Eric Pop
Professor of Electrical Engineering and, by courtesy, of Materials Science and Engineering
Curriculum Vitae available Online

BIO
Eric Pop is a Professor of Electrical Engineering (EE) and Materials Science & Engineering (by courtesy) at Stanford, where he leads the SystemX Heterogeneous Integration focus area. Before Stanford, he spent several years on the faculty of UIUC, and in industry at Intel and IBM. His research interests are at the intersection of electronics, nanomaterials, and energy. He received his Ph.D. in EE from Stanford (2005) and three degrees from MIT (MEng and BS in EE, BS in Physics). In 2018 he was named one of the world’s Highly Cited Researchers by Clarivate. His other honors include the Presidential Early Career (PECASE) Award, and Young Investigator Awards from the ONR, NSF, AFOSR and DARPA. He is an IEEE Fellow, he was General Chair of the IEEE Device Research Conference (DRC), and has served on program committees of the IEDM, VLSI, MRS, and APS conferences. More information about the Pop Lab can be found online at http://poplab.stanford.edu

ACADEMIC APPOINTMENTS
• Professor, Electrical Engineering
• Professor (By courtesy), Materials Science and Engineering
• Member, Bio-X
• Affiliate, Precourt Institute for Energy

ADMINISTRATIVE APPOINTMENTS
• Lead of EE Culture, Equity, and Inclusion (CEI) Committee, Electrical Engineering, (2019- present)
• Co-Lead of Heterogeneous Integration Focus Area, SystemX Alliance, (2015- present)

HONORS AND AWARDS
• Intel 2021 Outstanding Researcher Award, Intel (2021)
• IEEE Fellow, IEEE (2021)
• Highly Cited Researcher, Web of Science (2018)
• Golden Reviewers List, IEEE Electron Device Letters (2017, 2013-09)
• Most Cited Researchers List in EE, Elsevier (2016)
• Okawa Foundation Grant, Okawa Foundation (2014)
• Engineering Council Award for Excellence in Advising, UIUC (2013)
• Award for Faculty Research, Xerox/UIUC (2011)
• Center for Advanced Study (CAS) Fellowship, UIUC (2011)
• Outstanding Presentation Award, EPCOS Symposium (2011)
• Senior Member, IEEE (2011)
AFOSR Young Investigator Program (YIP) Award, AFOSR (2010)
CAREER Award, NSF (2010)
ONR Young Investigator Program (YIP) Award, ONR (2010)
PECASE (Presidential) Award from the White House, ARO (2010)
List of Teachers Ranked as Excellent, UIUC (2009)
DARPA Young Faculty Award (YFA), DARPA (2008)
Arnold O. Beckman Research Award, UIUC (2007)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Fellow, IEEE (2021 - present)
- Member, AAAS (2012 - present)
- Member, APS (2011 - present)
- Senior Member, IEEE (2011 - present)
- Member, MRS (2007 - present)

PROGRAM AFFILIATIONS

- Stanford SystemX Alliance

PROFESSIONAL EDUCATION

- Ph.D., Stanford University, Electrical Engineering (2005)
- M.Eng., MIT, EECS (1999)
- B.S., MIT, EECS (1999)
- B.S., MIT, Physics (1999)

LINKS

- Pop Lab research web site: http://poplab.stanford.edu

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Research in the Pop Lab is at the intersection of nanoelectronics and nanoscale energy conversion. Most projects include both fundamental and applied, experimental and computational components. Some recent topics (as of 2013) include:

* Energy-efficient transistors, memory and integrated circuits
* Novel nanomaterials, e.g. graphene, BN, MoS2, carbon nanotubes, GeSbTe, etc.
* Fundamental physical limits of current and heat flow, e.g. ballistic electrons and phonons
* Applications of nanoscale energy transport, conversion and harvesting, e.g. thermoelectrics

For more details see the Pop Lab research website: http://poplab.stanford.edu

Teaching

COURSES

2021-22
• Circuits I: EE 101A (Win)
• Principles and Models of Semiconductor Devices: EE 216 (Aut)

2020-21
• Circuits I: EE 101A (Win)
• Introductory Research Seminar in Electrical Engineering: EE 301 (Aut)

