ERIC POP
Pease-Ye Professor of Electrical Eng. and (by courtesy) of Applied Physics and Materials Science & Eng.
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Education

Stanford University	Electrical Engineering	Ph.D., 2005
Massachusetts Institute of Technology	Electrical Engineering	M.Eng., 1999
Massachusetts Institute of Technology	Electrical Engineering	B.S., 1999
Massachusetts Institute of Technology	Physics	B.S., 1999

Appointments

Stanford University

- Pease-Ye Professor of Electrical Engineering 2023 – present
- Senior Fellow, Precourt Institute for Energy 2024 – present
- Professor of Applied Physics (by courtesy) 2024 – present
- Professor of Materials Science & Engineering (by courtesy) 2019 – present
- Professor of Electrical Engineering 2019 – present
- Affiliate, Precourt Institute for Energy 2013 – 2024
- Chambers Faculty Scholar in the School of Engineering 2016 – 2020
- Associate Professor of Materials Science & Engineering (by courtesy) 2016 – 2019
- Associate Professor of Electrical Engineering 2013 – 2019

University of Illinois at Urbana-Champaign (UIUC)

- Adjunct Professor, Electrical and Computer Engineering 2013 – 2015
- Associate Professor, Electrical and Computer Engineering (tenured) 2012 – 2013
- Affiliate and Part-Time Faculty, Beckman Institute 2008 – 2013
- Assistant Professor, Electrical and Computer Engineering 2007 – 2012

Intel Corp., Senior Engineer and visiting researcher at Stanford Univ. 2005 – 2007
Stanford University, Post-Doctoral Researcher, Chemistry & Thermal Sciences 2005
Stanford University, KZSU 90.1 FM radio DJ and General Manager 2000 – 2004

Selected Honors

2024-25	Highly Ranked Scholar (ScholarGPS)
2023	Pease-Ye Professor in the Stanford School of Engineering
2023	Viskanta Fellowship from Purdue University
2022	APS Fellow
2021	Intel Outstanding Researcher Award
2021	IEEE Fellow
2018	Highly Cited Researcher, Clarivate Analytics (Web of Science)
2017,13-09	Golden Reviewers List, IEEE Electron Device Letters
2016	Most Cited Researchers List in Electrical Engineering by Elsevier
2016-20	Chambers Faculty Scholar, Stanford
2015,11	Golden Reviewers List, IEEE Transactions on Electron Devices
2014	Okawa Foundation Award
2013	Terman Faculty Fellow, Stanford
2013,11,10	Engineering Council Award for Excellence in Advising, UIUC
2012	Campus Distinguished Promotion Award, UIUC
2011	Outstanding Presentation Award, E\PCOS Symposium
2011	Xerox Award for Faculty Research, UIUC
2011	IEEE Senior Member

2011 Center for Advanced Study (CAS) Fellowship, UIUC
2010 PECASE (Presidential) Award from the White House, highest honor given by the US government to early-career scientists and engineers, nominated by ARO and DOD
2010 ONR Young Investigator Program (YIP) Award
2010 NSF CAREER Award
2010 AFOSR Young Investigator Program (YIP) Award
2009 List of Teachers Ranked as Excellent, UIUC
2008 DARPA Young Faculty Award (YFA)
2007 Arnold O. Beckman Research Award, UIUC
2005 Finalist, Stanford E-Challenge Business Plan Competition (top 4 of 80 teams)
2003,02 Best Paper in Session Award, SRC TechCon
2001-04 SRC-IBM Graduate Fellowship
1999 Gerald Pearson Fellowship

Selected Honors with Supervised Students

2024 Best Student Presentation Award, MRS Spring Meeting (R.K.A. Bennett)
2023 Best Student Presentation Award, AVS (A.I. Khan)
2023 AVS Russell & Sigurd Varian Award (A.I. Khan)
2023 Best Student Presenter Award, SRC TechCon (A.I. Khan)
2022 MRS Gold Graduate Student Award, MRS Fall Meeting (A.I. Khan)
2022 Best Presentation Award, MRS Fall Meeting (A.I. Khan)
2022 Best Presentation Award, SRC TechCon (M. Chen)
2022 Best Presentation Award, SRC TechCon (C. Bailey)
2022 Best Student Paper Award, VLSI Tech. Symposium 2022 (A.I. Khan)
2020 Best Paper Award, MRS Fall Meeting (I. Datye)
2018 2018 OMEx Emerging Researcher Best Paper Prize (S. Deshmukh)
2018 Best Presentation Award, SRC TechCon (C. McClellan)
2018 Best Poster Award, IEEE Device Research Conference (S. Bohaichuk)
2018 Best Presentation Award, MRS Spring Meeting (M. Chen)
2017 Best Paper in Session Award, SRC TechCon (C. McClellan)
2017 Best Paper Award, EDISON'20 (K. Smithe)
2017 Best Conference Paper Award, IEEE NANO (A. Gabourie and S. Suryavanshi)
2016 Best Paper in Session Award, SRC TechCon (N. Wang)
2016 Best Poster Award, IEEE Device Research Conference (I. Datye and A. Gabourie)
2014 Best Paper in Session Award, SRC TechCon (C. English)
2013 Best Paper in Session Award, SRC TechCon (E. Carrion)
2011 Best Paper in Session Award, SRC TechCon (F. Xiong)

Professional Memberships

- APS Fellow, 2022 – present (Member 2011 – 2022)
- IEEE Fellow, 2021 – present (Senior Member, 2011–2021; Member 1999 – 2010)
- AVS Member, 2013 – present
- AAAS Member, 2012 – present
- MRS Member, 2007 – present
- HKN Member; Faculty Advisor for Illinois Alpha Chapter, 2009 – 2011

Conferences Organized and Related Service

- NSF-Stanford Workshop on "Overcoming Barriers to Translation of Low-D Materials," 2026
- SEMI Energy-Efficient Computing Working Group, 2025–present
- Stanford Pre-IEDM Workshop co-organizer (with P. Wong, S. Chowdhury, S. Mitra), 2025
- SLAC-Stanford SystemX Microelectronics Workshop, 2025

- Stanford Pre-IEDM Workshop co-organizer (with P. Wong), 2023
- SLAC Microelectronics Open House, 2023
- IEEE NVMTS (Nonvolatile Memory Technology Symposium) Conference Chair, 2022
- IEEE VLSI-TSA (Technology, Systems, Applications) program committee, 2022
- IEEE-IEDM (Intl. Electron Devices Meeting)
  - Emerging Device & Computing Technology (EDT) program committee, 2021–2022
  - Session chair, 2021–2022, San Francisco CA
- IEEE-SISC (Semiconductor Interface Specialists Conference), 2020
- IEEE-VLSI Technology Symposium, 2015–2019
  - Publications Co-Chair, 2019, Kyoto, Japan
  - Session chair, 2018, Honolulu, HI
  - Focus Session Leader, 2018, Honolulu, HI
  - Focus Session Organizer, 2017, Kyoto, Japan
  - Publications Co-Chair, 2016, Honolulu, HI
  - Session chair, 2016, Honolulu, HI
  - Session chair, 2015, Kyoto, Japan
- IEEE-DRC (Device Research Conference), 2006–present
  - Member of Board of Trustees, 2014–present
  - General Chair, 2015
  - Chair of Technical Program Committee (TPC), 2014
  - Vice-Chair of TPC, 2013
  - Session chair, 2012 and 2006
  - Evening "rump session" organizer, 2011, 2010, 2007
- AVS (American Vacuum Society) Meeting Session Chair, Long Beach, CA 2018
- Stanford-IMEC Resistive Memory Workshop, 2018
- Graphene 2018, Session Chair, Dresden, Germany, 2018
- EDISON'20, Session Chair, Buffalo, NY 2017
- MRS (Materials Research Society) Spring Meeting, 2017, Phoenix, AZ
  - Co-Organizer of "Symposium: Phase-Change Materials and Applications"
- IEEE-IRPS (International Reliability Physics Symposium)
  - XT Committee member, 2017, Monterey, CA
  - XT Committee member, 2016, Pasadena, CA
- ESSDERC (European Solid-State Device Research Conference)
  - North America Publicity Co-Chair, 2017, Leuven, Belgium
  - Session chair, 2016, Lausanne, Switzerland
- IEEE-SNW (Silicon Nanoelectronics Workshop) Session chair, 2016, Honolulu, HI
- E-MRS (European Materials Research Symposium) Session chair, 2016, Lille, France
- MRS (Materials Research Society) Spring Meeting, 2015, San Francisco, CA
  - Co-Organizer of "Symposium: Nanoscale Heat Transport – From Fundamentals to Devices"
- PTES (International Conference on Phononics and Thermal Energy Science), Shanghai, 2013
  - Session chair, 2013
- DATE (Design, Automation, and Test in Europe), 2012
  - Organizer, "The Device-to-System Spectrum – A Tutorial on IC Design with Nanomaterials"
- APS (American Physical Society) March Meeting, 2012
  - Focus session organizer, "Carbon Nanotubes and Related Nanomaterials"
- Nano-DDS (Devices for Defense & Security), 2011
  - Focus session organizer, "Hybrid Molecular & Nanoscale CMOS-Based Architectures"
- IEEE-IEDM (Intl. Electron Devices Meeting)
  - NDT (Nano Device Technology) program committee, 2010–2011
  - Session chair, 2010

- MRS (Materials Research Society) Fall Meeting, Session chair, Boston, 2010
- IEEE-UGIM (University Government Industry Micro/Nano) Symposium, Session chair, Purdue, 2010
- IEEE-ISRDS (Intl. Semiconductor Device Research Symposium), 2009
  - Session chair, ISDRS 2009 and 2007
- ECS (Electrochemical Society) Meeting, Session chair, 2007
- IEEE-GLSVLSI (Great Lakes VLSI) Symposium, Session chair, 2007
- IEEE-SISPAD (Simulation of Semiconductor Processes and Devices), Session chair, 2006

University Service and Committees

At Stanford and SLAC

- Stanford Student Semiconductor Club (SSC) Faculty Advisor, 2025 – present
- EE PhD Admissions, New Materials, Nanofabrication, and Devices Area Chair, 2025 – present
- SNF Advisory Committee, 2024 – present
- SystemX Faculty Co-Director, 2024 – present
- Stanford-SLAC Advisor for Nano/Microelectronics, 2022 – present
- SNSF Advisory Council, 2022 – present
- EE Executive Committee (ExCom), 2021 – present
- 25+ Associate and Full Professor Promotion Committees, at Stanford and world-wide, 2016 – present
- SystemX, Heterogeneous Integration Focus Area (lead), 2015 – present
- EE Faculty Search Committee Chair, 2023 – 2024
- EE Distinguished Lecturer Colloquium Series (co-chair), 2022 – 2023
- Shoucheng Zhang Graduate Fellowship Committee, 2022 – 2024
- Ad hoc advisory committee to Dean Jennifer Widom on nanofabrication facilities, 2021 – 2023
- EE Culture, Equity, and Inclusion Committee (CEI) Chair, 2019 – 2022
- EE Academic Affairs Committee (AAC), 2013 – 2021
- MSE Faculty Search Committee, 2019
- Stanford-IMEC Resistive Memory Workshop co-organizer, 2018
- EE Faculty Search Committee, 2017 and 2018
- Rising Stars Committee, 2017
- Stanford Faculty Scholars Committee, 2017
- Stanford Nano Shared Facilities Working Group, 2017
- SNF Shared Nanofabrication Future Plans Committee, 2015 – 2016
- Precourt Institute for Energy, Stanford Interdisciplinary Graduate Fellowship Committee, 2015
- EE21 Committee, 2014 – 2015
- EE Web Site Committee, 2013 – 2015
- SoE Makers Commons Committee, 2013

At UIUC

- ECE Colloquium Committee, 2007 – 2013
- ECE Public Relations Committee, 2009 – 2013
- ECE Nanotechnology Committee, 2009 – 2013
- Beckman Institute Program Advisory Committee, 2009 – 2012
- ECE Graduate Recruitment Committee, 2007 – 2012
- ECE Advisory Committee, 2011 – 2012
- ECE Curriculum Committee, 2010 – 2012
- ECE Graduate Committee, 2009 – 2010
- ECE New Building Committee, 2008 – 2009
- ECE Graduate Admissions Committee, 2007 – 2008
- ECE Fellowship Committee, 2007 – 2008
- MNTL Characterization Lab Committee, 2007 – 2008

Editor and Reviewer Service

- Editorial Board of *Nano Research*
- Editorial Board of *2D Materials* (2019 – 2021)
- Proposal reviewer for:
  - National Science Foundation (NSF) Electronics, Photonics, and Magnetic Devices (EPMD), Thermal Transport Processes (TTP), Division of Materials Research (DMR)
  - Air Force Office of Scientific Research (AFOSR), Army Research Office (ARO)
- Journal reviewer for:
  - Science, Proc. Natl. Academy of Sciences, Nano Research
  - Nature, Nature Nanotechnology, Nature Materials, Nature Communications
  - Nano Lett., ACS Nano, ACS Appl. Materials & Interfaces, 2D Materials
  - IEEE Trans. Nanotechnology, IEEE Trans. Electron Devices, IEEE Electron Device Letters, IEEE Trans. Computer Aided Design, IEEE Trans. Components and Packaging Technologies
  - Physical Review B, X, Letters; Applied Physics Letters, Journal of Applied Physics
  - Nanotechnology, Journal of Physics: Condensed Matter, Solid-State Electronics
  - Journal of Computational Electronics, Journal of Heat Transfer

Teaching and Advising

- EE 292N: "Modern Semiconductor Fabrication and Manufacturing Seminar," 2025–
- EE 323, "Energy in Electronics," 2014– (average evaluation: 4.5 out of 5.0)
- EE 216, "Principles & Models of Semiconductor Devices," 2014– (average evaluation: 4.4 out of 5.0)
- EE 101A, "Circuits I," 2020–2024 (average evaluation: 4.4 out of 5.0)
- EE 116, "Semiconductor Device Physics," Spring 2014–2019 (average evaluation: 4.5 out of 5.0)
- ECE 340, "Semiconductor Electronics," 2012–2013 (average evaluation: 4.6 out of 5.0)
- ECE 565, "Energy Dissipation in Electronics," 2011
- ECE 440, "Solid State Electronics," 2007–2011 (average evaluation: 4.7 out of 5.0)
- ECE 598EP, "Hot Chips: Atoms to Heat Sinks," 2008–2010 (average evaluation: 4.7 out of 5.0)
- Undergraduate and MS academic advisees, >110 students total:
  - ~40 at Stanford (2013–present), ~70 at UIUC (2007–2013)
- Classroom instruction, > 1,000 students total:
  - At Stanford (2013–): ~350 undergrads (EE 101A, 116) and ~250 grad students (EE 216, 323)
  - At UIUC (2007–2013): ~350 undergrads (ECE 340) and ~60 grad students (ECE 565)

Tutorials, Software, and Other Educational Initiatives

note: codes & tutorials on nanoHUB.org and YouTube have received > 30,000 runs and > 50,000 views

30. "Fundamental, Thermal, and Energy Limits of PCM and RRAM," *Tutorial at MRS Fall Meeting*, Boston MA, Nov 2022
29. "What's the Mobility?" *Simple tool for effective mobility estimates*, nanoHUB, Sep 2021, https://nanohub.org/resources/35424
28. "Nanoelectronics & Heterogeneous Integration with 2D Materials," *Short Course at Nano-KISS* (Korean Intl. Summer School on Nanoelectronics), Korea, Feb 2020
27. "(Clarifying) A Few Alternative Facts About 2D Materials," *Tutorial at 2D Materials: Fundamentals to Spintronics Workshop*, Natal, Brazil, Sep 2019. https://www.youtube.com/watch?v=9RsgQEIobdI
26. "What Are Two-Dimensional Materials Good For?" *Tutorial at 2D Materials: Fundamentals to Spintronics Workshop*, Natal, Brazil, Sep 2019. https://www.youtube.com/watch?v=_pCqJAkpsxQ
25. "Fundamental, Thermal, and Energy Limits of Phase-Change Memory," *Tutorial at Eurotherm Nanoscale & Microscale Heat Transfer VI (NMHT)*, Levi, Finland, Dec 2018
24. "Benefits of Heterogeneous Integration: The N3XT 1000x," *Tutorial at SSDM (Intl. Conference on Solid State Devices & Materials)*, Tokyo Japan, Sep 2018

23. "Fundamental, Thermal, and Energy Limits of PCM and ReRAM," *Tutorial at IEDM (Intl. Electron Devices Meeting)*, San Francisco, CA, Dec 2017
22. "Fundamentals and Ultimate Scaling Limits of Phase-Change Memory," *Tutorial at 75th DRC (Device Research Conference)*, Notre Dame, IN, Jun 2017
21. "Energy, Thermal, and Thermoelectric Effects in Nanoscale Devices," *Short Course at University of Pisa*, Pisa, Italy, Jun 2017
20. "Thermal and Related Properties of 2D Materials and Devices," *Short Course at 2D Materials Workshop*, Univ. Minnesota, Jun 2016, http://minic.umn.edu/2d-materials/summer-program-2016
19. "Thermal Resistance in Electronic Devices," *Short Course on nanoHUB-U*, May 2016, https://nanohub.org/courses/tred
18. "Electrical & Thermal Transport in 2D Materials and Devices," *Short Course at Nano-KISS* (Korean Intl. Summer School on Nanoelectronics), ETRI, Daejeon Korea, Oct 2015
17. "Device and Thermal Fundamentals and Applications of 2D Materials," *NanoTechnology for Defense Conference (NT4D)*, Chantilly VA, Nov 2014
16. "Thermoelectrics 101," *GCEP Symposium*, Stanford CA, Oct 2014 http://gcep.stanford.edu/learn/energy101.html
15. `S2DS`: Stanford 2D Semiconductor Transistor Model, nanoHUB, Apr 2016, https://nanohub.org/publications/18/2
14. "Energy in Nanoelectronics," *Tsukuba Summer Lecture Series*, Tsukuba, Japan, Jul-Aug 2014
13. "The Device-to-System Spectrum – A Tutorial on IC Design with Nanomaterials," *Design, Automation & Test in Europe (DATE)*, Dresden, Germany, Mar 2012
12. Web-Enabled Remote Lab: An interface for measuring electronic devices through the Internet. Devices in the lab can be measured on any web browser (even on an iPhone), anywhere in the world. Developed with undergraduates S. Dutta and S. Prakash. First tested in course ECE 440, Spring 2010. Source code at http://remotelab.sourceforge.net. Details published in *IEEE Trans. Educ.* (2011).
11. Graduate Course Online: ECE 598 *Hot Chips: Atoms to Heat Sinks* (Fall 2010) course notes available at http://poplab.stanford.edu and audio through http://nanohub.org
10. `GFETtool`: Graphene field-effect transistor electro-thermal simulation tool, nanoHUB, Aug 2014, https://nanohub.org/tools/gfettool
9. `nanoJoule`: Carbon nanotube electro-thermal simulation tool, nanoHUB, Aug 2014, https://nanohub.org/tools/swntjiv/
8. `CNTmob`: Carbon nanotube mobility simulation tool, nanoHUB, Aug 2014, https://nanohub.org/tools/cntmob
7. "Carbon Nanoelectronics: Towards Energy-Efficient Computing," *Design, Automation & Test in Europe (DATE)*, Dresden, Germany, Mar 2010
6. D. Chen, S. Chilstedt, C. Dong, E. Pop, "What Everyone Needs to Know About Carbon-Based Electronics," *DAC.com Knowledge Center Article*, www.dac.com, Mar 2010
5. "Graphene Thermal Physics," *IEEE Device Research Conference (DRC)*, State College PA, Jun 2009
4. K-12 Outreach: Series of talks on "*Memory Technology: Putting the* nano *in your iPod*" presented at University High School, Urbana IL (Spring 2008). Audio and video available at nanoHUB.org
3. Undergraduate Course Online: ECE 440 *Solid-State Electronics* (Fall 2008) course notes available at https://poplab.stanford.edu and audio through https://nanohub.org/resources/5221
2. "Electro-Thermal Interaction, Modeling and Measurement in Nanoscale Devices," *Great Lakes VLSI (GLSVLSI) Conference*, Lago Maggiore, Italy, Mar 2007
1. `MONET`: Monte Carlo simulation code for transport and heat generation in silicon devices, available from https://poplab.stanford.edu/software.html along with multimedia and simulation results

