❑ Zlatan Akšamija, Associate Professor

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JOHN AND MARCIA PRICE COLLEGE OF ENGINEERING
THE UNIVERSITY OF UTAH

❑ Education

2005-2009	**Ph.D. in Electrical Engineering**, University of Illinois at Urbana-Champaign *w/ Computational Science and Engineering (CSE) Graduate Option*
2003-2005	**M.S. in Electrical Engineering**, University of Illinois at Urbana-Champaign
1999-2003	**B.S. in Computer Engineering**, University of Illinois at Urbana-Champaign *Highest Honors (Summa Cum Laude), James Honors Scholar, Minor in Mathematics*

❑ Professional Appointments

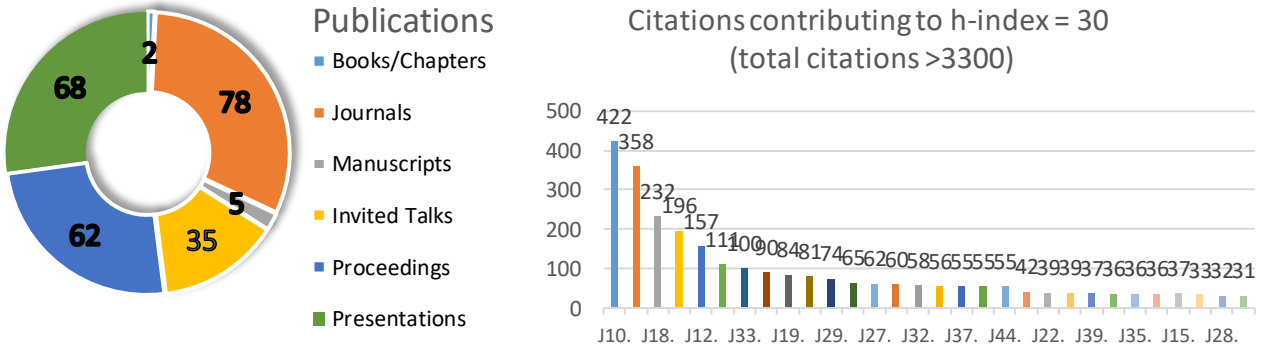
2022-	**Associate Professor,** Department of Materials Science and Engineering University of Utah, Salt Lake City, UT Media: "*electrons screen conductivity killer,"* https://www.eurekalert.org/news-releases/1034638 "*Nanowires take the heat*," https://phys.org/news/2022-05-silicon-nanowires.html
2019-2021	**Associate Professor,** University of Massachusetts Amherst
2013-2019	**Assistant Professor,** Electrical and Computer Engineering University of Massachusetts Amherst Media: https://eurekalert.org/pub_releases/2019-07/uoma-htc071019.php https://engineering.umass.edu/news/multi-university-team-receives-2-million-nsf-grant https://www.mghpcc.org/exploring-thermoelectric-behavior-at-the-nanoscale/
2011-2013	**NSF Transformative Computational Science using CyberInfrastructure (CITraCS) Postdoctoral Fellowship,** University of Wisconsin-Madison Project: "*Computational Nanoscience for Energy-Efficient Electronic and Thermoelectric Materials and Devices,"* Mentor: Irena Knezevic
2009-2011	**Computing Innovation Postdoctoral Fellowship (CIFellow), Computing Research Association (CRA)**, University of Wisconsin-Madison Project: "*Nanostructured Semiconductor Thermoelectrics*," Mentor: Irena Knezevic Media: http://perspective.engr.wisc.edu/2011/10/nanoscale-silicon-a-really-cool-hot-spot/
2005-2009	**Department of Energy Computational Science Graduate Fellow (CSGF)** ECE Department, University of Illinois at Urbana/Champaign Dissertation: "*Simulation of Thermal Effects in Semiconductor Materials and Devices*", Advisor: Umberto Ravaioli
Spring '09	**DOE CSGF Practicum,** Argonne National Lab (MCS), Los Alamos National Lab, T-7 Project: "*Parallel Simulation of Carbon Nanotubes*", Supervisor: P. Fischer
Summer '07	Project: *"Wavelets in Multigrid Algorithms"*, Supervisor: B. Philip
2004-2005	**Research Assistant**, ECE@University of Illinois at Urbana-Champaign Thesis: "*Monte Carlo simulation of Joule heating in nanoscale silicon MOSFETs"* Advisor: Umberto Ravaioli, Computational Electronics, Beckman Institute

❑ Honors, Fellowships, and Awards

2023	Early Career Distinguished Presenter, Materials Research Society (MRS) Fall meeting
2023	Career Mentoring Fellow, American Physical Society (APS)
2022	UPSTEM faculty fellowship, University of Utah
2019	Senior Member of the IEEE
2016	Lilly Fellowship for Teaching Excellence, University of Massachusetts Amherst
2014	IEEE Nano Conference Best Paper award
2011-2014	CI TraCS Postdoctoral Fellowship, National Science Foundation
2009-2011	Computing Innovation Fellowship (CIFellows), Computing Research Association

❑ **Research Interests:** Electronic and Thermal Transport in Nanostructured and Organic Semiconductors

R1. **2D materials:** Graphene, TMDC heterostructures for device and energy applications
R2. **Nanoscale heat transfer:** phonon transport, thermal rectification, Raman thermometry
R3. **Novel thermoelectrics:** nanostructured, low-dimensional, and organic materials for energy
R4. **Organic Electronics**: doping and Coulomb effects on transport in conjugated polymers
R5. **Coupled Electro-thermal simulation**: electron-phonon interaction/dissipation in nanoelectronics
R6. **Materials informatics:** simulation and data-driven discovery of new materials and devices



❑ **Journal Publications** (underline denotes my advisees, double for graduate, single for undergraduate)

J78. Sylvester W. Makumi and **Zlatan Akšamija**, "*Impact of substate surface roughness on heat transfer to two-dimensional materials,"* submitted (2023)

J77. Andrew Tolton and **Zlatan Akšamija, "***Beneath the Disorder: Unraveling the Impacts of Doping on Organic Electronics and Thermoelectrics,***"** MRS Communications, special issue "*Early Career Distinguished Presenter*," submitted (2024).

J76. Sylvester W. Makumi, Stefanie Haugg, Bojan Bošnjak, Rober Zierold, Robert Blick, and **Zlatan Akšamija**, "*Enhanced Field Emission of Electrons from Wrinkled Graphene: A Unified Approach,"* Physical Review Applied, Physical Review Applied, resubmitted (2024).

J75. Michael Lu-Díaz, Muhamed Duhandžić, Simon Harrity, Subhayan Samanta, **Zlatan Akšamija**, and Dhandapani Venkataraman, "*Dopant-induced Energetic Disorder in Conjugated Polymers: Determinant Roles of Polymer-Dopant Distance and Composite Electronic Structures,*" Journal of Physical Chemistry C, vol. 128, 5996-6006 (2024). https://doi.org/10.1021/acs.jpcc.3c07197

J74. Qingyun Xie, John Niroula, Nitul S. Rajput, Mengyang Yuan, Shisong Luo, Kai Fu, Mohamed Fadil Isamotu, Rafid Hassan Palash, Bejoy Sikder, Savannah R. Eisner, Aidan J. Belanger, Patrick K. Darmawi-Iskandar, **Zlatan Akšamija**, Debbie G. Senesky, Nadim Chowdhury, Yuji Zhao, and Tomás Palacios, "*Material and Device Investigation of GaN Enhancement-Mode Transistors for Extreme Environment Robustness,*" Applied Physics Letters, v. 124, 172104 (2024). https://doi.org/10.1063/5.0186976

J73. Stefanie Haugg, Sylvester Makumi, Sven Velten, Robert Zierold, **Zlatan Akšamija**, and Robert H. Blick, "*Thermally Driven Field Emission from ZnO Nanowires on a Free-Standing Nanomembrane Used as a Detector for Time-of-Flight Mass Spectrometry,*" ACS Omega, vol. 9, 10602-10609 (2024). https://doi.org/10.1021/acsomega.3c08932

J72. M. Duhandžić, M. Lu-Diaz, S. Samanta, D. Venkataraman, and **Z. Akšamija**, "*Carrier screening controls transport at high doping concentrations in conjugated polymers,*" Physical Review Letters, vol. 131, 248101 (2023) https://doi.org/10.1103/PhysRevLett.131.248101

J71. S. Klein and **Z. Akšamija**, "*Electro-thermal properties of 2D field-effect devices,"* Journal of Computational Electronics, v. 22, 1310–1318 (2023). https://doi.org/10.1007/s10825-023-02091-z

J70. C. J. Foss, **Z. Akšamija**, "*Machine learning enables robust prediction of thermal boundary conductance of 2D substrate interfaces,*" Applied Physics Letters, vol. 122, 062201, (2023) https://doi.org/10.1063/5.0142105

J69. Sylvester W. Makumi, Daniel Bem, Nicholas Musila, Cameron J. Foss and **Z. Akšamija**, "*In-plane thermoelectric properties of graphene/xBN/graphene van der Waals heterostructures,"* Journal of Physics: Condensed Matter, v. 35, 155701 (2023) https://doi.org/10.1088/1361-648X/acb89e
- Recognition: *Focus Issue on Energy Conversion Physics and Devices of Molecular Scale Junctions*

J68. P. Ci, M. Sun, M. Upadhyaya, H. Song, L. Jin, B. Sun, M. R. Jones, J. W. Ager, **Z. Akšamija**,* J. Wu,* *"Giant isotope effect of thermal conductivity in silicon nanowires,"* Physical Review Letters, vol. 128, 085901 (2022). https://doi.org/10.1103/PhysRevLett.128.085901 (* co-corresponding authors)

J67. M. Duhandžić, **Z. Akšamija**, "*Organic Materials for Electronic and Thermoelectric Applications,*" B&H Electrical Engineering, Vol. 16, Special Issue, pp. 31-40 (2022). https://dx.doi.org/10.2478/bhee-2022-0011

J66. M. Upadhyaya, M. Lu-Diaz, S. Samanta, M. Abdullah, K. Dusoe, K. R. Kittilstved, D. Venkataraman, **Z. Akšamija**, "*Raising dielectric permittivity mitigates dopant-induced disorder in conjugated polymers,"* Advanced Science, 2101087 (2021). https://doi.org/10.1002/advs.202101087

J65. A. Kommini and **Z. Akšamija**, "*High Thermoelectric Power Factor Near Magic Angle in Twisted Bilayer Graphene,*" 2D Materials, vol. 8, 045022 (2021). https://doi.org/10.1088/2053-1583/ac161d

J64. A. K. Majee and **Z. Akšamija**, "*Electronic Transport Across Extended Grain Boundaries in Graphene,"* Nano Express, vol. 2, 030007 (2021). https://doi.org/10.1088/2632-959X/ac0597

J63. C. J. Foss and **Z. Akšamija**, "*Thermal boundary conductance of monolayer beyond-graphene two dimensional materials on SiO_2 and GaN,"* Nanotechnology, vol. 32, 405206 (2021) [*Focus on 2D Materials for Microelectronic Devices and Nanoscale Heat Dissipation*] https://doi.org/10.1088/1361-6528/ac0d7d

