Dr. Lucas Lindsay

Oak Ridge National Laboratory
Materials Science and Technology Division
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Research:

2014-pres. Research scientist, Materials Sciences and Technology Division at Oak Ridge National Laboratory

2011-2014 National Academy of Sciences Fellowship, U.S. Naval Research Laboratory

Computational materials physics:

- develop microscopic first-principles methods to predict vibrational thermal transport in bulk and nanoscale materials for thermal management applications
- advance fundamental understanding of phonon-defect scattering

Education:

2010 Ph.D. in Physics, Boston College, Chestnut Hill, MA
Dissertation Title: *Theory of phonon thermal transport in single-walled carbon nanotubes and graphene (supervisor: Dr. David Broido)*

2004 B.S. in Physics, Magna Cum Laude, College of Charleston, Charleston, SC

Teaching Experience:

2009-2011 Instructor, Department of Physics, Computer Science and Engineering, Christopher Newport University, Newport News, VA

- planned and taught introductory physics courses for majors and non-majors

2004-2007 Teaching Assistant, Department of Physics, Boston College, Boston, MA

- guided students in introductory physics and physiology laboratory courses

Funding and Awards:

2019 DOE Early Career Award
2018 Outstanding Referee for the *Physical Review*
2017-2019 LDRD project lead
2013-2014 NRC/ASEE Postdoctoral Research Publication Award, NRL
2011 NRC Research Associateship Award, NRL
2006 Donald J. White Teaching Excellence Award, Boston College
2004 Albert E. Rainis Memorial Scholarship, College of Charleston

Professional Service:

2022-2025 Editorial board member for *Physical Review B*
2021 Co-organized DOE-BES-TCMP PI meeting
2019 MRS Symposium Co-organizer
2017 Breakout session lead at DOE HEATER workshop
2017 ORNL/BES strategic planning effort
2016 STEM outreach at USA Science and Engineering Festival

2015-2017 Knoxville Jewish Day School STEAM advisory board
2015 Thesis advisory committee for Ankit Jain, Carnegie Melon University
2008-2009 University Research Council, Boston College, Boston, MA

Refereed proposals for NSF and DOE and numerous papers for *Science*, *Physical Review*, *Physics Today, Scientific Reports, European Physics Letters, Applied Physics Letters, ACS Nano*, *Carbon, Nanoscale, etc.*

Mentoring:

Postdoctoral fellows: Xun Li (2021-), Rinkle Juneja (2020-), Simon Thébaud (2019-2022), Carlos Polanco (2016-2019), Saikat Mukhopadhyay (2015-2017)

Graduate students: Rajmohan Muthaiah (Jivtesh Garg – University of Oklahoma), Wencong Shi (Lilia Woods – University of South Florida), Bradly Baer (Greg Walker – Vanderbilt University)

Patent:

2018 US Patent 9,986,663 B2, "*High Thermal Conductivity Materials for Thermal Management Applications*," D. A. Broido, T. L. Reinecke and **L. Lindsay**.

Publications:

Total citations=8410 *h*-index=36 (*Web of Science*)

2022 *91*. "*Origin of ultralow phonon transport and strong anharmonicity in the lead-free halide perovskites*," T. Pandey, M.-H. Du, D. S. Parker, and **L. Lindsay**, *Materials Today Physics* 28, 100881 (2022).

90. "*Phonons and phase symmetries in bulk $CrCl_3$ from scattering measurements and theory,*" X. Li, S.-H. Do, J. Yan, M. A. McGuire, G. E. Granroth, S. Mu, T. Berlijn, V. C. Cooper, A. D. Christianson, and **L. Lindsay**, *Acta Materialia* 241, 118390 (2022).

89. "*Phonons in complex twisted crystals: Angular momenta, interactions, and topology,*" R. Juneja, X. Li, S. Thébaud, D. H. Moseley, Y. Q. Cheng, M. E. Manley, R. P. Hermann, and **L. Lindsay**, *Physical Review B* 106, 094310 (2022).