Journal Publications (h-index: 105; 46,000+ citations in Google Scholar)

in review: gray; students and post-docs supervised: **bold**

310. **A.T. Hoang**, **L. Hoang**, W. Milsaps, Z. Zhang, A. Mendoza, V. Kyveryga, A. Dolocan, S.M. Nahid, A. Azizi, C. Ophus, E. Pop, A.J. Mannix, "Diffusion-controlled Substitutional Doping of Monolayer Transition Metal Dichalcogenides," in review (2026)
309. M.A.H. Chowdhury, **R.K.A. Bennett**, **A.I. Khan**, E. Pop, M. Hossain, A. Kabir, "Switching Behavior in Phase-Change Memory Superlattices: A First-Principles Perspective," in review (2026)
308. R.-G. Nir-Harwood, **A.I. Khan**, E. Ber, E. Ordan, K. Stern, K.L. Okabe, N. Wainstein, E. Yalon, E. Pop, "Energy and Scaling Limits of Phase-Change Memory," pre-print arXiv:2605.28336 (2026)
307. **M.A. Wang**, S.E. Clarke, A. Tor, E. Pop, P. Nuyujukian, "Caustic factors drive injury in electrolytic lesioning of the brain," in review (2026)
306. K. Jana, J. Kang, S. Liu, F.F. Athena, C.-H. Huang, S. Kommera, Y. Tang, H. J.-Y. Chen, B. Saini, J. Hartanto, **R.K.A. Bennett**, **Y.-M. Lee**, K. Nomura, P.C. McIntyre, E. Pop, H.-S.P. Wong, "Advancing the Supply Voltage Scalability of Oxide Semiconductor Transistors through Transition Region Engineering," in review (2026)
305. H.G. Xing, T. Palacios, T. Dienel, J. Cha, J.C.M. Hwang, D. Jena, H. Nair, D.C. Ralph, F. Rana, D.G. Schlom, J. Kim, J. Kong, L. Liu, F. Niroui, B. Yildiz, C. Hinkle, K. Ni, M. Niemier, A.I. Khan, A. Naeemi, D. Gall, S. George, F. Giustino, E. Graugnard, G. Parsons, E. Pop, J.M. Rondinelli, H. Tang, C. van de Walle, "SUPREME: Materials-to-Systems Advances in Emerging Devices, Interconnects, and Processing under SRC JUMP 2.0," in review (2026)
304. F.F. Athena, **X. Wu**, N.S. Safron, A.S. McKeown-Green, M. Dossena, J.C. Evans, J. Hartanto, Y. Cho, D. Zhong, **T. Peña**, P. Czaja, P. Moradifar, P.C. McIntyre, M. Luisier, Y. Cui, J.A. Dionne, G. Pitner, I.P. Radu, E. Pop, A. Salleo, H.-S.P. Wong, "Channel-Last Gate-All-Around Nanosheet Oxide Semiconductor Transistors," in review (2026)
303. **A.E.O. Persson**, M. Pešić, E. Pop, "Two-Dimensional Semiconductor Transistors in Memory and Data Storage," in review (2026)
302. **A.T. Hoang**, **K. Neilson**, K. Xu, Y. Yang, S.M. Ribet, **T. Peña**, G. D'Acunto, **Y.S. Song**, **A.E.O. Persson**, W. Millsaps, C. Ophus, M.R. Rosenberger, E. Pop, A.J. Mannix, "High-Current *p*-Type Transistors from Precursor-Engineered Synthetic Monolayer WSe_2," pre-print arXiv:2509.07299, in review (2025)
301. T. Knobloch, Q. Smets, **A.E.O. Persson**, P. Khakbaz, C. Wilhelmer, D. Lin, **Z. Han**, Y. Chung, K.P. O'Brien, C. Dorow, C. Ó Coileáin, M. Lanza, D. Waldhoer, A. Karl, K. Liu, T. Zhai, H. Peng, C. Tan, X.R. Wang, G.S. Duesberg, J. Robertson, U. Avci, I. Radu, E. Pop, C.J.L. de la Rosa, T. Grasser, "How to Identify Suitable Gate Dielectrics for Transistors based on Two-Dimensional Semiconductors," pre-print arXiv:2509.20014, in review (2026)
300. **H. Su**, S. Alaei, Á. Friðriksdóttir, **S. Fultz-Waters**, H. Bae, **X. Wu**, Y. Zhao, D. Zhong, **T. Peña**, M.J. Hurley, Y. Deng, S. Kalantre, A.J. Barnum, G. Pitner, S. Vaziri, X. Bao, Z.-X. Shen, D. Goldhaber-Gordon, P.C. McIntyre, S.X. Wang, A. Sharpe, Y. Suzuki, B. Yan, E. Pop, "Ultimate scaling of topological semimetal NbP," in review (2026)
299. **M. Islam**, T.D. Brown, C. Perez, R. Bhattacharya, V. Gambin, R.S. Williams, S. Kumar; E. Pop, " Resistive Switching via Electrical Spin-State Control in $LaCoO_3$," in review (2025)
298. **J.-S. Ko**, A.B. Shearer, **A.T. Hoang**, **Y.-M. Lee**, **R.K.A. Bennett**, A.J. Mannix, S.F. Bent, E. Pop, K.C. Saraswat, "Direct Atomic Layer Deposition by Precursor Engineering for Sub-1 nm Equivalent Oxide Thickness Top-Gate Stack on Monolayer MoS_2," in review (2025)
297. **L. Hoang**, **A.I. Khan**, **R.K.A. Bennett**, H.-m. Kim, M. Hocking, Z. Zhang, A.R. Choi , I.-K. Oh, A.J. Mannix, E. Pop, "Enabling *P*-type Conduction in Bilayer WS_2 with NbP and TaP Topological Semimetal Contacts," in review, pre-print arXiv:2409.18926 (2025)
296. S. Pinge, C.E. Song, P.-K. Hsu, Z. Li, A. Moradifirouzabadi, Y. Chen, **X. Wu**, W.-C. Chen, E. Pop, S. Yu, H.-S.P. Wong, T. Rosing, M. Kang, "Cross-Domain Acceleration of Open Modification Search:

From Commodity Platforms to Emerging Memory and Storage Devices," *IEEE J. Emerg. Sel. Top. Circuits Syst. (JETCAS)*, in press (2026)

295. A. Krayev, **T. Peña**, **A.E.O. Persson**, **K. Neilson**, **A.T. Hoang**, A.J. Mannix, E. Pop, "Nano-Raman Imaging of Monolayer MoS_2 Nanoribbons," *Appl. Phys. Letters* **128**, 203102 (2026)
294. **T. Peña**, **A.E.O. Persson**, A. Krayev, Á. Friðriksdóttir, **H. Su**, **Y.-M. Lee**, **Y.S. Song**, **K. Neilson**, Z. Zhang, **A.T. Hoang**, **J.A. Yang**, **L. Hoang**, S.X. Wang, A.J. Mannix, P.C. McIntyre, E. Pop, "Scaling High-Performance Nanoribbon Transistors with Monolayer Transition Metal Dichalcogenides," *Nature Nanotech.* **21**, 803–809 (2026)
293. F. Xia, T. Xia, **H. Su**, L. Gan, Q. Hu, W. Wang, R. Huang, T. Bai, Y. Chen, C. Ma, G. Long, S.X. Wang, E. Pop, L.-M. Peng, Y. Hu, "Flexible Radio-Frequency Carbon Nanotube Transistors Operating at Frequencies above 100 GHz," *Nature Electronics*, DOI: 10.1038/s41928-026-01632-1 (2026)
292. F.M. Alcorn, S.R. Ellis, C. Perez, **L. Hoang**, E.J. Smoll, E.J. Fuller, A.J. Mannix, E. Pop, D.W. Chandler, A.A. Talin, F. Léonard, S. Kumar, "Spatio-Kinetic Electronic Heterogeneity in MoS_2 Revealed by Ultrafast Electron Microscopy: Implications for Optoelectronics," *ACS Appl. Nano Materials* **9**, 8184–8191 (2026)
291. **R.K.A. Bennett**, J.-L. Uslu, **H. Gault**, **A.I. Khan**, **L. Hoang**, **T. Peña**, **K. Neilson**, **Y.S. Song**, Z. Zhang, A.J. Mannix, E. Pop, "Deep Learning to Automate Parameter Extraction and Model Fitting of Two-Dimensional Transistors," *Research*, DOI: 10.34133/research.1103 (2026)
290. **S. Wahid**, **A. Daus**, E. Pop, "Investigating Bias Temperature Instability and Threshold Voltage Shifts in Indium Tin Oxide (ITO) Transistors," *APL Electronic Devices* **2**, 016120 (2026)
289. F.F. Athena, J. Hartanto, M. Passlack, J.C. Evans, J. Qin, D. Dede, K. Jana, S. Liu, **T. Peña**, E. Pop, G. Pitner, I.P. Radu, P.C. McIntyre, H.-S.P. Wong, "Gate-Dielectric Engineering with an Ultrathin Silicon Oxide Interfacial Dipole Layer for Low-Leakage Oxide-Semiconductor Memories," *Nano Lett.* **26**, 3338–3346 (2026) (**Selected as Cover Article**)
288. E. Salagre, **M. Islam**, Y. Yu, S. Goyal, T.D. Brown, F. Jardali, S. Oh, E. Pop, R.S. Williams, A.A. Talin, S. Kumar, P.J. Shamberger, E.J. Fuller, "Electrothermally-Induced Channel Formation in a Spin-Crossover Neuron," *ACS Nano* **20**, 6915–6924 (2026)
287. Y. Yang, K. Xu, **T. Peña**, **K. Neilson**, X. Zheng, **A.T. Hoang**, K. Yang, Z. Hennighausen, T. Zhang, L.N. Holtzman, **C.A. Nattoo**, J.C. Hone, K. Barmak, J. Kong, A.J. Mannix, E. Pop, M.R. Rosenberger, "Non-Destructive Atomic Defect Quantification of Two-Dimensional Materials and Devices," *ACS Appl. Mater. Interfaces* **18**, 10161–10170 (2026)
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357. **J.A. Yang**, E. Pop, "A Tale from the Queer Resistance: Healing and Activism from with(in) Materials Science," *MRS Spring Meeting*, Apr 2024, Seattle WA
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276. K. Stern, Y. Keller, **C.M. Neumann**, E. Pop, **E. Yalon**, "Temperature-Dependent Reset Power Consumption in Phase Change Memory," *E\PCOS (European Phase-Change and Ovonics Symposium)*, Sep 2021

275. **A. Daus**, K. Nassiri Nazif, S. Vaziri, **A.I. Khan**, **R.W. Grady**, **V. Chen**, **C.S. Bailey**, H.R. Lee, **C. Koroglu**, **K. Brenner**, **K. Schauble**, A. Kumar, K.C. Saraswat, E. Pop, "Flexible Transition Metal Dichalcogenide Devices for Environmental Sensors and Energy Harvesting," *AVS 67th International Symposium & Exhibition*, Oct 2021, Charlotte NC
274. E. Ber, **R.W. Grady**, E. Pop, E. Yalon, "Pinpointing the Dominant Component of Contact Resistance to Atomically Thin Semiconductors," *IEEE Device Research Conference (DRC)*, Jun 2021 (Online)
273. K. Stern, N. Wainstein, Y. Keller, **C.M. Neumann**, E. Pop, S. Kvatinsky, E. Yalon, "Sub-Nanosecond Partial Reset for Analog Phase Change Neuromorphic Devices," *IEEE Device Research Conference (DRC)*, Jun 2021 (Online)
272. **V. Chen**, H.R. Lee, **C. Koroglu**, **C.J. McClellan**, *A. Daus*, E. Pop, "Ambipolar Thermoelectric Measurements of Multilayer WSe_2," *Virtual MRS Spring Meeting*, Apr 2021
271. V.Z. Costa, L. Liang, A. Miller, **S. Vaziri**, S. Jamil, A. Ichimura, E. Pop, AKM Newaz, "Raman Studies of a Natural van der Waals Heterostructure," *APS March Meeting*, Mar 2021
270. **A. Daus**, **C.J. McClellan**, **K. Schauble**, J.C. Costa, **R.W. Grady**, L. Petti, G. Cantarella, N.S. Münzenrieder, G. Tröster, E. Pop, "Aluminum Oxide as a Dielectric and Passivation Layer for (flexible) Metal-Oxide and 2D Semiconductor Devices," *SPIE Photonics West*, Mar 2021, San Francisco CA
269. V.Z. Costa, A. Miller, **S. Vaziri**, S. Jamil, A. Ichimura, E. Pop, AKM Newaz, "Raman Studies of a Natural van der Waals Heterostructure," *Virtual MRS Spring/Fall Meeting*, Nov 2020
268. **K. Schauble**, **R. Grady**, E. Pop, "MoS_2 Defect Insights using Raman Spectroscopy," *Virtual MRS Spring & Fall Meeting*, Nov 2020
267. S.-J. Yu, J.A. Roberts, Q. Lin, **S. Bohaichuk**, Y. Luo, Y.T. Choi, P.-H. Ho, K. Lee, A.L. Falk, W.L. Wilson, E. Pop, H.-S.P. Wong, J.A. Fan, "Highly confined plasmons in individual single-walled carbon nanotube nanoantennas," *IEEE Conf. Lasers & Electro-Optics (CLEO)*, May 2020
266. J. Zheng, Z.R. Fang, C.M. Wu, S.F. Zhu, S. Zhu, P.P. Xu, J.K. Doylend, **S. Deshmukh**, E. Pop, S. Dunham, M. Li, A. Majumdar, "Nonvolatile Electrically Reconfigurable Integrated Photonic Switches Using Phase-Change Materials," *IEEE Conf. Lasers & Electro-Optics (CLEO)*, May 2020
265. **C.S. Bailey**, **R.W. Grady**, **V. Chen**, E. Pop, "Ultra-Low Off-State Leakage Current in Monolayer WS_2 Transistors," *Virtual MRS Spring & Fall Meeting*, Apr 2020, Phoenix AZ
264. **A. Daus**, **S. Vaziri**, **V. Chen**, **R.W. Grady**, **C.S. Bailey**, **C. Koroglu**, **K. Brenner**, **K. Schauble**, E. Pop, "Flexible Electronics Enabled by Direct Transfer of Two-Dimensional Transition Metal Dichalcogenides with Contacts," *Virtual MRS Spring & Fall Meeting*, Apr 2020, Phoenix AZ
263. **I.M. Datye**, **A. Daus**, **K. Brenner**, **R.W. Grady**, E. Pop, "Improving the Electrical Performance of MoS_2 Transistors using Tensile Strain," *Virtual MRS Spring & Fall Meeting*, Apr 2020, Phoenix AZ. **(Best Paper Award)**
262. S. Ueda, A. McLeod, **M. Chen**, C. Perez, E. Pop, D. Alvarez, A.C. Kummel, "Deposition of High Thermal Conductivity AlN Heat Spreader Films," *IEEE VLSI-TSA*, pp. 110-111, Aug 2020
261. S. Ueda, A. McLeod, **M. Chen**, C. Perez, E. Pop, D. Alvarez, A. Kummel, "Atomic Layer Annealing of AlN to Template The Growth of High Thermal Conductivity Heat Spreader Films," *20th Intl. Conf. Atomic Layer Deposition (ALD)*, Jul 2020
260. **A.I. Khan**, **A. Daus**, E. Pop, "Flexible Low-Power Superlattice-Like Phase Change Memory," *IEEE Device Research Conference (DRC)*, Jun 2020, Columbus OH
259. Y.Y. Illarionov, T. Knobloch, **K.K.H. Smithe**, M. Waltl, **R.W. Grady**, D. Waldhoer, E. Pop, T. Grasser, "Anomalous Instabilities in CVD-MoS_2 FETs Suppressed by High-Quality Al_2O_3 Encapsulation," *IEEE Device Research Conference (DRC)*, Jun 2020, Columbus OH
258. V.Z. Costa, **S. Vaziri**, S. Jamali, A. Miller, A. Ichimura, E. Pop, AKM Newaz, "Temperature-Dependent Raman Studies of a Natural van der Waals Heterostructure," *IWEPNM*, Mar 2020, Kirchberg in Tirol, Austria
257. V.Z. Costa, **S. Vaziri**, S. Jamali, A. Miller, A. Ichimura, E. Pop, AKM Newaz, "Temperature-Dependent Raman Studies of a Natural van der Waals Heterostructure," *APS March Meeting*, Mar