J62. A. K. Majee, C. J. Foss, and **Z. Akšamija**, "*Electrical and electro-thermal properties of few-layered 2D devices,"* vol. 20, pp 2-12, Journal of Computational Electronics (2021). https://doi.org/10.1007/s10825-020-01579-2

J61. **Z. Akšamija**, "*Numerical Study of Thermal Dissipation Processes in Silicon*," B&H Electrical Engineering, Vol.14, Special Edition, pp 5-13, (2020), https://doi.org/10.2478/bhee-2020-0001

J60. C. J. Foss and **Z. Akšamija**, "*Effects of Alloying on In-plane and Through-plane Phonon Transport in Transition Metal Dichalcogenide Monolayers,*" Physical Review Materials**,** vol. 4, 124006 (2020). https://doi.org/10.1103/PhysRevMaterials.4.124006

J59. A. Kommini and **Z. Akšamija**, "*Anisotropic Thermoelectric Power Factor of 2D Materials with Periodic Potential Barriers: The Wigner-Rode Formalism*," Physical Review Applied, vol. 14**,** 034037 (2020). https://doi.org/10.1103/PhysRevApplied.14.034037

J58. A. K. Majee, Z. Hemmat, C. J. Foss, A. Salehi-Khojin, and **Z. Akšamija**, "*Current Rerouting Improves Heat Removal in Few Layer WSe_2 Devices*," ACS Applied Materials & Interfaces, vol. 12, 14323-14330 (2020). https://doi.org/10.1021/acsami.9b22039

J57. A. Kommini and **Z. Akšamija**, "*Materials selection rules for optimum power factor in 2-dimensional thermoelectrics*," Journal of Physics: Materials, vol. 3, 015005 (2019). https://doi.org/10.1088/2515-7639/ab4600

J56. C. J. Boyle, M. Upadhyaya, P. Wang, L. Renna, Lj. Korugic-Karasz, M. Barnes, **Z. Akšamija**, D. Venkataraman, "*Tuning charge transport dynamics via clustering of doping in organic semiconductor thin films,*" Nature Communications, vol. 10, 2827 (2019). https://doi.org/10.1038/s41467-019-10567-5

J55. (*invited review*) A. K. Majee, A. Kommini, and **Z. Akšamija**, "*Electronic and thermoelectric transport properties of 2D and 3D semiconductor heterostructures*," Annalen der Physik (Berlin), 1800510 (2019). https://doi.org/10.1002/andp.201800510

J54. C. Henkel, R. Zierold, A. Kommini, C. Thomason, **Z. Akšamija**, and R. H. Blick, "*Resonant Tunneling Induced Enhancement of Electron Field Emission by Ultra-Thin Coatings*," Scientific Reports, vol. 9, 6840 (2019). https://doi.org/10.1038/s41598-019-43149-y

J53. C. J. Foss and **Z. Akšamija**, "*Quantifying thermal boundary conductance of 2D-3D interfaces"*, 2D Materials, vol. 6, 025019 (2019). https://doi.org/10.1088/2053-1583/ab04bf

J52. M. Upadhyaya, C. J. Boyle, D. Venkataraman, and **Z. Akšamija**, "*Thermoelectric Properties of Disordered Organic Materials,*" Scientific Reports, vol. 9, 5820 (2019). https://doi.org/10.1038/s41598-019-42265-z

- **Recognition**: top 100 in Materials Science: https://www.nature.com/collections/ecjehiebic

J51. A. Akšamija, **Z. Akšamija**, D. Brown, C. Counihan, M. Upadhyaya, "Thermoelectric Materials in Facade Systems", Frontiers in Energy Research, vol. 7, 6 (2019). https://doi.org/10.3389/fenrg.2019.00006

J50. (*invited review)* M. Mohamed, K. Raleva, D. Vasileska, U. Ravaioli, and **Z. Akšamija**, "*Phonon dynamics and heat transfer in semiconductor devices",* IEEE Nanotechnology Magazine, special August issue on "*Semiconductor Nanotechnology Shaping Our Century,*" (2019). https://doi.org/10.1109/MNANO.2019.2916114

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J49. P. Yasaei, Z. Hemmat, C. J. Foss, J. Li, L. Hong, A. Behranginia, L. Majidi, R. F. Klie, M. Barsoum, **Z. Akšamija**, A. Salehi-Khojin, "*Enhanced Thermal Boundary Conductance in Few-Layer Ti_3C_2 MXene with Encapsulation*", Advanced Materials**,** 1801629 (2018). https://doi.org/10.1002/adma.201801629

J48. A. K. Majee and **Z. Akšamija**, "*Dynamical Thermal Conductivity of Graphene in the Hydrodynamic Regime*", Physical Review B, vol. 98, 024303 (2018). https://doi.org/10.1103/PhysRevB.98.024303

J47. A. Behranginia, Z. Hemmat, A. K. Majee, C. J. Foss, P. Yasaei, **Z. Akšamija**, and A. Salehi-Khojin, "*Power Dissipation of WSe_2 Field Effect Transistors Probed by Low-Frequency Raman Thermometry",* ACS Applied Materials & Interfaces, vol. 10, 24892–24898 (2018). https://doi.org/10.1021/acsami.8b04724

J46. A. Kommini and **Z. Akšamija**, "*Thermoelectric Properties of Periodic Quantum Structures in the Wigner-Rode Formalism*", Journal of Physics: Condensed Matter, vol. 30, 044004 (2017). https://doi.org/10.1088/1361-648X/aaa110

J45. A. K. Majee, C. J. Foss, and **Z. Akšamija**, "*Impact of Mismatch Angle on the Conductance of Grain Boundaries and Interfaces in Graphene and MoS_2*", Scientific Reports (Nature), vol. 7, 16597 (2017). https://doi.org/10.1038/s41598-017-16744-0

J44. P. Yasaei, C. J. Foss, K. Karis, A. Behranginia, A. El-Ghandour, A. Fathizadeh, A. K. Majee, C. Foster, F. Khalili-Araghi, **Z. Akšamija**, A. Salehi-Khojin, "*Interfacial Thermal Transport in Monolayer Graphene- and MoS_2-Based Devices"*, Advanced Materials Interfaces, vol. 4, 1700334 (2017). https://doi.org/10.1002/admi.201700334

J43. G. C. Correa, C. J. Foss and **Z. Akšamija**, "*Interface Thermal Conductance Between van der Waals Monolayers and Amorphous Substrates*", Nanotechnology, vol. 28, 135402 (2017). https://doi.org/10.1088/1361-6528/aaa5e3d

- **Recognition**: Highlights of 2017 in *Energy at the Nanoscale* http://iopscience.iop.org/journal/0957-4484/page/Highlights%202017

J42. A. Behranginia, P. Yasaei, A. K. Majee, V. K. Sangwan, F. Long, C. J. Foss, T. Foroozan, S. Fuladi, M. R. Hantehzadeh, R. Shahbazian-Yasar, M. C. Hersam, **Z. Akšamija**, A. Salehi-Khojin, "*Direct-Grown Graphene and Molybdenum Disulfide Lateral Heterostructures for Highly-Packed All-Two-Dimensional Electronic Circuitry*", Small, vol. 13, 1604301 (2017). https://dx.doi.org/10.1002/smll.201604301

J41. H. Kim, J. Park, **Z. Akšamija**, M. Arbulu, and R. H. Blick, "*Ultra-nanocrystalline diamond membranes for detection of high-mass proteins*", Physical Review Applied**,** vol. 6, 064031 (2016). https://doi.org/10.1103/PhysRevApplied.6.064031

J40. C. J. Foss and **Z. Akšamija**, "*Strain Engineering of the Lattice Thermal Transport in Ultrathin Si and Ge Nanomembranes*", Journal of Applied Physics, vol. 120, 225104 (2016). http://dx.doi.org/10.1063/1.4971269

J39. M. Upadhyaya, **Z. Akšamija**, "*Non-diffusive Lattice Thermal Transport in Si-Ge Alloy Nanowires*", Physical Review B, vol. 94, 174303 (2016). http://dx.doi.org/10.1103/PhysRevB.94.174303

J38. S. N. Khatami and **Z. Akšamija**, "*Lattice Thermal Transport in Binary Si-Sn, Ge-Sn and Ternary Si-Ge-Sn Group IV Alloys*", Physical Review Applied, vol. 6, 014015 (2016). http://dx.doi.org/10.1103/PhysRevApplied.6.014015

J37. A. K. Majee and **Z. Akšamija**, "*Length Divergence of the Lattice Thermal Conductivity in Suspended Graphene Ribbons*", Physical Review B, vol. 93, 235423 (2016). http://dx.doi.org/10.1103/PhysRevB.93.235423

J36. A. Kommini, **Z. Akšamija,** "*Low-temperature Enhancement of the Thermoelectric Seebeck Coefficient in Gated 2D Semiconductor Nanomembranes*", Journal of Computational Electronics**,** vol. 15, 27-33 (*special issue on Electro-thermal and Thermoelectric Phenomena*, 2016). http://dx.doi.org/10.1007/s10825-015-0782-1

J35. D. P. Schroeder, **Z. Akšamija**, A. Rath, P. M. Voyles, M. G. Lagally, and M. A. Eriksson, "*Thermal Resistance of Stacked Silicon Nanomembrane Interfaces*", Physical Review Letters**,** vol. 115, 256101(2015). http://dx.doi.org/10.1103/PhysRevLett.115.256101

J34. M. Mohamed, **Z. Akšamija**, and U. Ravaioli, "*Coupled Electron and Thermal Transport Simulation of Self-heating Effects in Junctionless MOSFETs*", Journal of Physics**:** Conference Series, vol. 647, 012026 (2015)

J33. P. Yaseai, A. K. Majee, A. Fathizadeh, R. Hantizadeh, D. Estrada, C. Foster, **Z. Akšamija**, F. Khalili, A. Salehi, "*Bimodal Phonon Scattering in Graphene Grain Boundaries*", Nano Letters**,** vol. 15, 4532, (2015). http://dx.doi.org/10.1021/acs.nanolett.5b01100

- **Press**: http://www.sciencedaily.com/releases/2015/06/150616190726.htm

J32. L. N. Maurer, **Z. Akšamija**, and I. Knezevic, "*Phonon Transport in Nanostructures with Rough Correlated Boundaries*", Applied Physics Letters**,** vol. 106, 133108 (2015) http://dx.doi.org/10.1063/1.4916962

J31. M. Upadhyaya, N. S. Khatami, and **Z. Akšamija**, "*Engineering Thermal Transport in SiGe-based Nanostructures for Thermoelectric Applications*", Journal of Materials Research *(special issue on Materials for Thermoelectrics II)*, vol. 30, pp. 2649 (2015). http://dx.doi.org/10.1557/jmr.2015.202

J30. **Z. Akšamija**, "*Lattice Thermal Transport in Si-based Nanocomposites for Thermoelectric Applications*", Journal of Electronic Materials**,** vol. 44, 1644 (2015). http://dx.doi.org/10.1007/s11664-014-3505-7

J29. K.-H. Park, **Z. Akšamija**, M. Mohamed, and U. Ravaioli, "*Phonon Scattering due to van der Waals Forces in the Lattice Thermal Conductivity of Bi_2Te_3 Thin Films*", Journal of Applied Physics**,** vol. 117, 015103 (2014). http://dx.doi.org/10.1063/1.4905294