88. "*Competing magnetic and nonmagnetic states in monolayer VSe_2 with charge density wave*," L. Yin, T. Berlijn, R. Juneja, **L. Lindsay**, and D. S. Parker, *Physical Review B* 106, 085117 (2022).

87. "*First principles thermal transport modeling in GaN and related materials*," **L. Lindsay**, chapter in Thermal Management of Gallium Nitride Electronics, pgs. 21-44, eds. Marko Tadjer and Travis Anderson (Elsevier, Cambridge, 2022).

86. "*Perturbation theory and thermal transport in mass-disordered alloys: Insights from Green's function methods,*" S. Thébaud, T. Berlijn, and **L. Lindsay**, *Physical Review B* 105, 134202 (2022).

85. "*Mesoscale interplay between phonons and crystal electric field excitations in quantum spin liquid candidate $CsYbSe_2$*," Y.-Y. Pai, C. E. Marvinney, L. Liang, J. Xing, A. Scheie, A. A. Puretzky, G. B. Halász, X. Li, R. Juneja, A. S. Sefat, D. Parker, **L. Lindsay**, and B. J. Lawrie, *Journal of Materials Chemistry C* 10, 4148 (2022).

84. "*Dislocation-limited thermal conductivity in LiF: Revisiting perturbative models,*" **L. Lindsay**, R. Hanus, and C. A. Polanco, *JOM* 74, 547 (2022).

2021 *83.* "*Phonon engineering of boron nitride via isotopic enrichment*," M. He, **L. Lindsay**, T. E. Beechem, T. Folland, J. Matson, K. Watanabe, A. Zavalin, A. Ueda, W. E. Collins, T. Taniguchi, and J. D. Caldwell, *Journal of Materials Research* 36, 4394 (2021).

82. "*Quasiparticle twist dynamics in non-symmorphic materials*," R. Juneja, S. Thébaud, T. Pandey, C. A. Polanco, D. H. Moseley, M. E. Manley, Y. Q. Cheng, B. Winn, D. L. Abernathy, R. P. Hermann, and **L. Lindsay**, *Materials Today Physics* 21, 100548 (2021).

81. "*Thermal transport in defective and disordered materials,*" R. Hanus, R. Gurunathan, **L. Lindsay**, M. T. Agne, J. Shi, S. Graham, and G. J. Snyder, *Applied Physics Reviews* 8, 031311 (2021).

80. "*Intrinsic anharmonicity and thermal properties of ultralow thermal conductivity* $Ba_6Sn_6Se_{13}$," W. D. C. B. Gunatilleke, R. Juneja, O. P. Ojo, A. F. May, H. Wang, **L. Lindsay**, and G. S. Nolas, *Physical Review Materials* 5, 085002 (2021).

79. "*Acoustic cavities in 2D heterostructures*," M. K. Zalalutdinov, J. T. Robinson, J. J. Fonseca, S. W. LaGasse, T. Pandey, **L. R. Lindsay**, T. L. Reinecke, D. M. Photiadis, J. C. Culbertson, C. D. Kresse, and B. H. Houston, *Nature Communications* 12, 3267 (2021).

78. "*Vibrational properties and thermal transport in quaternary chalcogenides: The case of Te-based compositions*," W. Shi, T. Pandey, **L. Lindsay**, and L. M. Woods, *Physical Review Materials* 5, 045401 (2021).

77. "*Semihard iron-based permanent-magnet materials,*" L. Yin, R. Juneja, **L. Lindsay**, T. Pandey, and D. S. Parker, *Physical Review Applied* 15, 024012 (2021).

2020 *76.* "*Phonons, Q-dependent Kondo spin fluctuations, and 4f phonon resonance in* $YbAl_3$," A. D. Christianson, V. R. Fanelli, **L. Lindsay**, S. Mu, M. C. Rahn, D. G. Mazzone, A. H. Said, F. Ronning, E. D. Bauer, and J. M. Lawrence, *Physical Review B* 102, 205135 (2020).