2020, Denver CO

256. **A.J. Gabourie** and E. Pop, "Interface Dependence of Thermal Properties in Two-Dimensional MoS_2," *IEEE Semicon. Interface Specialist Conf. (SISC)*, Dec 2019, San Diego, CA
255. J. Zheng, Z. Fang, S. Zhu, P. Xu, J. Doylend, **S. Deshmukh**, E. Pop, S. Dunham, A. Majumdar, "Nonvolatile Electrically Reconfigurable Silicon Photonic Switches Using Phase-Change Materials," *Frontiers in Optics*, Sep 2019, Washington DC
254. **C.J. McClellan**, **A.C. Yu**, C.-H. Wang, H.-S.P. Wong, E. Pop, "Vertical Sidewall MoS_2 Growth and Transistors," *SRC TECHCON*, Sep 2019, Austin, TX
253. **Ç. Köroğlu**, E. Pop, "Novel Nanomaterials for Thermal Management of 3D Integrated Circuits," *SRC TECHCON*, Sep 2019, Austin, TX
252. **C.S. Bailey**, **C.J. McClellan**, E. Pop, "Low Off-Current and High On/Off Ratios in Monolayer $MoSe_2$ and WSe_2 Transistors," *Electronic Materials Conference (EMC)*, Jun 2019, Ann Arbor MI
251. **S.M. Bohaichuk**, M.M. Pelella, Y. Sun, Z. Zhang, S. Ramanathan, E. Pop, "A Novel ESD Clamp Based on the VO_2 Insulator-Metal Transition," *IEEE Device Research Conference (DRC)*, Jun 2019, Ann Arbor MI
250. **A. Daus**, **S. Vaziri**, **K. Brenner**, **R.W. Grady**, A.U. Tang, E. Pop, "Flexible Top-Gated Monolayer MoS_2 Transistors with High Mobility," *IEEE Device Research Conference (DRC)*, Jun 2019, Ann Arbor MI
249. **A.I. Khan**, **K. Brenner**, **K.K.H. Smithe**, **M.J. Mleczko**, E. Pop, "Large Temperature Coefficient of Resistance in Atomically Thin 2D Devices," *IEEE Device Research Conference (DRC)*, Jun 2019, Ann Arbor MI
248. **C.J. McClellan**, **A.C. Yu**, C.-H. Wang, H.-S.P. Wong, E. Pop, "Vertical Sidewall MoS_2 Growth and Transistors," *IEEE Device Research Conference (DRC)*, Jun 2019, Ann Arbor MI
247. S. Chen, **A. Sood**, E. Pop, K.E. Goodson, D. Donadio, "Controlling Anisotropic Heat Transfer in MoS_2," *Phononics 2019*, Jun 2019, Tucson AZ
246. **S.M. Bohaichuk**, S. Kumar, G. Pitner, **C.J. McClellan**, J. Jeong, M.G. Samant, S.S.P. Parkin, H.-S.P. Wong, R.S. Williams, E. Pop, "Fast Periodic Spiking in VO_2 Driven by a Carbon Nanotube Heater," *MRS Spring Meeting*, Apr 2019, Phoenix AZ
245. **A.J. Gabourie**, **S.V. Suryavanshi**, A.B. Farimani, E. Pop, "Substrate Effects on Thermal Transport in Single-Layer MoS_2," *MRS Spring Meeting*, Apr 2019, Phoenix AZ
244. J-S. Moon, H.-C. Seo, K.K. Son, **E. Yalon**, K. Lee, E. Flores, G. Candia, E. Pop, "Reconfigurable Infrared Spectral Imaging with Robust Phase Change Materials," *SPIE-DCS*, Apr 2019, Baltimore MD
243. **P.F. Satterthwaite**, A.S. Yalamarthy, **S. Vaziri**, **M. Muñoz Rojo**, E. Pop, D.G. Senesky, "Process-induced anomalous current transport in graphene/InAlN/GaN heterostructured diodes," *IEEE Intl. Reliability Physics Symp. (IRPS)*, Apr 2019, Monterey CA
242. S. Kumar, **S. Bohaichuk**, L. Chen, **A. Sood**, D. Shapiro, H. Zhou, A. Lindenberg, L. Li, R.S. Williams, E. Pop, "Insights into the Anomalous Thermal Properties of VO_2 from Synchrotron Spectromicroscopy," *APS March Meeting*, Mar 2019, Boston MA
241. H. Lee, **S. Deshmukh**, J. Wen, V. Costa, E. Pop, B. Wang, A.K.M. Newaz, "Layer Number Dependent Barrier Height of MoS_2 on Ultra-Flat Conducting Surfaces," *APS March Meeting*, Mar 2019, Boston MA
240. E. Barré, **J.A.C. Incorvia**, S.H. Kim, **C.J. McClellan**, E. Pop, H.-S.P. Wong, T.F. Heinz, "Analysis of the Spatial Separation of Carrier Spin by the Valley Hall Effect in Monolayer WSe_2 Transistors," *APS March Meeting*, Mar 2019, Boston MA
239. L. Brandt, A.S. Yalamarthy, P. Satterthwaite, **S. Vaziri**, S. Benbrook, E. Pop, D. Senesky, "Graphene as a Diffusion Barrier in High-Temperature Electronics," *APS March Meeting*, Mar 2019, Boston MA
238. J. Zheng, A. Khanolkar, P. Xu, S. Colburn, **S. Deshmukh**, J. Myers, J. Frantz, E. Pop, J. Hendrickson, J. Doylend, N. Boechler, A. Majumdar, "Non-volatile quasi-continuously programmable silicon photonics using phase-change materials," *SPIE Photonics West*, Feb 2019, San Francisco CA

237. **S.V. Suryavanshi**, P. Blaise, E. Pop, "Modulating Dipole Chemistry of Two-Dimensional Materials-Metal Interface for Reduced Contact Resistance," *IEEE Semicon. Interface Specialist Conf. (SISC)*, Dec 2018, San Diego, CA
236. C.-H. Wang, **C.J. McClellan**, Y. Shi, X. Zheng, **V. Chen**, M. Lanza, E. Pop, H.-S.P. Wong, "3D Monolithic Stacked 1T1R cells using Monolayer MoS_2 FET and hBN RRAM," *IEEE Intl. Electron Devices Meeting (IEDM)*, Dec 2018, San Francisco CA
235. L. Li, B. Magyari-Köpe, C.-H. Wang, **S. Deshmukh**, Z. Jiang, H. Li, Y. Yang, H.-L. Li, H. Tian, E. Pop, T.-L. Ren, H.-S.P. Wong, "First Principles Study of Memory Selectors using Heterojunctions of 2D Layered Materials," *IEEE Intl. Electron Devices Meeting (IEDM)*, Dec 2018, San Francisco CA
234. **S. Deshmukh**, **C. Koroglu**, **M. Muñoz Rojo**, **S. Vaziri**, **E. Yalon**, E. Pop, "Thermal Measurement of Resistive Memory (RRAM) Devices by Calibrated Scanning Thermal Microscopy," *Eurotherm Nanoscale & Microscale Heat Transfer VI (NMHT)*, Dec 2018, Levi, Finland
233. **M. Muñoz Rojo**, **Z. Li**, C. Sievers, **A.C. Bornstein**, **E. Yalon**, **S. Deshmukh**, **S. Vaziri**, **M.-H. Bae**, **F. Xiong**, D. Donadio, E. Pop, "Thermal Transport Across Graphene Step Junctions," *Eurotherm Nanoscale & Microscale Heat Transfer VI (NMHT)*, Dec 2018, Levi, Finland
232. A.S. Yalamarthy, **M. Muñoz Rojo**, A. Bruefach, E. Pop, D.G. Senesky, "Phonon drag Enhancement of the Seebeck Coefficient in the AlGaN/GaN Two-dimensional Electron Gas," *Eurotherm Nanoscale & Microscale Heat Transfer VI (NMHT)*, Dec 2018, Levi, Finland
231. **A. Sood**, **Y.C. Shin**, **V. Chen**, **K.K.H. Smithe**, K.E. Goodson, E. Pop, "Towards Engineering Giant Thermal Resistivity in Multilayer Graphene-MoS_2 Heterostructures," *MRS Fall Meeting*, Nov 2018, Boston MA
230. **S. Vaziri**, **E. Yalon**, **M. Muñoz Rojo**, **S.V. Suryavanshi**, **C.J. McClellan**, **C.S. Bailey**, **A.J. Gabourie**, **V. Chen**, **S. Deshmukh**, **K.K.H. Smithe**, E. Pop, "Layer-by-Layer Temperature Probing Across 2D van der Waals Heterostructures," *MRS Fall Meeting*, Nov 2018, Boston MA
229. **S. Deshmukh**, R. Islam, C. Saltonstall, **E. Yalon**, T.E. Beechem, K.C. Saraswat, E. Pop, "Tuning Thermal and Electrical Properties of NiO_x Films by UV/O_3 Treatment for Resistive Memory Applications," *MRS Fall Meeting*, Nov 2018, Boston MA
228. K.L. Okabe, **A. Sood**, **E. Yalon**, **C.M. Neumann**, E. Pop, M. Asheghi, K.E. Goodson, H.-S.P. Wong, "Electrical and Thermal Analysis of Interfacial Phase Change Memory," *E\PCOS (European Phase-Change and Ovonics Symposium)*, Catania Italy, Sep 2018 **(Best Presentation Award, 3rd Prize)**
227. **E. Yalon**, K. Okabe, **C.M. Neumann**, H.-S.P. Wong, E. Pop, "Improving PCM Energy-Efficiency by Reducing Pulse Widths," *E\PCOS (European Phase-Change and Ovonics Symposium)*, Catania Italy, Sep 2018
226. **C.J. McClellan**, **E. Yalon**, L. Cai, **S. Suryavanshi**, X. Zheng, E. Pop, "Effective Hole Doping and Steep Switching in WSe_2 Transistors," *SRC TECHCON*, Sep 2018, Austin TX **(Best Presentation Award)**
225. **K. Schauble**, **E. Yalon**, D. Zakhidov, **S. Deshmukh**, **C.J. McClellan**, **S. Vaziri**, A.K. Sood, A. Salleo, E. Pop, "Interfacial Reactions and Doping Effects at Metal Contacts to Monolayer MoS_2," *SRC TECHCON*, Sep 2018, Austin TX
224. **S. Deshmukh**, **M. Muñoz Rojo**, **E. Yalon**, **S. Vaziri**, E. Pop, "Nanoscale Thermometry of RRAM Filaments with Intimate Graphene Contacts," *SRC TECHCON*, Sep 2018, Austin, TX
223. **K. Schauble**, **E. Yalon**, D. Zakhidov, **S. Deshmukh**, **C.J. McClellan**, *S. Vaziri*, A.K. Sood, A. Salleo, E. Pop, "Interfacial Reactions and Doping Effects at Metal Contacts to Monolayer MoS_2," *Electronic Materials Conference (EMC)*, Jun 2018, Santa Barbara, CA
222. **C.J. McClellan**, **E. Yalon**, L. Cai, **S.V. Suryavanshi**, X. Zheng, E. Pop, "Sub-Thermionic Steep Switching in Hole-Doped WSe_2 Transistors," *IEEE Device Research Conference (DRC)*, Jun 2018, Santa Barbara, CA
221. **I.M. Datye**, **M. Muñoz Rojo**, **E. Yalon**, **M.J. Mleczko**, E. Pop, "Localized Heating in $MoTe_2$-Based Resistive Memory Devices," *IEEE Device Research Conference (DRC)*, Jun 2018, Santa Barbara CA

220. **E. Yalon**, K. Okabe, **C.M. Neumann**, H.-S.P. Wong, E. Pop, "Energy-Efficient Phase Change Memory Programming by Nanosecond Pulses," *IEEE Device Research Conference (DRC)*, Jun 2018, Santa Barbara CA
219. Y.Y. Illarionov, **K.K.H. Smithe**, M. Waltl, **R.W. Grady**, **S. Deshmukh**, E. Pop, T. Grasser, "Annealing and Encapsulation of CVD-MoS_2 FETs with 10^{10} On/Off Current Ratio," *IEEE Device Research Conference (DRC)*, Jun 2018, Santa Barbara CA
218. **S. Deshmukh**, **M. Muñoz Rojo**, **E. Yalon**, **S. Vaziri**, E. Pop, "Probing Self-Heating in RRAM Devices by Sub-100 nm Spatially Resolved Thermometry," *IEEE Device Research Conference (DRC)*, Jun 2018, Santa Barbara CA
217. **S.M. Bohaichuk**, **M. Muñoz Rojo**, G. Pitner, **C.J. McClellan**, **F. Lian**, J. Li, J. Jeong, M.G. Samant, S.S.P. Parkin, H.-S. P. Wong, E. Pop, "Low Power Nanoscale Switching of VO_2 using Carbon Nanotube Heaters," *IEEE Device Research Conference (DRC)*, Jun 2018, Santa Barbara CA **(Best Poster Award)**
216. J. Zheng, A. Khanolkar, P. Xu, S. Colburn, **S. Deshmukh**, J. Myers, J. Frantz, E. Pop, N. Boechler, A. Majumdar, "Non-volatile All-Optical Quasi-Continuous Switching in GST-on-Silicon Microring Resonators," *CLEO 2018*, May 2018, San Jose CA
215. **R.L. Xu**, **M. Muñoz Rojo**, S.M. Islam, B. Vareskic, H.G. Xing, D. Jena, E. Pop, "Thermal Transport in AlN Single Crystals and AlN/GaN Superlattices," *MRS Spring Meeting*, Apr 2018, Phoenix AZ
214. **F. Lian**, T. Lei, **V. Chen**, **A. Sood**, **Z. Li**, K. Goodson, V. Gambin, Z. Bao, E. Pop, "High Electron and Hole Thermopower in Ultra-Pure Carbon Nanotube Networks," *MRS Spring Meeting*, Apr 2018, Phoenix AZ
213. **M. Chen**, **F. Lian**, **M. Muñoz Rojo**, **A. Sood**, K. Goodson, E. Pop, "Electrostatic Cycling of Suspended Graphene Thermal Switches," *MRS Spring Meeting*, Apr 2018, Phoenix AZ **(Best Presentation Award)**
212. A.S. Yalamarthy, **M. Muñoz Rojo**, A. Bruefach, E. Pop, D.G. Senesky, "Low-Temperature Seebeck Coefficient Enhancement in Gated AlGaN/GaN Heterostructures," *MRS Spring Meeting*, Apr 2018, Phoenix AZ
211. **K.K.H. Smithe**, Z. Zhu, **C.S. Bailey**, E. Pop, A. Yoon, "Investigation of Monolayer MX_2 as Sub-Nanometer Copper Diffusion Barriers," *IEEE Intl. Reliability Physics Symp. (IRPS)*, Mar 2018, Burlingame, CA
210. E. Barré, **J.A. Incorvia**, S.H. Kim, **C. McClellan**, E. Pop, H.-S.P. Wong, T.F. Heinz, "Spin and Valley Hall Effect in Monolayer WSe_2 Transistors at Near-Room Temperature," *APS March Meeting*, Los Angeles CA, Mar 2018
209. A. Yore, **K. Smithe**, S. Jha, K. Ray, N. Scandrette, V. Costa, E. Pop, A. Newaz, "Scalable fabrication of high performance monolayer MoS_2 photodetectors," *APS March Meeting*, Los Angeles CA, Mar 2018
208. A. Newaz, A. Yore, T. Mou, S. Jha, **K. Smithe**, B. Wang, E. Pop, "Photoresponse of Natural van der Waals Heterostructures," *APS March Meeting*, Los Angeles CA, Mar 2018
207. O. Karni, **K. Smithe**, **C. McClellan**, **C. Bailey**, E. Pop, T. Heinz, "Temperature dependence of charge transfer processes in $WS_2/MoSe_2$ heterobilayers probed by ultrafast spectroscopy," *APS March Meeting*, Los Angeles CA, Mar 2018
206. **S.V. Suryavanshi**, B. Sklenard, B. Magyari-Köpe, E. Pop, P. Blaise, "Understanding 2D Semiconductor-Metal Interface for Efficient Carrier Injection," *IEEE SISC*, Dec 2017, San Diego CA
205. R. Yang, H. Li, **K.K.H. Smithe**, T.R. Kim, K. Okabe, E. Pop, J.A. Fan, H.-S.P. Wong, "2D Molybdenum Disulfide (MoS_2) Transistors Driving RRAMs with 1T1R Configuration," *IEEE Intl. Electron Devices Meeting (IEDM)*, Dec 2017, San Francisco CA
204. Y. Shi, C. Pan, **V. Chen**, N. Raghavan, K.L. Pey, F.M. Puglisi, E. Pop, H.-S.P. Wong, M. Lanza, "Coexistence of volatile and non-volatile resistive switching in 2D *h*-BN based electronic synapses," *IEEE Intl. Electron Devices Meeting (IEDM)*, Dec 2017, San Francisco CA