J28. M. Mohamed, **Z. Akšamija**, W. Vitale, F. Hassan, and U. Ravaioli, "*A conjoined electron and thermal transport study of thermal degradation induced during normal operation of multigate transistors"*, IEEE Transactions on Electron Devices, vol. 61, 976 (2014). http://dx.doi.org/10.1109/TED.2014.2306422

J27. S. Mei, L. N. Maurer, **Z. Aksamija**, and I. Knezevic, "*Phonon Transport in Micron-sized graphene nanoribbons based on full-dispersion Monte Carlo simulation*", Journal of Applied Physics**,** vol. 116, 164307 (2014). http://dx.doi.org/10.1063/1.4899235

J26. **Z. Akšamija** and I. Knezevic, "*Thermal Transport in Large-area Polycrystalline Graphene*", Physical Review B, vol. 90, 035419 (2014). http://dx.doi.org/10.1103/PhysRevB.90.035419

J25. **Z. Akšamija** and I. Knezevic, "*Thermal Conductivity of $Si_{1-x}Ge_x/Si_{1-y}Ge_y$ Superlattices: Competition Between Interfacial and Internal Scattering*", Physical Review B 88, 155315 (2013). http://dx.doi.org/10.1103/PhysRevB.88.155318

J24. J. Park, **Z. Akšamija**, and R. Blick, *"Phonon Assisted Field Emission in Silicon Nanomembranes for Time-of-flight Mass Spectroscopy of Proteins",* Nano Letters, vol. 13, 2698 (2013). http://dx.doi.org/10.1021/nl400873m

J23. M.-H. Bae, Z. Li, **Z. Akšamija**, P. Martin, F. Xiong, Z.-Y. Ong, I. Knezevic, and E. Pop, "*Ballistic to Diffusive Crossover of Heat Flow in Graphene Ribbons*", Nature Communications, vol. 4, 1734 (2013). http://dx.doi.org/10.1038/ncomms2755

J22. W. Peng, **Z. Akšamija**, S. A. Scott, J. J. Endres, D. E. Savage, I. Knezevic, M. A. Eriksson, and M. G. Lagally, *"Probing Semiconductor Surface Electronic Structure with Charge Transport in Nanomembranes"*, Nature Communications**,** vol. 4, 1339 (2013). http://dx.doi.org/10.1038/ncomms2350

J21. **Z. Akšamija** and I. Knezevic, "*Thermal Transport in Graphene Nanoribbons on SiO_2*", Physical Review B, vol. 86, 165426 (2012). http://dx.doi.org/10.1103/PhysRevB.86.165426

J20. Y. Shi, **Z. Akšamija**, and I. Knezevic, "*Self-Consistent Thermal Simulation of GaAs/$Al_{0.45}Ga_{0.55}As$ Quantum Cascade Lasers*", Journal of Computational Electronics, vol. 11, 144 (2012).

J19. C. Ni, **Z. Akšamija**, J. Y. Murthy, and U. Ravaioli, "*Coupled Electro-Thermal Simulation of MOSFETs*", Journal of Computational Electronics**,** vol. 11, 93 (2012).

J18. **Z. Akšamija** and I. Knezevic, "*Lattice Thermal Conductivity of Graphene Nanoribbons: Anisotropy and Edge Roughness Scattering*", Applied Physics Letters, vol. 98, 141919 (2011). http://dx.doi.org/10.1063/1.3569721

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J17. **Z. Akšamija** and I. Knezevic, "*Anisotropy and Edge Roughness Scattering in the Lattice Thermal Conductivity of Graphene Nanoribbons*", ECS Transactions, vol. 35, 195 (2011).

J16. **Z. Akšamija** and I. Knezevic, "*Thermoelectric Properties of Silicon-On-Insulator Nanostructures*", ECS Transactions, vol. 35 (5), 267 (2011).

J15. H. J. Ryu, **Z. Akšamija**, D. M. Paskiewicz, S. A. Scott, M. G. Lagally, I. Knezevic, and M. A. Eriksson, "*Quantitative Determination of Contributions to the Thermoelectric Power Factor in Si Nanostructures*", Physical Review Letters, vol. 105, 256601 (2010). http://dx.doi.org/10.1103/PhysRevLett.105.256601

J14. **Z. Akšamija** and I. Knezevic, "*Thermoelectric Properties of Silicon Nanostructures*", Journal of Computational Electronics, vol. 9, pp. 173-179 (2010). https://doi.org/10.1007/s10825-010-0339-2

J13. **Z. Akšamija** and I. Knezevic, "*Anisotropy and Boundary Scattering in the Lattice Thermal Conductivity of Ultrathin Silicon Nanomembranes*", Physical Review B, vol. 82, 045319 (2010). http://dx.doi.org/10.1103/PhysRevB.82.045319

- **Paper recognition**: *Virtual Journal of Nanoscale Science & Technology,* August 9, 2010.

J12. P. Martin, **Z. Akšamija**, E. Pop, and U. Ravaioli, "*Prediction of Reduced Thermal Conductivity in Nano-Engineered Rough Ge and GaAs Nanowires*," Nano Letters, vol. 10, 1120 (2010). http://dx.doi.org/10.1021/nl902720v

J11. **Z. Akšamija**, U. Ravaioli, "*Anharmonic Decay of g-process Longitudinal Optical Phonons in Silicon*", Applied Physics Letters, vol. 96, 091911 (2010). http://dx.doi.org/10.1063/1.3350894

J10. P. M. Martin, **Z. Akšamija**, and E. Pop, "*Impact of Phonon Surface Roughness Scattering on Thermal Conductivity of Thin Si Nanowires*", Physical Review Letters, vol. 102, 125503 (2009). http://dx.doi.org/10.1103/PhysRevLett.102.125503

- **Paper recognition**: **Editor's Suggestion** in Physical Review Letters

J9. **Z. Akšamija** and U. Ravaioli, "*Energy Conservation in Collisional Broadening Over a Sequence of Scattering Events in Semiclassical Monte Carlo Simulation*", Journal of Applied Physics, vol. 105, 083722 (2009). http://dx.doi.org/10.1063/1.3116544

J8. **Z. Akšamija**, U. Ravaioli, "*Anharmonic Decay of Non-Equilibrium Phonons in Silicon*", Journal of Physics: Conference Series, vol. 193, 012033 (2009).

J7. P. M. Martin, **Z. Akšamija**, E. Pop, U. Ravaioli, "*Prediction of Reduced Thermal Conductivity in Nano-Engineered Rough Semiconductor Nanowires*," Journal of Physics**:** Conference Series, vol. 193, 012010 (2009).

J6. M. Mohamed, **Z. Akšamija**, A. Godoy, P. Martin, H.-S. Hahm, W. Lee, K.-I. Lee, and U. Ravaioli, "*Size Effects and Performance Assessment in Nanoscale Multigate MOSFET Structures*", Journal of Computational and Theoretical Nanoscience, vol. 6, pp. 1927-1936 (2009).

J5. **Z. Akšamija** and U. Ravaioli, "*Efficient Numerical Solution for the 3-D Semiconductor Poisson Equation*", Computer Modeling in Engineering and Sciences, vol. 37, pp. 45-65 (2009).

J4. **Z. Akšamija** and U. Ravaioli, "*Boltzmann Transport Simulation of Single-Walled Carbon Nanotubes*", Journal of Computational Electronics, vol. 7, pp. 315-318 (2008).

J3. **Z. Akšamija** and U. Ravaioli, "*Emission and Absorption of Phonons in Silicon*", Physica Status Solidi (C), vol. 5, pp. 90-93 (2008).

J2. **Z. Akšamija** and U. Ravaioli, "*Joule Heating and Phonon Transport in Si MOSFETs*", Journal of Computational Electronics, vol. 5, pp. 431-434 (2006).

J1. **Z. Akšamija** and U. Ravaioli, "*Meshless Solution of the Semiconductor Poisson Equation*", Journal of Computational Electronics, vol. 5, pp. 459-462 (2006).

❑ Manuscripts in Preparation

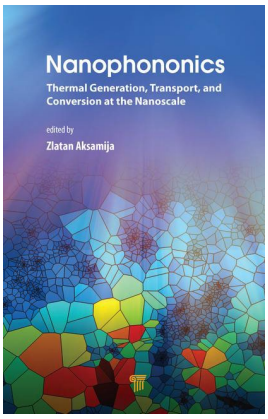
M5. M. Duhandzic and **Z. Akšamija**, "*Optical Absorption Spectra of Doped Conjugated Polymers,"* in preparation (2023)

M4. S. Makumi and **Z. Akšamija**, "*Two-dimensional materials enhance the thermal boundary conductance at interfaces of wide-bandgap Ga_2O_3,"* in preparation (2023)

M3. **Z. Akšamija**, "*Thermal rectification in graded Si-Ge superlattices,"* in preparation (2023)

M2. V. Dusetty and **Z. Akšamija**, "*Improved Thermoelectric Figure-of-Merit in Bulk and Thin-film Group IV Si-Sn Alloys*", in preparation (2023)

M1. A. Kommini and **Z. Akšamija**, "*Phonon-drag Contribution to Thermoelectric Power Factor in Two-dimensional Materials",* in preparation (2023)



❑ Books and Book Chapters

B2. **Z. Akšamija**, "*Nanophononics: Thermal Generation, Transport, and Conversion at the Nanoscale*," Pan Stanford Publishing (2017) publisher link

- I edited this book and authored 4 of the 8 chapters

B1. M. Upadhyaya and **Z. Akšamija**, "*Thermal Conductivity of Semiconductor Nanostructures and Alloys*" in Handbook of Materials Modeling, 2nd Ed., "Applications: Current and Emerging Materials (Volume II)", ed. Davide Donadio, Springer (2018) https://doi.org/10.1007/978-3-319-50257-1_16-1

❑ Invited Presentations and Seminars

I35. "*Joule heating and thermal transport in 2D materials for device applications,*" IEEE Nano Materials and Devices (NMDC), Salt Lake City, October 22-24, 2024

I34. "*Numerical Simulation of Charge Transport in Doped Conjugated Polymers for Organic Electronics*," Applied Mathematics and Simulation for Semiconductor Devices (AMaSIS), Berlin, Germany, Sept. 10-13, 2024

I33. "*Electronic Properties in Conjugated Polymers: Doping, Density of States, and Carrier Screening,"* Materials Research Society (MRS) Fall Meeting 2023, Boston, MA, Nov. 26-Dec.1, 2023

I32. "*Machine Learning Enables Robust Prediction of Heat Transfer at 2D-3D interfaces,"* Society of Engineering Science (SES) Annual Technical Meeting 2023, University of Minnesota, Oct. 8-11, 2023

I31. "*Electro-Thermal Transport in 2D Materials and Across Their Interfaces,"* ACS Rocky Mountain Regional Meeting, University of Wyoming, Laramie WY, Sept. 15-17, 2023

I30. "*Machine Learning for Thermal Management of Nanoelectronics*," University of Wisconsin Madison Computing in Engineering Forum (Sept. 21, 2022)

I29. CECAM Workshop on "*Quantum Transport: From Nanoscopic to Microscopic Modelling*," ETH Zurich, Switzerland (June 15-18, 2022, postponed from 2020 due to COVID-19 pandemic)

I28. "*Electro-Thermal Transport in Nanoscale and 2D Electronic Materials*," University of Utah MSE graduate seminar, virtual (May 2021).

