multifunctional Structures for Energy Harvesting & Storage, Stanford University, December 1-17, 2004 (attending and discussion only).
- IP104. DOE workshop on Solar Energy Utilization, Washington, DC, April 18-21, 2005 (attending and sub-pane chair on Thermal Utilization).
- IP105. G. Chen, "Engineering Phonon Thermal Transport in Nanostructures," Defense Science Research Council Workshop on Nanoscopic Phonon Engineering, Arlington, May 9, 2005.
- IP106. G. Chen, "Nanotechnology for Efficient Energy Utilization," MIT ILP Workshop on Energy Challenge Workshop, Cambridge, MIT, Dec. 6-7, 2005.
- IP107. G. Chen, "Surface Phonon-Polariton Engineering," DARPA Nanoscopic Optical Phonon Engineering, Workshop, December 15, 2005.
- IP108. G. Chen, X.Y. Chen, Z. Chen, L. Hu, A. Narayanaswamy, and R.G. Yang, "Thermally Excited Nonequilibrium States between Electrons and Phonons for Solid-State Energy Conversion," Int. Workshop on Nanoscale Energy Conversion and Information Processing Devices, September 24-26, Nice, France.
- IP109. G. Chen, "Nanostructured Thermoelectric Materials for Power and Cooling," MEMS@MIT Fall 2006 Meeting, MIT, October 10, 2006.
- IP110. G. Chen, "Novel Thermoelectric Materials, Devices, and Systems," DARPA/MTO Components from Thermoelectric Materials Workshop, Arlington, VA, May 16-17, 2007.
- IP111. G. Chen, "Solar to Electric Energy Conversion via Thermoelectric Devices," MIT Space Power Workshop, May 13-16, 2007.
- IP112. G. Chen, "Direct Energy Conversion," GCEP Workshop, MIT, November, 29-30, 2007.
- IP113. Gang Chen, "Thermal Energy Conversion and Storage," NSF Workshop on Thermal and Solar Energy Conversion and Storage.
- IP114. Gang Chen, "Plenty Room at the Bottom---Nanotechnology Development from the Bottom up: Energy Nanotechnology Startup," Panelist at 3rd Energy Nanotechnology International Conference.

Invited Tutorials:

- IP115. G. Chen, 1998, "Thermophysics of Solids and Solid-State Devices," Tutorial presented at the 2nd Microtherm Workshop and Tutorial, Albuquerque, New Mexico.
- IP116. G. Chen, "Nanostructures and Their Properties," Tutorial given at IThERM 2006, May 30 - June 2, 2006 in San Diego, CA.
- IP117. G. Chen, "Hydrogen Storage," Tutorial given at ASME Energy Nanotechnology International Conference, June 26-28, MIT, 2006.
- IP118. G. Chen, "Thermal Transport in Nanostructures," Tutorial given at EuroSimE: Thermal, Mechanical and Multiphysics Simulation and Experiments in Micro-Electronics and Micro-Systems, London, April 15-18, 2007.

Journal Publications

- J1. S.M. Cheng, Y.X. Zhao, and G. Chen, 1988, "Experimental Study of Heat Transfer and Flow Resistance of Air Across A Droplet-Shaped Tube," *Chinese Journal of Engineering Thermophysics*, Vol. 9, pp. 359-361 (in Chinese).
- J2. H.R. Zhang, G. Chen, and S.Y. Huang, 1992; "Interaction between Film Condensation on One Side of A Vertical Wall and Natural Convection on the Other with Wall Radiation Taken into Account," *Journal of Huazhong University of Science and Technology*, Vol. 20, pp. 41-47 (in Chinese).
- J3. C. Peng, T. Zeng, and G. Chen, 1992, "Free Convection About Vertical Needles Embedded in a Saturated Porous Medium," *Journal of Thermophysics and Heat Transfer*, Vol. 6, pp. 558-561.
- J4. P.E. Phelan, G. Chen, and C.L. Tien, 1992, "Thickness-Dependent Radiative Properties of Y-Ba-Cu-O Thin Films," *Journal of Heat Transfer*, Vol. 114, pp. 227-233.
- J5. G. Chen and C.L. Tien, 1992, "Partial Coherence Theory of Thin Film Radiative Properties," *Journal of Heat Transfer*, Vol. 114, pp. 636-643.
- J6. K. Richter, G. Chen, and C.L. Tien, 1993, "Partial Coherence Theory of Multilayer Thin-Film Optical Properties," *Optical Engineering*, Vol. 32, pp. 1897-1903.
- J7. G. Chen and C.L. Tien, 1993, "Thermal Conductivity of Quantum Well Structures," *Journal of Thermophysics and Heat Transfer*, Vol. 7, pp. 311-318.
- J8. G. Chen and C.L. Tien, 1993, "Internal Reflection Effects on Transient Photothermal Reflectance," *Journal of Applied Physics*, Vol. 73, pp. 3461-3466.
- J9. G. Chen and C.L. Tien, 1993, "Facet Heating of Quantum Well Lasers," *Journal of Applied Physics*, Vol. 74, pp. 2167-2174.
- J10. P.M. Norris, G. Chen, and C.L. Tien, 1994, "Size Effects on the Temperature Rise of Vertical-Cavity Surface-Emitting Lasers," *International Journal of Heat and Mass Transfer*, Vol. 37, Suppl. 1, pp. 9-17.
- J11. G. Chen and C.L. Tien, 1994, "Thermally-Induced Optical Nonlinearity during Transient Heating of Thin Films," *Journal of Heat Transfer*, Vol. 116, pp. 311-316.
- J12. G. Chen, C.L. Tien, X. Wu, and J.S. Smith, 1994, "Measurement of Thermal Diffusivity of GaAs/AlGaAs Thin-Film Structures," *Journal of Heat Transfer*, Vol. 116, no.2, May, pp. 325-331.
- J13. C.L. Tien and G. Chen, 1994 (**Invited**), "Challenges in Microscale Conductive and Radiative Heat Transfer," *Journal of Heat Transfer*, Vol. 116, pp. 799-807.
- J14. G. Chen, M. Hadley, and J.S. Smith, 1994, "Pulsed and Continuous Wave Thermal Characteristics of External-Cavity Surface-Emitting Laser Diodes," *Journal of Applied Physics*, Vol. 76, no.6, Sept. 14, pp. 3261-3271.