203. **K.K.H. Smithe**, **C.S. Bailey**, **M. Muñoz Rojo**, A. Krayev, E. Pop, "Nanoscale Heterogeneities in Monolayer $MoSe_2$ and WSe_2 Revealed by Correlated SPM and TERS," *MRS Fall Meeting*, Nov 2017, Boston MA
202. **J.A. Incorvia**, E. Barré, S.H. Kim, **C. McClellan**, E. Pop, H.-S.P. Wong, T. Heinz, "Spin and Valley Hall Effect in Monolayer WSe_2 Transistors at Near-Room Temperature controlled via Electric Field," *62nd Annual Conf. on Magnetism and Magnetic Materials (MMM)*, Nov 2017, Pittsburgh PA
201. S. Chen, **A. Sood**, E. Pop, K. Goodson, D. Donadio, "Largely tunable anisotropic thermal conductivity of pristine and lithiated MoS_2," *APS Meeting of the Far West Section*, Nov 2017, Merced CA
200. **K.K.H. Smithe**, **C.S. Bailey**, A. Krayev, E. Pop, "Perfectly Perforated Monolayer WSe_2," *AVS 64th International Symposium & Exhibition*, Nov 2017, Tampa FL
199. **F. Xiong**, **E. Yalon**, **C. McClellan**, A. Sood, J. Zhang, K. Goodson, E. Pop, Y. Cui, "Tuning Two-Dimensional Material Properties via Electrochemical Intercalation," *IEEE Nanotechnology Materials and Devices Conference (NMDC)*, Oct 2017, Singapore
198. J. Shim, S. Banerjee, H. Qiu, **K.K.H. Smithe**, **D. Estrada**, J. Bello, E. Pop, R. Bashir, "Detection of Methylation in DNA using Nanopores in MoS_2 Membrane," *Biomedical Engineering Society (BMES) Annual Meeting*, Phoenix AZ, Oct 2017
197. Y.Y. Ilarionov, M. Waltl, **K.K.H. Smithe**, E. Pop, T. Grasser, "Encapsulated MoS_2 FETs with Improved Performance and Reliability," *Grapchina*, Sep 2017, Nanjing, China
196. C.-H. Wang, J.A. Currivan-Incorvia, **C. McClellan**, **A.C. Yu**, **M.J. Mleczko**, E. Pop, H.-S.P. Wong, "N-type Black Phosphorus Transistor with Low Work Function Contacts," *SRC TECHCON*, Sep 2017, Austin, TX
195. C.-L. Lo, M. Catalano, **K.K.H. Smithe**, L. Wang, E. Pop, M.J. Kim, Z. Chen, "On the Potential of 2D Layered Materials as Diffusion Barriers for Cu Interconnect Technology," *SRC TECHCON*, Sep 2017, Austin, TX
194. **S.V. Suryavanshi**, B. Magyari-Köpe, P. Lim, **C. McClellan**, **K. Smithe**, E. Pop, "Understanding Contact Physics of 2D Semiconductors," *SRC TECHCON*, Sep 2017, Austin TX
193. **C.J. McClellan**, **E. Yalon**, **K. Smithe**, **S. Suryavanshi**, E. Pop, "Effective n-type Doping of Monolayer MoS_2 by AlO_x," *SRC TECHCON*, Sep 2017, Austin TX **(Best Paper in Session Award)**
192. **K.K.H. Smithe**, **C.D. English**, **S.V. Suryavanshi**, E. Pop, "High-Field Transport and Velocity Saturation in Monolayer MoS_2," *SRC TECHCON*, Sep 2017, Austin TX
191. **K.K.H. Smithe**, **C.S. Bailey**, A. Krayev, E. Pop, "Grain Boundaries and Nanoscale Heterogeneities in Monolayer $MoSe_2$ Revealed by Correlated SPM and TERS," *6th Intl. Conf. on Tip-Enhanced Raman Spectroscopy (TERS-6)*, Aug 2017, Gaithersburg, MD
190. **F. Xiong**, A. Sood, H. Wang, **E. Yalon**, **C.J. McClellan**, J. Zhang, J. Sun, K. Goodson, Y. Cui, E. Pop, "Tuning Electrical and Thermal Properties in Molybdenum Disulfide via Li Intercalation," *Intl. Materials Research Congress (MRS-IMRC)*, Aug 2017, Cancun Mexico
189. **J.A. Currivan-Incorvia**, E. Barre, S.H. Kim, **C. McClellan**, E. Pop, H.-S.P. Wong, T. Heinz, "Room Temperature Electrical Control of Spin and Valley Hall Effect in Monolayer WSe_2 Transistors for Spintronic Applications," *IEEE Nano*, Jul 2017, Pittsburgh PA
188. **S.V. Suryavanshi**, **A.J. Gabourie**, A.B. Farimani, **E. Yalon**, E. Pop, "Thermal Boundary Conductance of the MoS_2-SiO_2 Interface," *IEEE Nano*, Jul 2017, Pittsburgh PA **(Best Paper Award)**
187. **S. Deshmukh**, **F. Lian**, **E. Yalon**, G. Pitner, H.-S.P. Wong, E. Pop, "Sub-15 nm Nanowires Enabled by Cryo Pulsed Self-Aligned Nanotrench Ablation on Carbon Nanotubes," *IEEE Nano*, Jul 2017, Pittsburgh PA
186. S. Colburn, A. Zhan, A. Majumdar, **S. Deshmukh**, E. Pop, J. Myers, J. Frantz, "Active Metasurfaces Based on Phase-Change Memory Material Digital Metamolecules," *IEEE Nano*, Jul 2017, Pittsburgh PA
185. **K.K.H. Smithe**, **C.D. English**, **S.V. Suryavanshi**, E. Pop, "High-Field Transport and Velocity Saturation in CVD Monolayer MoS_2," *EDISON 20*, Jul 2017, Buffalo NY **(Best Student Paper**

Award)

184. **C.J. McClellan**, **E. Yalon**, **K.K.H. Smithe**, **S.V. Suryavanshi**, E. Pop, "Effective n-type Doping of Monolayer MoS_2 by AlO_x," *IEEE Device Research Conference (DRC)*, Jun 2017, Notre Dame, IN
183. **N.C. Wang**, S. Sinha, B. Cline, **C.D. English**, G. Yeric, E. Pop, "Replacing Copper Interconnects with Graphene at a 7-nm Node," *IEEE Intl. Interconnect Tech. Conf. (IITC)*, May 2017, Hsinchu, Taiwan
182. C.-L. Lo, **K.K.H. Smithe**, R. Mehta, S. Chugh, E. Pop, Z. Chen, "Atomically Thin Diffusion Barriers for Ultra-Scaled Cu Interconnects Implemented by 2D Materials," *IEEE Intl. Reliability Physics Symp. (IRPS)*, Apr 2017, Monterey, CA
181. **C. McClellan**, L. Cai, **E. Yalon**, X. Zheng, E. Pop, "Record Current Density in Monolayer p-type WSe_2 with Ultrathin MoO_3 Hole Doping Layers," *MRS Spring Meeting*, Apr 2017, Phoenix AZ
180. **S. Bohaichuk**, G. Pitner, **F. Lian**, J. Jeong, M.G. Samant, S.S.P. Parkin, H.-S. Philip Wong, E. Pop, "Probing Metal-Insulator Transitions in VO_2 with Ultra-Narrow Carbon Nanotube Electrodes," *MRS Spring Meeting*, Apr 2017, Phoenix AZ
179. **M.J. Mleckzo**, **A.C. Yu**, **Y.C. Shin**, C. Smyth, R.M. Wallace, Y. Nishi, E. Pop, "De-Pinning Metal Contacts to $MoTe_2$ Using Monolayer h-BN," *MRS Spring Meeting*, Apr 2017, Phoenix AZ
178. **F. Xiong**, **E. Yalon**, **C.J. McClellan**, A. Sood, J. Zhang, J. Sun, K.E. Goodson, Y. Cui, E. Pop, "Probing electrical and thermal properties in electrochemically Li-intercalated MoS_2 nanosheets with Raman spectroscopy," *MRS Spring Meeting*, Apr 2017, Phoenix AZ
177. **M. Chen**, **M. Muñoz-Rojo**, **F. Lian**, E. Pop, "Thermal Switching with Collapsible Graphene Membranes," *MRS Spring Meeting*, Apr 2017, Phoenix AZ
176. A. Sood, **F. Xiong**, H. Wang, Y. Cui, E. Pop, K.E. Goodson, "Understanding and tuning heat conduction in MoS_2: cross-plane diffusive-ballistic transport, and dynamic electrochemical Tuning of Thermal Conductivity by Li Intercalation," *MRS Spring Meeting*, Apr 2017, Phoenix AZ **(Graduate Student Gold Award)**
175. **E. Yalon**, **K.K.H. Smithe**, O.B. Aslan, **C. McClellan**, **F. Xiong**, **Y.C. Shin**, A. Sood, **S. Suryavanshi**, **A.J. Gabourie**, **R.L. Xu**, **C. Neumann**, K.E. Goodson, T.F Heinz, E. Pop, "Thermal Boundary Conductance between Monolayer MoS_2 and SiO_2 via In Situ Raman Spectroscopy of Functioning MoS_2 Transistors," *MRS Spring Meeting*, Apr 2017, Phoenix AZ
174. O.B. Aslan, **I. Datye**, H.-H. Kuo, **M. Mleczko**, I. Fisher, E. Pop, T.F. Heinz, "Probing the Band Structure of Ultrathin $MoTe_2$ via Strain," *APS March Meeting*, New Orleans LA, Mar 2017
173. A.K.M. Newaz, A.E. Yore, A. Miller, W. Crumrine, B. Redd, J.A. Tuck, B. Wang, **K.K.H. Smithe**, E. Pop, "Visualization of defect-induced excitonic properties of the edges and grain boundaries in synthesized monolayer molybdenum disulfide," *APS March Meeting*, New Orleans LA, Mar 2017
172. **K.K.H. Smithe**, **S. Suryavanshi**, **C.D. English**, E. Pop, "High-Field Transport and Velocity Saturation in Synthetic Monolayer MoS_2," *APS March Meeting*, New Orleans LA, Mar 2017
171. A.K.M. Newaz, **K.K.H. Smithe**, K. Ray, A.E. Yore, B. Wang, E. Pop, "Opto-Electronic Properties of Synthesized Monolayer Molybdenum Disulfide," *2nd Intl. Symposium on Science & Technology of 2D Materials*, Orlando FL, Feb 2017
170. **F. Xiong**, **E. Yalon**, **A. Behnam**, **C.M. Neumann**, **K.L. Grosse**, **S. Deshmukh**, E. Pop, "Towards Ultimate Scaling Limits of Phase-Change Memory," *IEEE Intl. Electron Devices Meeting (IEDM)*, Dec 2016, San Francisco CA **(Invited Paper)**
169. **C.D. English**, **K.K.H. Smithe**, **R.L. Xu**, E. Pop, "Approaching Ballistic Transport in Monolayer MoS_2 Transistors with Self-Aligned 10 nm Top Gates," *IEEE Intl. Electron Devices Meeting (IEDM)*, Dec 2016, San Francisco CA
168. **Y.C Shin**, A. Sood, **K.K.H. Smithe**, K.E. Goodson, E. Pop, "Optical and thermal properties of heterogeneously integrated CVD-grown 2D materials," *MRS Fall Meeting*, Nov 2016, Boston MA
167. **K.K.H. Smithe**, E. Pop, "Large-Grain Synthesis of Monolayer $MoSe_2$ and WSe_2," *MRS Fall Meeting*, Nov 2016, Boston MA
166. S. Dutta, Y. Yang, **N. Wang**, E. Pop, V. Cadambe, P. Grover, "Reliable matrix multiplication using

error-prone dot-product nanofunctions with an application to logistic regression," *SRC TECHCON*, Sep 2016, Austin TX

165. **N.C. Wang**, S.K. Gonugondla, I. Nahlus, N.R. Shanbhag, E. Pop, "GDOT: A Graphene-Based Nanofunction for Dot-Product Computation," *SRC TECHCON*, Sep 2016, Austin TX **(Best Paper in Session Award)**
164. M. Morea, K. Gu, V. Savikhin, C.S. Fenrich, E. Pop, J.S. Harris, "Optimization of TCR and Heat Transport in Group-IV Multiple-Quantum-Well Microbolometers," *Proc. SPIE*, Aug 2016, San Diego CA
163. Y.K. Koh, **A.S. Lyons**, D.G. Cahill, E. Pop, "Electronic control of phonon heat flow across graphene interfaces," *ASME Summer Heat Transfer Conference*, Jul 2016, Washington DC
162. **C.J. McClellan**, **M.J. Mleczko**, **K.K.H, Smithe**, Y. Nishi, E. Pop, "WTe_2 as a Two-Dimensional (2D) Metallic Contact for 2D Semiconductors," *IEEE Device Research Conference (DRC)*, Jun 2016, Univ. Delaware DE
161. **E. Yalon**, **C.J. McClellan**, **K.K.H. Smithe**, **Y.C. Shin**, **R.L. Xu**, E. Pop, "Direct Observation of Power Dissipation in Monolayer MoS_2 Devices," *IEEE Device Research Conference (DRC)*, Jun 2016, Univ. Delaware DE
160. **I.M. Datye**, **A.J. Gabourie**, **C.D. English**, **N.C. Wang**, E. Pop "Reduction of Hysteresis in MoS_2 Transistors Using Pulsed Voltage Measurements," *IEEE Device Research Conference (DRC)*, Jun 2016, Univ. Delaware DE **(Best Poster Award)**
159. **M.J. Mleczko**, C. Zhang, H.R. Lee, H.H. Kuo, B. Magyari-Köpe, Z.-X. Shen, R.G. Moore, I.R. Fisher, Y. Nishi, E. Pop, "Atomically-Thin $HfSe_2$ Transistors with Native Metal Oxides," *IEEE Device Research Conference (DRC)*, Jun 2016, Univ. Delaware DE
158. **N.C. Wang**, S.K. Gonugondla, I. Nahlus, N.R. Shanbhag, E. Pop, "GDOT: A Graphene-Based Nanofunction for Dot-Product Computation," *IEEE VLSI Tech. Symp.*, Jun 2016, Honolulu HI
157. **R.L. Xu**, **M.J. Mleczko**, **S. Bohaichuk**, Y. Nishi, E. Pop, "Thermal Limitations of Two-Dimensional Semi-Metallic WTe_2 Devices," *IEEE SNW (Silicon Nanoelectronics Workshop)*, Jun 2016, Honolulu HI
156. **R.S. Luo**, A.R. Alpert, M. Asheghi, E. Pop, K.E. Goodson, "Analytical Model of Graphene-Enabled Ultra-Low Power Phase Change Memory," *ITHERM (Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems)*, Jun 2016, Las Vegas NV
155. **F. Xiong**, H. Wang, A. Sood, X. Liu, J. Sun, M. Brongersma, K. Goodson, E. Pop, Y. Cui, "Tuning Electrical, Optical and Thermal Properties in MoS_2 Nanosheets via Li Intercalation," *MRS Spring Meeting*, Mar 2016, Phoenix AZ
154. A. Yore, W. Crumrine, **K.K.H. Smithe**, E. Pop, B. Wang, A. Newaz, "Giant blue shifted photoluminescence peak from the edges of CVD grown monolayer MoS_2," *APS March Meeting*, Mar 2016, Baltimore, MD
153. Y.K. Koh, **A.S. Lyons**, D.G. Cahill, E. Pop, "Electronic control of phonon heat flow across graphene interfaces," *Micro/Nanoscale Heat & Mass Transfer International Conference*, Jan 2016, Singapore
152. **S. Deshmukh**, R. Islam, C. Chen, **E. Yalon**, K.C. Saraswat, E. Pop, "Thermal Modeling of Metal Oxides for Highly Scaled Nanoscale RRAM," *SISPAD*, Sep 2015, Washington DC
151. **S.V. Suryavanshi** and E. Pop, "Physics-based Verilog-A Model for Circuit Simulations of Two-dimensional Semiconductor Devices," *SRC TECHCON*, Sep 2015, Austin TX
150. **N.C. Wang**, **E.A. Carrion**, **M.C. Tung** and E. Pop, "Reducing Graphene Device Variability with Yttrium Sacrificial Layers," *SRC TECHCON*, Sep 2015, Austin TX
149. **K.K.H. Smithe**, **C.D. English**, E. Pop, "Record-High Mobility in Monolayer MoS_2 Devices Grown by Chemical Vapor Deposition," *SRC TECHCON*, Sep 2015, Austin TX
148. P. Pedrinazzi, L. Anzi, M. Fiocco, E. Guerriero, A. Mansouri, **A. Behnam**, **E.A. Carrion,** A. Pesquera, A. Centeno, A. Zurutuza, E. Pop, R. Sordan, "Ultra-low contact resistance in graphene devices," *Graphene Week*, Jun 2015, Manchester UK
147. **K.K.H. Smithe, C.D. English, S.V. Suryavanshi,** E. Pop, "High Mobility in Monolayer MoS_2 Devices

Grown by Chemical Vapor Deposition," *IEEE Device Research Conference (DRC)*, Jun 2015, Ohio State OH

146. **S.V. Suryavanshi** and E. Pop, "Physics-Based Compact Model for Circuit Simulations of 2-Dimensional Semiconductor Devices," *IEEE Device Research Conference (DRC)*, Jun 2015, Ohio State OH
145. C.-S. Lee, E. Pop, H.-S.P. Wong, "Compact Modeling and Design Optimization of Carbon Nanotube Field-Effect Transistors for the Sub-10-nm Technology Nodes," *IEEE Device Research Conference (DRC)*, Jun 2015, Ohio State OH
144. **S. Deshmukh, F. Xiong, F. Lian,** Y. Cui, E. Pop, "Characterization of Highly Resistive Nanoscale RRAM Contacts," *MRS Spring Meeting*, Apr 2015, San Francisco CA
143. **K.K.H. Smithe, T.I. Anderson, N.C. Wang,** A.U. Tang, H.-S.P. Wong, E. Pop, "Large-Scale Analysis of Devices from MoS_2 Grown by Chemical Vapor Deposition," *MRS Spring Meeting*, Apr 2015, San Francisco CA
142. **N.C. Wang** and E. Pop, "Reducing Graphene Device Variability with Yttrium Sacrificial Layers," *MRS Spring Meeting*, Apr 2015, San Francisco CA
141. **M.J. Mleczko,** H.H. Kuo, H.R. Lee, B. Magyari-Kope, I. Fisher, Y. Nishi, E. Pop, "Growth and Device Applications of Narrow-Gap Dichalcogenide Semiconductors," *MRS Spring Meeting*, Apr 2015, San Francisco CA
140. A. Sood, **F. Xiong,** H. Wang, **F. Lian, Z. Li,** Y. Cui, E. Pop, K. Goodson, "Tunable thermal conductivity in MoS_2 thin films via Li intercalation," *MRS Spring Meeting*, Apr 2015, San Francisco CA
139. Y. An, B. Wu, **A. Behnam**, E. Pop, A. Ural, "Metal-oxide-semiconductor capacitors based on graphene and p-type silicon," *APS March Meeting*, Mar 2015, San Antonio TX
138. **S. Islam, A.Y. Serov,** I. Meric, J. Lee, D. Akinwande, K. Shepard, E. Pop, "Substrate Dependent High-Field Transport of Graphene Transistors," *SRC TECHCON*, Sep 2014, Austin TX
137. **C.D. English, V.E. Dorgan,** G. Shine, K.C. Saraswat, E. Pop, "Improving Contact Resistance in MoS_2 Field Effect Transistors," *SRC TECHCON*, Sep 2014, Austin TX **(Best Paper in Session Award)**
136. J.-W. Do, **D. Estrada,** X. Xie, N.N. Chang, J.L. Mallek, G.S. Girolami, J.A. Rogers, E. Pop, J.W. Lyding, "Self-Limiting and Selective Nanosoldering of Carbon Nanotube Junctions for Improved Device Performance," *International Conference on Nanoscience + Technology (ICN+T)*, Jul 2014, Vail CO
135. **A.Y. Serov, V.E. Dorgan, C.D. English,** E. Pop, "Multi-Valley High-Field Transport in 2-Dimensional MoS_2 Transistors," *IEEE Device Research Conference (DRC)*, Jun 2014, Santa Barbara CA
134. **E.A. Carrion, J.D. Wood, A. Behnam**, **M.C. Tung,** J.W. Lyding, E. Pop, "Variability of Graphene Mobility and Contacts: Surface Effects, Doping and Strain," *IEEE Device Research Conference (DRC)*, Jun 2014, Santa Barbara CA
133. **C.D. English, G. Shine, V.E. Dorgan,** K.C. Saraswat, E. Pop, "Improving Contact Resistance in MoS_2 Field Effect Transistors," *IEEE Device Research Conference (DRC)*, Jun 2014, Santa Barbara CA
132. J.-W. Do, **D. Estrada,** X. Xie, N.N. Chang, J. Mallek, G.S. Girolami, J.A. Rogers, E. Pop, J.W. Lyding, "Self-Limiting and Selective Nanosoldering of Carbon Nanotube Junctions for Improved Device Performance," *MRS Spring Meeting*, Apr 2014, San Francisco CA
131. **F. Lian, J.P. Llinas, Z. Li, D. Estrada,** E. Pop, "Thermal Transport in Chirality-Sorted Carbon Nanotube Networks," *MRS Spring Meeting*, Apr 2014, San Francisco CA
130. **A.Y. Serov, V.E. Dorgan, C.D. English,** E. Pop "High-Field Transport in MoS_2 Field-Effect Transistors," *MRS Spring Meeting*, Apr 2014, San Francisco CA
129. **F. Xiong, Y. Dai, A. Behnam**, E. Pop, "Activation Energy of Carbon Nanotube Joule Breakdown in Variable Oxygen Environments," *MRS Spring Meeting*, Apr 2014, San Francisco CA
128. S. Raoux, H.-Y. Cheng, J. Jordan-Sweet, **F. Xiong,** E. Pop, "GaSb-Based Phase Change Materials as Candidates for Phase Change Memory," *MRS Spring Meeting*, Apr 2014, San Francisco CA