I27. "*Thermoelectric Transport in Nanostructured Materials: the Wigner-Boltzmann Approach*," International Wigner Workshop, Seol, Korea (May 2021).

I26. "*Thermal transport in 2D materials from first principles: the role of interface and substrate*," 237th ECS Meeting, Montreal, Canada (May 10-15, 2020)

I25. "*Self-heating in Advanced CMOS-Compatible and 2-dimensional Semiconductor Devices,"* SOI Symposium, 237th ECS Meeting, Montreal, Canada (May 10-15,2020)

I24. "*Nanophononics: dissipation and thermoelectric energy conversion in nanoscale devices,*" DESY-PIER graduate student workshop, University of Hamburg, Germany (Sept. 24, 2019)

I23. "*Thermal Effects in Semiconductors and Nano-Devices,"* International Workshop on Computational Nanotechnology (IWCN), Evanston, IL (May 19-24, 2019)

I22. "*Electronic and Thermoelectric Transport in 2-Dimensional Materials and Heterostructures*", IEEE Nanotechnology Materials and Devices Conference (NMDC), Portland, OR (Oct. 14-17, 2018)

I21. "*Extrinsic and collective effects on thermal transport in 2D/3D alloys and nanostructures",* Special Session on Thermal Effects in the IEEE Nanotechnology Materials and Devices Conference (NMDC), Portland, OR (Oct. 14-17, 2018)

I20. *"Frequency-dependent Thermal Conductivity of Graphene in the Hydrodynamic Regime*", *with* A. K. Majee, IEEE Nano Conference, Pittsburgh, PA (July 25-28, 2017). Proceedings paper available at: https://doi.org/10.1109/NANO.2017.8117364

I19. "*Phonon Transport in 2-dimensional Materials and Alloys*", Tutorial/Workshop at the IEEE Nano Conference, Pittsburgh, PA (July 25th, 2017).

I18. "*Thermal Transport in 2-dimensional Materials*", Workshop at the International Institute for Physics, Federal University of Rio Grande do Norte, Natal, Brazil (November 7th, 2016).

I17. *"Numerical Simulation of Thermal Transport in Semiconductor Nanostructures",* High Performance Computing Day at University of Massachusetts Dartmouth (May 17th, 2016).

I16. "*Phonons, Phonons Everywhere: Thermal Transport in Semiconductor Nanostructures*", EE Graduate Seminar, University of Notre Dame, IN (Feb. 20th, 2015).

I15. "*Phonons, Phonons Everywhere: Thermal Transport in Semiconductor Nanostructures*", ECE Graduate Seminar, University of Connecticut (Sept. 27th, 2014).

I14. "*Phonons, Phonons Everywhere: Thermal Transport in Semiconductor Nanostructures*", ECE Graduate Seminar, University of Illinois at Urbana/Champaign (Sept. 11th, 2014).

I13. "*Anisotropic Phonon Transport in SiGe and Graphene Nanostructures*", S3TEC seminar, Massachusetts Institute of Technology (March 4th, 2014).

I12. "*Thermal Transport in Semiconductor Nanostructures*", Condensed Matter Physics Seminar, University of Massachusetts Amherst (Feb. 27th, 2014).

I11. "*Semiconductor Nanostructures for Efficient Thermo-electric Energy Conversion*", Electrical Engineering Seminar, University of Massachusetts Amherst (March. 27th, 2013).

I10. "*Semiconductor Nanostructures for Efficient Thermo-electric Energy Conversion*", Mechanical Engineering Seminar, Georgia Institute of Technology, Atlanta, GA (Feb. 5th, 2013).

I9. "*Phonon Transport in Silicon and Graphene Nanostructures*", 14th International Conference on Phonon Scattering in Condensed Matter, Ann Arbor, MI (July 8-12, 2012).

I8. "*Numerical Simulation of Thermal Transport in Nanostructured Semiconductor Devices*", Invited Workshop at the Phonon School, International Workshop on Computational Electronics, Madison, WI (May 22-25, 2012).

I7. *"Semiconductor Nanostructures for Efficient Thermo-electric Energy Conversion*", International Conference on Materials, Energy and Environment (IMCEE), Toledo, OH (May 9-11, 2012).

I6. "*Semiconductor Nanostructures for Efficient Thermo-electric Energy Conversion*", Mechanical Engineering Seminar, University of Pennsylvania (Feb. 6th, 2012).

I5. "*Thermoelectric Properties of Silicon-On-Insulator (SOI) Nanostructures*", International Symposium on SOI Technology (ECS-SOI), 219th Electro-Chemical Society Meeting (ECS-219), Montreal, Canada (May 1-6, 2011).

I4. "*Nanostructured Semiconductor Thermoelectrics*", Network for Computational Nanotechnology, University of Illinois at Urbana/Champaign (December 2, 2010).

I3. "*Thermoelectric Properties of Semiconductor Nanostructures*", ECE Departmental Seminar, University of Illinois at Chicago (November 5, 2010).

I2. "*Computational Design of Semiconductor Nanostructures for Optoelectronic, Electronic, and Thermoelectric Applications,*" IEEE NANO (www.ieeenano2010.org), Modeling and Simulation Section, Seoul, Korea (August 17-20, 2010).

I1. "*Detailed Analysis of Electro-thermal Effects in Nanoscale MOSFETs*", International Microwave Symposium (IMS'08), Atlanta, GA (June 15-20, 2008).

❑ Patents

- R. Blick, J. Rodriguez, H. Kim, Z. Akšamija, W. Hansen, C. Heyn, "*Mass Spectrometer Detector Using Optically Active Membranes*", **U.S. patent P140174US01**, filed July 30th, 2014
- Z. Akšamija and R. Blick, "*Folded Multi-layered 2-D van der Waals Materials as Efficient Thermoelectric Converters, and Methods Thereof*", **U.S. patent application UOMA-042US,** filed Oct. 14th, 2016, *Patent Pending*
- A. Akšamija and **Z. Akšamija**, Façade System for Thermally Conditioning Buildings, **U.S. Patent Application No.: 63/226,442**, Filed July 28, 2021, *Patent Pending*

❑ Grants

2023-2026	NSF Award 2302879, **DMR/CDS&E:** *"Coupled Electro-Thermal Transport in Two-Dimensional Materials and Heterostructures,"* (PI: Z. Akšamija), 3 years, $312,589
2022-2025	NSF Award 2101127, **DMR/EPM**, *"Methods to Mitigate Dopant-Induced Disorder in Organic Electronic Materials,"* (PI: D. Venkataraman), 3 years, $530,000 (my share: $230,000)
2019-2022	NSF Award 1902352, **DMR/CDS&E**: "*Simulation- and Data-driven Search for Cross-dimensional Materials Interfaces to Enhance Heat Transfer,*" (PI: Z. Akšamija), 3 years, $330,000
2015-2019	NSF Award 1542864, ***EFRI 2-DARE**: Thermal Transport in 2D Materials for Next-Generation Nanoelectronics: From Fundamentals to Devices*, 4-year $1,999,966.00 total. I am the sole UMass PI, (my share $358,018)
2017	UMass Instructional Innovation Fellow, $500
2016-2017	Lilly Teaching Fellowship, Center for Teaching and Faculty Development, $14,000
2016-	NVIDIA Academic Hardware Grant, 2x Tesla K40 GPGPU cards, $8,000
2015	Flex Grant for Faculty Development, Massachusetts Society of Professors, $500
2015-2016	**XSEDE Allocation** TG-DMR150122, *"First principles calculations of electronic and vibrational structure of TMDCs and their alloys"* (PI: Z. Akšamija), 50,000 SUs
2015-2016	NSF Award 1449418, **CI TraCS Research Starter Grant**, 1 year, $50,000 award to purchase a computational cluster (PI: Z. Akšamija), installed Jan. '16 at the MGHPCC
2011-2014	NSF Award 1122690, **Transformative Computational Science using Cyber Infrastructure (CI TraCS)**, *"Computational nanoscience for energy-efficient electronic and thermoelectric materials and devices,"* 3 years, $240,000 (PI: Z. Akšamija)
2009-2011	NSF Award 1019343, Computing Research Association Sub-Award CIF-A-146: **Computing Innovation Postdoctoral Fellowship** (CIFellows) "Nanostructured Semiconductor Thermoelectrics" 2-year, $247,500 (PI: Z. Akšamija)

❑ Refereed Conferences with Full Proceedings Papers (student advisees underlined)

C62. S. Makumi and **Z. Akšamija,** "*Tuning Thermal Boundary Conductance of 2D-Substrate Interfaces by Electrostatic Forces,"* IEEE Nano Materials and Devices (NMDC), Salt Lake City, UT, Oct. 22-25, 2024

C61. A. Belanger and **Z. Akšamija,** "*Neural Networks for Enhanced Temperature Resolution of Raman Thermometry,"* IEEE Nano Materials and Devices (NMDC), Salt Lake City, UT, Oct. 22-25, 2024

C60. M. Duhandzic, and **Z. Akšamija,** "*Electronic transport and optical spectra of organic electronic materials,*" IEEE Nano Materials and Devices (NMDC), Salt Lake City, UT, Oct. 22-25, 2024

C58. A. Akšamija, **Z. Akšamija**, C. Counihan, D. Brown, and M. Upadhyaya, "*Thermoelectric Facades: Simulation of Heating and Cooling Potential for Novel Intelligent Facades*," Façade Tectonics 2020 World Congress, Los Angeles, CA (March 25-26, 2020). https://facadetectonics.org/publications/

C57. A. Kommini and **Z. Akšamija**, "*Improving thermoelectric power factor in 2D single-layer MoS_2 using periodic potentials",* IEEE Nano Conference, Cork, Ireland (July 23-27, 2018), proceedings available through IEEEXplore: https://doi.org/10.1109/NANO.2018.8626285

C56. A. Akšamija, **Z. Akšamija**, C. Counihan, D. Brown, and M. Upadhyaya, "*Experimental Study on Integration of Thermoelectric Materials in Exterior Walls for Heating and Cooling in High-Performance Buildings*", 5th Building Enclosure Science and Technology (BEST5) Conference, Philadelphia, PA (April 15-18, 2018)

C55. A. Akšamija, **Z. Akšamija**, C. Counihan, D. Brown, and M. Upadhyaya, "*Thermoelectric Materials in Exterior Walls,"* Façade Tectonics 2018 World Congress, Los Angeles, CA (March 12-13, 2018). Full paper: https://facadetectonics.org/publications/ Vol. 1, pg. 171

C54. A. Kommini and **Z. Akšamija**, "*Thermoelectric Properties of Periodic Quantum Structures in the Wigner-Rode Formalism*", 20th International Conference on Electron Dynamics in Semiconductors, Optoelectronics and Nanostructures (EDISON'20), Buffalo, NY (July 16-21, 2017).

C53. (invited) S. Mei, C. J. Foss, L. N. Maurer, O. Jonasson, **Z. Akšamija** and I. Knezevic, "*Boundaries, interfaces, point defects, and strain as impediments to thermal transport in nanostructures*", IEEE International Reliability Physics Symposium (IRPS), Monterrey, CA (April 2-6, 2017). Full paper: http://ieeexplore.ieee.org/document/7936333/

C52. A. Kommini and **Z. Akšamija**, "*Low-temperature Enhancement of the Thermoelectric Seebeck Coefficient in Semiconductor Nanoribbons*", International Workshop on Computational Electronics (IWCE), Lafayette, IN (Sept. 2nd-Sept. 5th, 2015).