75. "*Temperature dependent lattice dynamics in iridium*," D. H. Moseley, S. J. Thébaud, **L. R. Lindsay**, Y. Cheng, D. L. Abernathy, M. E. Manley, and R. P. Hermann, *Physical Review Materials* 4, 113608 (2020).

74. "*Lattice chain theories for dynamics of acoustic flexural phonons in nonpolar nanomaterials*," Y. Kuang, **L. Lindsay**, Q. Wang, and L. He, *Physical Review B* 102, 144301 (2020).

73. "*Space-time dependent thermal conductivity in nonlocal thermal transport*," C. Hua and **L. Lindsay**, *Physical Review B* 102, 104310 (2020).

72. "*Success and breakdown of the T-matrix approximation for phonon-disorder scattering*," S. Thébaud, C. A. Polanco, **L. Lindsay**, and T. Berlijn, *Physical Review B* 102, 094206 (2020).

71. "*GaN thermal transport limited by the interplay of dislocations and size effects*," H. Li, R. Hanus, C. A. Polanco, A. Zeidler, G. Koblmüller, Y. K. Koh, and **L. Lindsay**, *Physical Review B* 102, 014313 (2020).

70. "*Lattice instabilities and phonon thermal transport in TlBr*," T. Pandey, **L. Lindsay**, B. C. Sales, and D. S. Parker, *Physical Review Materials* 4, 045403 (2020).

69. "*Unfolding the complexity of phonon quasi-particle physics in disordered materials*," S. Mu, R. Olsen, B. Dutta, **L. Lindsay**, G. D. Samolyuk, T. Berlijn, E. D. Specht, K. Jin, H. Bei, T. Hickel, B. C. Larson, and G. M. Stocks, *npj Computational Materials* 6, 4 (2020).

68. "*Defect-limited thermal conductivity in MoS_2*," C. A. Polanco, T. Pandey, T. Berlijn, and **L. Lindsay**, *Physical Review Materials* 4, 014004 (2020).

2019

67. "*Long mean free paths of room-temperature THz acoustic phonons in a high thermal conductivity material*," T.-H. Chou, **L. Lindsay**, A. A. Maznev, J. S. Gandhi, D. W. Stokes, R. L. Forrest, A. Bensaoula, K. A. Nelson, and C.-K. Sun, *Physical Review B* 100, 094302 (2019).

66. "*Generalized Fourier's law for non-diffusive thermal transport: Theory and experiment*," C. Hua, **L. Lindsay**, X. Chen, and A. J. Minnich, *Physical Review B* 100, 085203 (2019) *"Editor's Suggestion"*.

65. "*High-pressure nuclear inelastic scattering with backscattering monochromatization*," I. Sergueev, K. Glazyrin, M. G. Herrmann, P. Alexeev, H.-C. Wille, O. Leupold, A. F. May, T. Pandey, **L. Lindsay**, K. Friese, and R. P. Hermann, *Journal of Synchrotron Radiation* 26, 5 (2019).

64. "*Ab initio investigation of single-layer high thermal conductivity boron compounds*," H. Fan, H. Wu, **L. Lindsay**, and Y. Hu, *Physical Review B* 100, 085420 (2019).

63. "*Perspective on ab initio phonon thermal transport*," **L. Lindsay**, A. Katre, A. Cepellotti, and N. Mingo, *Journal of Applied Physics* 126, 050902 (2019).

62. "*Phonon interaction with ripples and defects in thin layered molybdenum disulfide*," B. Smith, **L. Lindsay**, J. Kim, E. Ou, R. Huang, and L. Shi, *Applied Physics Letters* 114, 221902 (2019).

61. "*Modulating the thermal conductivity in hexagonal boron nitride via controlled boron isotope concentration*," C. Yuan, J. Li, **L. Lindsay**, D. Cherns, J. W. Pomeroy, S. Liu, J. H. Edgar, and M. Kuball, *Communication Physics* 2, 43 (2019).