127. **C.D. English, V.E. Dorgan,** G. Shine, **F. Xiong,** K.C. Saraswat, E. Pop, "Improving Contact Resistance in MoS_2 Field Effect Transistors," *MRS Spring Meeting*, Apr 2014, San Francisco CA
126. O. Khatib**, J.D. Wood,** G.P. Doidge, G.L. Damhorst, A. Rangarajan, R. Bashir, E. Pop, J.W. Lyding, D.N. Basov, "Graphene-based platform for nano-scale infrared near-field spectroscopy of biological materials," *APS March Meeting*, Mar 2014, Denver CO
125. **Z. Li,** Y. Liu, Y. Xu, W. Duan, E. Pop, "Ballistic Thermal Conductance in Layered Two-Dimensional Materials," *APS March Meeting*, Mar 2014, Denver CO
124. E. Piccinini, A. Cappelli, **F. Xiong, A. Behnam**, F. Buscemi, R. Brunetti, M. Rudan, E. Pop, C. Jacoboni, "Novel 3D Random-Network Model for Threshold Switching of Phase-Change Memories," *IEEE Intl. Electron Devices Meeting (IEDM)*, Dec 2013, Washington DC
123. **V.E. Dorgan, C.D. English,** E. Pop, "High-Field Negative Differential Conductance in MoS_2 Field-Effect Transistors," *MRS Fall Meeting*, Nov 2013, Boston MA
122. S. Raoux, H.-Y. Cheng, J. Jordan-Sweet, T. Monin, **F. Xiong,** A. König, D. Garbin, R. Cheek, E. Pop, M. Wuttig "Crystallization properties of Ga-Sb Phase Change Alloys," *E\PCOS*, Sep 2013, Berlin, Germany
121. A. Cappelli, E. Piccinini, F. Buscemi, **F. Xiong**, **A. Behnam**, R. Brunetti, M. Rudan, E. Pop, C. Jacoboni, "3D-nHD: transport in a 3D network using the HydroDynamic model," *E\PCOS*, Sep 2013, Berlin, Germany
120. **E.A. Carrion, M. Tung, A. Malik, A. Behnam**, E. Pop, "Variability of Graphene Transistors: Roles of Contacts and Enhanced Characterization Techniques," *SRC TECHCON*, Sep 2013, Austin TX **(Best Paper in Session Award)**
119. **A.Y. Serov, S. Islam** and E. Pop, "Simulation of realistic graphene transistors including non-ideal behavior," *SRC TECHCON*, Sep 2013, Austin TX
118. **S. Islam, A.Y. Serov, E. Carrion,** E. Pop, "Effect of Channel Length Scaling on Current Saturation in Graphene Transistors," *SRC TECHCON*, Sep 2013, Austin TX
117. **V.E. Dorgan**, **A. Behnam**, H.J. Conley, K.I. Bolotin, E. Pop, "High-Field Electrical and Thermal Transport in Suspended Graphene," *SRC TECHCON*, Sep 2013, Austin TX
116. A. Cappelli, E. Piccinini, **F. Xiong**, **A. Behnam**, R. Brunetti, E. Pop, C. Jacoboni, "3D-nHD: A hydrodynamic model for trap-limited conduction in a 3D network," *IEEE SISPAD*, Sep 2013, Glasgow, Scotland
115. M.P. Gupta, **D. Estrada, A. Behnam**, E. Pop, S. Kumar, "Impact of Network Morphology on Electrical Breakdown of Carbon Nanotube Thin-Film Transistors," *InterPACK 2013*, Jul 2013, San Francisco CA
114. P.K. Mohseni, **A. Behnam**, **J.D. Wood, C.D. English,** L. Yu, D. Wasserman, J.W. Lyding, E. Pop, X. Li, "When van der Waals Epitaxy Meets a Commensurate Interface: Self-Segregation of InGaAs Nanowires on Graphene," *Electronic Materials Conf. (EMC)*, Jun 2013, Notre Dame IN
113. **S. Islam, A.Y. Serov,** I. Meric, K.L. Shepard, E. Pop, "Substrate Dependent High-Field Transport of Graphene Transistors," *IEEE Device Research Conference* (DRC), Jun 2013, Notre Dame IN
112. **A.Y. Serov, S. Islam,** E. Pop, "Realistic Simulation of Graphene Transistors Including Non-Ideal Electrostatics," *IEEE Device Research Conference* (DRC), Jun 2013, Notre Dame IN
111. **J.D. Wood,** G.P. Doidge, J. Shim, J.C. Koepke, **E.A. Carrion,** I. Datye, G.L. Damhorst, E. Salm, Y. Chen, R. Bashir, E. Pop, J.W. Lyding, "Layered Graphene Membranes for Biomolecule Preservation and Programmable Hydration," *Graphene Week*, Jun 2013, Chemnitz Germany
110. M. Bianchi, L. Rizzi, **A. Behnam**, **E. Carrion,** E. Guerriero, L. Polloni, E. Pop, R. Sordan, "Cascading Wafer-Scale Integrated Graphene Complementary Inverters in Ambient Air," *E-MRS Spring Meeting*, May 2013, Strasbourg France
109. **J.D. Wood,** G.P. Doidge, J.C. Koepke, **E.A. Carrion,** G. Damhorst, E. Salm, R. Bashir, E. Pop, J.W. Lyding, "Clean Transfer of CVD Graphene for Biomolecule-Graphene Nanosandwiches," *MRS Spring Meeting*, Apr 2013, San Francisco CA
108. C.-L. Tsai, **F. Xiong,** Y. Jiang, **Y. Dai,** E. Pop, M. Shim, "Low-Power AlO_x-Based RRAM with Carbon

Nanotube Crossbar Electrodes," *MRS Spring Meeting*, Apr 2013, San Francisco CA

107. **K.L. Grosse, F. Xiong, S. Hong,** W.P. King, E. Pop, "Nanometer-Scale Joule and Peltier Effects at Phase-Change Memory Contacts," *MRS Spring Meeting*, Apr 2013, San Francisco CA
106. M.P. Gupta, **A. Behnam**, **D. Estrada,** E. Pop, S. Kumar, "Size Effects on Heat Dissipation and Thermal Reliability of Carbon Nanotube Thin-Film Transistors," *MRS Spring Meeting*, Apr 2013, San Francisco CA
105. **F. Lian, D. Estrada,** H. Tian, **A.J. Hoag, J.P. Llinas,** M.Y. Timmermans, A.G. Nasibulin, E.I. Kauppinen, S. Sinha, E. Pop, "Thermal Imaging and Analysis of Carbon Nanotube Composites," *MRS Spring Meeting*, Apr 2013, San Francisco CA
104. **V.E. Dorgan, A. Behnam**, E. Pop, "High-Field Transport in Suspended Graphene," *MRS Spring Meeting*, Apr 2013, San Francisco CA
103. Y. An, **A. Behnam**, E. Pop, A. Ural, "Graphene/p-type silicon metal-semiconductor-metal photodetectors," *MRS Spring Meeting*, Apr 2013, San Francisco CA
102. **D. Estrada, Z. Li,** S.N. Dunham, G.M. Choi, **N. Wang,** Y. Meng, **F. Lian,** J. Lee, J.-M. Zuo, W.P. King, J.A. Rogers, D.G. Cahill, E. Pop, "Thermal Anisotropy of Layer-by-Layer Assembled Graphene Films," *MRS Spring Meeting*, Apr 2013, San Francisco CA
101. **A. Behnam**, A. Cappelli, **F. Xiong, Y. Dai,** S. Hong, **E. Carrion, A.S. Lyons,** E. Piccinini, C. Jacoboni, E. Pop, "Phase Change Memory with Graphene Ribbon Electrodes," *MRS Spring Meeting*, Apr 2013, San Francisco CA
100. J.C. Koepke, **J.D. Wood,** E. Pop, J.W. Lyding, "Growth and Contrast of Hexagonal Boron Nitride: From Sub-monolayer Islands to Multilayer Films," *APS March Meeting*, Mar 2013, Baltimore MD
99. S. Banerjee, J. Shim, J. Rivera, X. Jin, **D. Estrada,** V. Solovyeva, X. You, J. Pak, E. Pop, N. Aluru, R. Bashir, "Electrochemistry of Graphene Edge Embedded Nanopores," *APS March Meeting*, Mar 2013, Baltimore MD
98. **J.D. Wood,** G.P. Doidge, B. Aruin, H. Dong, J.C. Koepke, **E. Carrion,** I. Datye, K. Chatterjee, J. Moore, E. Pop, J.W. Lyding, "Alternative polymer scaffolds for clean transfer of CVD-grown graphene," *APS March Meeting*, Mar 2013, Baltimore MD
97. S. Banerjee, J. Shim, J. Rivera, X. Jin, **D. Estrada,** E. Pop, N.R Aluru, and R. Bashir, "Stacked Graphene-Al_2O_3 Nanopore Architecture for DNA detection", *IEEE-EMBS Micro- and Nanoengineering in Medicine Conf. (MNMC)*, Dec 2012, Ka'anapali, Maui HI
96. P.K. Mohseni, **A. Behnam**, **J.D. Wood,** J.W. Lyding, E. Pop, and X. Li, "Van der Waals Epitaxy of Self-Organized $In_xGa_{1-x}As$/InAs Nanowire Heterostructures on Single Layer Graphene Substrates," *MRS Fall Meeting*, Nov 2012, Boston MA
95. **A.D. Liao, C.M. Neumann,** E. Pop, "Probing the Upper Limits of Current Density in One-Dimensional Carbon Interconnects," *MRS Fall Meeting*, Nov 2012, Boston MA
94. **K.L. Grosse,** X. Xie, **F. Xiong, M.-H. Bae**, **F. Lian, V.E. Dorgan,** J.A. Rogers, E. Pop, W.P. King, "Nanometer-scale Thermometry of Graphene, Carbon Nanotubes, and Phase Change Memory," *Intl. Mechanical Engineering Congress and Expo (IMECE)*, Nov 2012, Houston TX
93. M.P. Gupta, L. Chen, **D. Estrada**, **A. Behnam**, E. Pop, S. Kumar, "Impact of Network Morphology on Electrical Breakdown of Carbon Nanotube Thin-Film Transistors," *IMECE*, Nov 2012, Houston TX
92. **A.Y. Serov**, E. Pop, "High Field Transport and Velocity Saturation in Graphene Transistors," *SRC TECHCON* 2012, Sep 2012, Austin TX
91. J.-W. Do, **D. Estrada**, X. Xie, N. Chang, G. Girolami, J. Rogers, E. Pop, J. Lyding, "Nanosoldering Carbon Nanotube Junctions with Metal via Local Chemical Vapor Deposition for Improved Device Performance," *IEEE Nano*, Aug 2012, Birmingham UK
90. K.T. He, **J.D. Wood**, G.P. Doidge, E. Pop, J.W. Lyding, "Scanning Tunneling Microscopy Characterization of Graphene-Coated Few-layered Water on Mica," *IEEE Nano*, Aug 2012, Birmingham UK
89. **J.D. Wood**, S.W. Schmucker, R.T. Haasch, G.P. Doidge, G.L. Damhorst, **A.S. Lyons**, R. Bashir, E.

Pop, J.W. Lyding, "Improved Graphene Growth and Fluorination on Cu with Clean Transfer to Surfaces," *IEEE Nano*, Aug 2012, Birmingham UK

88. J.C. Koepke, **J.D. Wood**, **D. Estrada**, **Z.-Y. Ong**, E. Pop, J.W. Lyding, "Atomic-Scale Study of Scattering and Electronic Properties of CVD Graphene Grain Boundaries," *IEEE Nano*, Aug 2012, Birmingham UK **(Geim and Novoselov Graphene Prize)**
87. **A.Y. Serov**, E. Pop, "Grain-Boundary Limited Thermal Transport in Graphene," *Phonons 2012*, Jul 2012, Ann Arbor, MI
86. **Z. Li**, **M.-H. Bae**, **P. Martin**, E. Pop, "Ballistic to Diffusive Crossover of Phonon Flow in Graphene Ribbons," *Phonons 2012*, Jul 2012, Ann Arbor, MI
85. **E. Carrion**, **A. Malik**, **A. Behnam**, **S. Islam**, **F. Xiong**, E. Pop, "Pulsed Nanosecond Characterization of Graphene Transistors," *IEEE Device Research Conference* (DRC), Jun 2012, State College PA
84. **F. Xiong**, **M.-H. Bae**, **Y. Dai**, **A.D. Liao**, **A. Behnam**, **E. Carrion**, **S. Hong**, D. Ielmini, E. Pop, "Nanowire Phase Change Memory with Carbon Nanotube Electrodes," *IEEE Device Research Conference* (DRC), Jun 2012, State College PA
83. **N. Wang**, **C.D. English**, E. Pop, "Comparison of Graphene Nanoribbons With Cu and Al Interconnects," *IEEE Device Research Conference* (DRC), Jun 2012, State College PA
82. **A.Y. Serov**, **Z.-Y. Ong**, **V.E. Dorgan**, Eric Pop, "Role of Screening, Heating, and Dielectrics on High-Field Transport in Graphene," *IEEE Device Research Conference* (DRC), Jun 2012, State College PA
81. **A. Behnam**, **A. Lyons**, **M.-H. Bae**, E.K. Chow, **S. Islam**, **C.M. Neumann**, E. Pop, "Graphene Nanoribbons from CVD Graphene," *MRS Spring Meeting*, Apr 2012, San Francisco CA
80. **M.-H. Bae**, **Z. Li**, P. Martin, **F. Lian**, E. Pop, "From Ballistic to Diffusive Thermal Transport in Graphene and Graphene Nanoribbons," *MRS Spring Meeting*, Apr 2012, San Francisco CA
79. **A. Behnam**, **D. Estrada**, V. Sangwan, X. Zhong, D. Jariwala, L. Lauhon, T.J. Marks, M.C. Hersam, E. Pop, "Performance Limits and Degradation of Carbon Nanotube Network Transistors," *MRS Spring Meeting*, Apr 2012, San Francisco CA
78. W. Ye, P.A.P. Martin, N. Kumar, **D. Estrada**, S.R. Daly, A.A. Rockett, J.R. Abelson, E. Pop, G.S. Girolami, J.W. Lyding, "Nanometalization of Single-Wall Carbon Nanotubes and Graphene Quantum Dots," *ACS (American Chemical Society) 243rd National Meeting*, Mar 2012, San Diego CA
77. **J.D. Wood**, S. Schmucker, G. Doidge, T. Krawczyk, **A.S. Lyons**, E. Pop, J.W. Lyding, "Crystallographic effects of copper substrate on graphene growth and fluorination," *APS March Meeting*, Mar 2012, Boston MA
76. **A.D. Liao**, **C. Neumann**, E. Pop, "Fundamental Limits of Current Flow in One-dimensional Carbon Nanomaterials," *APS March Meeting*, Mar 2012, Boston MA
75. G. Doidge, **J.D. Wood**, E Pop, J.W. Lyding, "Confinement of organic solvents by wet transfer of graphene," *APS March Meeting*, Mar 2012, Boston MA
74. M.P. Gupta, **D. Estrada**, E. Pop, S. Kumar, "Impact of Contact Resistances on Electrical and Thermal Transport in Carbon Nanotube Network Transistors," *ASME Micro/Nanoscale Heat & Mass Transfer Intl. Conf.*, Mar 2012, Atlanta GA
73. V. Solovyeva, E. Chow, **M.-H. Bae**, **D. Estrada**, S. Banerjee, **A. Behnam**, **V.E. Dorgan**, W.J. Chang, E. Pop, R. Bashir, "New technique of DNA sensing: transverse nanoribbon electrodes," *Biophysical Society 56th Annual Meeting*, Feb 2012, San Diego CA
72. **J.D. Wood**, K.T. He, E. Pop, J.W. Lyding, "Scanning Tunneling Microscopy and Nanomanipulation of Graphene-Coated Water on Mica," *AVS Meeting* 2011, Oct 2011, Nashville TN
71. **A. Liao**, J. Wu, X. Wang, K. Tahy, D. Jena, H. Dai, E. Pop, "Thermally-Limited Current Carrying Ability of Graphene Nanoribbons," *SRC TECHCON*, Sep 2011, Austin TX
70. **F. Xiong**, **M.-H. Bae**, **A. Liao**, **Y. Dai**, E. Pop, "Phase-Change Memory Nanowires with Self-Aligned Carbon Nanotube Electrodes," *SRC TECHCON*, Sep 2011, Austin TX **(Best Paper in Session Award)**
69. **S. Islam**, **M.-H. Bae**, **V. Dorgan**, E. Pop, "Effect of Oxide Thickness Scaling on Self-Heating in

Graphene Transistors," *IEEE Device Research Conference* (DRC), Jun 2011, Santa Barbara CA

