

YEE KAN KOH

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EDUCATION

- Ph.D. in Materials Science and Engineering**, Univ. of Illinois at Urbana-Champaign, 2010
Dissertation Title: “*Heat Transport by Phonons in Crystalline Materials and Nanostructures.*”
Dissertation Advisor: Prof. David G. Cahill
- M.S. in Physics**, Univ. of Illinois at Urbana-Champaign, 2007
- M. Eng. in Mechanical Engineering**, Univ. of Technology Malaysia (UTM), 2004
- B. Eng. (Honors) in Mechanical Engineering**, Univ. of Technology Malaysia (UTM), 2001

PROFESSIONAL EXPERIENCE

- 7/2010–present: **Assistant Professor**, National University of Singapore
- 1/2005–7/2010: **Graduate Research Assistant**, Univ. of Illinois at Urbana-Champaign
- 5/2001–5/2004: **Graduate Research Assistant**, Univ. of Technology Malaysia

HONORS AND AWARDS

- **NUS Young Investigator Award** (2011)
- **SMF-NUS Research Horizons Award** (2010)
- **Ross J. Martin Award** (2010)
- **Racheff-Intel Award** (2009)
- **Fulbright Graduate Study Fellowship** (2004-2006)
- **Rotary Ambassadorial Scholarship** (2004-2006)

RESEARCH INTERESTS

- **Development of novel characterization tools** to facilitate experimental investigations of heat transport at nanometer and atomistic scales. For example, we developed an ultrafast pump-probe technique, called voltage-modulated thermoreflectance (VMTR), to directly probe the change of heat transfer across graphene interfaces under electrostatic fields. Using VMTR, we verified that remote interfacial phonons do not play a crucial role in heat transport across graphene/SiO₂ interfaces.
- **Study of atomic-scale heat transfer across interfaces and heterojunctions**, e.g., graphene interfaces (e.g., for thermal management of graphene devices), and gold nanorods functionalized with organic ligands (e.g., for photothermal therapy of cancers). We demonstrated enhancement of heat flow across metal contacts on graphene, by electrons and phonons, via improved topological conformity, a better match in the Debye temperatures and atomic scale pinholes on graphene. We also advanced knowledge of heat flow across gold-thiol heterojunctions by monitoring the heating and cooling at multiple bonds of ligands conjugated to gold nanorods.
- **Study of nanoscale heat transfer in crystalline materials and nanostructures**. We developed novel graphene-based heterostructures with ultralow thermal conductivity but substantial electronic heat conduction, suitable for thermoelectric energy conversion. We are the first to present the temperature dependence of anisotropic thermal conductivity tensor of bulk black phosphorus, an important 2D material. We also accurately measured the cross-plane thermal conductivity of Si thin films, and thus demonstrated that prior first-principles calculations of Si overestimate the contribution of low-energy phonons in Si.

MANAGED RESEARCH GRANTS

(Total: **S\$1,903,600**; Grants as a lead PI: **S\$1,903,600**; Competitive grants: **S\$1,403,600**)

- **MOE Tier 2**, “Developing CMOS-Compatible Thermoelectric Materials for Spot Cooling in 3D ICs,” S\$703,600; Aug 1, 2014 – July 31, 2017; Sole PI.
- **Industrial Postgraduate Program (IPP) with 3M**, “Thermal Management of Optoelectronic Devices,” S\$100,000; Aug 1, 2012 – July 31, 2016; Sole PI.
- **NUS Young Investigator Award**, “Transmission of Thermal Energy Across Molecular Chains and Junctions,” S\$500,000; Jan 1, 2012 – Dec 31, 2015; Sole PI.
- **SMF-NUS Research Horizons Award 2010**, “Exploring the Use of Graphene for Thermal Insulation and Thermoelectric Energy Conversion,” S\$100,000; April 1, 2011 – March 31, 2012; Sole PI.
- **Start-up Grant**, “A State-of-the-Art Characterization Technique for Energy Transport at Nanoscales,” S\$500,000; Oct 1, 2010 – Sept 30, 2013; Sole PI.