- J15. G. Chen, 1995, "A Comparative Study on the Thermal Characteristics of Vertical-Cavity Surface-Emitting Lasers," *Journal of Applied Physics*, Vol. 77, no.9, May 1, pp. 4251-4258.
- J16. X.Y. Yu, G. Chen, A. Verma, and J.S. Smith, 1995, "Temperature Dependence of Thermophysical Properties of GaAs/AlAs Periodic Structure," *Applied Physics Letters*, Vol. 67, no. 24, Dec. 11, pp. 3554-3556.
- J17. X.Y. Yu, L. Zhang, and G. Chen, 1996, "Thermal-Wave Measurement of Thin-Film Thermal Diffusivity with Different Laser Beam Configurations," *Review of Scientific Instruments*, Vol. 67, pp. 2312-2316.
- J18. G. Chen, 1996, "Nonlocal and Nonequilibrium Heat Conduction in the Vicinity of Nanoparticles," *ASME Journal of Heat Transfer*, Vol. 118, pp. 539-545.
- J19. G. Chen, 1996, "Optical Effect on Thermal Emission from Semiconductors," *Applied Physics Letters*, Vol. 69, pp. 512-513.
- J20. G. Chen, 1997, "Size and Interface Effects on Thermal Conductivity of Superlattices and Periodic Thin-Film Structures," *ASME Journal of Heat Transfer*, Vol. 119, pp. 220-229.
- J21. G. Chen, T. Borca-Tasciuc, and R.B. Fair, 1997, "Photon Effect on Radiative Properties of Silicon During Rapid Thermal Processing," *Journal of Applied Physics*, Vol. 82, pp. 830-835.
- J22. G. Chen, 1997, "Wave Effects on Radiative Transfer in Absorbing and Emitting Thin-Film Media," *Microscale Thermophysical Engineering*, Vol. 1, pp. 215-224.
- J23. T. Borca-Tasciuc and G. Chen, 1997, "Temperature Measurement of Fine Wires by Photothermal Radiometry," *Review of Scientific Instruments*, Vol. 68, pp. 8040-8043.
- J24. G. Chen and M. Neagu, 1997, "Thermal Conductivity and Heat Transfer in Superlattices," *Applied Physics Letters*, Vol. 71, pp. 2761-2763.
- J25. T. Koga, X. Sun, S.B. Cronin, M.S. Dresselhaus, K.L. Wang, and G. Chen, 1997, "Models for Low-Dimensional Thermoelectricity," *Journal of Computer-Aided Materials Design*, Vol. 82, pp. 830-835.
- J26. G. Chen, 1998, "Thermal Conductivity and Ballistic Phonon Transport in Cross-Plane Direction of Superlattices," *Physical Review B*, Vol. 57, pp. 14958-14973.
- J27. G. Chen and T. Borca-Tasciuc, 1998, "Applicability of Photothermal Radiometry to Temperature Measurement of Semiconductors," *International Journal of Heat and Mass Transfer*, Vol. 41, pp. 2279-2285.
- J28. T. Borca-Tasciuc and G. Chen, 1998, "Thermophysical Property Characterization of Thin Films by Scanning Laser Thermoelectric Microscope," *International Journal of Thermophysics*, Vol. 19, pp. 557-567.
- J29. S.G. Volz and G. Chen, 1999, "Lattice Dynamic Simulation of Silicon Thermal Conductivity," *Physica B, Condensed Matter*, Vol. 263-264, pp. 709-712.
- J30. M.S. Dresselhaus, G. Dresselhaus, X. Sun, Z. Zhang, S.B. Cronin, T. Koga, J.Y. Ying, and G. Chen, 1999, "The Promise of Low-Dimensional Thermoelectric Materials," *Microscale Thermophysical Engineering*, Vol. 3, pp. 89-100 (1999).

- J31. G. Chen, 1999, "Phonon Wave Effects on Heat Conduction in Thin Films and Superlattices," *Journal of Heat Transfer*, Vol. 121, 945-953.
- J32. S.G. Volz and G. Chen, 1999, "Molecular Dynamics Simulation of Thermal Conductivity of Silicon Nanowires," *Applied Physics Letters*, Vol. 75, pp. 2056-2058.
- J33. G. Chen, T. Borca-Tasciuc, B. Yang, D. Song, W.L. Liu, T. Zeng, D.-A. Achimov, 1999, "Heat Conduction Mechanisms and Phonon Engineering in Superlattice Structures," *Thermal Science and Engineering*, Vol. 7, pp. 43-51.
- J34. S. Volz and G. Chen, 2000, "Molecular Dynamics Simulation of Thermal Conductivity of Silicon Crystals," *Physical Review B*, Vol. 61, pp. 2651-2656.
- J35. G. Chen, 2000 (**Plenary Paper at Eurotherm No. 57**), 2000, "Phonon Heat Conduction in Nanostructures," *International Journal of Thermal Sciences*, Vol. 39, pp. 471-480.
- J36. T. Zeng and G. Chen, 2000, "Energy Conversion in Heterostructures for Thermionic Cooling," *Microscale Thermophysical Engineering*, Vol. 4, pp.39-50.
- J37. G. Chen (**Short Communication upon Invitation of Editor**), 2000, "Particularity of Heat Conduction in Nanostructures," *Journal of Nanoparticle Research*, Vol. 2, pp. 199-204.
- J38. B. Yang and G. Chen (**Invited Submission**), 2000, "Lattice Dynamics Study of Phonon Heat Conduction in Quantum Wells," *Physics of Low-Dimensional Structures Journal for a special issue on Low-Dimensional Thermoelectrics (guest editor: Alexander Balandin)*, Vol. 5/6, pp. 37-48.
- J39. S.G. Volz, J.B. Saulnier, G. Chen, and P. Beauchamp, P., "Molecular Dynamics Study of Heat Transfer in Si/Ge Superlattices" *High Temperatures-High Pressures*, Vol. 32, pp. 709-714, 2000.
- J40. S.G. Volz, J.B. Saulnier, G. Chen, P., Beauchamp, 2000, "Computation of thermal conductivity of Si/Ge Superlattices by Molecular Dynamics Techniques," *Microelectronics Journal*, 31, pp. 815-819.
- J41. T. Borca-Tasciuc, W.L. Liu, T. Zeng, D. W. Song, C.D. Moore, G. Chen, K. L. Wang, M.S. Goorsky, T. Radetic, R. Gronsky, T. Koga and M.S. Dresselhaus, 2000, "Thermal Conductivity of Symmetrically Strained Si/Ge Superlattices," *Superlattices and Microstructures*, Vol. 28, no.3, pp. 119-206.
- J42. A. Khitun, A. Balandin, K.L. Wang, and G. Chen, 2000, "Enhancement of the thermoelectric figure of merit of $\text{Si}_{1-x}\text{Ge}_x$ quantum wires due to spatial confinement of acoustic phonons," *Physica E*, Vol. 8, pp. 13-18.
- J43. A. Khitun, K.L. Wang, and G. Chen, 2000, "Thermoelectric Figure of Merit Enhancement in a Quantum Dot Superlattice," *Nanotechnology*, Vol. 11, pp. 327-331.
- J44. J.L. Liu, K.L. Wang, C.D. Moore, M.S. Goorsky, T. Borca-Tasciuc, and G. Chen, 2000, "Experimental Study of a Surfactant-Assisted SiGe Graded Layer and a Symmetrically Strained Si/Ge Superlattice for Thermoelectric Applications," *Thin-Solid Films*, Vol.369, pp. 121-125.