68. **A. Lyons**, **A. Behnam**, E.K. Chow, E. Pop, "Transport Properties of CVD-Grown Graphene Nanoribbon Field-Effect Transistors," *IEEE Device Research Conference* (DRC), Jun 2011, Santa Barbara CA
67. M.Y. Timmermans, **D. Estrada**, A.G. Nasibulin, E. Pop, E.I. Kauppinen, "Optimizing Carbon Nanotube Network Morphology for Thin Film Transistors," *Nanotubes*-11 (NT11), Jul 2011, Cambridge, UK
66. **D. Estrada**, **C.-M. Chin**, **D. Ortigara**, E. Pop, "Dissipation and Breakdown in Carbon Nanotube Network Transistors," *Nanotubes* 2011 (NT11), Jul 2011, Cambridge, UK
65. **A. Liao**, J. Wu, X. Wang, K. Tahy, D. Jena, H. Dai, E. Pop, "Thermally-Limited Current Carrying Ability of Graphene Nanoribbons," *Graphene* 2011, Apr 2011, Bilbao, Spain
64. **A.S. Lyons**, E.K. Chow, **V.E. Dorgan**, E. Pop, "Large Scale CVD Graphene Nanoribbon Transistors with High-κ Dielectrics and Top Gates," *Graphene* 2011, Apr 2011, Bilbao, Spain
63. **J.D. Wood**, S.W. Schmucker, J.C. Koepke, **A.S. Lyons**, E. Pop, J.W. Lyding, "Effects of Polycrystalline Cu Substrate on Graphene Growth by Chemical Vapor Deposition," *Graphene* 2011, Apr 2011, Bilbao, Spain
62. J. Koepke, **J.D. Wood**, **D. Estrada**, E. Pop, J.W. Lyding, "Atomic Scale Electronic Characterization of Grain Boundaries in Graphene Grown by Chemical Vapor Deposition on Copper Foil," *Graphene* 2011, Apr 2011, Bilbao, Spain
61. **J.D. Wood**, S.W. Schmucker, **A.S. Lyons**, E. Pop, J.W. Lyding, "Copper Crystallographic Dependence for Graphene Grown by Chemical Vapor Deposition," *MRS Spring Mtg.*, Apr 2011, San Francisco CA
60. **F. Xiong**, **M.-H. Bae**, **A. Liao**, **Y. Dai**, E. Pop, "GST Nanowires with Self-aligned Carbon Nanotube Electrodes," *MRS Spring Meeting*, Apr 2011, San Francisco CA
59. **J. Wood**, S. Sivapalan, **V. Dorgan**, C. Murphy, E. Pop, J.W. Lyding, "Aligned, ultra-long graphene nanoribbon network fabrication by nanowire etch masks," *APS March Meeting*, Mar 2011, Dallas TX
58. **Z.-Y. Ong**, E. Pop, "Surprising Effects of Substrate on Thermal Transport in Supported Graphene," *APS March Meeting*, Mar 2011, Dallas TX
57. J. Koepke, **D. Estrada**, **J. Wood**, E. Pop, J. Lyding, "Scanning Tunneling Microscopy Study of Grain Boundaries in Graphene Grown by Chemical Vapor Deposition on Copper Foil," *APS March Meeting*, Mar 2011, Dallas TX
56. **F. Xiong**, **A. Liao**, **M.-H. Bae**, **D. Estrada**, E. Pop, "Integrating Carbon-Based Nanoelectronics with Chalcogenide Phase Change Memory," *IEEE EDSSC*, Dec 2010, Hong Kong
55. **K. Grosse**, **M.-H. Bae**, **F. Lian**, E. Pop, W.P. King, "Current Crowding, Joule Heating, and Peltier Cooling at Graphene Device Contacts," *MRS Fall Meeting*, Nov 2010, Boston MA
54. M. Rudan, F. Giovanardi, **T. Tsafack**, **F. Xiong**, E. Piccinini, F. Buscemi, **A. Liao**, E. Pop, R. Brunetti, C. Jacoboni, "Modeling of the Voltage Snap-Back in Amorphous-GST Memory Devices," *SISPAD*, Sep 2010, Bologna Italy
53. **V. Dorgan**, *M.-H. Bae*, E. Pop, "Mobility and Velocity-Field Relationship in Graphene above Room Temperature," *SRC TECHCON*, Sep 2010, Austin TX
52. **A. Liao**, R. Alizadegan, **S. Dutta**, **Z.-Y. Ong**, K. J. Hsia, E. Pop, "Thermal Dissipation, Reliability, and Breakdown of Single-Wall Carbon Nanotubes," *SRC TECHCON*, Sep 2010, Austin TX
51. **D. Estrada**, **S. Dutta**, **A. Liao**, E. Pop, "Pulsed characterization for hysteresis-free carbon nanotube mobility measurements," *Nanotubes 2010* (*NT10*), Jun 2010, Montreal, Canada
50. **J. D. Wood**, V. Nazareth, J. W. Lyding, E. Pop, "Wafer-Scale Carbon Nanotube Alignment and Interaction on Hydrophobic and Hydrophilic Surfaces," *Nanotubes 2010* (*NT10*), Montreal Canada
49. **F. Xiong**, **A. Liao**, **D. Estrada**, E. Pop, "Ultra-Low Power Phase Change Memory with Carbon Nanotube Interconnects," *IEEE Device Research Conference (DRC)*, Jun 2010, Notre Dame IN
48. **V. Dorgan**, **M.-H. Bae**, E. Pop, "Mobility and Velocity-Field Relationship in Graphene," *IEEE Device*

Research Conference (DRC), Jun 2010, Notre Dame IN

47. **S. Dutta**, **S. Prakash**, **D. Estrada**, E. Pop, "A Web Service and Interface for Electronic Device Characterization," *American Society of Engineering Education (ASEE) Annual Conference & Expo*, Jun 2010, Louisville KY
46. **V. Dorgan**, **M.-H. Bae**, E. Pop, "Mobility and High-Field Velocity Saturation in Graphene," *6th Intl. Nanotechnology Conference on Communication & Cooperation* (*INC6*), May 2010, Grenoble, France
45. Y. K. Koh, **M.-H. Bae**, E. Pop, D. G. Cahill, "Thermal Conductance of Monolayer and Few-Layer Graphenes," *MRS Spring Meeting*, Apr 2010, San Francisco CA
44. **A. Liao**, **S. Dutta**, **Z.-Y. Ong**, E. Pop, "Joule Breakdown and Thermal Dissipation of Carbon Nanotubes with SiO_2 Substrates," *MRS Spring Meeting*, Apr 2010, San Francisco CA
43. **M.-H. Bae**, **Z.-Y. Ong**, **D. Estrada**, E. Pop, "Infrared imaging of power dissipation in graphene field effect transistors," *APS March Meeting*, Mar 2010, Portland OR
42. **Z.-Y. Ong** and E. Pop, "Molecular dynamics simulation of carbon nanotube to SiO_2 heat dissipation," *APS March Meeting*, Mar 2010, Portland OR
41. C. Richter, O. Jurchescu, X. Liang, D. Gundlach, **A. Liao**, E. Pop, "Noise in single-wall carbon nanotubes under high electric field stress," *APS March Meeting*, Mar 2010, Portland OR
40. **D. Estrada, A. San Miguel**, **R. Pecora**, E. Pop, "Tailored ON/OFF ratio of nanotube network transistors by pulsed breakdown," *IEEE Intl. Semic. Device Research Symposium* (*ISDRS*), Univ. Maryland, College Park MD, Dec 2009
39. **F. Xiong**, **A. Liao**, E. Pop, "Ultra-Low Current Phase-Change Antifuse with Carbon Nanotube Electrodes," *IEEE Non-Volatile Memory Technology Symposium (NVMTS)*, Oct 2009, Portland OR
38. E. Pop, **M.-H. Bae**, **D. Estrada**, **A. Liao**, **Z.-Y. Ong**, **F. Xiong**, "Energy Efficiency in Nanoscale Electronic Devices," *NANO-DDS*, Oct 2009, Ft Lauderdale FL
37. **Z.-Y. Ong** and E. Pop, "Molecular Dynamics Simulation of Thermal Boundary Resistance Between Carbon Nanotubes and SiO_2," *SRC TECHCON*, Sep 2009, Austin TX
36. **A. Liao**, **F. Xiong**, K. Darmawikarta, J. Abelson, E. Pop, "Chalcogenide Phase Change Induced with Single-Wall Carbon Nanotube Heaters," *SRC TECHCON*, Sep 2009, Austin TX
35. **P. Martin**, **Z. Aksamija**, E. Pop, U. Ravaioli, "Prediction of Reduced Thermal Conductivity in Nano-Engineered Rough Semiconductor Nanowires," *EDISON 16*, Aug 2009, Montpellier France
34. **M.-H. Bae**, **Z.-Y. Ong**, **D. Estrada**, E. Pop, "Infrared Microscopy of Joule Heating in Graphene Field Effect Transistors," *IEEE Nano*, Jul 2009, Genoa Italy
33. **B. Ramasubramanian** and E. Pop, "Comparison of Energy Relaxation in One-Dimensional Thermionic and Tunneling Transistors," *IEEE Nano*, Jul 2009, Genoa Italy
32. **D. Estrada**, **S. Dutta**, **A. Liao**, E. Pop, "Reduction of Hysteresis in Mobility Measurements of Carbon Nanotube Transistors by Pulsed Characterization," *IEEE Device Research Conference* (*DRC*), Jun 2009, State College PA
31. **A. Liao**, **F. Xiong**, K. Darmawikarta, J. Abelson, E. Pop, "Chalcogenide Phase Change Induced with Single-Wall Carbon Nanotube Heaters," *IEEE Device Research Conference* (*DRC*), Jun 2009, State College PA
30. **Z.-Y. Ong** and E. Pop, "Molecular dynamics simulation of interfacial thermal resistance between a (10,10) carbon nanotube and SiO_2," *MRS Spring Mtg.*, Apr 2009, San Francisco CA
29. **I. Chen** and E. Pop, "Compact Thermal Model for Segmented Nanowire Phase Change Memory Cell," *MRS Spring Mtg.*, Apr 2009, San Francisco CA
28. K. Darmawikarta, B. Lee, S. Raoux, **A. Liao**, E. Pop, S. Bishop, J. Abelson, "Analysis of Nanoscale Transformation of Phase Change Materials," *MRS Spring Mtg.*, Apr 2009, San Francisco CA
27. **Z.-Y. Ong**, E. Pop, "A Two-Temperature Model of Narrow-Body Silicon Transistors under Steady State and Transient Operation," *ASME 3rd Energy Nanotech. Conf. (ENIC)*, Jacksonville FL, Aug 2008
26. **A. Liao**, E. Pop, "Impact Ionization in Semiconducting Single Wall Carbon Nanotubes," *IEEE Device*

Research Conference (DRC), Santa Barbara CA, Jun 2008

25. E. Pop, "Role of Electrical and Thermal Contact Resistance in the High-Bias Joule Breakdown of Single-Wall Carbon Nanotube Devices," *IEEE Device Research Conf.* (*DRC*), Jun 2007, Notre Dame IN
24. S. Verma, E. Pop, P. Kapur, P. Majhi, K. Parat, K. Saraswat, "Feasibility Study of Composite Dielectric Tunnel Barriers for Flash Memory," *IEEE Device Research Conf.* (*DRC*), Jun 2007, Notre Dame IN
23. E. Pop, "Heat Generation and Transport in SOI and GOI Devices," *211th Electrochemical Society (ECS) Meeting*, SOI Symposium, May 2007, Chicago IL
22. D. Mann, Y. K. Kato, E. Pop and H. Dai, "Electro-thermal Light Emission in Individual Metallic Single-walled Carbon Nanotubes," *MRS Spring Meeting*, Apr 2007, San Francisco CA
21. J. Reifenberg, S. Kim, Y. Zhang, E. Pop, H.-S. P. Wong, K. Goodson, "Phase Transitions and Thermal Properties of GeSbTe," *MRS Spring Meeting*, Apr 2007, San Francisco CA
20. Y. K. Kato, D. Mann, A. Kinkhabwala, E. Pop, J. Cao, X. Wang, L. Zhang, Q. Wang, J. Guo and H. Dai, "Electrically driven thermal light emission from individual single-walled carbon nanotubes," *APS March Meeting*, Mar 2007, Denver CO
19. J. Reifenberg, E. Pop, A. Gibby, S. Wong and K. Goodson, "Multiphysics Modeling and Impact of Thermal Boundary Resistance in Phase Change Memory Devices," *ITHERM*, May 2006, San Diego CA
18. M. Panzer, G. Zhang, D. Mann, X. Hu, E. Pop, H. Dai, K. Goodson, "Thermal Properties of Metal-Coated Vertically-Aligned Single Wall Nanotube Films," *ITHERM*, p. 1306, May 2006, San Diego, CA
17. D. Mann, E. Pop, H. Dai, "Hot Phonons in Suspended Carbon Nanotubes," *Electrochemical Society* (*ECS*) 209th Meeting, May 2006, Denver CO
16. D. Mann, E. Pop, J. Cao, H. Dai, "Self-Heating and Non-Equilibrium Optical Phonons in Suspended Carbon Nanotubes," *APS March 2006 Meeting*, Baltimore, MD
15. E. Pop, D. Mann, J. Reifenberg, K. Goodson and H. Dai, "Electro-Thermal Transport in Metallic Single-Wall Carbon Nanotubes for Interconnect Applications," *IEEE Intl. Electron Devices Meeting (IEDM)*, pp. 253-256, Dec 2005, Washington, DC
14. J. Rowlette, E. Pop, S. Sinha, M. Panzer and K. Goodson, "Thermal Phenomena in Deeply Scaled MOSFETs," *IEEE Intl. Electron Devices Meeting (IEDM)*, pp. 984-987, Dec 2005, Washington, DC
13. J. Rowlette, E. Pop, S. Sinha, M. Panzer and K. Goodson, "Thermal Simulation Techniques for Nano-Transistors," *IEEE-ACM ICCAD*, pp. 225-228, Nov 2005, San Jose CA
12. J. Rowlette, E. Pop, S. Sinha, R. Dutton and K. Goodson, "Coupled Electron-Phonon Transport in Nanometer-Scale Silicon Devices," *SRC TECHCON*, Oct 2005, Portland OR
11. E. Pop, J. Rowlette, R. Dutton and K. Goodson, "Joule Heating under Quasi-Ballistic Transport Conditions in Bulk and Strained Silicon Devices," *SISPAD*, p. 307-310, Sep 2005, Tokyo Japan
10. E. Pop, C. O. Chui, S. Sinha, R. Dutton, K. Goodson, "Electro-Thermal Comparison and Performance Optimization of Thin-Body SOI and GOI MOSFETs," *IEEE Intl. Electron Devices Meeting (IEDM)*, pp. 411-414, Dec 2004, San Francisco, CA
9. S. Sinha, E. Pop, K. Goodson, "A Split-Flux Model for Phonon Transport Near Hotspots," *ASME Intl. Mechanical Engineering Congress and Expo (IMECE)*, Nov 2004, Anaheim, CA
8. E. Pop, K. Goodson, R. Dutton, "Thermal Analysis of Ultra-Thin Body Device Scaling," *IEEE Intl. Electron Devices Meeting (IEDM)*, pp. 883-886, Dec 2003, Washington DC
7. E. Pop, K. Goodson, R. Dutton, "Detailed Heat Generation Simulations via the Monte Carlo Method," *SISPAD*, pp. 121-124, Sep 2003, Boston MA
6. E. Pop, K. Goodson, R. Dutton, "Monte Carlo Simulation of Heat Generation in Silicon Nano-Devices," *SRC TECHCON*, Aug 2003, Dallas TX **(Best Paper in Session Award)**
5. E. Pop, S. Sinha, K. Goodson, "Monte Carlo Modeling of Heat Generation in Electronic Nanostructures," *ASME Intl. Mech. Eng. Congress and Expo (IMECE)*, Nov 2002, New Orleans, LA
4. E. Pop, "Heat Generation in Three- and Two-Dimensional Nanostructures," *SRC TECHCON*, Sep 2002,

Dallas, TX **(Outstanding Research Presentation Award)**

3. E. Pop, K. Banerjee, P. Sverdrup, R. Dutton, K. Goodson, "Localized Heating Effects and Scaling of Sub-0.18 Micron CMOS Devices", *IEEE Intl. Electron Dev. Mtg. (IEDM)*, p. 677, Dec 2001, Washington DC
2. P. Sverdrup, S. Sinha, E. Pop, O. Tornblad, R. Dutton, K. Goodson. "Advanced Electro-Thermal Modeling and Simulation Techniques for Deep Sub-Micron Devices," *SRC TECHCON*, Sep 2000, Phoenix AZ
1. J. Slinkman, E. Pop, W. Clark, "Temperature Dependence of Subthreshold Current in Submicron Metal-Oxide-Silicon Field Effect Transistors," *APS March Meeting*, Mar 1998, Los Angeles CA

Invited Presentations (plenaries, keynotes, tutorials and awards in bold)

288. Low-Dimensional Materials Workshop, Stanford CA, Jun 2026
287. MRS Fall Meeting (Symposium MT07), Boston MA, Dec 2025
286. Stanford Pre-IEDM Workshop, Stanford CA, Dec 2025
285. BELONG Program Seminar, Stanford CA, Nov 2025
284. UC Santa Barbara Mechanical Engineering Colloquium, Santa Barbara CA, Nov 2025
283. IIRW (Intl. Integrated Reliability Workshop) Beyond-CMOS Panel, South Lake Tahoe CA, Oct 2025
282. Univ. Maryland Quantum Materials Center (QMC) Colloquium, College Park MD, Sep 2025
281. SLAC-Stanford-SystemX Microelectronics Retreat, Stanford CA, Aug 2025
280. ICMM-CSIC (Material Science Institute of Madrid), Madrid Spain, Jul 2025
279. INFOS 2025 (24th Biannual Conference on Insulating Films on Semiconductors), Granada, Jun 2025
278. MRS Spotlight Series Workshop on 2D Materials, Virtual Seminar, Jun 2025
277. IEEE Device Research Conference, Keynote, Durham NC, Jun 2025
276. IWCN (Intl. Workshop on Computational Nanotech.), Keynote, Salt Lake City UT, May 2025
275. Lam Research Seminar, Fremont CA, May 2025
274. SUPR (Stanford University Photonics Retreat), Asilomar Conference Grounds, Apr 2025
273. TSMC Seminar, Hsinchu Taiwan, Apr 2025
272. VLSI-TSA Symposium, Hsinchu Taiwan, Apr 2025
271. MRS Spring Meeting (Symposium EL03), Seattle WA, Apr 2025 (with T. Peña)
270. MRS Spring Meeting (Symposium SF01), Seattle WA, Apr 2025 (with Z. Han)
269. Northwestern MRSEC Seminar, Evanston IL, Mar 2025
268. SEMI Workshop (Future of Computing), Milpitas CA, Mar 2025
267. Future of Computing Symposium, USC, Los Angeles CA, Mar 2025
266. Columbia University, Applied Physics and Materials Science Seminar, New York NY, Feb 2025
265. Univ. Chicago Colloquium, Chicago IL, Feb 2025
264. Argonne National Lab, Microelectronics Colloquium, Lemont IL, Feb 2025
263. University of Strasbourg, France, Virtual Seminar, Feb 2025
262. SLAC/SSRL Virtual Workshop, Menlo Park CA, Feb 2025
261. Future of Everything (podcast), Stanford CA, Jan 2025
260. NRO-Air Force Seminar, online, Jan 2025
259. TSMC Mini-Workshop, San Francisco CA, Dec 2024
258. MRS Fall Meeting (Symposium EL03), Boston MA, Nov 2024
257. IRDS (Intl. Roadmap Devices & Systems) Workshop, Sep 2024
256. Stanford Applied Physics Faculty Retreat, Half Moon Bay, Sep 2024
255. Univ. Notre Dame Seminar, South Bend IN, Sep 2024