60. "*Phonons, magnons, and lattice thermal transport in antiferromagnetic semiconductor MnTe*," S. Mu, R. P. Hermann, S. Gorsse, H. Zhao, M. E. Manley, R.S. Fishman, and **L. Lindsay**, *Physical Review Materials* 3, 025403 (2019). [1 citation]

59. "*Phonon thermal conductance across GaN-AlN interfaces from first principles*," C. A. Polanco and **L. Lindsay**, *Physical Review B* 99, 075202 (2019). [1 citation]

58. "*Dislocation-induced thermal transport anisotropy in single-crystal group-III nitride films,*" B. Sun, G. Haunschild, C. A. Polanco, J. Ju, **L. Lindsay**, G. Koblmüller, and Y. K. Koh, *Nature Materials* 18, 136 (2019). [4 citations]

57. "*Phonon-induced multicolor correlations in hBN single-photon emitters,*" M. A. Feldman, A. Puretzky, **L. Lindsay**, E. Tucker, D. P. Briggs, P. G. Evans, R. F. Haglund, and B. J. Lawrie, *Physical Review B* 99, 020101(R) (2019).

2018 *56.* "*Survey of ab initio thermal transport calculations*," **L. Lindsay**, C. Hua, X. Ruan, and S. Lee, *Materials Today Physics* 7, 106 (2018). [3 citations]

55. "*Symmetry-driven phonon chirality and transport in one-dimensional and bulk Ba_3N-derived materials,*" T. Pandey, C. A. Polanco, V. R. Cooper, D. S. Parker, and **L. Lindsay**, *Physical Review B* 98, 241405(R) (2018). [3 citations]

54. "*Thermal transport by first-principles anharmonic lattice dynamics*," **L. Lindsay** and C. A. Polanco, book chapter in *Handbook of Materials Modeling*, Eds: W. Adreoni and S. Yip (Springer, Cham, Switzerland, 2018), pp. 1-31.

53. "*Fermi surface nesting and phonon frequency gap drive anomalous thermal transport*," C. Li, N. K. Ravichandran, **L. Lindsay**, and D. Broido, *Physical Review Letters* 121, 175901 (2018). [4 citations]

52. "*Antisite pairs suppress the thermal conductivity of BAs*," Q. Zheng, C. A. Polanco, M.-H. Du, **L. Lindsay**, M. Chi, J. Yan, and B. C. Sales, *Physical Review Letters* 121, 105901 (2018). [8 citations]

51. "*Thermal conductivity of InN with point defects from first principles*," C. A. Polanco and **L. Lindsay**, *Physical Review B* 98, 014306 (2018). [9 citations]

50. "*Two-channel model for ultralow thermal conductivity of crystalline Tl_3VSe_4,*" S. Mukhopadhyay, D. S. Parker, B. C. Sales, A. A. Puretzky, M. A. McGuire, and **L. Lindsay**, *Science* 360, 1455 (2018). [16 citations]

49. "*Anisotropic thermal transport in bulk hexagonal boron nitride*," P. Jiang, X. Qian, R. Yang, and **L. Lindsay**, *Physical Review Materials* 2, 064005 (2018). [7 citations]

48. "*Interfacial phonon scattering and transmission loss in >1 μm thick silicon-on-insulator thin films*," P. Jiang, **L. Lindsay**, X. Huang, and Y. K. Koh, *Physical Review B* 97, 195308 (2018). [4 citations]

47. "*Propagation of THz acoustic wave packets in GaN at room temperature,*" A. A. Maznev, T.-C. Hung, Y.-T. Yao, T.-H. Chou, J. S. Gandhi, **L. Lindsay**, H. D. Shin, D. W. Stokes, R. L. Forrest, A. Bensaoula, C.-K. Sun, and K. A. Nelson, *Applied Physics Letters* 112, 061903 (2018). [1 citation]

46. "*Ultralow-loss polaritons in isotopically pure boron nitride*," A. J. Giles, S. Dai, I. Vurgaftman, T. Hoffman, S. Liu, **L. Lindsay**, C. T. Ellis, N. Assefa, I. Chatzakis, T. L. Reinecke, J. G. Tischler, M. M. Fogler, J. H. Edgar, D. N. Basov, and J. D. Caldwell, *Nature Materials* 17, 134 (2018). [54 citations]