- J45. G. Chen, T. Zeng, T. Borca-Tasciuc, and D. Song, 2000 (**Invited Paper at IUMRS**), "Phonon Engineering in Nanostructures for Solid-State Energy Conversion," *Materials Engineering A*, A292, pp. 155-161.
- J46. D. W. Song, W. L. Liu, T. Zeng, T. Borca-Tasciuc, G. Chen, C. Caylor, and T.D. Sands, 2000, "Thermal Conductivity of Skutterudite Thin Films and Superlattices," *Applied Physics Letters*, Vol. 77, pp. 3854-3856, 2000.
- J47. T. Zeng and G. Chen, 2001, "Microscale Heat Transfer in Thin Films: Impacts of Thermal Boundary Resistance and Internal Heat Generation," *ASME Journal of Heat Transfer*, Vol. 123, pp. 340-347 (2001).
- J48. B. Yang and G. Chen, 2001, "Anisotropy of Heat Conduction in Superlattices," *Microscale Thermophysical Engineering*, vol. 5, pp. 107-116.
- J49. G. Chen and T. Zeng, 2001, "Nonequilibrium Phonon and Electron Transport in Thin Films and Superlattices," Review paper in *Microscale Thermophysical Engineering*, vol. 5, pp. 71-88 (**Invited Keynote Paper at International Heat Transfer and Transport Phenomena in Microscale**).
- J50. T. Borca-Tasciuc, R. Kumar, and G. Chen, 2001, "Data Reduction in 3ω Method for Thin Film Thermal Conductivity Measurements," *Review of Scientific Instruments*, Vol. 72, No. 4, pp. 2139-2147.
- J51. T. Borca-Tasciuc, D. Achimov, W.L. Liu, G. Chen, H.-W. Ren, C.-H. Lin, and S.S. Pei, 2001, "Thermal Conductivity of InAs/AlSb Superlattices," *Microscale Thermophysical Engineering*, Vol. 5, pp. 225-231.
- J52. G. Chen, 2001, "Ballistic-Diffusive Heat Conduction Equations," *Physical Review Letters*, Vol. 85, pp. 2297-2300.
- J53. Liu, W.L., Borca-Tasciuc, T., Chen, G., Liu, J.L., and Wang, K.L., 2001, "Anisotropy Thermal Conductivity of Ge-Quantum Dot and Symmetrically Strained Si/Ge Superlattice," *Journal of Nanoscience and Nanotechnology*, Vol. 1, No. 1, pp. 39-42.
- J54. J.L. Liu, A. Khitun, K.L. Wang, T. Borca-Tasciuc, W.L. Liu, G. Chen, and D.P. Yu, 2001, "Growth of Ge Quantum Dot Superlattices for Thermoelectric Applications," *Journal of Crystal Growth*, Vol. 27, pp. 1111-1115.
- J55. G. Chen, 2001, "Engineering Thermophysical Properties of Micro- and Nanostructures," *International Journal of Thermal Sciences*, Vol. 40, pp 693-701 (**Keynote lecture at France National Heat Transfer Conference**).
- J56. G. Chen, 2002, "Ballistic-Diffusive Equations for Transient Heat Conduction from Nano- to Macroscales," *Journal of Heat Transfer*, Vol. 124, pp. 320-328.
- J57. B. Yang, J. L. Liu, and K.L. Wang, and G. Chen, 2002, "Simultaneous Measurements of Seebeck Coefficient and Thermal Conductivity Across Superlattice" *Applied Physics Letters*, Vol. 80, pp. 1758-1760 (2002), also included in *Virtual Journal of Nanoscale Science and Technology*, March 18, 2002 issue <http://www.vjnano.org>.
- J58. J. Snyder, J.-P. Fleurial, T. Caillat, R.G. Yang, and G. Chen, 2002, "Supercooling of Peltier Cooler Using a Current Pulse," *Journal of Applied Physics*, V. 92, 1564-1569, 2002.