254. ST Microelectronics Seminar, Agrate Italy, Jul 2024
253. Politecnico di Milano, Dipt. Elettronica Informazione e Bioingegneria (DEIB), Milan Italy, Jul 2024
252. IEEE IITC (Intl. Interconnect Technology Conference), San Jose CA, Jun 2024
251. ECS Meeting "Nano for Industry" Symposium, San Francisco CA, May 2024
250. 2D Transition Metal Dichalcogenides 2024, Hong Kong, May 2024
249. UC Santa Cruz, Physics Colloquium, Santa Cruz CA, May 2024
248. Holonyak Micro & Nanotechnology Lab (HMNTL) Seminar, Univ. Illinois, Urbana IL, May 2024
247. MRS Spring Meeting (Symposium EL05), Seattle WA, Apr 2024
246. UC San Diego Mechanical Engineering Seminar, UCSD, San Diego CA, Apr 2024
245. Applied Materials (AMAT) Seminar, Santa Clara CA, Feb 2024
244. AKM Newaz Symposium, SF State Univ. San Francisco CA, Jan 2024
243. Stanford Pre-IEDM Workshop, Stanford CA, Dec 2023
242. MRS Fall Meeting (Symposium EL09), Boston MA, Nov 2023
241. MRS Fall Meeting (Symposium EL07), Boston MA, Nov 2023
240. AVS (American Vacuum Society) 69th Intl. Symposium & Exhibition, Portland OR, Nov 2023
239. Corning West Technology Center Klatch Talk, Sunnyvale CA, Nov 2023
238. IEEE NMDC (Nanotechnology Materials & Devices Conf.), Paestum Italy, Oct 2023
237. California-US Government (CA-USG) Workshop on 2D Materials, Irvine CA, Sep 2023
236. Texas Materials Institute Seminar, UT Austin, Austin TX, Sep 2023
235. Purdue Viskanta Fellowship Tutorial, West Lafayette IN, Aug 2023
234. Purdue Viskanta Fellowship Seminar, West Lafayette IN, Aug 2023
233. IEEE Electron Devices Society Santa Clara Valley/San Francisco Seminar, Jul 2023
232. Samsung SAIT Invited Seminar, Suwon Korea, Jul 2023
231. AEFM (Adv. Epitaxy for Freestanding Membranes and 2D Materials), Seoul Korea, Jul 2023
230. 2D Transition Metal Dichalcogenides 2023, Cambridge UK, Jun 2023
229. MRS Spring Meeting (Symposium EL01), San Francisco CA, Apr 2023
228. APS Fellow FIAP Awards, Las Vegas NV, Mar 2023
227. NVMTS (Non-Volatile Memory Technology Symposium), Stanford CA, Dec 2022
226. MRS Fall Meeting (Symposium EQ10), Boston MA, Nov 2022
225. MRS Fall Meeting (Symposium EQ04), Boston MA, Nov 2022
224. RPGR2022 (Recent Progress of Graphene and 2D Materials Research), Taipei Taiwan, Nov 2022
223. SJSU Interdisciplinary Engineering Seminar, San Jose CA, Nov 2022
222. IEEE ICSICT (Intl. Conf. Solid-State and Integrated Circuit Tech.), Nanjing China, Oct 2022
221. E\PCOS (European Phase-Change and Ovonics Symposium), Oxford, England, Sep 2022
220. Samsung Global Research Symposium (GRS), Napa CA, Aug 2022
219. Telluride Science Research Center, Thermal Transport at the Nanoscale, Telluride CO, Jun 2022
218. SystemX Faculty Tutorial, Stanford CA, May 2022
217. SystemX Spring Workshop, Stanford CA, May 2022
216. MRS Spring Meeting (Symposium SF15), Honolulu HI, May 2022
215. VLSI-TSA Symposium, Hsinchu Taiwan, Apr 2022
214. UCLA ECE Department Seminar, Apr 2022
213. Duke ECE Department Seminar, Apr 2022
212. Stanford Interdisciplinary Graduate Fellows (SIGFs) guest speaker, Stanford CA, Feb 2022
211. Future Chips 2021, The 6th Future Chips Forum, Tsinghua University, Dec 2021
210. Virtual Graphene 2021 Keynote, Grenoble France, Nov 2021

209. ICN2 NanoSeminar in Physics, Oct 2021
208. IIRW (Intl. Integrated Reliability Workshop) Tutorial, Oct 2021
207. MITRE Corp. Smart Materials and Intelligent Systems (SMIS) Seminar, Oct 2021
206. Univ. Michigan MSE Department Seminar, Sep 2021
205. Stanford eWEAR Symposium (with A. Daus), Sep 2021
204. National Research Council of Canada (NRC-CNRC), Aug 2021
203. 3rd International Memory Symposium, Hong Kong, May 2021
202. CarbOnlineHagen Keynote, Copenhagen Denmark, Apr 2021, http://www.carbonhagen.com
201. Wayne State Physics Seminar (via Zoom), Oct 2020
200. SSDM (Intl. Conference on Solid State Devices & Materials), Tokyo Japan (via Zoom), Sep 2020
199. Micron Summer Intern Seminar (via Zoom), Jun 2020
198. Yonsei University Seminar, Seoul Korea, Feb 2020
197. Samsung Seminar, Seoul Korea, Feb 2020
196. SK Hynix Seminar, Seoul Korea, Feb 2020
195. Nano-KISS (Korean Intl. Summer School on Nanoelectronics), KCS, Korea, Feb 2020
194. Micron Seminar, Boise, ID, Feb 2020
193. Boise State Materials Research Seminar, Boise, ID, Feb 2020
192. "How to Prepare for the Academic Interview," Stanford BEAM (Career Services) Seminar, Stanford CA, Jan 2020
191. UC Berkeley, Berkeley CA, Dec 2019
190. WINDS (Workshop on Innovative Nanoscale Devices and Systems), Waimea HI, Dec 2019
189. Duke University, Durham NC, Oct 2019
188. IEEE NVMTS (Non-Volatile Memory Technology Symposium), Durham NC, Oct 2019
187. IMEC Memory Workshop, Leuven Belgium, Oct 2019
186. Apple Seminar, Cupertino CA, Oct 2019
185. SLAC SSRL/LCLS Users' Meeting, Sep 2019
184. "2D Materials: From Fundamentals to Spintronics" Workshop, Natal Brazil, Sep 2019
183. Peking University, Beijing China, Sep 2019
182. Tsinghua University, Beijing China, Sep 2019
181. Beijing Information Science & Technology University (BISTU), Beijing China, Sep 2019
180. IEEE DRC (Device Research Conference) Rump Session, Ann Arbor, MI, Jun 2019
179. IEEE SNW (Silicon Nanoelectronics Workshop), Kyoto Japan, Jun 2019
178. IEEE VLSI Symposium Workshop on 2D Materials & Applications, Kyoto Japan, Jun 2019
177. US-EU Workshop on 2D Layered Materials and Devices, State College PA, May 2019
176. "Let's Have an Awesome Time Doing Science" (LHAATDS) Workshop, Stanford CA, May 2019
175. Micron Seminar, Boise ID, Apr 2019
174. IEEE WMED (Workshop on Microelectronics & Electron Devices), Boise ID, Apr 2019
173. MRS Spring Meeting (Symposium QN03), Phoenix AZ, Apr 2019
172. MRS Spring Meeting (Symposium EP08), Phoenix AZ, Apr 2019
171. MIT MTL Seminar, Cambridge MA, Mar 2019
170. APS (American Physical Society) March Meeting, Boston MA, Mar 2019
169. UIUC MNTL Seminar, Urbana IL, Feb 2019
168. Stanford GLAM Condensed Matter Seminar, Stanford CA, Feb 2019
167. Apple Seminar, Cupertino CA, Jan 2019
166. Applied Materials (AMAT) Seminar, Santa Clara CA, Jan 2019

165. Eurotherm Nanoscale & Microscale Heat Transfer VI (NMHT), Levi, Finland, Dec 2018
164. Stanford BEAM (Career Services) Future Faculty Seminar, Stanford CA, Oct 2018
163. AVS (American Vacuum Society) 65th Intl. Symposium & Exhibition, Long Beach CA, Oct 2018
162. IEEE NMDC (Nanotechnology Materials & Devices Conf.), Portland OR, Oct 2018
161. E\PCOS (European Phase-Change and Ovonics Symposium), Catania, Italy, Sep 2018
160. CEA-LETI Seminar, Grenoble France, Sep 2018
159. Graphene Week, San Sebastian Spain, Sep 2018
158. SSDM (Intl. Conference on Solid State Devices & Materials), Tokyo Japan, Sep 2018
157. Graphene 2018 Keynote, Dresden Germany, Jun 2018
156. Lawrence Symposium, Arizona State Univ., Phoenix AZ, Feb 2018
155. Rising Stars Workshop, Stanford CA, Nov 2017
154. Stanford BEAM (Career Services) Future Faculty Seminar, Stanford CA, Oct 2017
153. US-EU Workshop on 2D Layered Materials and Devices, Arlington VA, Oct 2017
152. MIT S3TEC Seminar, Cambridge MA, Sep 2017
151. Micron Seminar, Boise ID, Sep 2017
150. Lund University Colloquium, Lund Sweden, Aug 2017
149. Carbonhagen Keynote (8th Symposium on 2D Materials), Copenhagen, Aug 2017
148. IEEE NANO, Pittsburgh PA, Jul 2017
147. EDISON 20 Keynote (Intl. Conf. Electron Dynamics Semic., Opto., Nano.), Buffalo NY, Jul 2017
146. Western Digital, San Jose CA, Jun 2017
145. IEEE DRC (Device Research Conf.), Phase-Change Memory tutorial, Notre Dame IN, Jun 2017
144. "Nanoscale Energy, Thermal & Thermoelectric Effects" short course, Univ. Pisa, Italy, Jun 2017
143. UT Austin, NASCENT Colloquium, Austin TX, May 2017
142. IEEE ICICDT (Intl. Conf. IC Design & Tech.), Austin TX, May 2017
141. UC Santa Cruz, EE Colloquium, Santa Cruz CA, Apr 2017
140. MRS Spring Meeting (Symposium NM2), Phoenix AZ, Apr 2017
139. MRS Spring Meeting (Symposium NM1), Phoenix AZ, Apr 2017
138. 2nd Intl. Symposium on Science & Technology of 2D Materials, Orlando FL, Feb 2017
137. Northrop Grumman NG Next Workshop, Redondo Beach CA, Jan 2017
136. Monash Univ., Melbourne Australia, Jan 2017
135. IEEE IEDM (Intl. Electron Devices Meeting), San Francisco CA, Dec 2016
134. Stanford BEAM (Career Services) Future Faculty Seminar, Stanford CA, Oct 2016
133. 2Dfun (2D Functional MX2-Graphene Heterostructures) Workshop, IMEC, Leuven Belgium, Oct 2016
132. EU-US Workshop on 2D Layered Materials and Devices, Manchester UK, Oct 2016
131. IEEE SFBA Nanotechnology Council, Santa Clara CA, Sep 2016
130. CEA-LETI Seminar, Grenoble France, Sep 2016
129. STW (Steep Transistor Workshop), Lausanne Switzerland, Sep 2016
128. StarNET LEAST & SONIC Beyond CMOS Circuits & Systems Workshop, Notre Dame IN, Aug 2016
127. TSMC R&D Technical Forum, Jul 2016
126. IEEE Electron Devices Society (EDS) Santa Clara Valley Chapter, Santa Clara CA, Jul 2016
125. InterPACK Workshop on IOT Packaging, Santa Clara CA, Jun 2016
124. Univ. Minnesota 2D Summer School, Minneapolis MN, Jun 2016
123. E-MRS (European Materials Research Society) Spring Meeting, Lille, France, May 2016
122. ON Semiconductor, Phoenix, AZ, Mar 2016
121. MRS Spring Meeting, Phoenix AZ, Mar 2016

120. SPIE Photonics West, San Francisco CA, Feb 2016
119. DARPA MTO Unplugged Offsite Meeting, Warrensburg VA, Jan 2016
118. Samsung R&D Future Technology Seminar, Hwaseong, Korea, Oct 2015
117. Nano-KISS (Korean Intl. Summer School on Nanoelectronics), ETRI, Daejeon Korea, Oct 2015
116. IEEE NMDC (Nanotechnology Materials and Devices Conference), Anchorage AK, Sep 2015
115. Intl. Materials Research Congress (MRS-IMRC), Cancun Mexico, Aug 2015
114. IEEE NANO, Rome Italy, Jul 2015
113. USC, MHI Distinguished Speaker Series, Los Angeles CA, Jun 2015
112. MRS Spring Meeting, San Francisco CA, Apr 2015
111. US-EU Workshop on 2D Layered Materials and Devices, Arlington VA, Apr 2015
110. SystemX Alliance Seminar, Stanford CA, Apr 2015
109. NanoTechnology for Defense Conference (NT4D) 2D devices tutorial, Chantilly VA, Nov 2014
108. AVS (American Vacuum Society), Baltimore MD, Nov 2014
107. "Thermoelectrics 101," GCEP Symposium, Stanford CA, Oct 2014
106. ESSDERC (European Solid-State Device Conference) plenary talk, Venice Italy, Sep 2014
105. Army Research Lab (ARL) 2D Technology Applications Meeting, Adelphi MD, Aug 2014
104. Tsukuba Nanotechnology Symposium 2014 (TNS'14), Tsukuba Japan, Jul 2014
103. US-Japan Joint Seminar on Nanoscale Transport Phenomena, Santa Cruz CA, Jul 2014
102. Lockheed-Martin Space Systems Company (LMCO), Palo Alto CA, Jun 2014
101. Japan-America Frontiers of Engineering Symposium (JAFOE), Tokyo Japan, Jun 2014
100. SPIE DSS (Defense, Security, Sensing), Baltimore MD, May 2014
99. Micron Seminar, Boise ID, May 2014
98. Boise State University (BSU) Colloquium, Boise ID, May 2014
97. Applied Materials (AMAT) Seminar, Santa Clara CA, Jan 2014
96. Sandia Labs "Beyond Moore Workshop," Albuquerque NM, Jan 2014
95. DARPA DSRC (Defense Sciences Research Council), Arlington VA, Jan 2014
94. ISDRS (Intl. Semiconductor Device Research Symposium), Bethesda MD, Dec 2013
93. IEEE IEDM (Intl. Electron Devices Meeting), Washington DC, Dec 2013
92. Stanford MSE (Materials Science and Engineering) Colloquium, Stanford CA, Nov 2013
91. SLAC (Stanford Linear Accelerator Center) SIMES Seminar, Palo Alto CA, Oct 2013
90. UC Berkeley Nanoscience and Nanoengineering Institute (BNNI) Seminar, Oct 2013
89. NRL (Naval Research Lab), Alexandria VA, Oct 2013
88. Stanford Precourt Institute for Energy (PIE) Energy Seminar, Stanford CA, Sep 2013
87. EMS (Electronic Materials Symposium), Santa Clara CA, Sep 2013
86. Univ. Erlangen Colloquium, Erlangen Germany, Sep 2013
85. E\PCOS (European Phase-Change and Ovonics Symposium), Berlin, Germany, Sep 2013
84. PTES (First International Conference on Phononics and Thermal Energy Science), Shanghai, China, Sep 2013
83. IWCE (Intl. Workshop Computational Electronics), Nara, Japan, Jun 2013
82. Keio University EE Seminar, Tokyo, Japan, Jun 2013
81. Univ. Tokyo ME Seminar, Tokyo, Japan, Jun 2013
80. HGST (Hitachi Global Storage Technologies) seminar, San Jose CA, May 2013
79. Stanford Energy & Environment Affiliates Program (EEAP), Stanford CA, May 2013
78. UT Austin, Nanoscale Thermal Energy Symposium, Austin TX, May 2013
77. Intel Corp., memory seminar, Santa Clara CA, Apr 2013