C51. S. Mei, **Z. Akšamija**, and I. Knezevic, "*Thermal Conductivity Tensor of $In_xGa_{1-x}As/In_xAl_{1-x}As$ Superlattices and Applications to Quantum Cascade Lasers*", International Workshop on Computational Electronics (IWCE), Lafayette, IN (Sept. 2nd-Sept. 5th, 2015).

C50. A. Kommini, G. P. Szakmany, A. O. Orlov, G. H. Bernstein, W. Porod, and **Z. Akšamija**, "*Size Dependence of the Seebeck Coefficient for Single-Metal Thermocouples*", International Workshop on Computational Electronics (IWCE), Lafayette, IN (Sept. 2nd-Sept. 5th, 2015).

C49. M. Mohamed, **Z. Akšamija**, and U. Ravaioli, "*Coupled Electron and Thermal Transport Simulation of Self-heating Effects in Junctionless MOSFETs*", 19th Conference on Electron Dynamics in Semiconductors, Optoelectronics and Nanostructures (EDISON19), Salamanca, Spain (July 2015).

C48. E. Bury, B. Kaczer, J. Mitard, N. Collaert, S. N. Khatami, **Z. Akšamija**, D. Vasileska, K. Raleva, L. Witters, G. Hellings, D. Linten, G. Groeseneken, and A. Thean, "*Characterization of Self-Heating in High Mobility Ge FinFET pMOS devices,*" VLSI Symposium (Technology Track), Kyoto, Japan (June 16-18, 2015).

C47. **Z. Akšamija**, "*Full-band Monte Carlo simulation of Phonon Transport in Semiconductor Nanostructures*", Computational Heat Transfer, Rutgers, NJ (May 25-29, 2015).

C46. M. Upadhyaya and **Z. Akšamija**, "*Phonon Transport in SiGe Alloy-based Nanocomopsites and Nanowires for Thermoelectric Applications*", 2014 Materials Research Society (MRS) Fall Meeting, Boston, MA (Dec. 6th, 2014). Full paper in MRS Proceedings: https://doi.org/10.1557/opl.2015.270

C45. **Z. Akšamija**, "*Full-band Monte Carlo simulation of Phonon Transport in Semiconductor Nanostructures*", IEEE Nano Conference, Toronto CA (August 18-22, 2014). Full proceedings available at ieeeXplore.com: http://dx.doi.org/10.1109/NANO.2014.6968118

- Paper Recognition: Best Paper Award finalist

C44. **Z. Akšamija**, "*Phonon Transport in Si-Ge-based Nanocomposites and Nanowires for Thermoelectric Applications*", International Thermoelectric Conference (ITC), Nashville, TN (July 6-10 2014).

C43. **Z. Akšamija**, "*Full-band Monte Carlo simulation of Phonon Transport in Semiconductor Nanostructures*", International Workshop on Computational Electronics (IWCE), Paris, France (June 2-8, 2014).

C42. M. Y. Mohamed, **Z. Akšamija**, F. Ishmail, and U. Ravaioli, "*Self-heating Effects in Nanowire Depletion Mode Junctionless Transistor*", International Workshop on Computational Electronics (IWCE), Paris, France (June 2-8, 2014).

C41. K.-h. Park, **Z. Akšamija**, and U. Ravaioli, "*Improved Accuracy on Empirical Lattice Thermal Conductivity Model of Bi_2Te_3*", International Workshop on Computational Electronics (IWCE), Paris, France (June 2-8, 2014).

C40. **Z. Akšamija** and I. Knezevic, "*Thermal Transport in SiGe Alloy-based Nanostructures for Thermoelectric Applications*", 2013 International Semiconductor Device Research Symposium (ISDRS'13), Bethesda, MA (Dec. 10-13, 2013).

C39. M. Y. Mohamed, **Z. Akšamija**, F. Ishmail, and U. Ravaioli, "*A Unified Multiphysics Approach to Understanding the Influence of Temperature Variation on the Performance of Junctionless Transistor with Narrow Cross-sections*", 2013 International Semiconductor Device Research Symposium (ISDRS'13), Bethesda, MA (Dec. 10-13 2013).

C38. K.-h. Park, **Z. Akšamija**, and U. Ravaioli, "*Phonon Scattering due to van der Waals Forces in the Lattice Thermal Conductivity of Bi_2Te_3 Thin Films,*" 2013 International Semiconductor Device Research Symposium (ISDRS'13), Bethesda, MA (Dec. 10-13 2013).

C37. **Z. Akšamija**, "*Semiconductor Nanostructures for Efficient Thermoelectric Energy Conversion*", American Vacuum Society (AVS) 59th International Symposium, Tampa, FL (Oct. 28-Nov. 2, 2012).

C36. **Z. Akšamija** and I. Knezevic, "*Thermal Transport in Suspended and Supported Graphene Nanoribbons*", 49th Annual Technical Meeting of the Society of Engineering Science, Atlanta, GA (Oct. 10-12, 2012).

C35. M. Mohamed, **Z. Akšamija**, W. Vitale, F. Hassan, and U. Ravaioli, "*Interplay Between the Electrical and Thermal Transport of Silicon Nanoscale MOSFETs*", International Conference on Simulation of Semiconductor Processes and Devices (SISPAD'12), Denver, CO (September 2012).

C34. **Z. Akšamija** and I. Knezevic, "*Thermal Transport in Suspended and Supported Graphene Nanoribbons*", International Conference on Simulation of Semiconductor Processes and Devices (SISPAD'12), Denver, CO (September 2012).

C33. Y. B. Shi, **Z. Akšamija**, and I. Knezevic, "*Thermal Simulation of GaAs-based Midinfrared Quantum Cascade Lasers*", NUSOD12 Conference, Shanghai, China (August 2012).

C32. **Z. Akšamija** and I. Knezevic, "*Reduced Thermal Conductivity in SiGe Alloy-based Superlattices for Thermoelectric Applications*", 14th International Conference on Phonon Scattering in Condensed Matter (PHONONS 2012), Ann Arbor, MI (July 2012).

C31. Y. B. Shi, **Z. Akšamija**, and I. Knezevic, "*Thermal Modeling of GaAs/$Al_{0.45}Ga_{0.55}$As Quantum Cascade Lasers*", 15th International Workshop on Computational Electronics (IWCE), Madison, WI (May 2012).

C30. J. Park, H. Shin, H. Kim, **Z. Akšamija**, and R. Blick, "*Phonon assisted field emission from Silicon nanomembrane for time-of-flight mass spectrometry*", American Society for Mass Spectrometry (ASMS) Meeting, Vancouver, BC (May 2012).

C29. **Z. Akšamija**, E. Ramayya, and I. Knezevic, "*Modeling of Thermal Conductivity and Thermoelectric Power Factor in Ultrathin SOI Nanomembranes and Silicon Nanowires*", International Semiconductor Research Symposium (ISDRS), University of Maryland, College Park, MD (Dec. 7-9, 2011)

C28. **Z. Akšamija**, E. B. Ramayya, and I. Knezevic, "*On-chip Energy Harvesting and Active Cooling Using Silicon-based Nanostructured Thermoelectrics*", 2011 Sub-threshold Microelectronics Conference, MIT Lincoln Lab, Lexington, MA (September 26-27, 2011).

C27. **Z. Akšamija** and I. Knezevic, "*Anisotropy of Lattice Thermal Conductivity in Edge-Disordered Graphene Nanoribbons*", IEEE Nano, Portland, WA (August 15-18, 2011).

C26. **Z. Akšamija** and I. Knezevic, "*Interface Scattering in the Lattice Thermal Conductivity of Si/SiGe Superlattices*", IEEE Nano, Portland, WA (August 15-18, 2011).

C25. M. Mohamed, W. Vitale, **Z. Akšamija**, F. Ismail, and U. Ravaioli, "*Coupled Electro-thermal Modeling of Self-Heating in SOI Nanowire*", 17th International Conference on Electron Dynamics in Semiconductors, Optoelectronics and Nanostructures (EDISON-17), Santa Barbara, CA (Aug. 2011).

C24. **Z. Akšamija**, E. B. Ramayya, and I. Knezevic, "*Thermal and thermoelectric properties of SOI nanomembranes, Si nanowires, and Si/Ge superlattices*", 17th International Conference on Electron Dynamics in Semiconductors, Optoelectronics and Nanostructures (EDISON-17), Santa Barbara, CA (August 8-12, 2011).

C23. **Z. Akšamija** and I. Knezevic, "*Anisotropy and Edge Roughness Scattering in the Lattice Thermal Conductivity of Graphene Nanoribbons*", Electro-Chemical Society Meeting (ECS-219), Montreal, Canada (May 1-6, 2011).

C22. **Z. Akšamija** and I. Knezevic, "*Anisotropy and Edge Roughness Scattering in the Lattice Thermal Conductivity of Graphene Nanoribbons*", 38th Conference on the Physics and Chemistry of Surfaces and Interfaces (PCSI-38), San Diego (January 16-20, 2011).

C21. **Z. Akšamija** and I. Knezevic, "*Interface Scattering in the Lattice Thermal Conductivity of Si/SiGe Superlattices*", 38th Conference on the Physics and Chemistry of Surfaces and Interfaces (PCSI-38), San Diego (January 16-20, 2011).

C20. **Z. Akšamija**, I. Knezevic, "*Phonon Transport and Thermoelectric Properties of Silicon Nanomembranes and Nanoribbons*", International Workshop on Computational Electronics (IWCE-14), Pisa, Italy (October 27-29, 2010).

C19. D. Vasileska, K. Raleva, A. Hossain, S. M. Goodnick, **Z. Akšamija**, and I. Knezevic, "*Thermal Modeling of Nanodevices*", International Workshop on Computational Electronics (IWCE-14), Pisa, Italy (October 27-29, 2010).

C18. **Z. Akšamija** and I. Knezevic, "*Thermoelectric Properties of Silicon Nanostructures*", IEEE NANO, Modeling and Simulation Section, Soul, S. Korea (August 17-20, 2010).

C17. **Z. Akšamija** and I. Knezevic, "*Thermoelectric Properties of Silicon Nanostructures*", Silicon Nanoelectronics Workshop (SiNW'10) Honolulu, HI (June 2010).

C16. M. Mohamed, H.-S. Hahm, A. Godoy, **Z. Akšamija**, and U. Ravaioli, "*3D Multi Subband Monte Carlo Analysis of SOI Multigate Devices*", Silicon Nanoelectronics Workshop (SiNW'10), Honolulu, HI (June 2010).

C15. M. Mohamed, **Z. Akšamija**, and U. Ravaioli, "*Electro-thermal Study of Nanoscale SOI Multi-gate MOSFETs*", Silicon Nanoelectronics Workshop (SiNW'10), Honolulu, HI (June 2010).

C14. **Z. Akšamija** and I. Knezevic, "*Anisotropy and Boundary Scattering in the Lattice Thermal Conductivity of Silicon-on-Insulator Nanomembranes*", 37th Conference on the Physics and Chemistry of Surfaces and Interfaces (PCSI-37), Santa Fe, NM (January 2010).