- J59. B. Yang, W.L. Liu, J.L. Liu, K.L. Wang, and G. Chen, 2002, "Anisotropic Thermoelectric Properties of Superlattice," *Applied Physics Letters*, Vol. 81, pp. 3588-3590.
- J60. T. Zeng and G. Chen, 2002, "Interplay between Thermoelectric and Thermionic Effects in Heterostructures," *Journal of Applied Physics*, Vol. 92, pp. 3152-3161, Sept. 15.
- J61. T. Borca Tasciuc, D. W. Song, J. R. Meyer, I. Vurgaftman, M.-J. Yang, B. Z. Noshov, and L. J. Whitman, H. Lee and R. U. Martinelli, G. W. Turner and M. J. Manfra, G. Chen, 2002, "Thermal Conductivity of $\text{AlAs}_{0.07}\text{Sb}_{0.93}$ and $\text{Al}_{0.9}\text{Ga}_{0.1}\text{As}_{0.07}\text{Sb}_{0.93}$ Alloys and $(\text{AlAs})_i/(\text{AlSb})_{11}$ Digital-Alloy Superlattices," *Journal of Applied Physics*, Vol. 92, pp. 4994-4998.
- J62. G. Chen and A. Shakouri, 2002 "Nanoengineered Structures for Solid-State Energy Conversion," *ASME Journal of Heat Transfer*, Vol. 124, no. April, pp. 242-252 (**Invited Review Paper**).
- J63. S.D. Wolter, D.A. Borca-Tasciuc, G. Chen, N. Govindaraju, R. Collazo, F. Okuzumi, J.P. Prater, and Z. Sitar, 2003, "Thermal Conductivity of Epitaxially Textured Diamond Films," *Diamond and Related Materials*, Vol. 12, pp. 61-64.
- J64. G. Chen, 2003, "Diffusion-Transmission Interface Condition for Electron and Phonon Transport," *Applied Physics Letters*, February 10, Vol. 82, pp. 991-993.
- J65. G. Chen, M.S. Dresselhaus, J.-P. Fleurial, and T. Caillat, 2003, "Recent Developments in Thermoelectric Materials," *International Materials Review*, Vol. 48, Feb., pp. 45-66 (**invited review**).
- J66. T. Zeng and G. Chen, 2003, "Nonequilibrium Electron and Phonon Transport and Energy Conversion in Heterostructures," *Microelectronics Journal*, Vol. 34, pp. 201-206, March.
- J67. A. Narayanaswamy and G. Chen, 2003, "Surface Modes for Near-Field Thermophotovoltaics," *Applied Physics Letters*, Vol. 82, No. 20, pp. 3544-3546, May 19
- J68. B. Yang and G. Chen, 2003, "Partially Coherent Phonon Heat Conduction in Superlattices," *Physical Review B*, Vol. 67, 195311 (1-4), May.
- J69. J.F. Moreland, J.B. Freund, and G. Chen, 2004, "The Disparate Thermal Conductivity of Carbon Nanotubes and Diamond Nanowires Studied by Atomistic Simulations," *Microscale Thermophysical Engineering*, Vol. 8, pp. 61-69.
- J70. C. Dames and G. Chen, 2004, "Theoretical Phonon Thermal Conductivity of Si/Ge Superlattice Nanowires," *Journal of Applied Physics*, January 15, Vol. 95, pp. 682-693.
- J71. D. Song and G. Chen, 2004, "Thermal Conductivity of Periodic Microporous Silicon Films," *Applied Physics Letters*, Vol. 84, pp. 687-689, February.
- J72. D. Qing and G. Chen, 2004, "Enhancement of Evanescent Waves in Waveguides Using Metamaterials of Negative Permittivity and Permeability," *Applied Physics Letters*, Vol. 84, pp. 669-671, February.
- J73. D. Qing and G. Chen, "Goos-Hanchen Shifts at the Interface Between Left-Handed and Right Handed Media," *Optics Letters*, Vol. 29, No.8, pp.1-3, April 15, 2004.

- J74. D. W. Song, W.-N. Shen, W. Liu, B. Dunn, C.D. Moore, M.S. Goorsky, T. Radetic, R. Gronsky, and G. Chen, "Thermal Conductivity of Random Nano-Porous Bismuth Thin Films," *Applied Physics Letters*, Vol. 84, pp.1883-1885, March 15, 2004.
- J75. L. Hu, A. Schmidt, A. Narayanaswamy, and G. Chen, "Effects of Periodic Structures on the Coherence Properties of Blackbody Radiation," *ASME Journal of Heat Transfer*, Vol. 126, pp. 786-792, October, 2004.
- J76. R.G. Yang and G. Chen, "Thermal Conductivity Modeling of Periodic Two-Dimensional Nanocomposites," *Physical Review B*, v. 69, 195316, 1-10 (2004).
- J77. R.G. Yang, G. Chen, J.P. Fleurial, G.J. Snyder, and J.-P. Fleurial, "Multistage Thermoelectric Micro Coolers," *Journal of Applied Physics*, Vol. 95, June 15, pp. 8226-8232 (2004).
- J78. G. Chen, A. Narayanaswamy, and C. Dames, 2004; "Engineering Nanoscale Phonon and Photon Transport for Direct Energy Conversion," *Superlattices and Microstructures*, vol. 35, pp 161-172 (**invited paper presented at Eurotherm No. 75**).
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- C.132. S. Shen, A. Narayanaswamy, and G. Chen, "Near-Field Radiation between a Sphere and Substrates of Different Materials," Proceedings of ENIC2008, ENIC2008-53004, ASME 3rd Energy Nanotechnology International Conference, August 10-14, 2008, Jacksonville, Florida.
- C.133. L. Hu, X.Y. Chen, and G. Chen, "Surface-Plasmon Enhanced Near-Bandgap Light Absorption in Silicon Photovoltaics," Proceedings of ENIC2008, ENIC2008-53056, ASME 3rd Energy Nanotechnology International Conference, August 10-14, 2008, Jacksonville, Florida.
- C.134. A. Henry and G. Chen, "Thermal Conductivity of Polyethylene Chains Using Molecular Dynamics Simulations," Proceedings of ENIC2008, ENIC2008-53006, ASME 3rd Energy Nanotechnology International Conference, August 10-14, 2008, Jacksonville, Florida.
- C.135. L. Hu, A. Narayanaswamy, X.Y. Chen, and G. Chen, "Surface-Plasmon Enhanced Near-Bandgap Light Absorption in Silicon Photovoltaics," Proceedings of 2008 ASME Summer Heat Transfer Conference, HT2008-56412, August 10-14, 2008, Jacksonville, Florida.

Published Abstracts:

- CA1. G. Chen, S.M. Cheng, and W.H. Chen, 1988, "Comparison of the Entropy Generation between Natural and Forced Convection Along a Vertical Flat Plate," presented at Chinese National Heat Transfer Conference, Shanghai, China, Conference Abstract, p. 121.
- CA2. W.H. Chen, R.Z. Qian, and G. Chen, 1998, "Entropy Analysis of the Various Heat Transfer Processes," presented at the Chinese National Heat Transfer Conference, Shanghai, China, Conference Abstract, p. 109.
- CA3. Chen, G. and X.Y. Yu, 1995, "Thermophysical Properties and Thermal Performance of Vertical Cavity Surface Emitting Lasers," CLEO's 95 Technical Digest, paper No. CWB6, pp. 172-173, presented at the Conference on Lasers and Electro-Optics, May 21-26, Baltimore, Maryland.
- CA4. G. Chen, 1997, "Towards Phonon Engineering in Thin Films and Superlattices," presented at Workshop on Thermophysical Phenomena in Microscale Sensors, Devices, and Structures, Baltimore, Baltimore, 1997.
- CA5. G. Chen, 1998, "Thermal Conductivity and Ballistic Phonon Transport in Superlattices," 1998 ASP March Meeting, Los Angeles, CA.