2019-20
• Circuits I: EE 101A (Win)
• Energy in Electronics: EE 323 (Spr)
• Principles and Models of Semiconductor Devices: EE 216 (Aut)

2018-19
• Principles and Models of Semiconductor Devices: EE 216 (Win)
• Semiconductor Devices for Energy and Electronics: EE 116 (Spr)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)
Minda Deng, Carlo Gilardi, Marc Jaikissoon, Jung-Soo Ko, Aravindh Kumar, Heungdong Kwon, Chris Perez, Maryann Tung, Yecun Wu, Dante Zakhidov

Postdoctoral Faculty Sponsor
Koosha Nassiri Nazif

Doctoral Dissertation Advisor (AC)
Connor Bailey, Michelle Chen, Victoria Chen, Ryan Grady, Mahnaz Islam, Asir Intisar Khan, Cagil Koroglu, Crystal Nattoo, Katie Neilson, Kirstin Schauble, Sumaiya Wahid, Maritha Wang, Jerry Yang

Master's Program Advisor
Chloe Delmotte

Doctoral (Program)
Connor Bailey, Robert Bennett, Ryan Grady, Lauren Hoang, Fei Huang, Cassandra Huff, Aravindh Kumar, Katie Neilson, Robert Radway, Sumaiya Wahid, Yecun Wu, Jerry Yang, Sofie de Olazarra

Publications

PUBLICATIONS

• Nonequilibrium Phonon Thermal Resistance at MoS2/Oxide and Graphene/Oxide Interfaces. ACS applied materials & interfaces
  Zheng, W., McClellan, C. J., Pop, E., Koh, Y. K.
  2022

• Direct measurement of nanoscale filamentary hot spots in resistive memory devices. Science advances
  Deshmukh, S., Rojo, M. M., Yalon, E., Vaziri, S., Koroglu, C., Islam, R., Iglesias, R. A., Saraswat, K., Pop, E.
  2022; 8 (13): eabc1514

• Electrically driven reprogrammable phase-change metasurface reaching 80% efficiency. Nature communications
  Abdollahramezani, S., Hemmatyar, O., Taghinejad, M., Taghinejad, H., Krasnok, A., Eftekhar, A. A., Teichrib, C., Deshmukh, S., El-Sayed, M. A., Pop, E., Wuttig, M., Alo, A., Cai, et al
  2022; 13 (1): 1696

• Temperature-dependent thermal resistance of phase change memory. APPLIED PHYSICS LETTERS
  Stern, K., Keller, Y., Neumann, C. M., Pop, E., Yalon, E.
• Electro-Thermal Confinement Enables Improved Superlattice Phase Change Memory *IEEE ELECTRON DEVICE LETTERS*
  Khan, A., Kwon, H., Chen, M. E., Asheghi, M., Wong, H., Goodson, K. E., Pop, E.
  2022; 43 (2): 204-207

• High-specific-power flexible transition metal dichalcogenide solar cells. *Nature communications*
  Nassiri Nazif, K., Daus, A., Hong, J., Lee, N., Vaziri, S., Kumar, A., Nitta, F., Chen, M. E., Kananian, S., Islam, R., Kim, K., Park, J., Poon, et al
  2021; 12 (1): 7034

• Lateral electrical transport and field-effect characteristics of sputtered p-type chalcogenide thin films *APPLIED PHYSICS LETTERS*
  Wahid, S., Daus, A., Khan, A., Chen, V., Neilson, K. M., Islam, M., Chen, M. E., Pop, E.
  2021; 119 (23)

• Transistors based on two-dimensional materials for future integrated circuits *NATURE ELECTRONICS*
  Das, S., Sebastian, A., Pop, E., McClellan, C. J., Franklin, A. D., Grasser, T., Knobloch, T., Illarionov, Y., Penumatcha, A. V., Appenzeller, J., Chen, Z., Zhu, W., Asselberghs, et al
  2021; 4 (11): 786-799

• Vibrational Properties of a Naturally Occurring Semiconducting van der Waals Heterostructure *JOURNAL OF PHYSICAL CHEMISTRY C*
  Costa, V., Liang, L., Vaziri, S., Miller, A., Pop, E., Newaz, A. M.
  2021; 125 (39): 21607-21613