45. "*Ab initio phonon point defect scattering and thermal transport in graphene*," C. A. Polanco and **L. Lindsay**, *Physical Review B* 97, 014303 (2018). [13 citations]

2017 *44.* "*High temperature magneto-structural transition in van der Waals-layered α-$MoCl_3$,*" M. A. McGuire, J. Yan, P. Lampen-Kelly, A. F. May, V. R. Cooper, **L. Lindsay**, A. Puretzky, L. Liang, Santosh KC, E. Cakmak, S. Calder and B. C. Sales, *Physical Review Materials* 1*,* 064001 (2017) *"Editor's Suggestion"*. [16 citations]

43. "*Four-phonon scattering significantly reduces intrinsic thermal conductivity of solids*," T. Feng, **L. Lindsay**, and X. Ruan, *Physical Review B* 96, 161201(R) (2017). [23 citations]

42. "*Ab initio phonon thermal transport in monolayer InSe, GaSe, GaS and alloys*," T. Pandey, D. S. Parker, and **L. Lindsay**, *Nanotechnology* 28, 455706 (2017). [11 citations]

41. "*The curious case of cuprous chloride: Giant thermal resistance and anharmonic quasiparticle spectra driven by dispersion nesting*," S. Mukhopadhyay, D. Bansal, O. Delaire, D. Perrodin, E. Bourret-Courchesne, D. J. Singh and **L. Lindsay**, *Physical Review B* 96, 100301(R) (2017). [5 citations]

40. "*Phonon thermal transport in 2H, 4H and 6H silicon carbide from first principles,*" N. H. Protik, A. Katre, **L. Lindsay**, N. Mingo, and D. Broido, *Materials Today Physics* 1, 31 (2017). [8 citations]

39. "*Lattice thermal transport in $La_3Cu_3X_4$ (X=P, As, Sb, Bi) compounds: Interplay of anharmonicity and scattering phase space*," T. Pandey, C. A. Polanco, **L. Lindsay** and D. S. Parker, *Physical Review B* 95, 224306 (2017). [3 citation]

38. "*Hydrodynamic phonon drift and second sound in a (20,20) single-wall carbon nanotube*," S. Lee and **L. Lindsay**, *Physical Review B* 95, 184304 (2017). [1 citation]

37. "*Effects of functional group mass variance on thermal transport in graphene*," **L. Lindsay** and Y. Kuang, *Physical Review B* 95, 121404(R) (2017). [9 citations]

2016 *36.* "*Boron arsenide phonon dispersion from inelastic x-ray scattering: Potential for ultrahigh thermal conductivity*," H. Ma, C. Li, S. Tang, J. Yan, A. Alatas, **L. Lindsay**, B. C. Sales, and Z. Tian, *Physical Review B* 94, 220303(R) (2016). [13 citations]

35. "*Optic phonons and anisotropic thermal conductivity in hexagonal $Ge_2Sb_2Te_5$*," S. Mukhopadhyay, **L. Lindsay**, and D. J. Singh, *Scientific Reports* 6, 37076 (2016). [13 citations]

34. "*Isotope scattering and phonon thermal conductivity in light atom systems: LiH and LiF*," **L. Lindsay**, *Physical Review B* 94, 174304 (2016). [7 citations]

33. "*Physically founded phonon dispersions of few-layer materials and the case of borophene*," J. Carrete, W. Li, **L. Lindsay**, D. A. Broido, L. J. Gallego, and N. Mingo, *Materials Research Letters* 4, 204 (2016). [73 citations]

32. "*Basal-plane thermal conductivity of nanocrystalline and amorphized thin germanane*," G. Coloyan, N. Cultrara, A. Katre, J. Carrete, M. Heine, E. Ou, J. Kim, S. Jiang, **L. Lindsay**, N. Mingo, D. A. Broido, J. Heremans, J. Goldberger, and L. Shi, *Applied Physics Letters* 109, 131907 (2016). [4 citations]