- CA6. S. Volz and G. Chen, 1998, "Molecular Dynamics Study of Heat Conduction in Silicon Nanowires," 1998 APS March Meeting, Los Angeles, CA.
- CA7. X. Z. Sun, M.S. Dresselhaus, G. Chen, and K.-L. Wang, 1998, "Theoretical Modeling of the Thermoelectric Figure of Merit of Si/Si_xGe_{1-x} Quantum Well Structures," presented at the March Meeting of the American Physical Society, Paper No. M15.06, Los Angeles, CA, March 16-20.
- CA8. S.Q. Zhou, G. Chen, D.J. Yao, C.J. Kim, X.Y. Zheng, J.L. Liu, and K.L. Wang, 1998, "Two-Wire 3ω Method for Anisotropic Thin Film Thermal Conductivity Measurements," presented at 2nd Microtherm Workshop and Tutorial, June 13&14, 1998, Albuquerque, New Mexico, *Microscale Thermophysical Engineering*, Vol. 2, pp. 225-226.
- CA9. G. Chen 1998, "Phonon Wave and Particle Heat Conduction in Superlattices," *Phonon 98*, July 28-31, Lancaster, UK,
- CA10. G. Dresselhaus, X. Song, M.S. Dresselhaus, and G. Chen, 1999, "Modeling Thermoelectric Behavior in Bi Nano-Wires," presented at the APS meeting in Atlanta, GA, *Bulletin of The American Physical Society*, Vol. 44, No. 1, Part I, p. 226.
- CA11. T. Zeng and G. Chen, 1999, "Hot Electron Energy Conversion in Heterostructures," presented at the APS meeting in Atlanta, GA, *Bulletin of The American Physical Society*, Vol. 44, No. 1, Part I, p. 316.
- CA12. X. Sun, M.S. Dresselhaus, K.L.Wang, and G. Chen, 1999, "The Enhancement of the Thermoelectric Figure of Merit in Si/Si_{1-x}Ge_x Superlattice Systems," presented at the APS meeting in Atlanta, GA, *Bulletin of The American Physical Society*, Vol. 44, No. 1, Part I, p. 316.
- CA13. G. Chen and R.G. Yang, "Energy Conversion and Transport Near a Solid-Solid Interface," presented at International Conference on Thermoelectrics, Long Beach, CA, August 24-29, 2002.
- CA14. Y.-M. Lin, M.S. Dresselhaus, C. Dames, and G. Chen, 2003, "Theoretical Investigation of Thermoelectric Properties of Superlattice Nanowires," presented at APS March Meeting, 2003.
- CA15. G. Chen, "Engineering Nanostructures for Thermoelectric Power Conversion," presented at STAIF, Albuquerque, New Mexico, February 2-5, 2003.
- CA16. G. Chen, "Engineering Nanostructures for Efficient Thermoelectric Power Conversion," Presented at Space Technology & Applications International Forum, February 2-5, 2003, Albuquerque (no paper submitted).
- CA17. C. Dames, B. Poudel, Z. Ren, and G. Chen, "Modeling the Phonon Specific Heat in Low-Dimensional Structures," MRS Fall Meeting, Symposium II, Modeling of One- and Two-Dimensional Nanomaterials, November 29-December 3, 2004.
- CA18. H. Lee, D. Wang, Z.F. Ren, M.S. Dresselhaus, G. Chen, P. Gogna, and J.P. Fleurial, "Thermal Conductivity Reduction in SiGe Nano-Composite For Thermoelectric Power Generation," MRS Fall Meeting, November 29-December 3, 2004.

- CA19. H. Lee and G. Chen, "Effects of Nanoscale Porosities on Thermoelectric Properties: A One Dimensional Model," presented at MRS Fall Meeting, Symposium F., Boston, Nov. 27-Dec. 2, 2005.
- CA20. Q. Hao, B. Poudel, Y. Ma, D. Wang, Z.F. Ren, M.S. Dresselhaus, and G. Chen, "Thermoelectric Properties of Bi₂Te₃-Based Nanocomposites," presented at MRS Fall Meeting, Symposium F., Boston, Nov. 27-Dec. 2, 2005.
- CA21. D. Wang, W. Wang, S. Chen, Z.F. Ren, H. Lee, G. Chen, M. Tang, M.S. Dresselhaus, P. Gogna, J.P. Fleurial, and B. Klotz, "Fabrication and Characterization of Si-Ge Nanocomposite for Thermoelectric Applications," presented at MRS Fall Meeting, Symposium F., Boston, Nov. 27-Dec. 2, 2005.
- CA22. M. Tang, M.S. Dresselhaus, R.G. Yang, and G. Chen, "Thermoelectric Modeling of Si-Si_{1-x}Ge_x Ordered Nanocomposites," presented at MRS Fall Meeting, Symposium G., Boston, Nov. 27-Dec. 2, 2005.
- CA23. L. Hu and G. Chen, "Optical Properties of Molecular Layers," 1st Energy Nanotechnology International Conference, June 26-28, 2006, MIT, Cambridge, ENIC2006-19098 (Hu presented a poster).**
- CA24. H. Lee, D.Z. Wang, M. Tang, Z.F. Ren, P. Gogna, R. Blair, J.-P. Fleurial, M.S. Dresselhaus, and G. Chen, "Thermoelectric Properties of Si/Ge Nanocomposites," 1st Energy Nanotechnology International Conference, June 26-28, 2006, MIT, Cambridge, ENIC2006-19079 (Lee presented a poster).**
- CA25. B. Poudel, D.Z. Wang, L. Chen, W. Wang, Y. Ma, Z.F. Ren, Q. Hao, H. Lee, G. Chen, and M.S. Dresselhaus, "Pb-Based Nanocomposite Materials for Thermoelectric Applications," 1st Energy Nanotechnology International Conference, June 26-28, 2006, MIT, Cambridge, ENIC2006-19044 (Poudel presented a poster).
- CA26. D.Z. Wang, W. Wang, B. Poudel, S. Chen, Z.F. Ren, H. Lee, G. Chen, M. Tang, M.S. Dresselhaus, P. Gogna, J-P. Fleurial, and B. Klotz, "Characterization and Thermoelectric Properties of Si-Ge Nanocomposite," 1st Energy Nanotechnology International Conference, June 26-28, 2006, MIT, Cambridge, ENIC2006-19088 (Wang presented a poster).
- CA27. J. Gordon, J. Ma, J. Garg, G. Mckinley, G. Chen, H. Ohtani, D. Sawall, C. Maranville, J.J. Nanda, and J.T. Remillard, "Investigation of Thermal and Rheological Properties of Nanofluids," 1st Energy Nanotechnology International Conference, June 26-28, 2006, MIT, Cambridge, ENIC2006-19095 (Gordon presented a poster).
- CA28. T. Harris, C. Dames, S. Chen, Z.F. Ren, M.S. Dresselhaus, and G. Chen, "In-Situ TEM Thermoelectric Property Measurements of Nanowires and Carbon Nanotubes," MRS Fall Meeting, Boston, MA, November 27-December 1, 2006, Paper Q16.1 (presentation by T. Harris).**
- CA29. V. Berube, G. Radtke, G. Chen, and M.D. Dresselhaus, "Thermodynamic Study of Nanoscale Metal Hydride for Hydrogen Storage," MRS Fall Meeting, Boston, MA, November 27-December 1, 2006, Paper Z7.14 (presentation by V. Berube).**