• Application-driven synthesis and characterization of hexagonal boron nitride deposited on metals and carbon nanotubes *2D MATERIALS*
  Chen, V., Shin, Y., Mikheev, E., Lin, Q., Martin, J., Zhang, Z., Chatterjee, S., Majumdar, A., Wong, H., Goldhaber-Gordon, D., Pop, E.
  2021; 8 (4)

• Field-effect at electrical contacts to two-dimensional materials (Jul, 10.1007/s12274-021-3670-y, 2021) *NANO RESEARCH*
  Guo, Y., Sun, Y., Tang, A., Wang, C., Zhao, Y., Bai, M., Xu, S., Xu, Z., Tang, T., Wang, S., Qiu, C., Xu, K., Peng, et al
  2021

• Sub-Nanosecond Pulses Enable Partial Reset for Analog Phase Change Memory *IEEE ELECTRON DEVICE LETTERS*
  Stern, K., Wainstein, N., Keller, Y., Neumann, C. M., Pop, E., Kvatsinsky, S., Yalon, E.
  2021; 42 (9): 1291-1294

• Toward Low-Temperature Solid-Source Synthesis of Monolayer MoS2. *ACS applied materials & interfaces*
  Tang, A., Kumar, A., Jaikissoon, M., Saraswat, K., Wong, H. P., Pop, E.
  2021

• Field-effect at electrical contacts to two-dimensional materials. *Nano research*
  Guo, Y., Sun, Y., Tang, A., Wang, C., Zhao, Y., Bai, M., Xu, S., Xu, Z., Tang, T., Wang, S., Qiu, C., Xu, K., Peng, et al
  2021: 1-7

• A Comprehensive Study of WSe2 Crystals Using Correlated Raman, Photoluminescence (PL), Second Harmonic Generation (SHG), and Atomic Force Microscopy (AFM) Imaging *SPECTROSCOPY*
  Schmidt, U., Bailey, C. S., Englert, J., Yalon, E., Ankonina, G., Pop, E., Hollricher, O., Dieing, T.
  2021; 36 (7): 23-30

• Graphene-based electromechanical thermal switches *2D MATERIALS*
  Chen, M. E., Rojo, M., Lian, F., Koeln, J., Sood, A., Bohaichuk, S. M., Neumann, C. M., Garrow, S. G., Goodson, K. E., Alleyne, A. G., Pop, E.
  2021; 8 (3)

• High-performance flexible nanoscale transistors based on transition metal dichalcogenides *NATURE ELECTRONICS*
  Daus, A., Vaziri, S., Chen, V., Koroglou, C., Grady, R. W., Bailey, C. S., Lee, H., Schauble, K., Brenner, K., Pop, E.
  2021

• Uncovering Phase Change Memory Energy Limits by Sub-Nanosecond Probing of Power Dissipation Dynamics *ADVANCED ELECTRONIC MATERIALS*
  Stern, K., Wainstein, N., Keller, Y., Neumann, C. M., Pop, E., Kvatsinsky, S., Yalon, E.
  2021
• Spectral decomposition of thermal conductivity: Comparing velocity decomposition methods in homogeneous molecular dynamics simulations. *Physical Review B*
  Gabourie, A. J., Fan, Z., Ala-Nissila, T., Pop, E.
  2021; 103 (20)

• Ultrathin Three-Monolayer Tunneling Memory Selectors. *ACS Nano*
  Wang, C., Chen, V., McClellan, C. J., Tang, A., Vaziri, S., Li, L., Chen, M. E., Pop, E., Wong, H. P.
  2021

• Carbon nanotube thermoelectric devices by direct printing: Toward wearable energy converters. *Applied Physics Letters*
  Lee, H., Furukawa, N., Ricco, A. J., Pop, E., Cui, Y., Nishi, Y.
  2021; 118 (17)

• High-Performance p-n Junction Transition Metal Dichalcogenide Photovoltaic Cells Enabled by MoOx Doping and Passivation. *Nano Letters*
  Nassiri Nazif, K., Kumar, A., Hong, J., Lee, N., Islam, R., McClellan, C. J., Karini, O., van de Groep, J., Heinz, T. F., Pop, E., Brongersma, M. L., Saraswat, K. C.
  2021

• High Current Density in Monolayer MoS2 Doped by AIOx. *ACS Nano*
  McClellan, C. J., Yalon, E., Smithe, K. K., Suryavanshi, S. V., Pop, E.
  2021