C13. **Z. Akšamija**, H.-J. Ryu, D. M. Paskiewicz, S. A. Scott, M. G. Lagally, M. A. Eriksson, and I. Knezevic, "*Hole Thermopower in Gated Silicon Nanoribbons*", 37th Conference on the Physics and Chemistry of Surfaces and Interfaces (PCSI-37), Santa Fe (January 2010).

C12. **Z. Akšamija**, U. Ravaioli, "*Anharmonic Decay of Non-Equilibrium Intervalley Phonons in Silicon*," 16th International Conference on Electron Dynamics in Semiconductors, Optoelectronics and Nanostructures (EDISON16), Montpellier, France (August 2009).

C11. P. Martin, **Z. Akšamija**, E. Pop, U. Ravaioli, "*Prediction of Reduced Thermal Conductivity in Nano-Engineered Rough Semiconductor Nanowires*," 16th International Conference on Electron Dynamics in Semiconductors, Optoelectronics and Nanostructures (EDISON16), Montpellier, France (Aug. 2009).

C10. C. Ni, **Z. Akšamija**, J. Y. Murthy, and U. Ravaioli, "*Coupled Electro-Thermal Simulation of MOSFETs*", Proceedings of the IPACK2009, presented at the ASME InterPACK, San Francisco, CA (July 2009), proceedings available on ASME Digital Library: www.asme.org

C9. **Z. Akšamija**, and U. Ravaioli, "*Parallel Implementation of Boltzmann Transport Simulation of Single-Walled Carbon Nanotubes*", International Workshop on Computational Electronics (IWCE) Beijing, China (May 2009), proceedings available on IEEEXplore.com.

C8. **Z. Akšamija**, and U. Ravaioli, "*Phonon Emission Spectra in Silicon*", International Semiconductor Device Research Symposium (ISDRS), Washington D.C. (Dec. 2007), www.IEEEXplore.com

C7. **Z. Akšamija**, and U. Ravaioli, "*Boltzmann Transport Simulation of Single-Walled Carbon Nanotubes (SWNT)*", International Workshop on Computational Electronics (IWCE) Amherst, MA (October 2007), proceedings available on www.iwce.org

C6. **Z. Akšamija**, and U. Ravaioli, "*Phonon Emission and Absorption in Silicon*", International Workshop on Computational Electronics (IWCE) Amherst, MA (October 2007), proceedings available on www.iwce.org

C5. **Z. Akšamija**, and U. Ravaioli, "*Energy Conservation in Collisional Broadening*", Simulation of Semiconductor Processes And Devices (SISPAD), Vienna, Austria (September 2007), proceedings available on www.sispad.org

C4. **Z. Akšamija**, and U. Ravaioli, "*Phonon Emission and Absorption in Silicon*", Hot Carriers in Semiconductors (HCIS'07), Osaka, Japan (July 2007).

C3. **Z. Akšamija**, and U. Ravaioli, "*Self-Heating and Phonon Emission in Si MOSFETs*", Electro-Information Technology (EIT-07), Chicago, IL (May 2007), proceedings available on IEEEXplore.com.
- Paper recognition: Outstanding Paper and IEEE Region 4 First Place Award

C2. **Z. Akšamija**, and U. Ravaioli, "*Joule Heating and Phonon Transport in Si MOSFETs*", International Workshop on Computational Electronics (IWCE) Vienna, Austria (May 2006), proceedings available on www.iwce.org.

C1. **Z. Akšamija**, and U. Ravaioli, "*Meshless Solution for the 3-D Semiconductor Poisson Equation*", International Workshop on Computational Electronics (IWCE), Vienna, Austria (May 2006), proceedings available on www.iwce.org.

❑ Refereed Conference and Workshop Presentations (refereed abstract only)

P68. S. Makumi and **Z. Akšamija,** "*Impact of Substrate Roughness on the Thermal Boundary Conductance in 2D Materials,"* American Physical Society (APS) March Meeting, Minneapolis, MN (March 3-9, 2024)

P67. A. Belanger and **Z. Akšamija,** "*Investigation of Phonon Hydrodynamics in Graphene via Monte Carlo Simulations,"* American Physical Society (APS) March Meeting, Minneapolis, MN (March 3-9, 2024)

P66. A. Tolton and **Z. Akšamija,** "*Impact of Doping on Absorbance Tails and Power Conversion Efficiency of Photovoltaics,"* American Physical Society (APS) March Meeting, Minneapolis, MN (March 3-9, 2024)

P65. M. Duhandzic, M. Lu-Díaz, S. Samanta, D. Venkataraman, and **Z. Akšamija,** "*Connecting optical absorption to doping in conjugated polymers,"* American Physical Society (APS) March Meeting, Minneapolis, MN (March 3-9, 2024)

P64. S. Makumi and **Z. Akšamija,** "*2D materials Enhance Thermal Boundary Conductance at vdW Interfaces of β-Ga2O3,"* American Physical Society (APS) March Meeting, Minneapolis, MN (March 3-9, 2024)

P63. Michael Lu-Díaz, Muhamed Duhandzic, Subhayan Samanta, Simon Harrity, **Z. Akšamija**, Dhandapani Venkataraman, "*Role of Polymer-Dopant Distance on Charge Transport in Amorphous and Crystalline Domains in Doped Conjugated Polymers*," Materials Research Society (MRS) Fall Meeting, Boston, MA (Nov. 2023).

P62. A. Tolton and and **Z. Akšamija**, "*The Effects of Doping on Organic Thermoelectrics: Analyzing the Dopant-Induced Disorder*," Materials Research Society (MRS) Fall Meeting, Boston, MA (Nov. 2023).

P61. S. Klein and **Z. Akšamija**, "*Electrothermal Properties of 2D Materials*," International Workshop on Computational Nanotechnology (IWCN), Barcelona, Spain (June 2023).

P60. M. Duhandzic, M. Lu-Díaz, S. Sumanta, D. Venkataraman, and **Z. Akšamija**, "*Carrier Screening of Dopant Coulomb Interactions in Organic Electronics*," American Physical Society (APS) March Meeting, Las Vegas, NV (March 2023).

P59. Michael Lu-Díaz, M. Duhandzic, **Z. Akšamija**, D. Venkataraman, "*Correlating Charge Transport with Intrinsic Energetic Disorder, Paracrystallinity and Carrier-Dopant Distance in Doped Conjugated Polymers*", Materials Research Society Fall Meeting, Boston, MA (Dec. 2022)

P58. C. J. Foss and **Z. Akšamija**,"*Electro-thermal properties of 2D materials and devices*," IEEE Nano Materials and Devices Conference (NMDC), Nanjing, China (Nov. 2022)

P57. C. J. Foss, A. K. Majee, and **Z. Akšamija**, "*Coupled Electro-thermal Simulation of 2D FETs,*" International Conference on Simulation of Semiconductor Processes and Devices (SISPAD'12), Dallas, TX (September 2021).

P56. C. J. Foss and **Z. Akšamija**, "*Thermal boundary conductance of buckled group IV, V, and III-V two-dimensional materials*," American Physical Society (APS) March Meeting 2021, virtual

P55. A. Qureshi and **Z. Akšamija**, "*A hybrid model for thermal transport in Si nanostructures from first principles*," American Physical Society (APS) March Meeting 2021, virtual

P54. M. Upadhyaya, C. Boyle, M. Lu-Diaz, D. Venkataraman, and **Z. Akšamija**, "*Coulombic Interactions and Charge Transport Dynamics in Organic Thermoelectrics*," Materials Research Society (MRS) Fall 2020 virtual meeting.

P53. C. J. Foss, and **Z. Akšamija**, "*Thermal Boundary Conductance of Buckled Group IV, V, and III-V Two-Dimensional Materials,"* Materials Research Society (MRS) Fall 2020 virtual meeting.

P52. A. K. Majee, C. J. Foss, and **Z. Akšamija**, "*Electron-Phonon Coupling Enhances Thermal Boundary Conductance of 2D-3D Interfaces,"* Materials Research Society (MRS) Fall 2020 virtual meeting.

P51. M. Upadhyaya, C. Boyle, M. Lu-Diaz, D. Venkataraman, and **Z. Akšamija**, "*Effect of Coulombic Interactions and Dopant Distribution on Charge Transport Dynamics in Polymer Thermoelectrics*," Virtual Conference on Thermoelectrics (July 21-23, 2020)

P50. C. J. Foss and **Z. Akšamija**, "Thermal boundary conductance of beyond graphene two dimensional materials," American Physical Society (APS) March Meeting, Denver, CO (March 2-6, 2020).

P49. M. Upadhyaya, C. Boyle, M. Lu-Diaz, D. Venkataraman, and **Z. Akšamija**, "*Effect of Doping Distribution on Charge Transport Dynamics in Polymer Thermoelectrics*," Materials Research Society (MRS) Fall Meeting, Boston, MA (Dec. 1-6, 2019).

P48. M. Lu-Díaz, C. Boyle, M. Upadhyaya, **Z. Akšamija**, D. Venkataraman, "*Effect of Dopant Clustering on Thermoelectric Properties of Polymer Films*," Materials Research Society (MRS) Fall Meeting, Boston, MA (Dec. 1-6, 2019).

P47. A. K. Majee and **Z. Akšamija**, "*Joule Heating and Its Impact on Thermal Management in Few-Layer WSe_2*," Materials Research Society (MRS) Fall Meeting, Boston, MA (Dec. 1-6, 2019).

P46. A. Kommini and **Z. Akšamija**, "*Wigner-Boltzmann Transport Simulation for Improving the Thermoelectric Power Factor in 2D Materials,*" 3rd International Wigner Workshop, Evanston, IL (May 19-20, 2019).

P45. C. J. Foss and **Z. Akšamija**, "Quantifying thermal boundary conductance of 2D-3D interfaces," American Physical Society (APS) March Meeting, Boston, MA (March 4-8, 2019).

P44. A. Kommini and **Z. Akšamija**, "*Materials selection rules for optimum power factor in 2-dimensional thermoelectrics*," American Physical Society (APS) March Meeting, Boston, MA (March 4-8, 2019).

P43. M. Upadhyaya and **Z. Akšamija**, "Effect of Disorder on the Thermoelectric Properties of Semiconducting Polymers," Materials Research Society (MRS) Fall Meeting, Boston, MA (Nov. 30-Dec. 4, 2018)

P42. A. Kommini and **Z. Akšamija**, "*Improving the Thermoelectric Power Factor in 2D Materials Using Periodic Potential Barriers,*" Materials Research Society (MRS) Fall Meeting, Boston, MA (Nov. 30-Dec. 4, 2018)

P41. M. Upadhyaya and **Z. Akšamija**, "*Thermoelectric Properties of Disordered Organic Polymers*," International Conference on Thermoelectrics (ICT), Caen, France (July 2-7, 2018).

P40. V. Dusetty and **Z. Akšamija**, "*Improved Thermoelectric Figure-of-Merit in Bulk and Nanostructured Si-Sn Alloys,*" 60th Electronic Materials Conference (EMC-60), University of California, Santa Barbara (Jun. 27-29, 2018).