31. "*First principles Peierls-Boltzmann thermal transport: A topical review*," **L. Lindsay**, *Nanoscale and Microscale Thermophysical Engineering* 20, 67 (2016). [31 citations]

30. "*Role of low-energy phonons with mean-free-paths >0.8 μm in heat conduction in silicon*," P. Jiang, **L. Lindsay**, and Y. K. Koh, *Journal of Applied Physics* 119, 245705 (2016). [15 citations]

29. "*Electronic structure and electron-phonon coupling in TiH_2*," K. V. Shanavas, **L. Lindsay** and D. S. Parker, *Scientific Reports* 6, 28102 (2016). [6 citations]

28. "*Thermal conductivity of graphene mediated by strain and size*," Y. Kuang, **L. Lindsay**, S. Shi, X. Wang, and B. Huang, *International Journal of Heat and Mass Transfer* 101, 772 (2016). [29 citations]

27. "*Optic phonon bandwidth and lattice thermal conductivity: the case of Li_2X (X=O, S, Se, Te)*," S. Mukhopadhyay, **L. Lindsay** and D. S. Parker, *Physical Review B* 93, 224301 (2016). [11 citations]

26. "*Tensile strains give rise to strong size effects for thermal conductivities of silicene, germanene and stanene*," Y. D. Kuang, **L. Lindsay**, S. Q. Shi, and G. P. Zhen, *Nanoscale* 8, 3760 (2016). [68 citations]

2015

25. "*Calculated transport properties of CdO: thermal conductivity and thermoelectric power factor*," **L. Lindsay** and D. Parker, *Physical Review B* 92, 144301 (2015). [10 citations]

24. "*Unusual enhancement in intrinsic thermal conductivity of multi-layer graphene by tensile strain*," Y. Kuang, **L. Lindsay**, and B. Huang, *Nano Letters* 15, 6121 (2015). [38 citations]

23. "*Reexamination of basal plane thermal conductivity of suspended graphene samples measured by electro-thermal micro-bridge methods*," I. Jo, M. T. Pettes, **L. Lindsay**, E. Ou, A. Weathers, A. L. Moore, Z. Yao, and L. Shi, *AIP Advances* 5, 053206 (2015). [21 citations]

22. "*Low-loss, infrared and terahertz nanophotonics using surface phonon polaritons*," J. D. Caldwell, **L. Lindsay**, V. Giannini, I. Vurgaftman, T. L. Reinecke, S. A. Maier, and O. J. Glembocki, *Nanophotonics* 4, 44 (2015). [177 citations]

21. "*Anomalous pressure dependence of thermal conductivity of large mass ratio compound materials*," **L. Lindsay**, D. A. Broido, J. Carrete, N. Mingo, and T. L. Reinecke, *Physical Review B* 91, 121202(R) (2015). [27 citations]

2014

20. "*The Seebeck coefficient and phonon drag in silicon*," G. D. Mahan, **L. Lindsay**, and D. A. Broido, *Journal of Applied Physics* 116, 245102 (2014). [13 citations]

19. "*Phonon thermal transport in strained and unstrained graphene from first principles*," **L. Lindsay**, W. Li, J. Carrete, N. Mingo, D. A. Broido, and T. L. Reinecke, *Physical Review B* 89, 155426 (2014). [174 citations]

18. "*Ab initio thermal transport*," chapter in *Length-Scale Dependent Phonon Interactions, Topics in Applied Physics*, Vol. 128, pp. 137-173, N. Mingo, D. A.