76. MRS Spring Meeting, San Francisco CA, Apr 2013
75. Univ. Minnesota, Mechanical Engineering Colloquium, Minneapolis MN, Mar 2013
74. Beckman Institute Director's Seminar, Univ. Illinois Urbana-Champaign, Urbana IL, Jan 2013
73. MRS Fall Meeting, Boston MA, Nov 2012
72. IEEE Nanotechnology Materials and Devices Conf. (IEEE-NMDC), Honolulu HI, Oct 2012
71. Wright-Patterson Air Force Research Labs (AFRL), Dayton OH, Oct 2012
70. Intl. Materials Research Congress (MRS-IMRC), Cancun Mexico, Aug 2012
69. CMOS Emerging Technologies (ET) Conference, Vancouver BC, Canada, Jul 2012
68. Silicon Nanoelectronics Workshop (IEEE-SNW), Honolulu HI, Jun 2012
67. IEEE Intl. Conference on IC Design and Technology (IEEE-ICICDT), Austin TX, May 2012
66. UT Dallas, Materials Science & Engineering Seminar, Dallas TX, May 2012
65. U. Washington, Center for Nanotechnology Seminar, Seattle WA, Apr 2012
64. MRS Spring Meeting, San Francisco CA, Apr 2012
63. MIT, EECS Seminar, Cambridge MA, Apr 2012
62. Georgia Tech, MRSEC Seminar Series, Atlanta GA, Mar 2012
61. TU Delft, Quantum Nanoscience Seminar, Netherlands, Mar 2012
60. **"The Device-to-System Spectrum – A Tutorial on IC Design with Nanomaterials," co-taught tutorial at *Design, Automation & Test in Europe (DATE)*, Dresden, Germany, Mar 2012**
59. Stanford, Electrical Engineering seminar, Stanford CA, Feb 2012
58. Cornell, joint Physics and EE seminar, Ithaca NY, Feb 2012
57. RPI, joint Materials Science and Mechanical Engineering Colloquium, Troy NY, Feb 2012
56. Stanford, Materials Science & Engineering Colloquium, Stanford CA, Nov 2011
55. Purdue, Electrical & Computer Engineering Colloquium, West Lafayette IN, Nov 2011
54. Univ. Missouri, Dept. Physics O.M. Stewart Colloquium, Columbia MO, Oct 2011
53. UIUC Condensed Matter Physics Colloquium, Urbana IL, Oct 2011
52. Politecnico di Milano, Milano Italy, Sep 2011
51. Micron and STMicroelectronics, Agrate Italy, Sep 2011
50. E\PCOS, Zurich Switzerland, Sep 2011 **(Outstanding Oral Presentation Award)**
49. NANO-DDS, Brooklyn NY, Aug 2011
48. Nanotubes 2011, Graphene Satellite Workshop, Cambridge UK, Jul 2011
47. Albany Nanotechnology Center (IBM and Global Foundries), Albany NY, Jul 2011
46. DARPA DSRC (Defense Sciences Research Council), Norfolk VA, Jun 2011
45. CalTech, Applied Physics Colloquium, Pasadena CA, May 2011
44. MIT, Mechanical Eng. Seminar, Cambridge MA, May 2011
43. FET11 Conference, Micro-Energy ICT Panel, Budapest, Hungary, May 2011
42. UC Berkeley, EECS Seminar, Berkeley CA, Apr 2011
41. APS March 2011 Meeting, Dallas TX, Mar 2011
40. MRS Fall 2010 Meeting, Boston MA, Nov 2010
39. D. Estrada and E. Pop, Argonne National Labs, Argonne IL, Oct 2010
38. Washington U., Applied Physics Seminar, St. Louis MO, Oct 2010
37. Carbon Electronics Workshop, SUNY Albany, Sep 2010
36. SRC Compact Modeling Workshop, Berkeley CA, Aug 2010
35. Wright-Patterson Air Force Research Labs (AFRL), Dayton OH, Jul 2010
34. TIENCS Workshop, Natl. Univ. Singapore (NUS), Singapore, Jul 2010
33. UGIM Symposium, Purdue University, West Lafayette IN, Jun 2010

32. Univ. Wisconsin, Madison WI, Apr 2010
31. M.-H. Bae, Z.-Y. Ong, D. Estrada, E. Pop, ECS Meeting, Vancouver BC, Canada, Apr 2010
30. ECS Meeting, Vancouver BC, Canada, Apr 2010
29. **"Carbon Nanoelectronics: Towards Energy-Efficient Computing," invited tutorial at *Design, Automation & Test in Europe* (*DATE*), Dresden, Germany, Mar 2010**
28. Univ. Michigan WIMS Seminar, Ann-Arbor MI, Feb 2010
27. IMECE (Intl. Mech. Eng. Congress and Expo), Lake Buena Vista FL, Nov 2009
26. Univ. Maryland Physics Colloquium, College Park, MD, Oct 2009
25. UT Austin, Dept. of Mechanical Eng., Electrical Eng. and Physics, Austin TX, Sep 2009
24. **"Graphene Thermal Physics," invited tutorial at *IEEE Device Research Conference* (*DRC*), Jun 2009, State College PA**
23. University of Modena, Italy, Jun 2009
22. IRPS (Intl. Reliability Phys. Symp.), Montreal Canada, Apr 2009
21. IBM T.J. Watson Center, Yorktown Heights NY, Jan 2009
20. **ENIC-2008 (ASME 3rd Energy Nano Intl. Conf.) Keynote talk, Jacksonville FL, Aug 2008**
19. Argonne National Labs, Argonne IL, Aug 2008
18. 6th US-Japan Joint Seminar on Nanoscale Transport, MIT, Cambridge MA, Jul 2008
17. Northrop-Grumman Space Technology, Redondo Beach CA, Jun 2008
16. Institute for Energy Technology (IFE), Kjeller, Norway, Jun 2008
15. **"Memory Technology: Putting the *nano* in your iPod," University High School, Urbana IL, May 2008 – available on the nanoHUB.org**
14. Beckman Institute Nanohour, Urbana IL, May 2008 – available on the nanoHUB.org
13. Notre Dame Univ., Solid-State Colloquium, South Bend IN, Apr 2008
12. CSL (Coordinated Science Lab) Colloquium, UIUC, Feb 2008
11. ISDRS, University of Maryland, College Park, Dec 2007
10. ECE Colloquium, UIUC, Nov 2007
9. USC Dept. of EE Colloquium, Los Angeles, CA, Jun 2007
8. MRS Spring Meeting, San Francisco, CA, Apr 2007
7. **"Electro-Thermal Interaction, Modeling and Measurement in Nanoscale Devices," *Great Lakes VLSI Symposium* (*GLSVLSI*), Lago Maggiore, Italy, March 2007**
6. MSE Colloquium, Stanford University, Dec 2006
5. UIUC Dept. of ECE, Urbana IL, May 2006
4. Northwestern Dept. of EE, Evanston IL, Mar 2006
3. NASA Ames Research Center, Mountain View, CA, Nov 2005
2. HCIS-14 (Hot Carriers in Semiconductors), Chicago, IL, Jul 2005
1. UCLA Dept. of EE, Los Angeles CA, Apr 2005

Patents and Disclosures

11. L. Hoang, A.I. Khan, R.K.A. Bennett, A.J. Mannix, E. Pop, "Topological Weyl Semimetals for P-Type Contacts to Atomically Thin Two-Dimensional Materials and Methods of Integrating the Same," U.S. Patent App. No. 19/094673, Mar 2025
10. K. Neilson, K. Nassiri Nazif, A.S. Daus, E. Pop, S. Hamtaei, "Method of fabricating high-efficiency transition metal dichalcogenide solar cells," Provisional App. 63/533474, Aug 2023
9. A. Kumar, K. Schauble, K.M. Neilson, E. Pop, K.C. Saraswat, "Apparatuses and Methods Involving Use of Low-Resistance Metal Contacts," U.S. Patent App. No. 63/275,794, Nov 4, 2021
8. S. Ueda, A. McLeod, A. Kummel, M. Burkland, S. Kilcoyne, E. Chumbles, T. Kazior, E. Pop, M. Chen,

C. Perez, M. Rodwell, "Low-Temperature Deposition of High-Quality Aluminum Nitride Films for Heat Spreading Applications," U.S. Patent App. No. 17/169914, Feb 8, 2021

7. A.I. Khan, E. Pop, R. Islam, H.-S.P. Wong, K.E. Goodson, M. Asheghi, H. Kwon, "Low-Power Phase-Change Memory Technology with Interfacial Thermoelectric Heating Enhancement," Provisional App. 63/089776, Oct 9, 2020
6. A. Daus, S. Vaziri, E. Pop, "Multi-layered semiconductive device and methodology with polymer and transition metal dichalcogenide material," App. 62/864232, Jun 6, 2019
5. Y. Kim, C. Ahn, A. Sood, E. Pop, H.-S.P. Wong, K.E. Goodson, S. Fong, S. Lee, C.M. Neumann, M. Asheghi, "Graphene-Inserted Phase Change Memory Device and Method of Fabricating the Same," US Patent 9,583,702, Feb 28, 2017
4. E. Pop, F. Xiong, M.-H. Bae, "Methods for Forming a Nanowire and Apparatus Thereof," US Patent 9,412,442, Aug 9, 2016
3. E. Pop, F. Xiong, A.D. Liao, "Adaptive Resistive Device and Methods Thereof," US Patent No. 9,324,422, Apr 26, 2016
2. E. Pop, "State Changing Device," US Patent No. 8,860,004, issued Oct. 14, 2014
1. E. Pop, "Resistive Changing Device," US Patent No. 8,586,961, issued Nov. 19, 2013

Students and Post-Docs Supervised

Post-Doctoral Researchers		**After Pop Lab or Current Position**
Hao Yu Lan	2025–	
Zherui Han	2024–	
Anh Tuan Hoang	2023–	
Tara Peña	2023–	
Anton Persson	2023–25	Asst. Prof. Chalmers University
Koosha Nassiri Nazif	2021–24	Stealth Startup
Alwin Daus	2018–21	Asst. Prof., University of Stuttgart
Sam Vaziri	2016–20	TSMC
Kevin Brenner	2017–19	Asst. Prof., UT Dallas
Aditya Sood	2018	Asst. Prof., Princeton University
Miguel Muñoz Rojo	2016–18	Assoc. Prof., CSIC/ICMM
Eilam Yalon	2015–18	Assoc. Prof., Technion
Yong Cheol Shin	2015–16	Korea Inst. Sci & Tech Eval & Planning (KISTEP)
Michal Mleczko	2017	Intel
Zuanyi Li	2014–15	ASML
Feng Xiong	2013–16	Assoc. Prof., Univ. Pittsburgh
Ashkan Behnam	2010–13	Intel
Myung-Ho Bae	2009–11	Korea Research Institute (KRISS)

Graduate Students Supervised		**After Pop Lab or Current Position**
Danny Han	Ph.D. EE, expected 2030	
Heather Phillips	Ph.D. EE, expected 2030	
Frederick Nitta	Ph.D. EE, expected 2029	
Young Suh Song	Ph.D. EE, expected 2029	
Sydney Fultz-Waters	Ph.D. MSE, expected 2028	
Yuan-Mau (Leo) Lee	Ph.D. MSE, expected 2028	
Haotian Su	Ph.D. EE, expected 2027	

Jerry Yang	Ph.D. EE, expected 2026	
Lauren Hoang	Ph.D. EE, 2026	Samsung
Robert Bennett	Ph.D. EE, 2026	Samsung
Maritha Wang	Ph.D. MSE, 2026	Medical School @ Stanford
Crystal Nattoo	Ph.D. EE, 2025	Applied Materials
Mahnaz Islam	Ph.D. EE, 2025	
Xiangjin Wu	Ph.D. EE, 2025	TSMC
Katie Neilson	Ph.D. EE, 2025	Intel
Sumaiya Wahid	Ph.D. EE, 2024	Samsung
Jung-Soo Ko	Ph.D. EE, 2024	Samsung
Çağıl Köroğlu	Ph.D. EE, 2024	DeepSim, Inc.
Marc Jaikissoon	Ph.D. EE, 2024	Intel
Asir Intisar Khan	Ph.D. EE, 2023	UC Berkeley
Michelle Chen	Ph.D. MSE, 2023	Stealth Startup
Connor Bailey	Ph.D. EE, 2023	Northrop Grumman
Victoria Chen	Ph.D. EE, 2022	Applied Materials
Kirstin Schauble	Ph.D. EE, 2022	Anello Photonics
Alexander Gabourie	Ph.D. EE, 2021	DeepSim, Inc.
Connor McClellan	Ph.D. EE, 2021	DeepSim, Inc.
Isha Datye	Ph.D. EE, 2020	TSMC
Stephanie Bohaichuk	Ph.D. EE, 2020	Univ. Waterloo, QV Ideas Lab
Runjie Lily Xu	Ph.D. EE, 2020	Apple
Sanchit Deshmukh	Ph.D. EE, 2020	Apple
Christopher Neumann	Ph.D. EE, 2019	Intel
Saurabh Suryavanshi	Ph.D. EE, 2018	ARM
Kirby Smithe	Ph.D. EE, 2018	Intel
Ning Wang	Ph.D. EE, 2018	Cirrus Logic
Feifei Lian	Ph.D. EE, 2018	Northrop Grumman
Christopher English	Ph.D. EE, 2017	Apple
Michal Mleczko	Ph.D. EE, 2016	post-doc, Stanford
Zuanyi Li	Ph.D. Physics, 2015	post-doc, Stanford
Sharnali Islam	Ph.D. ECE, 2015	Intel
Enrique Carrion	Ph.D. ECE, 2015	Intel
Andrey Serov	Ph.D. ECE, 2014	SanDisk
Kyle Grosse	Ph.D. MechSE, 2014	Raytheon
Vincent Dorgan	Ph.D. ECE, 2014	Intel
Feng Xiong	Ph.D. ECE, 2014	post-doc, Stanford
Joshua Wood	Ph.D. ECE, 2013	post-doc, Northwestern
David Estrada	Ph.D. ECE, 2013	Assoc. Prof., Boise State
Albert Liao	Ph.D. ECE, 2012	Micron
Zhun-Yong Ong	Ph.D. Physics, 2011	IHCP/A*STAR Singapore
Ryan Grady	M.S. EE, 2019	MicroLink Devices
Sungduk Hong	2011–13	UIUC MatSE
Austin Lyons	M.S. ECE, 2011	Intel
B. Ramasubramanian	M.S. ECE, 2010	Intel

Eros Reato	2023 (visiting from RWTH Aachen Univ., advisor: M. Lemme)
Massimiliano Bianchi	2013 (visiting from Poli Milano, advisor: R. Sordan)
Andrea Cappelli	2012–13 (visiting from U. Modena, advisor: C. Jacoboni)
Ilaria Imperiale	2011–12 (visiting from U. Bologna, advisor: M. Rudan)
Thierry Tsafack	2009–10 (visiting from U. Bologna, advisor: M. Rudan)

- **Undergraduate Researchers Supervised (Bachelor's Honors Theses in bold)**

  Brendan Poon (2025-26), Harmon Gault (2024-26), **Frederick Nitta (2022-24)**, Aditya Bora (2023-24), Felix Zhang (2023), Vivian Auduong (2022), Connor Cremers (2022), Neel Roy (2021-22), Kamila Thompson (2021), Noor Fakih (2020), Maisy Lam (2020), Sidra Nadeem (2020), Paul Bates Walter (2019), Linsen Li (2018), Bozo Vareskic (2017), **Andrew Yu (2015-17)**, Stephone Christian (2016), Anika Manzo (2016), Aria Tedjarati (2016), Erin Antono (2015-16), Peter Satterthwaite (2015), Justin Doong (2014-15), Job Nalyanya (2014), Tim Anderson (2014), Yeshar Hadi (2014), **Maryann Tung (2013)**, **Muneeb Ahmed (2013)**, Juan Pablo Llinas (2012-13), **Christopher Neumann (2010-12)**, Alicia Hoag (2011-12), **Yuan Dai (2011-12)**, Akshay Malik (2011-12), Xuanyu Zhong (2011-12), **Sumit Dutta (2009-11)**, Daifeng Guo (2011), Jose Matamoros (2011), Eric Kwan (2011), **Gautam Shine (2011)**, **Feifei Lian (2009-11)**, Dominic Ortigara (2010), Shreya Prakash (2009-10), Chun-Ming Chin (2010), Jen-Chieh Liu (2010), Ryan Pecora (2009-10), **Yang Zhao (2008-09)**, Aidee San Miguel (2009), **I-Ru (Tim) Chen (2008)**, Jerry Lee (2008), **William Wahby (2007)**.

Collaborators and Former Advisors

- **Collaborators (last 4-6 years):**

  Zhenan Bao, Mark Brongersma, Wei Cai, Srabanti Chowdhury, Yi Cui, Jonathan Fan, Reinhold Dauskardt, Ian Fisher, David Goldhaber-Gordon, Kenneth Goodson, Tony Heinz, Roger Howe, Felipe da Jornada, Aaron Lindenberg, Fang Liu, Andrew Mannix, Subhasish Mitra, Yoshio Nishi, Piero Pianetta, Evan Reed, Alberto Salleo, Krishna Saraswat, Debbie Senesky, Z.-X. Shen, Yuri Suzuki, H.-S. Philip Wong, Xiaolin Zheng (Stanford), Rashid Bashir, David Cahill, William King, Joseph Lyding (UIUC), Andrew Kummel, Tajana Rosing, Mingu Kang (UCSD), Deji Akinwande, Xiuling Li (UT Austin), Jonathan Bird (SUNY Buffalo), Ali Adibi, Suman Datta, Shimeng Yu (GA Tech), Amir B. Farimani, T. Srimani, (CMU), Davide Donadio (UC Davis), Grace Xing, Debdeep Jena (Cornell), Robert Wallace (UT Dallas), Steve Koester (Univ. Minnesota), Zhihong Chen, Xiulin Ruan (Purdue), Shriram Ramanathan (Rutgers), Arka Majumdar (Univ. Washington), AKM Newaz (SFSU), Mark Hersam (Northwestern), Jeff Elam (Argonne), Andrey Krayev (Horiba Scientific), Suhas Kumar, Alec Talin, R. Stanley Williams (Sandia), Jeong Moon (HRL), Jaewoo Jeong, Mahesh Samant (IBM), Stuart Parkin (IBM & Max Planck), Kevin O'Brien, Ilya Karpov (Intel), Sergiy Krylyuk, Albert Davydov, Huairuo Zhang (NIST), Vincent Gambin (Northrop Grumman), Mario Pelella (ON Semiconductor), Konstantinos Papagelis (Aristotle University of Thessaloniki), Tapio Ala-Nissilä, Esko Kauppinen (Aalto University), Natalio Mingo (CEA), Ajay K. Sood (Indian Institute of Science), Daniele Ielmini, Roman Sordan (Poli. Milano), Yee Kan Koh (NUS), Junichiro Shiomi (Univ. Tokyo), David Esseni (Univ. Udine), Tibor Grasser (TU Wien).

- **Advisors:**

  M.Eng. Thesis: Dimitri Antoniadis (MIT) and Peter Cottrell (IBM)

  Ph.D. Thesis: Kenneth Goodson and Robert Dutton (Stanford)

  Post-Doctoral: Hongjie Dai and Kenneth Goodson (Stanford)

Visitors Hosted

Inyeal Lee	2026	Samsung
Kyungwhan Yang	2025	Samsung
Minkyung Bae	2024	Samsung

Sarallah Hamtaei	2024	IMEC
Eros Reato	2023	RWTH Aachen University
Prof. Matthew Gilbert	2018	University of Illinois Urbana-Champaign
Mr. Luis Ruelas	Summer 2017	Downtown College Prep, Alum Rock
Prof. Xinran Wang	Spring 2017	Nanjing University
Prof. Akiko Ueda	Winter 2017	University of Tsukuba
Takaaki Uno	2015-2017	JSR Corp. Japan
Mr. Henry Fung	Summer 2016	Irvington High School, Fremont
Prof. Davide Donadio	Spring 2015	Max Planck, Mainz
Prof. Daniele Ielmini	Summer 2010	Politecnico di Milano
Prof. Junichiro Shiomi	Summer 2009	University of Tokyo