P39. C. J. Foss and **Z. Akšamija**, "*Quantifying the thermal boundary conductance of 2D-substrate interfaces*", 76th Device Research Conference (DRC), University of California, Santa Barbara (Jun. 24-27, 2018).

P38. A. K. Majee, C. J. Foss, A. Kommini, and **Z. Akšamija** "*Thermal and Electronic Transport Dynamics at 2D Interfaces*", Gordon Research Conference: Two Dimensional Electronics Beyond Graphene, Stonehill College, Easton, MA (Jun. 3-8, 2018)

P37. M. Upadhyaya and **Z. Akšamija**, "*Effects of Disorder on Thermoelectric Properties of Semiconducting Polymers"*, High Performance Computing (HPC) Day, University of Massachusetts Dartmouth (May 18th, 2018)

P36. C. J. Foss and **Z. Akšamija**, *"Effects of Alloying on In-Plane and Cross-Plane Phonon Transport in Transition Metal Dichalcogenide Monolayers*", Materials Research Society (MRS) Fall Meeting, Boston MA (Nov. 27-Dec. 1, 2017).

P35. A. Kommini and **Z. Akšamija**, "*Improving the Thermoelectric Power Factor of Semiconductor Quantum Structures*", International Conference on Thermoelectrics (ICT), Pasadena, CA (July 31-Aug. 3, 2017).

P34. A. Kommini and **Z. Akšamija**, "*Towards a Higher Power Factor in 2D Materials: Role of Inelastic Scattering Mechanisms*", International Conference on Thermoelectrics (ICT), Pasadena, CA (July 31-August 3, 2017).

P33. A. Kommini and **Z. Akšamija**, *"Thermoelectric Properties of Periodic Quantum Structures in the Wigner-Rode Formalism",* High Performance Computing Day at University of Massachusetts Darthmouth (May 15th, 2017)

P32. A. K. Majee and **Z. Akšamija**, "*Dynamical Thermal Conductivity in Single-Crystalline Graphene Ribbons*", Materials Research Society (MRS) Meeting, Phoenix, AZ (April 17-21, 2017).

- Recognition: *"*Best Poster" Award Finalist

P31. M. Upadhyaya and **Z. Akšamija**, "*Phonon Transport Dynamics in Si-Ge Nanowires and Nanocomposites*", Materials Research Society (MRS) Meeting, Phoenix, AZ (April 17-21, 2017).

P30. M. Upadhyaya and **Z. Akšamija**, "*Super-Diffusive Phonons: A Monte Carlo Study of the Levy Walk Phonon Transport Dynamics in SiGe Alloy Nanowires*", Electronic Materials Conference, University of Delaware (June 22-24th, 2016)

P29. **Z. Akšamija** and A. K. Majee, "*Impact of Mismatch Angle on Electronic and Thermal Transport Across Grain Boundaries and Interfaces in 2-dimensional Materials*", Gordon Research Conference: Two Dimensional Electronics Beyond Graphene, Mount Holyoke College, South Hadley, MA (June 5-June 10th, 2016)

P28. C. J. Foss and **Z. Akšamija**, "*Calculation of lattice vibrations in 2D materials using HPC Accelerated Quantum-Espresso"*, High Performance Computing Day, University of Massachusetts Dartmouth (May 17th, 2016)

P27. G. C. Correa and **Z. Akšamija**, "*Flexural Phonon Contribution to Thermal Transport in Graphene Supported on Silicon Dioxide*", Materials Research Society (MRS) Fall Meeting, Boston, MA (Nov. 30-Dec. 4, 2015)

P26. P. Yasaei, A. Fathizadeh*, A. Majee*, D. Estrada, C. Foster, **Z. Akšamija**, F. Khalili, A. Salehi, "*Thermal Transport Across Individual Graphene Grain Boundaries*", Materials Research Society (MRS) Fall Meeting, Boston, MA (Nov. 30-Dec. 4, 2015)

P25. A. Kommini and **Z. Akšamija**, "*Low-temperature Enhancement of the Thermoelectric Seebeck Coefficient in Semiconductor Nanoribbons*", International Conference on Thermoelectrics (ICT-15), Dresden Germany (June 28-July 2nd, 2015)

P24. A. K. Majee and **Z. Akšamija**, "*Size Divergence of Thermal Conductivity in Graphene*", 2015 Materials Research Society (MRS) Spring Meeting, San Francisco, CA (Apr. 7-10, 2015)

P23. D. P. Schroeder, **Z. Akšamija**, A. Rath, P. M. Voyles, M. G. Lagally, and M. A. Eriksson, "*Thermal Resistance of Mechanically Transferred Single-Crystal Silicon Nanomembrane Interfaces*", 2014 Materials Research Society (MRS) Fall Meeting, Boston, MA (Dec. 6th, 2014).

P22. **Z. Akšamija**, "*Phonon Thermal Transport in SiGe-based Nanocomposites for Thermoelectric Applications*", American Physical Society March Meeting, Denver, CO (March 7th, 2014).

P21. D. P. Schroeder, **Z. Akšamija**, M. G. Lagally, and M. A. Eriksson, "Measurements of the Interfacial Thermal Resistance Between Silicon Crystals with and without Intervening Molecular Films", 2013 Materials Research Society (MRS) Fall Meeting, Boston, MA (December 2-6, 2013).

P20. L. Maurer, **Z. Akšamija**, E. Ramayya, A. Davoody, and I. Knezevic, "*Phonon Surface Scattering in Monte Carlo Simulations*" 2013 American Physical Society (APS) March Meeting, Baltimore, MD (2013).

P19. **Z. Akšamija** and I. Knezevic, "*Reduced Thermal Conductivity in SiGe Alloy-based Superlattices for Thermoelectric Applications*", 2012 Materials Research Society (MRS) Fall Meeting, Boston, MA (November 2012).

P18. D. P. Schroeder, **Z. Akšamija**, M. G. Lagally, and M. A. Eriksson, "*Thermal Resistance of Transferred Si-nanomembrane Interfaces*", 2012 Materials Research Society (MRS) Meeting, Boston, MA (Nov. 2012).

P17. **Z. Akšamija** and I. Knezevic, "*Simulation of Thermal Transport in Semiconductor Nanostructures on Heterogeneous Systems*", XSEDE12 Conference, Chicago, IL (July 2012).

P16. **Z. Akšamija** and I. Knezevic, "*Thermal Conductivity in SiGe Alloy-based Superlattices for Thermoelectric Applications*", 6th International Silicon-Germanium Technology and Device Meeting (ISTDM 2012), Berkeley, CA (June 2012).

P15. **Z. Akšamija** and I. Knezevic, "*Thermal transport in graphene-based nanostructures*", American Physical Society (APS) Meeting, Boston, MA (March 2012).

P14. **Z. Akšamija** and I. Knezevic, "*Thermal Transport in Suspended and Supported Graphene Nanoribbons*", Poster Session at the Expanding Cross-Disciplinary Dialogue in the Postdoctoral Community NSF Workshop, Washington, DC (April 2012).

P13. D. P. Schroeder, A. M. Kiefer, D. M. Paskiewicz, **Z. Akšamija**, I. Knezevic, M. G. Lagally, and M. A. Eriksson, "*Phonon Transport across Si Nanomembrane Interfaces: Structure and Thermal Conductivity*", MRS Fall Meeting, Boston, MA (Nov. 28-Dec. 2, 2011)

P12. **Z. Akšamija** and I. Knezevic, "*Interface Scattering in the Lattice Thermal Conductivity of Si/SiGe Superlattices*", American Physical Society (APS) Meeting, Dallas, TX (March 2011).

P11. **Z. Akšamija** and I. Knezevic, "*Anisotropy and Edge Roughness Scattering in the Lattice Thermal Conductivity of Graphene Nanoribbons*", American Physical Society (APS) Meeting, Dallas, TX (March 2011).

P10. **Z. Akšamija** and I. Knezevic, "*Modeling Thermal Conductivity of SOI Nanomembranes*", International Conference on Computational & Experimental Engineering and Sciences (ICCES'10), Las Vegas, NV (March 2010).

P9. **Z. Akšamija** and I. Knezevic, "*Anisotropy and Boundary Scattering in the Lattice Thermal Conductivity of Silicon-on-Insulator Nanomembranes*", American Physical Society (APS) Meeting, Portland, OR (March 2010).

P8. D. Vasileska, K. Raleva, A. Hossain, S. M. Goodnick, **Z. Akšamija** and I. Knezevic, "*Thermal Modeling of Nanodevices*", Workshop on Emerging Device and Packaging Technologies, Arizona State University, Tempe, AZ (November 2010).

P7. **Z. Akšamija** and U. Ravaioli, "*Parallel Simulation of Single-Walled Carbon Nanotubes*", Scientific Discovery through Advanced Computing (SciDAC), San Diego, CA (June 2009).

P6. **Z. Akšamija** and U. Ravaioli, "*Parallel Simulation of Single-Walled Carbon Nanotubes*", DOE CSGF Fellows Conference, Washington, DC (June 2008).

P5. **Z. Akšamija** and B. Philip, "*Wavelets in Multigrid Algorithms*", Graduate Student Research Symposium, Los Alamos National Lab, Los Alamos, NM (July 2007).

P4. **Z. Akšamija** and U. Ravaioli, "*Electron-phonon interaction in semiconductor materials and devices*", Understanding Complex Systems Conference, Urbana, IL (May 2007).

P3. **Z. Akšamija** and U. Ravaioli, "*Joule Heating and Phonon Transport in Silicon*", Graduate Research Symposium, Beckman Institute, Urbana, IL (October 2006).

P2. **Z. Akšamija** and U. Ravaioli, "*Meshless Methods for Nanoscale Semiconductor Modeling*", CNST Nanotechnology Workshop, University of Illinois, Urbana, IL (May 2006).

P1. **Z. Akšamija** and F. Kamalabadi, "*A Multi-Channel De-noising Approach to Tomographic reconstruction*", Undergraduate Research Symposium, University of Illinois, (May 2003).