- CA30. M. Tang, M.S. Dresselhaus, H. Lee, G. Chen, R.G. Yang, D.Z. Wang, Z.F. Ren, P. Gogna, and J.-P. Fleurial, "Thermoelectric Modeling of Si Nanoparticle Composites," MRS Fall Meeting, Boston, MA, November 27-December 1, 2006, Paper C11.5 (presentation by M. Tang).
- CA31. L. Hu and G. Chen, "Light Absorption in Si Nanowire Arrays," Presented at Energy Nanotechnology Conference, September 5-7, 2007, Santa Clara, CA. ENIC 2007-45023.**
- CA32. S. Goh, A. Narayanaswamy, and G. Chen, "Nanowire Thermal Characterization Using Bilayer AFM Cantilever," MRS Fall Meeting, Nov. 26-30, 2007, Paper No. B11.1, Boston, MA (No paper, poster presented by S. Goh).**
- CA33. A. Minnich, D. Vashaee, and G. Chen, "Modeling the Electrical and Thermal Properties of Thermoelectric Materials," MRS Fall Meeting, Nov. 26-30, 2007, Paper No. U3.18, Boston, MA (No paper, poster presented by A. Minnich).**
- CA34. V. Berube, G. Radtke, G. Chen, and M. Dresselhaus, "Effect of the Excess Volume of Lattice Defects on the Enthalpy of Formation and Desorption Temperature of Metal Hydrides," MRS Fall Meeting, Nov. 26-30, 2007, Paper No. S3.36, Boston, MA (No paper, poster presented by V. Berube).**

Invited Seminars:

- S1. "Microscale Thermal Phenomena in Optical and Optoelectronic Thin Film Devices," at IBM Amalden, California, January 22, 1993.
- S2. "Thermal Phenomena in Semiconductor Lasers," at University of Virginia at Charlottesville, April 6, 1995.
- S3. "Thermal Issues in VCSELs," at Hewlett-Packard Laboratory, Palo Alto, California, November 15, 1995.
- S4. "Heat Transfer in Nanoscale Devices," at North Carolina A&T State University, February, 9, 1996.
- S5. "Heat Transfer in Superlattices and Nanostructures" at UNC Chapel-Hill, May 29, 1996.
- S6. "Heat Transfer in Superlattices and Nanostructures" at Army Research Office, September 4, 1996.
- S7. "Thermal Conductivity of Superlattices," at Naval Research Laboratory, Washington, October 1, 1996.
- S8. "Heat Transfer in Superlattices and Nanostructures," at Leigh University, November 15, 1996.
- S9. "Micro- and Nanoscale Heat Transfer: From Science to Applications" UNC-Charlotte, March 4, 1997.
- S10. "Thermal Conductivity of Thin Films: Measurement and Modeling" Marlow Industries, Inc., Dallas, November 21, 1997.

- S11. "Phonon Engineering in Micro- and Nanostructures," California Institute of Technology, February 10, 1998.
- S12. "Microscale Heat Transfer and Its Application in Microelectronics Thermal Management," Rockwell Science Center, Thousand Oaks, August 14, 1998.
- S13. "Heat Transfer and Phonon Engineering in Micro- and Nanostructures," Tsinghua University, China, October 20, 1998, Beijing.
- S14. "State-of-the-Art of Thermoelectric Research" Hughes, CA, March 4, 1999.
- S15. "Micro- and Nanoscale Heat Transfer and Energy Conversion," at Mechanical Engineering Department, San Diego State University, April 16, 1999.
- S16. "Micro and Nanoscale Heat Transfer and Thermophysics," Huazhong University of Science and Technology, China, 1999.
- S17. "State-of-the-Art of Thermoelectrics Research," Huazhong University of Science and Technology, China, June 28, 1999.
- S18. "Introduction to Micro-Electro-Mechanical-Systems." Huazhong University of Science and Technology, China, June 29, 1999.
- S19. "Electron-Phonon Engineering for Thermoelectrics Applications" at MITI, Electron-Technical Laboratory (Dr. Ohara), Tsukuba, August 13, 1999.
- S20. "Heat Transfer and Phonon Engineering in Nanostructures for Solid-State Energy Conversion," at Arizona State University, Mechanical and Aerospace Engineering Department, September 17, 1999.
- S21. "Heat Transfer and Phonon Engineering in Nanostructures for Solid-State Energy Conversion" at University of Minnesota, Mechanical Engineering Dept. (Host Kumar Tamma), September 22, 1999.
- S22. "Modeling and Simulation of Phonon Transport in Nanostructures," Two hour colloquium at University of Minnesota, Mechanical Engineering Dept. (Host Kumar Tamma), September 23, 1999.
- S23. "Heat Transfer and Phonon Engineering in Nanostructures for Solid-State Energy Conversion," at Seagate, Minnesota (Host: Edward Murdock), September 23, 1999.
- S24. "Thermal Characterization of Thin Films and Thermal Management of Photonic Devices," at GenOA, Fremont, CA, Oct. 23, 2000 (Host: A. Verma).
- S25. "State-of-the-Art of Thermoelectrics Research and Potential for Aerospace Applications," Lockheed Martin Skunk Works, Palmdale, Nov. 29, 2000 (Host: Larry Bloxham).
- S26. "State-of-the-Art of Thermoelectrics Research and Potential for Aerospace Applications," Lockheed Martin Skunk Works, Palmdale, Feb. 12, 2001 (for program managers).
- S27. "Engineering Nanostructures for Energy Transport and Conversion," Stanford University, Feb. 14, 2001 (Host: K.E. Goodson).
- S28. "Thermal Issues in VCSELs," Novalux, Inc, Sunnydale, CA, Feb. 15, 2001 (Host: Robert Martisen).