Stewart, D. A. Broido, **L. Lindsay**, and W. Li, edited by S. L. Shinde and G. P. Srivastava (Springer, New York, 2014). [38 citations]

2013 *17.* "*Ab initio study of the unusual thermal transport properties of boron arsenide and related materials*," D. A. Broido, **L. Lindsay**, and T. L. Reinecke, *Physical Review B* 88, 214303 (2013). [46 citations]

16. "*Phonon-isotope scattering and thermal conductivity in materials with a large isotope effect: A first-principles study*," **L. Lindsay**, D. A. Broido, and T. L. Reinecke, *Physical Review B* 88, 144306 (2013). [45 citations]

15. "*First-principles determination of ultrahigh thermal conductivity of boron arsenide: A competitor for diamond?*," **L. Lindsay**, D. A. Broido, and T. L. Reinecke, *Physical Review Letters* 111*,* 025901 (2013) *"Editor's Suggestion"*. [175 citations]

Selected for a Viewpoint in *Physics* (http://physics.aps.org/articles/v6/76) and featured in *Physics Today* 67(8), 27 (2014).

14. "*Ab initio thermal transport in compound semiconductors*," **L. Lindsay**, D.A. Broido, and T. L. Reinecke, *Physical Review B* 87, 165201 (2013) *"Editor's Suggestion"*. [161 citations]

2012 *13.* "*Thermal conductivity of bulk and nanowire* $Mg_2Si_xSn_{1-x}$ *alloys from first principles*," W. Li, **L. Lindsay**, N. Mingo, D. A. Broido, and D. A. Stewart, *Physical Review B* 86, 195436 (2012). [235 citations]

12. "*Thermal conductivity of diamond under extreme pressure: A first principles study*," D. A. Broido, **L. Lindsay**, and A. Ward, *Physical Review B* 86, 115203 (2012). [47 citations]

11. "*Thermal conductivity and large isotope effect in GaN from first principles*," **L. Lindsay**, D. A. Broido, and T. L. Reinecke, *Physical Review Letters* 109, 095901 (2012). [142 citations]

10. "*Thermal conductivity of diamond nanowires from first principles*," W. Li, N. Mingo, **L. Lindsay**, D. A. Broido, D. A. Stewart, and N. A. Katcho, *Physical Review B* 85, 195436 (2012). [167 citations]

9. "*Theory of thermal transport in multilayer hexagonal boron nitride and nanotubes*," **L. Lindsay** and D. A. Broido, *Physical Review B* 85, 035436 (2012). [45 citations]

2011 *8.* "*Enhanced thermal conductivity and isotope effect in single-layer hexagonal boron nitride*," **L. Lindsay** and D. A. Broido, *Physical Review B* 84, 155421 (2011). [163 citations]

7. "*Flexural phonons and thermal transport in multilayer graphene and graphite*," **L. Lindsay**, D. A. Broido, and N. Mingo, *Physical Review B* 83, 235428 (2011). [163 citations]

2010 *6.* "*Diameter dependence of carbon nanotube thermal conductivity and extension to the graphene limit*," **L. Lindsay**, D. A. Broido, and N. Mingo, *Physical Review B* 82*,* 161402(R) (2010). [110 citations]

5. "*Flexural phonons and thermal transport in graphene*," **L. Lindsay**, D. A. Broido, and N. Mingo, *Physical Review B* 82, 115427 (2010) *"Editor's Suggestion"*. [371 citations]

4. "*Optimized Tersoff and Brenner empirical potential parameters for lattice dynamics and phonon thermal transport in carbon nanotubes and graphene*," **L. Lindsay** and D. A. Broido, *Physical Review B* 81, 205441 (2010). [515 citations]

3. "*Two-dimensional phonon transport in supported graphene*," J. H. Seol, I. Jo, A. L. Moore, **L. Lindsay**, Z. H. Aitken, M. T. Pettes, X. Li, Z. Yao, R. Huang, D. A. Broido, N. Mingo, R. S. Ruoff, and L. Shi, *Science* 328, 213 (2010). [1083 citations]

2009 *2.* "*Lattice thermal conductivity of single-walled carbon nanotubes: Beyond the relaxation time approximation and phonon-phonon scattering selection rules*," **L. Lindsay**, D. A. Broido, and N. Mingo, *Physical Review B* 80, 125407 (2009). [94 citations]

2008 *1.* "*Three-phonon phase space and lattice thermal conductivity in semiconductors*," **L. Lindsay** and D. A. Broido, *Journal of Physics: Condensed Matter* 20, 165209 (2008). [122 citations]