INVITED REVIEWS AND BOOK CHAPTERS

- 1) **Yee Kan Koh**, “Thermal Conductivity and Phonon Transport,” in B. Bhushan (ed.) *Encyclopedia of Nanotechnology* DOI 10.1007/978-90-481-9750-7, Springer Science+Business Media (2012), pp 2704-2711.

PEER-REVIEWED PUBLICATIONS

(Total citation to date: **981**; Total citation without self citation: **952**; Average citation per paper: **46.7**; *H*-index: **13**; ResearchID:[click](#))

NUS Independent Career

(underlined: Koh's group NUS Ph.D. students; asterisk (*): the corresponding author)

- 1) Bin Huang and **Yee Kan Koh***, "Tuning electronic heat transport in metal/graphene heterostructures with ultralow thermal conductivity." *submitted*.
- 2) Bin Huang, Xi Huang and **Yee Kan Koh***, "Enhancing electronic heat transfer across metal/graphene interfaces through atomic pinholes in graphene." *submitted*.
- 3) Bo Sun, Qingsheng Zeng, Xi Huang, Zheng Liu, and **Yee Kan Koh***, "Temperature dependence of anisotropic thermal conductivity tensor of bulk black phosphorus," *submitted*.
- 4) Sit Kerdsonpanya, Olle Hellman, Bo Sun, **Yee Kan Koh**, Jun Lu, Ngo Van Nong, Sergei I Simak, Björn Alling, and Per Eklund*, "Phonon thermal conductivity of Scandium nitride for thermoelectric applications from first-principles calculations and thin-film growth," *submitted*.
- 5) Sit Kerdsonpanya, Fredrik Eriksson, Jens Jensen, Jun Lu, Bo Sun, **Yee Kan Koh**, Ngo Van Nong, Benjamin Balke, Björn Alling, and Per Eklund*, "Experimental and theoretical investigation of Cr_{1-x}Sc_xN solid solutions for thermoelectrics," *J. Mater. Chem. C* *submitted*.
- 6) **Yee Kan Koh***, Austin S. Lyons, Myung-Ho Bae, Vincent E. Dorgan, David G. Cahill, Eric Pop, and Bin Huang, "The role of remote interfacial phonon (RIP) scattering in heat transport across interfaces of unbiased graphene and SiO₂," *Nano Lett.* *submitted*.
- 7) Puqing Jiang, Lucas Lindsay, and **Yee Kan Koh***, "The role of phonons with mean-free-paths >0.8 μm in heat conduction in silicon," *J. Appl. Phys.* (2016).
- 8) Puqing Jiang, Bin Huang, and **Yee Kan Koh***, "Accurate measurements of cross-plane thermal conductivity of thin films by dual-frequency time-domain thermoreflectance (TDTR)," *Rev. Sci. Instrum.* (2016)
- 9) Bo Sun and **Yee Kan Koh***, "Understanding and eliminating artifact signals from diffusely scattered pump beam in measurements of rough samples by time-domain thermoreflectance (TDTR)," *Rev. Sci. Instrum.* **87**, 064901 (2016)

- 10) James (Zi-Jian) Ju, Bo Sun, Georg Haunschild, Bernhard Loitsch, Benedikt Stoib, Martin S. Brandt, Martin Stutzmann, **Yee Kan Koh**, and Gregor Koblmüller*, "Thermoelectric properties of In-rich InGaN and InN/InGaN superlattices," *AIP Adv.* **6**, 045216 (2016).
- 11) Bin Huang and **Yee Kan Koh***, "Improved topological conformity enhances heat conduction across graphene contacts on transferred graphene." *Carbon* **105**, 268-274 (2016).
- 12) Olivier Cometto, Bo Sun, Siu Hon Tsang, Xi Huang, **Yee Kan Koh** and Edwin Hang Tong Teo*, "Vertically self-ordered orientation of nanocrystalline hexagonal boron nitride thin films for enhanced thermal characteristics," *Nanoscale* **7**, 18984 (2015).
- 13) **Yee Kan Koh***, D. G. Cahill, and Bo Sun, "Nonlocal theory for heat transport at high frequencies," *Phys. Rev. B* **90**, 205412 (2014).