❑ Advising (4 PhDs graduated, 3 in progress, 8 MS) and Mentoring (10 undergraduate)

- Ph.D. Dissertation Advisor and Doctoral Committee Chair for:
    1. Muhamed Duhandzic (*entered Spring 2022, RQE Fall 2023, proposal scheduled Fall 2024)*
    2. Sylvester W. Makumi (*entered Fall 2022, RQE Fall 2023*)
    3. Aidan Belanger (*entered Fall 2024, RQE scheduled Fall 2024*)
    4. Cameron Foss (*entered Summer '18, RQE Spring '21, Defended Spring 2022*)
        - 2019 David H. Navon Scholarship
        - First employment: senior engineer at Marvel Semiconductors, Burlington VT
    5. Meenakshi Upadhyaya (*entered Fall '14, RQE Summer '17, Proposal May '19, Defended Feb.'21*)
        - First employment: senior engineer at Marvel Semiconductors, Burlington VT
        - 2015 David H. Navon Scholarship, 2019 Outstanding TA

6. Adithya Kommini (*entered Spring '17, RQE May '18, Proposal May '19, Defended Mar.'21*)
    - First employment: SFL Scientific, Boston MA
    - 2017 Outstanding TA award
7. Arnab K. Majee (*entered Fall '16, RQE Fall '18, proposal June'20, Defended Dec.'20*)
    - First employment: postdoctoral researcher at Sandia Natl' Lab
    - 2017 David H. Navon Scholarship

- M.S. Thesis Advisor and Committee Chair for:
    1. Aidan Belanger (MS in MSE from Fall 2022 to Spring 2024)
    2. Samantha Klein (*MSEE defended Fall 2022, now at General Dynamics Electric Boat*)
    3. Aliya Qureshi (*MSEE defended Spring 2020, now at GlobalFoundries*)
    4. Venkatakrishna Dusetty (*MSEE defended Spring 2020, now at Intel*)
    5. Cameron Foss (*MSEE completed April 2018, followed by PhD with me*)
    6. Adithya Kommini (*MSEE completed Fall 2016, followed by PhD with me*)
    7. Nazanin Khatami (*MSEE completed Summer 2016, followed by PhD w/ E. Baker at UMass MIE*)
    8. Arnab Majee (*MSEE completed Summer 2016, followed by PhD with me*)
- Undergraduate Research or Honors Thesis Advisor for
    1. Jude Horsley (U. Utah Physics REU, Summer 2023)
    2. Andrew Tolton (UG research 2022-present, Wilkes Center for Climate Science & Policty Fellow)
        - **Outstanding Undergrad Research Award, University of Utah**
    3. Jaidan Malloy (U. Utah, UG research, summer 2023)
    4. Aidan Belanger (UMass Amherst, Senior Honors Thesis AY 2022)
    5. Cameron Foss (*BlueWaters Intern Summer'14 through Spring'15, currently PhD with me*)
    6. Gabriella Correa (*Honors Thesis AY14-15, NSF REU Fall'15, iREU Summer'16, followed by PhD student and DOE Computational Science Fellow in MSE at Cornell University*)
    7. Haoxian Lin (*NSF REU summer'17, now PhD student at Boston University*)
    8. Matthew Bolognese (*Honors Thesis Fall'17-Spring'18, now employed at Lincoln Labs*)
    9. Lakshay Gautam (*Physics junior at UIUC, BlueWaters Intern Summer'18—Spring '19*)
    10. Peter Pawelski (XSEDE EMPOWER intern Summer'19-Spring'20, Senior Honors Thesis AY 2021)
- Doctoral Committee Member for (total 19): Ellis Hunter (*U. Utah ECE*), Andrew Hunter (*U. Utah MSE*), Imteaz Rahaman (*U. Utah ECE*), Zrinko Jurić (*U. Utah Chemistry*), Seth Jackson (*U. Utah, Chemistry*), James Kestyn (*UMass ECE*), Brendan Gavin (*UMass ECE*), Jiajun Shi (*UMass ECE*), Emily Smith (*UMass Chemistry*), Linden Allison (*UMass Chemistry*), Poya Yasaei (*Mech. E. at U. Illinois at Chicago*), Sadid Muneer (*ECE at U. Connecticut*), Kihoon Park (*ECE at U. Illinois Urbana/Champaign*), Zahra Hemmat (*ECE at U. Illinois Chicago*), Michael Lu-Diaz *(UMass Chemistry),* Sylvester Makumi *(Physics, Kenyatta University, Kenya),* Subhayan Sumanta *(UMass Chemistry),* Braegan Spring (*ECE at UMass Amherst*), Stefanie Haugg (*University of Hamburg*),
- M.S. Thesis Committee Member for (total 7): Luke Doherty (*U. Utah MSE*), Nathan Rock (*U. Utah MSE), at UMass Amherst:* Braegan Spring, Mark Buckler, Sachin Bhat, Sourabh Kulkarni, Zongya Chen
- Research Qualifying Exam (RQE) committee member/chair (total 10): Seth Jackson (*Utah Chemistry*), *UMass Amherst*: Hongtao Wang, James Kestin, Sudarshan Srinivasan, Shikang Xu, Jiajun Shi, Mingyu Li, Keqiang Wu, Sachin Bhat, Xiang Li

❑ Teaching and Educational Outreach

- MSE3210: "*Electronic Properties of Solids,"* required for juniors in MSE
    - Course survey average 5.79 out of 6 (Fa'23)
- MSE2160: "*Fundamentals of Materials Science and Engineering,*" required for sophomores in MSE/MechE
    - Course Survey average 4.7 (out of 5, Sp'22), 4.6 (out of 5, Sp'23), 5.55 out of 6 (Sp'24)
- ECE244: "*Modern Physics and Materials for Electrical Engineers,"* required for sophomores in EE
    - SRTI score on Overall Rating: 4.3 (Sp'19), 4.5 (Sp'20), 4.7 (Sp'21)
- ECE609: "*Semiconductor Materials and Devices*", graduate core PhD course
    - SRTI score on Overall Rating: 4.9 (Sp'16), 4.8 (Sp'17), 4.9 (Sp'18), 4.6 (Sp'19)
- ECE344: "*Semiconductor Materials and Devices*", required for juniors in EE
    - SRTI score on Overall Rating: 3.9 (Fa'15), 4.1 (Fa'16), 4.7 (Fa'17), 5.0 (Fa'18)
- ECE614: "*Computational Electronics*", (Spring 2015)

- ECE618: "*Fundamentals of Solid-State Electronics*", (Spring 2014)
- ECE597/697EN: "*NanoEnergy*", (Fall 2013 and 2014)
    - new special topics course on Energy Transport and Conversion at the Nanoscale
- Summer Engineering Institute (SENGI) workshop on thermoelectric energy for ~60 high school students, every July, 2017-2019
- **Z. Akšamija** and U. Ravaioli, "*Boltzmann Transport Simulator for CNTs,*" NCN supported NanoHUB.org interactive on-line simulation tool >15,000 simulations, >1000 users, http://www.nanohub.org/resources/4073
- **Z. Akšamija**, "*Parallel Numerical Simulation of Transport in Carbon Nanotubes*", BlueWaters/Shodor Undergraduate Petascale Education Modules (UPEP), http://www.shodor.org/petascale/materials/UPModules/boltzmannTransport/

❑ External Service

- **Conference Chair**, International Workshop on Computational Electronics (IWCE), Salt Lake City, UT (May 2025)
- **Fundraising committee chair**, IEEE Nanotechnology Materials and Devices Conference (NMDC), Salt Lake City, UT, 2023-2024
- Chair of the *Technical and Natural Sciences* section of the Bosnian Herzegovinian American Academy of Arts and Sciences (BHAAAS)
- Technical Program Committee, **IEEE Nano** conference, Korea 2023
- Associate Editor, **Frontiers in Nanotechnology**, computational section
- Technical Program Committee, **International Workshop on Computational Nanotechnology**, Seol, Korea (May 2021)
- Chair of jury, MS student 3MT competition, **BH Foundation** (2021)
- **Associate Editor & Technical Program Committee**, IEEE Nano, Macau, China (July 22-26, 2019)
- Advisory Board, Journal of Physics: Condensed Matter
- Screening Committee for the **DOE Computational Science Graduate Fellowship** (2013-present)
- **Track Chair and Associate Editor**, 2017 **IEEE Nano** Conference (July 25-28, Pittsburgh, PA).
- Special Session organizer (8 invited talks on NanoPhononics) at the 2015 **IEEE Nano** Conference (26-30 July Rome, Italy)
- Proposal evaluator/reviewer for:
    1. **DOE** Office of Science (2024: 3 proposals)
    2. **NSF** CDS&E program (2020: 5 proposals)
    3. **NSF** Advanced Cyberinfrastructure (2018: 9 proposals)
    4. **NSF** Condensed Matter and Materials Theory (Spring 2015: 3 proposals, Spring 2016: 5 proposals, CAREER 2017: 1 proposal, 2019: 1 proposal, 2020: 2 proposals)
    5. **NSF** Electrical, Communication, and Cyber Systems (2018 panel: 7 proposals)
    6. **Netherlands Organisation for Scientific Research** (NWO) 2018: 1 proposal, 2020: 1 proposal
    7. **Vienna Science and Technology Fund** WWTF (2016: 1 proposal)
    8. **HRZZ** Croatian Science Foundation (2019: 1 proposal)
    9. **ACS Petroleum Fund** (2021: 1 proposal)
    10. **Deutsche Forschungsgemeinschaft** (DFG, German Science Foundation, 2023: 2 proposals)
- **Scientific Advisory Board Member**, Prospero Biosciences LLC (October 2013—present)
- **Technical Program Committee,** 2014 American Society for Engineering Education Northeast Conference (ASEE-NE'14), University of Bridgeport
- **Technical Program Committee**, 27th Symposium on Microelectronics Technology and Devices
- **Guest Editor** for the Special Issue of the Journal of Computational Electronics on "*Simulation of Thermal, Thermoelectric, and Electro-thermal Phenomena in Nanostructures*"
- **Technical Program Committee**, 2012 International Computational Electronics Workshop
- Co-organizer of the Focus Sessions on Quantum Transport and Computational Electronics at the March 2011 meeting of the American Physical Society (APS'11)
- **Reviewer (I typically review ~25 papers each year):** npj Computational Science, Science Advances, ACS Nano, Advanced Materials, Nano Letters, Nature Communications, Scientific Reports (Nature), Physical Review Letters, Physical Review B, Physical Review Applied, Applied Physics Letters, IEEE

Transactions on Nanotechnology, IEEE Transactions on Electron Devices, Journal of Applied Physics, Journal of Computational Electronics, Journal of Electronic Materials, Physics Letters A, Physical Chemistry Chemical Physics, International Journal of Numerical Modeling in Engineering, AIP Advances (**outstanding reviewer 2015**), Superlattices and Microstructures, Journal of Computational Physics, Materials Science and Engineering B, International Journal of Heat and Mass Transfer, International Journal of Thermal Sciences, Semiconductor Science and Technology, Solid State Electronics, Solid State Communications, Physica Status Solidi, Physica B: Condensed Matter, ACS Applied Materials and Interfaces, Journal of Materials Chemistry C, Journal of Physics: Condensed Matter

❑ College and University Service

1. **Faculty Senate**, Budget Committee member (Fall 2020-2022), UMass Amherst
2. **Materials Science and Engineering** Committee (2020-2021), UMass Amherst
    - developed a new MSE graduate program, approved in 2022
3. **Energy Transition Institute** Networking Committee (2021), UMass Amherst

❑ Department Service

- ABET degree accreditation committee, **Chair** (2022-present), University of Utah
- Retention, Promotion, and Tenure (RPT) committee (Spring 2024, 3 informal reviews), University of Utah
- UMass ECE Departmental Faculty Mentor for the IEEE Student Chapter (2021-2022)
- Faculty Search Committee (AY2013), UMass Amherst
- Departmental Seminar Committee (3 times: AY2013, 2014, and 2019), UMass Amherst
- Departmental Ph.D. Poster Session Organizer/Committee (AY2019 and 2020), UMass Amherst
- Engineering Student Advisory Council (ESAC) faculty mentor (2015—2021)

❑ Professional and Honor Societies

- Eta Kappa Nu IEEE National Honor Society (Alpha chapter)
- Tau Beta Pi Engineering National Honor Society
- American Physical Society (APS)
- Institute of Electrical and Electronics Engineers (IEEE), Senior Member
- Materials Research Society (MRS)
- International Thermoelectric Society (ITS)
- Bosnian Herzegovinian American Academy of Arts and Sciences (BHAAAS)