- S29. “Nanostructures for Solid-State Energy Conversion,” UCLA Department of Materials Science and Engineering Seminar, Feb. 16, 2001 (Host: Ya-Hong Xie).
- S30. “Engineering Nanostructures for Energy Transport and Conversion,” Mechanical Engineering, Carnegie Mellon University, Feb. 28, 2001 (Host: S.C. Yao).
- S31. “Nanoscale Heat Transfer and Its Applications in Energy Conversion and Photonics,” Sandia National Laboratory, March 14, 2001 (Host: C.C. Wong).
- S32. “Nanostructures for Solid-State Energy Conversion,” Materials Science and Engineering Dept., Tsinghua University, June 11, 2001 (Host: Cewen Nan).
- S33. “Nanoscale Heat Transfer and Thermoelectrics Research,” University Wide Nanogroup, Huazhong University of Science and Technology, June 21, 2001 (Host: Prof. Xianliang Yang).
- S34. “Nano and Micro Energy Research,” MEMS Lunch, MIT, September 6 (Host: Professor Martin Smith).
- S35. “Bridging the Gaps between Nano- to Macroscale Transport,” MIT IAP (organized by Sid Yip).
- S36. “Nano-to-Macroscale Energy Transport and Conversion---Bridging the Gaps in Length Scales and Disciplines,” Mechanical Engineering Department, Hong Kong University of Science and Technology, February 21, 2002 (Host: Professor Ping Cheng).
- S37. “Nanoscale Heat Transfer and Energy Conversion---Experimental Approaches,” Mechanical Engineering Department, Hong Kong University of Science and Technology, February 22, 2002 (Host: Professor Ping Cheng).
- S38. “Nano-to-Macroscale Transport: Bridging the Gaps in Length Scales and Disciplines,” MIT Mechanical Engineering Seminar Series, March 15, 2002.
- S39. “Heat Transfer and Energy Conversion in Nanostructures,” Mechanical Engineering Department Seminar, University of Connecticut, October 11, 2002.
- S40. “Introduction to Nanoscale Energy Transport Research,” At IBM Yorktown Heights, Oct. 31, 2002 (host Phaedon Avouris).
- S41. “Nanoscale Heat Transfer for Direct Energy Conversion,” at Mechanical Engineering Department, University of Pennsylvania, January 30, 2003 (Host: H. Bau).
- S42. “Nanoscale Heat Transfer and Nanostructured Thermoelectric Materials---Their Implications for Microelectronics” Intel Corporation, Chandler, Arizona, Feb. 7, 2003 (Hosts: Emery, Chaun Hu).
- S43. “Nanostructured Thermoelectric Materials for Energy Conversion,” Johns Hopkins University, Department of Materials Science, March 26, 2003 (Host: J. Spicer).
- S44. “Heat Conduction in Nanostructures,” Ecole Centrale Paris, July, 2003 (Host: J.-J. Greffet).
- S45. “Introduction to Thermoelectricity and Thermoelectric Energy Conversion,” July, 2003 (Host: J.-J. Greffet).

- S46. “Nanotechnology Enabled Direct Energy Conversion,” Ford Motor Company, Detroit, October 2, 2003.
- S47. “Nanoscale Heat Transfer and Energy Conversion,” Princeton University, Mechanical Engineering Department Seminar, February 21, 2004 (Host: Y. Ju).
- S48. “Nanotechnology: Enabling Efficient Direct Energy Conversion,” Laboratory for Environment and Energy, MIT, February 25, 2004 (Host: David Marks).
- S49. “Nano, Heat, and Energy,” Industrial Technology Research Institute, Energy and Resource Laboratory, July 1, 2004 (Host: S. Chu).
- S50. “Nanotechnology-Enabled Direct Energy Conversion and Thermal Management,” Chinese Academy of Science, July 30, 2004 (Host: Yuelin Wang).
- S51. “Nanoscale Heat Transfer and Energy Conversion,” Northeastern University, Mechanical Engineering Department Seminar, September 17, 2004 (Host: Hameed Metghalchi).
- S52. “Nanoscale Heat Transfer and Energy Conversion,” University of Kentucky, Nanotechnology Certificate Program, October 21, 2004 (Host: Pinar Menguc).
- S53. “Nanoscale Heat Transfer and Energy Conversion,” University of Michigan, Mechanical Engineering Department Seminar, October 22, 2004 (Host: Kevin Pipe).
- S54. “Nanoscale Heat Transfer and Energy Conversion,” Korea Advanced Institute of Science and Technology, November 3, 2004 (Dr. Sung Kim).
- S55. “Nanotechnology Enabled Direct Energy Conversion and Thermal Management,” LG Chemical, Daejeon, Korea, November 4, 2004 (Dr. Gwang Gyu Kim).
- S56. “Nanotechnology Enabled Direct Energy Conversion and Thermal Management,” Komatsu Corporation, Japan, November 22, 2004 (Mr. M. Takashiri).
- S57. “Nanotechnology Enabled Direct Energy Conversion and Thermal Management,” Toyota Corporation, Japan, November 22, 2004 (Dr. Kita).
- S58. “Nanotechnology Enabled Direct Energy Conversion and Thermal Management,” Denso Corporation, November 25, 2004 (Dr. Kinji Hodaira).
- S59. “Nanoscale Heat Transfer and Energy Conversion,” Vanderbilt University Institute of Nanoscience and Nanotechnology, January 19, 2005 (Walker).
- S60. “Nanotechnology-Enabled Direct Energy Conversion,” GE Globe Research Center, February 14, 2005 (Fazila).
- S61. “Nanostructured Thermoelectrics,” Institute of Physics, Chinese Academy of Sciences, March 18, 2005 (Sisheng Xie).
- S62. “Energy, Photonics, and Nanotechnology,” Huazhong University of Science and Technology, March 21, 2005.
- S63. “Energy and Nanotechnology,” Huazhong University of Science and Technology, School of Power Engineering, March 22, 2005.
- S64. “Nanotechnology-Enabled Direct Energy Conversion,” Purdue University, Mechanical Engineering Department, March 25, 2005 (Fisher).