Graduate Research

- 14) **Yee Kan Koh***, Myung-Ho Bae, D. G. Cahill, and Eric Pop, "Reliably counting atomic planes of few-layer graphene ($n > 4$)," *ACS Nano* **5**, 269-274 (2011).
- 15) **Yee Kan Koh***, Myung-Ho Bae, D. G. Cahill, and Eric Pop, "Heat conduction across monolayer and few-layer graphenes," *Nano Lett.* **10**, 4363 (2010).
- 16) Y. Wang*, J. Y. Park, **Yee Kan Koh**, and D. G. Cahill, "Thermoreflectance of metal transducers for time-domain thermoreflectance," *J. Appl. Phys.* **108**, 043507 (2010). (selected for the Sept 2010 issue of Virtual Journal of Ultrafast Science.)
- 17) A. I. Persson, **Yee Kan Koh***, D. G. Cahill, L. Samuelson, and H. Linke, "Thermal conductance of InAs nanowire composites," *Nano Lett.* **9**, 4484 (2009).
- 18) **Yee Kan Koh***, C. J. Vineis, S. D. Calawa, M. P. Walsh, and D. G. Cahill, "Lattice thermal conductivity of nanostructured thermoelectric materials based on PbTe," *Appl. Phys. Lett.* **94**, 153101 (2009).
- 19) **Yee Kan Koh***, S. L. Singer, W. Kim, J. M. O. Zide, H. Lu, D. G. Cahill, A. Majumdar, and A. C. Gossard, "Comparison of the 3ω method and time-domain thermoreflectance for measurements of the cross-plane thermal conductivity of epitaxial semiconductors," *J. Appl. Phys.* **105**, 054303 (2009).
- 20) V. Rawat*, **Yee Kan Koh***, D. G. Cahill*, and T. D. Sands*, "Thermal conductivity of (Zr,W)N/ScN metal/semiconductor multilayers and superlattices," *J. Appl. Phys.* **105**, 024909 (2009).
- 21) **Yee Kan Koh***, Y. Cao, D. G. Cahill, and D. Jena, "Heat-transport mechanisms in superlattices," *Adv. Funct. Mater.* **19**, 610 (2009).
- 22) K. Kang*, **Yee Kan Koh**, C. Chiritescu, X. Zheng, and D. G. Cahill, "Two-tint pump-probe measurements using a femtosecond laser oscillator and sharp-edged optical filters," *Rev. Sci. Instrum.* **79**, 114901 (2008).
- 23) Z. Wang, D. G. Cahill, J. A. Carter, **Yee Kan Koh**, A. Lagutchev, N.-H. Seong, and D. D. Dlott*, "Ultrafast dynamics of heat flow across molecules," *Chem. Phys.* **350**, 31 (2008).
- 24) M. Highland, B. C. Gundrum, **Yee Kan Koh**, R. S. Averback, D. G. Cahill, V. C. Elarde, J. J. Coleman, D. A. Walko, and E. C. Landahl, "Ballistic-phonon heat conduction at the nanoscale as revealed by time-resolved x-ray diffraction and time-domain thermoreflectance," *Phys. Rev. B* **76**, 075337 (2007).
- 25) **Yee Kan Koh*** and D. G. Cahill, "Frequency dependence of the thermal conductivity of semiconductor alloys," *Phys. Rev. B* **76**, 075207 (2007).
- 26) Z. Wang, J. A. Carter, A. Lagutchev, **Yee Kan Koh**, N.-H. Seong, D. G. Cahill, and D. D. Dlott*, "Ultrafast flash thermal conductance of molecular chains," *Science* **317**, 787 (2007).