Invited Presentations:

2021 "*Mentoring sneaks up on you*," invited virtual talk at ASME InterPACK 2021, virtual (October)

"*Phonons and twisting symmetries in non-symmorphic materials*," invited virtual talk at Materials Science and Technology 2021, Columbus, OH (October) Lucas

"*Phonons and symmetry in chiral and layered materials*," invited virtual talk at Rice University, Houston, TX (October)

"*Modeling phonon-defect interactions*," invited virtual talk at International Materials Research Congress, Cancun, Mexico (August)

"*Dislocation-limited thermal transport in III-Nitride materials*," invited talk at Virtual TMS 2021 (March)

2020 "*Vibrations and transport governed by symmetry, chirality, and selection rules*," invited virtual talk at Dalhousie University, Nova Scotia, Canada (November)

"*Advancing insights into phonon thermal transport with theory/experiment interactions*," invited talk at the TMS annual meeting, San Diego, CA (February)

2019 "*Phonon thermal transport in 2D materials (and 1D and bulk)*," invited talk at the International Institute of Physics Workshop: *2D Materials: From Fundamentals to Spintronics*, Natal, Brazil (September)

"*My struggles with phonon transport*," invited talk at the Telluride Science Research Center, Thermal Transport at the Nanoscale workshop, Telluride, CO (June)

"*Phonon thermal transport in nanostructured materials*," invited talk at the International Workshop on Computational Nanotechnology, Evanston, IL (May)

"*Building understanding of phonon thermal transport – Calculations and experiment*," Tutorial at Materials Research Society spring meeting, Phoenix, AZ, (April)

"*Predicting thermal transport in materials: Challenges and insights*," invited colloquium at the University of South Florida, Tampa, FL (February)

"*Phonon thermal transport: Reconciling predictions with reality*," invited talk at the Electronic Materials and Applications conference (American Ceramics Society), Orlando, FL (January)

2018 "*Predicting anharmonic phonon lifetimes and lattice properties*," invited tutorial at American Physical Society March meeting, Los Angeles, CA (March)

"*Lattice thermal transport: Barriers and channels, challenges and insights,*" invited seminar at University of California, LA, Los Angeles, CA (March)

2017 "*Phonon thermal transport: Barriers and channels, challenges and insights*," invited seminar at Vanderbilt University, Nashville, TN (September)

"*Enhanced thermal conductivity in new materials*," invited talk at Highly Efficient Advanced Thermal Energy Research (HEATER) workshop, Berkeley, CA (July)

"*Nanoscale phonon thermal transport: insights and predictions*," invited talk at IEEE International Conference on Nanotechnology, Pittsburgh, PA (July)

"*First principles nanoscale phonon transport: insights and predictions*," invited talk at the 9th US-Japan Joint Seminar on Nanoscale Transport Phenomena, Tokyo, Japan (July)

"*Phonon thermal transport: barriers and channels, challenges and insights,*" invited colloquium at Missouri University of Science and Technology, Rolla, MO (April)

2016 "*Phonons from first principles: scattering and transport in bulk and nanoscale systems*," invited seminar/guest lecture at University of Texas at Austin, Austin, TX

"*First principles phonon thermal transport: from bulk to the nanoscale*," invited talk at the International Institute of Physics Workshop: *Thermal and Electronic Transport in Nanostuctures*, Natal, Brazil

2015 "*Lattice thermal transport from first principles: predictive power?*" invited seminar at Carnegie Mellon University, Pittsburgh, PA

"*Lattice thermal transport from first principles: predictive power?*" invited seminar at Oak Ridge National Laboratory, Oak Ridge, TN

"*First principles lattice thermal transport: nanoscale systems*," invited talk at Materials Research Society spring meeting, San Francisco, CA

2014 "*First principles phonon thermal transport*," invited talk at Stony Brook University, Stony Brook, NY

"*First principles phonon thermal transport*," invited talk at the Army Research Laboratory, Adelphi, MD

"*First principles phonon thermal transport*," invited talk at the University of Texas at Austin, Austin, TX