- S65. “Nanotechnology-Enabled Direct Energy Conversion,” University of Austin, Mechanical Engineering Department, April 25, 2005 (Li Shi).
- S66. “Nanoscale Heat Transfer and Energy Conversion,” Worcester Polytechnic Institute, Mechanical Engineering Department, April 27, 2005 (K. Rong).
- S67. “Fundamentals of Nanoscale Heat Transfer,” Xian Jiaotong University, July 11, 2005.
- S68. “Heat Conduction in Nanostructures,” Xian Jiaotong University, July 11, 2005.
- S69. “Nanostructures for Thermoelectric Energy Conversion,” Xian Jiaotong University, July 12, 2005.
- S70. “Nanoscale Thermal Radiation and Thermophotovoltaics,” Xian Jiaotong University, July 12, 2005.
- S71. “Nanoscale Transport in Fluids,” Xian Jiaotong University, July 13, 2005.
- S72. “Nanotechnology: From Optics to Energy,” New England Chinese Information and Network Association (NECINA), December 17, 2005.
- S73. “Nanotechnology Enabled Direct Energy Conversion,” Harvard University, Applied Mechanics Seminar Series, February 22, 2006.
- S74. “So, What Does Nanotechnology Have to Do with Energy,” MIT Micro/Nano Seminar Series, March 6, 2006.
- S75. “Nanoscale Heat Transfer and Energy Conversion,” RPI, Mechanical Engineering Department Seminar, April 14, 2006.
- S76. “So, What Does Nanotechnology Have to Do with Energy,” Columbia University, Mechanical Engineering Department Seminar, April 21, 2006.
- S77. “Nanoscale Heat Transfer and Energy Conversion,” National Cheng-Kung University, Taiwan, July 10, 2006.
- S78. “Nanoscale Heat Transfer and Energy Conversion,” National Tsinghua University, Taiwan, July 12, 2006.
- S79. “Nano, Heat, and Energy,” Taiwan Industrial Research Institute, July 13, 2006.
- S80. “Nanoscale Heat Transfer Enabled Energy Technologies,” CISRO, Sydney, Australia, August 14, 2006.
- S81. “Energy Nanotechnology,” University of New South Wales, Sydney, Australia, August 16, 2006.
- S82. “Energy Nanotechnology,” University of Wollongong, Australia, August 16, 2006.
- S83. “Energy Nanotechnology,” University of South Florida, Physics Department, September 14, 2006.
- S84. “Energy Technologies Enabled by Nanoscale Heat Transfer Effects,” Penn State University, Physics Department, October 24, 2006.
- S85. “Energy and Nanotechnology,” Wuhan University of Science and Technology, January, 6, 2007.

- S86. “Energy and Nanotechnology,” Huanan University of Science and Technology, China, January 15, 2007.
- S87. “Nanoscale Heat Transfer and Energy Conversion,” Hongkong Polytechnic, January 16, 2007.
- S88. “So, What Does Nanotechnology Have to Do with Energy,” CMU Joint Seminar of Nanotechnology Center and Mechanical Engineering Department, March, 2007.
- S89. “Nano, Heat, and Energy,” School of Energy, Zhejiang University, China, August 8, 2007.
- S90. “So, What Does Nanotechnology Have to Do with Energy,” School of Energy, Huazhong University of Science and Technology, China, August 13, 2007.
- S91. “Nano, Heat, and Energy”, Nanyang Technological University (Host Jan Ma), Singapore, Nov. 7, 2007.
- S92. “Nanostructured Thermoelectric Materials,” Materials Program, Harvard University (M. Aziz Host), March 20, 2008.
- S93. “Energy Transport and Conversion in Nanostructures,” Mechanical Engineering Seminar Series, Caltech, April 15, 2008.
- S94. “Engineering Nanoscale Phonon Transport for Largescale Energy Applications,” Chemistry Department (Keith Nelson), MIT, April 22, 2008.
- S95. “Heat Conduction and Phonon Engineering in Nanostructures,” Tsinghua University, Engineering Mechanics Department (Min Chen), May 26, 2008.
- S96. “So, What Does Energy Have to Do with Nanotechnology,” Beijing University Distinguished Seminar Series (Alice Zhang), May 27, 2008.
- S97. “Nanoscale Solar and Thermal Radiation --- Photon Management and Beating Planck’s Blackbody Radiation Law,” Tsinghua University, Engineering Mechanics Department (Min Chen), May 28, 2008.
- S98. “What Does Energy Have to Do with Nanotechnology,” Nanjing University, Physics Department (Yi Shi), May 30, 2008.

Contribution to Seminars, Symposia, and Conferences:

1. T. Koga, X. Sun, S.B. Cronin, M.S. Dresselhaus, K. L. Wang, and G. Chen, 1997, "Models for Low-Dimensional Thermoelectricity Symposium on Multiscale Materials Prediction: Fundamentals and Industrial Applications, MIT, Sept. 97.
2. Chen, G; Goodson et. al., 1997, “Report of workshop: Thermophysical phenomena in microscale Sensors, Devices, and Structures,” Microscale Thermophysical Engineering, Vol. 1, pp. 267-274.
3. D. Cahill, G. Chen, et al., 1998, “Report of Workshop: 2nd Microtherm Workshop and Tutorial, Albuquerque Convention Center,” Microscale Thermophysical Engineering, Vol. 2, pp. 215-243.

4. T. Zeng and G. Chen, "Efficiency of Thermionic Power Generators and Refrigerators," presented at the open forum of the ASME/JSME Joint Thermal Engineering Conference, San Diego, March 15-18, 1999.
5. G. Chen and R.G. Yang, "Energy Transport and Conversion at a Solid-Solid Interface," orally presented at International Conference on Thermoelectrics, Long Beach, CA, August 24-29, 2002.
6. D.-A. Borca-Tasciuc, G. Chen, Y.-M. Lin, M.S. Dresselhaus, A. Borshchevsky, J.-P. Fleurial, M.A. Ryan, M.S. Martin-Gonsales, A. L. Prieto, A. Stacy, and T. Sands, "Thermal Diffusivity Characterization of Bi and Bi₂Te₃ Nanowire Arrays in a-Al₂O₃ Matrix," presented at International Conference on Thermoelectrics, Long Beach, CA, August 24-29, 2002.
7. D.-Z. Chen, L. Hu, A. Narayanaswamy, and G. Chen, "Radiation Heat Transfer Inside and Outside Nanostructures," poster presented (Z. Chen) at IMECE2005, Orlando, FL, Nov. 6-11, 2005.