INVITED PRESENTATIONS

Invited Conference and Workshop Presentations

- 1) Bin Huang and **Yee Kan Koh**, "Tuning electronic heat transport in metal/graphene heterostructures with ultralow thermal conductivity," Society of Engineering Science 53rd

- Annual Technical Meeting, Eringen Medal Symposium in Honor of Gang Chen, University of Maryland, College Park, USA, Oct 2-5, 2016
- 2) Puqing Jiang and **Yee Kan Koh**, "The role of Akhieser's damping in the heat conduction by phonons with long mean-free-paths in silicon," CECAM workshop: Advanced thermoelectrics at nanoscale: from materials to devices, Paris, France, July 7-10, 2015.
 - 3) **Yee Kan Koh**, "Measurements of Thermal Conductivity - Part I: Contact Methods," The First International Conference on Phononics and Thermal Energy Science, Shanghai, Aug 26-Sept 4, 2013.
 - 4) **Yee Kan Koh**, "Measurements of Thermal Conductivity - Part II: Noncontact Methods," The First International Conference on Phononics and Thermal Energy Science, Shanghai, Aug 26-Sept 4, 2013.
 - 5) **Yee Kan Koh**, "Measurements of heat conduction on nanometer length scales by time-domain thermoreflectance (TDTR)," American Society of Mechanical Engineering 2011 International Mechanical Engineering Congress & Exposition, Denver, Nov 11-17, 2011.
 - 6) **Yee Kan Koh**, "Heat transport in crystalline nanostructures and across interfaces," 3M Technical Forum, 3M Singapore R&D Center, Singapore, June 8, 2011.
 - 7) **Yee Kan Koh**, "Waste heat recovery by thermoelectrics," National Energy Efficiency Conference 2011, Singapore, May 24-25, 2011.
 - 8) **Yee Kan Koh** and D. G. Cahill, "Thermal conductivity of thermoelectric materials embedded with nanoparticles," German Physical Society (DPG) Spring Meeting, Regensburg, Germany, March 21-26, 2010.

Invited Lectures

- 9) **Yee Kan Koh**, "Introduction to Alternative Energy" Sichuan University Immersion Program, Sichuan, China, June 29 - July 13, 2014.
- 10) **Yee Kan Koh**, "Heat transport in crystalline alloys and across graphene interfaces," Special Seminar, Department of Mechanical & Aerospace Engineering, University of California, San Diego, CA, USA, April 29, 2011.

Invited Colloquia Presentations

- 11) **Yee Kan Koh**, "Modifying time-domain thermoreflectance (TDTR) to study the mean-free-paths of phonons in solids and heat transfer by charge carriers across graphene interfaces," Mechanical Engineering Seminar, University of Texas at Austin, Austin, TX, USA, Nov 13, 2015.
- 12) **Yee Kan Koh**, "Heat transport in crystalline alloys and across graphene interfaces," Special Seminar, Department of Mechanical Engineering, Carnegie Mellon University, Pittsburg, PA, USA, May 2, 2011.
- 13) **Yee Kan Koh**, "Heat transport in crystalline alloys and across graphene interfaces," Special Seminar, Jack Baskin School of Engineering, University of California, Santa Cruz, CA, USA, April 25, 2011.
- 14) **Yee Kan Koh**, "Heat transport in crystalline nanostructures," Department Colloquium, Department of Materials Science and Engineering, University of Illinois, Urbana, IL, USA, April 20, 2009.

OTHER ORAL AND POSTER PRESENTATIONS

- 15) Bo Sun and **Yee Kan Koh**, "Anisotropic thermal conductivity of black phosphorus," Summer Heat Transfer Conference, Washington DC, July 10-14, 2016.
- 16) **Yee Kan Koh**, Austin S. Lyons, David Cahill and Eric Pop, "Electronic control of phonon heat flow across graphene interfaces," Summer Heat Transfer Conference, Washington DC, July 10-14, 2016.

- 17) **Puqing Jiang** and **Yee Kan Koh**, "Fourier-transform time-domain thermoreflectance (FT-TDTR) for studying non-diffusive heat conduction in semiconductors and dielectrics," Summer Heat Transfer Conference, Washington DC, July 10-14, 2016.
- 18) **Bin Huang** and **Yee Kan Koh**, "Thermal conductance of interfaces of as-grown and transferred CVD graphene with different degrees of conformity," Summer Heat Transfer Conference, Washington DC, July 10-14, 2016.
- 19) **Yee Kan Koh**, Austin S. Lyons, David Cahill and Eric Pop, "Electronic control of phonon heat flow across graphene interfaces," Micro/Nanoscale Heat & Mass Transfer International Conference, Singapore, Jan 4-6, 2016.
- 20) **Bin Huang** and **Yee Kan Koh**, "Enhancement of thermal conductance of metal/transferred graphene interfaces by improved conformity," Micro/Nanoscale Heat & Mass Transfer International Conference, Singapore, Jan 4-6, 2016.
- 21) **Puqing Jiang** and **Yee Kan Koh**, "Accurate measurements of the cross-plane thermal conductivity of thin films by dual-frequency time-domain thermoreflectance (TDTR)," American Society of Mechanical Engineering 2015 International Mechanical Engineering Congress & Exposition, Houston, USA, Nov 13-19, 2015.
- 22) **Bo Sun** and **Yee Kan Koh**, "Measurements of the thermal conductivity of rough samples using time-domain thermoreflectance (TDTR)," American Society of Mechanical Engineering 2015 International Mechanical Engineering Congress & Exposition, Houston, USA, Nov 13-19, 2015.
- 23) **Sit Kerdsonpanya**, **Olle Hellman**, **Bo Sun**, **Yee Kan Koh**, **Ngo van Nong**, **Jun Lu**, **Sergei I. Simak**, **Bjorn Alling**, and **Per Eklund**, "The effect of microstructure on lattice thermal conductivity of ScN thin films," 34th Annual International Conference on Thermoelectrics, Dresden, Germany, June 28-July 2, 2015.
- 24) **James (Zi-Jian) Ju**, **Bernhard Loitsch**, **Bo Sun**, **Thomas Stettner**, **Fabian Schuster**, **Martin Stutzmann**, **Yee Kan Koh** and **Gregor Koblmuller**, "Growth and thermoelectric properties of InN/InGaN heterostructures," 42nd International Symposium on Compound Semiconductors, University of California Santa Barbara, CA, USA, June 28-July 2, 2015.
- 25) **Puqing Jiang** and **Yee Kan Koh**, "The role of phonons with mean-free-paths over 1 μm in heat conduction in Si," Materials Research Society Spring Meeting, San Francisco, CA, USA, April 6-10, 2015.
- 26) **Bin Huang** and **Yee Kan Koh**, "Interfacial thermal conductance of epitaxial and transferred CVD-growth graphene," American Society of Mechanical Engineering 2014 International Mechanical Engineering Congress & Exposition, Montreal, Canada, Nov 14-20, 2014.
- 27) **Puqing Jiang** and **Yee Kan Koh**, "Phonon mean-free-path distribution from experimental measurements of cross-plane and in-plane thermal conductivity of silicon thin films," American Society of Mechanical Engineering 2014 International Mechanical Engineering Congress & Exposition, Montreal, Canada, Nov 14-20, 2014.
- 28) **Yee Kan Koh**, **Rui Wang**, and **Bin Huang**, "Thermal Conductance of Metal/Graphene Interfaces for Epitaxial and Transferred Graphenes," Materials Research Society Spring Meeting, San Francisco, CA, USA, April 1-5, 2013.
- 29) **Yee Kan Koh** and **D. G. Cahill**, "Direct Measurements of the Mean-free-paths of Phonons in $\text{Si}_{1-x}\text{Ge}_x$ by Frequency-domain Thermoreflectance (FDTR)," Materials Research Society Spring Meeting, San Francisco, CA, USA, April 25-29, 2011.
- 30) **Yee Kan Koh**, **Myung-Ho Bae**, **Eric Pop**, and **D. G. Cahill**, "Thermal conductance of monolayer and few-layer graphenes," Materials Research Society Spring Meeting, San Francisco, CA, USA, April 5-9, 2010.
- 31) **D. G. Cahill** and **Yee Kan Koh**, "Do embedded nanodots make better thermoelectrics?" 2009 International Conference on Thermoelectrics, Feiburg, Germany, July. 27-30, 2009.

- 32) **Yee Kan Koh** and D. G. Cahill, "Lattice thermal conductivity of nanostructured thermoelectric materials based on PbTe," Materials Research Society Spring Meeting, San Francisco, CA, USA, April 14-17, 2009.
- 33) M. L. Scullin, J. Ravichandran, S. Mukerjee, **Yee Kan Koh**, D. G. Cahill, J. Moore, A. Majumdar, and R. Ramesh, "High-temperature thermoelectric performance of $\text{Sr}_{1-x}\text{La}_x\text{TiO}_{3-d}$," Materials Research Society Spring Meeting, San Francisco, CA, USA, April 14-17, 2009.
- 34) **Yee Kan Koh**, D. G. Cahill, C. J. Vineis, S. D. Calawa, T. C. Harman, and M. P. Walsh, "Do embedded nanodots make better thermoelectrics," Direct Thermal-to-Electrical Energy Conversion (DTEC) Meeting, Pacific Grove, CA, USA, Dec 8-11, 2008.
- 35) V. Rawat, **Yee Kan Koh**, D. G. Cahill, and T. D. Sands, "Thermal conductivity of (Zr,W)N/ScN metal/semiconductor multilayers," Direct Thermal-to-Electrical Energy Conversion (DTEC) Meeting, Pacific Grove, CA, USA, Dec 8-11, 2008.
- 36) A. I. Persson, **Yee Kan Koh**, L. E. Fröberg, L. Samuelson, D. G. Cahill, and H. Linke, "Fabrication and thermal conductance measurements of dense and uniform InAs nanowire arrays," 2008 International Conference on Thermoelectrics, Corvallis, OR, USA, Aug. 3-7, 2008.
- 37) R. Wortman, V. Rawat, T. Sands, M. Zebarjadi, R. Singh, Z. Bian, A. Shakouri, **Yee Kan Koh**, D. G. Cahill, J. Cagnon, and S. Stemmer, "Nitride metal/semiconductor superlattices as thermoelectric metamaterials for thermionic energy conversion," Electronic Materials Conference, Santa Barbara, CA, USA, June 25-27, 2008.
- 38) V. Rawat, **Yee Kan Koh**, D. G. Cahill, and T. D. Sands, "(Zr,W)N/ScN multilayers for high-temperature solid-state thermionic energy conversion," Materials Research Society Spring Meeting, San Francisco, CA, USA, March 24-28, 2008.
- 39) **Yee Kan Koh**, Y. Cao, D. G. Cahill, and D. Jena, "Thermal conductivity reduction by interface roughness in $(\text{AlN})_x\text{-(GaN)}_{1-x}$ superlattices," American Physical Society March Meeting, New Orleans, LA, USA, March 10-14, 2008.
- 40) Z. Wang, J. A. Carter, A. Lagutchev, **Yee Kan Koh**, N.-H. Seong, D. G. Cahill, and D. D. Dlott, "Vibrational energy on surfaces: ultrafast flash-thermal conductance of molecular monolayers," American Physical Society March Meeting, New Orleans, LA, USA, March 10-14, 2008.
- 41) A. I. Persson, **Yee Kan Koh**, H. Linke, L. Samuelson, and D. G. Cahill, "Thermal conductivity measurements of epitaxially grown nanowire using TDTR," Materials Research Society Fall Meeting, Boston, MA, USA, Nov. 26-30, 2007.
- 42) A. I. Persson, **Yee Kan Koh**, D. G. Cahill, L. Samuelson, and H. Linke, "Thermal conductivity measurements of epitaxially grown nanowire arrays," FENA-ONAMI Workshop on Nanoelectronics, UCLA, Los Angeles, CA, USA, Nov. 19-20, 2007.
- 43) **Yee Kan Koh**, S. Singer, D. G. Cahill, and A. Majumdar, "Comparison of time-domain thermoreflectance and 3ω method," Direct Thermal-to-Electrical Energy Conversion (DTEC) Meeting, Vail, CO, USA, Aug 21-23, 2007.
- 44) **Yee Kan Koh** and D. G. Cahill, "Frequency dependence of the thermal conductivity of semiconductor alloys," Materials Research Society Spring Meeting, San Francisco, CA, USA, April 9-13, 2007.
- 45) M. Highland, B. Gundrum, **Yee Kan Koh**, V. Elarde, J. J. Coleman, and D. G. Cahill, "Time-resolved diffraction studies of nanoscale thermal transport," American Physical Society March Meeting, Denver, CO, USA, March 5-9, 2007.
- 46) **Yee Kan Koh** and D. G. Cahill, "Frequency dependence of the thermal conductivity of semiconductor alloys," Direct Thermal-to-Electrical Energy Conversion (DTEC) Meeting, San Diego, CA, USA, Aug 30, 2006.

PROFESSIONAL SOCIETIES

- **Member**, ASME Heat Transfer Division K-9 Committee on Nanoscale Heat Transport.
- **Member**, Materials Research Society.
- **Member**, American Society of Mechanical Engineers.

PROFESSIONAL SERVICE

Conference Organizers

- **Technical Program Committee, Track Co-Chair**, The 5th ASME Micro/Nanoscale Heat & Mass Transfer International Conference, Singapore, January 3-6, 2016
- **Technical Program Committee, Technical Chair**, NUS-Industry Energy Efficiency Workshop, Singapore, Nov 15, 2011.

Session Chairs

- **Session Chair**, ASME 2016 Summer Heat Transfer Conference, Washington DC, July 10-14, 2016
- **Session Chair**, The 5th ASME Micro/Nanoscale Heat & Mass Transfer International Conference, Singapore, January 3-6, 2016
- **Session Chair**, American Society of Mechanical Engineers (ASME) 2015 International Mechanical Engineering Congress & Exposition (IMECE), Nov 11-17, 2015
- **Session Chair**, CECAM Advanced Thermoelectrics at Nanoscale: From Materials to Devices, Paris, France, July 7-10, 2015
- **Session Chair**, Materials Research Society Spring Meeting, San Francisco, CA, USA, April 6-10, 2015
- **Session Chair**, American Society of Mechanical Engineers (ASME) 2011 International Mechanical Engineering Congress & Exposition (IMECE), Track 10-10 (Fundamental of Nanoscale Heat Transport), Nov 11-17, 2011.

Participation in Expert Panels

- **Participant**, Industry Roundtable on Green Building R&D, organized by the Ministry of National Development (MND), the Building and Construction Authority (BCA) and the Agency for Science, Technology and Research (A*STAR), Dec 2, 2010.

Reviewers of Grant Proposals

- ACS Petroleum Research Fund
- NRF Competitive Research Program

Reviewers of Journal Papers

- Advanced Materials
- Nano Letters
- ACS Nano
- NPG Asia Materials
- Physical Review Letters
- Chemistry of Materials
- Nanoscales
- ACS Applied Materials and Interfaces
- Macromolecules
- Scientific Reports
- Physical Review B
- Physical Review Applied
- Applied Physics Letters
- Nanotechnology
- Journal of Physical Chemistry B
- New Journal of Physics
- Applied Energy
- IEEE Electron Device Letters
- Applied Thermal Engineering
- Journal of Applied Physics
- AIP Advances
- Journal of Physics D: Applied Physics

- Physica Status Solidi (A)
- Journal of Materials Research
- Review of Scientific Instrument
- Journal of Electronic Materials
- Current Applied Physics
- Thin Solid Films
- Journal of Micromechanics and Microengineering
- ASME Journal of Heat Transfer
- Physics Letters A

UNIVERSITY ADMINISTRATIVE SERVICE

- Member, **ME Research Benchmarking Taskforce**, Chair: Seeram Ramakrishna, July 2012 – present.
- Member, **ME Dept Outreach Committee**, April 2012 – Dec 2014.
- Member, **ME Dept Graduate Studies Program Committee**, Jan 2012 – present.

LIST OF GRADUATE ADVISEES

- **Mr. Xi Huang**, PhD student, 2015-present.
- **Mr. Yuexiang Yan**, PhD student, 2013-present.
- **Ms. Jaslyn Tan**, PhD student, 2012-present.
- **Mr. Bin Huang**, PhD student, 2012-2016.
- **Mr. Puqing Jiang**, PhD student, 2012-2016.
- **Mr. Bo Sun**, PhD student, 2012-2016.
- **Dr. Rui Wang**, Post-doctoral researcher, 2011-2012.