• Dynamic Hybrid Metasurfaces. *Nano Letters*
  Abdollahramezani, S. n., Hemmatyar, O. n., Taghinejad, M. n., Taghinejad, H. n., Kiarashinejad, Y. n., Zandehshahvar, M. n., Fan, T. n., Deshmukh, S. n., Eftekhar, A. A., Cai, W. n., Pop, E. n., El-Sayed, M. A., Adibi, et al
  2021

• Advanced Data Encryption using 2D Materials. *Advanced Materials (Deerfield Beach, Fla.)*
  Wen, C., Li, X., Zanotti, T., Puglisi, F. M., Shi, Y., Saiz, F., Antidormi, A., Roche, S., Zheng, W., Liang, X., Hu, J., Duhm, S., Roldan, et al
  2021: e2100185

• Engineering Thermal Transport across Layered Graphene-MoS2 Superlattices. *ACS Nano*
  Sood, A., Sievers, C., Shin, Y. C., Chen, V., Chen, S., Smithe, K. K., Chatterjee, S., Donadio, D., Goodson, K. E., Pop, E.
  2021

• Diamond Integration on GaN for Channel Temperature Reduction
  Malakoutian, M., Xu, R., Ren, C., Pasayat, S., Sayed, I., Pop, E., Chowdhury, S., IEEE
  IEEE.2021: 70-74

• Ultralow-switching current density multilevel phase-change memory on a flexible substrate. *Science (New York, N.Y.)*
  Khan, A. I., Daus, A., Islam, R., Neilson, K. M., Lee, H. R., Wong, H. P., Pop, E.
  2021; 373 (6560): 1243-1247

• Uncovering Thermal and Electrical Properties of Sb2Te3/GeTe Superlattice Films. *Nano Letters*
  Kwon, H., Khan, A. I., Perez, C., Asheghi, M., Pop, E., Goodson, K. E.
  2021

• Reduced thermal conductivity of supported and encased monolayer and bilayer MoS2. *2D Materials*
  Gabourie, A. J., Suryavanshi, S., Farimani, A., Pop, E.
  2021; 8 (1)

• Tuning electrical and interfacial thermal properties of bilayer MoS2 via electrochemical intercalation. *Nanotechnology*
  Xiong, F. n., Yalon, E. n., McClellan, C. n., Zhang, J. n., Aslan, O. B., Sood, A. n., Sun, J. n., Andolina, C. M., Al-Saidi, W. A., Goodson, K. E., Heinz, T. n., Cui, Y. n., Pop, et al
  2021

• Two-Fold Reduction of Switching Current Density in Phase Change Memory Using Bi2Te3 Thermoelectric Interfacial Layer. *IEEE Electron Device Letters*
  Khan, A., Kwon, H., Islam, R., Perez, C., Chen, M. E., Asheghi, M., Goodson, K. E., Wong, H., Pop, E.
  2020; 41 (11): 1657–60
• Ultrahigh Doping of Graphene Using Flame-Deposited MoO3  *IEEE ELECTRON DEVICE LETTERS*
Vaziri, S., Chen, V., Cai, L., Jiang, Y., Chen, M. E., Grady, R. W., Zheng, X., Pop, E.
2020; 41 (10): 1592–95

• Visualizing Energy Transfer at Buried Interfaces in Layered Materials Using Picosecond X-Rays  *ADVANCED FUNCTIONAL MATERIALS*
Nyby, C., Sood, A., Zalden, P., Gabourie, A. J., Muscher, P., Rhodes, D., Mannebach, E., Corbett, J., Mehta, A., Pop, E., Heinz, T. F., Lindenberg, A. M.
2020

• Nonvolatile Electrically Reconfigurable Integrated Photonic Switch Enabled by a Silicon PIN Diode Heater.  *Advanced materials (Deerfield Beach, Fla.)*
Zheng, J., Fang, Z., Wu, C., Zhu, S., Xu, P., Doylend, J. K., Deshmukh, S., Pop, E., Dunham, S., Li, M., Majumdar, A.
2020: e2001218

• VO2 Switch for Electrostastic Discharge Protection  *IEEE ELECTRON DEVICE LETTERS*
Bohaichuk, S. M., Pelella, M. M., Sun, Y., Zhang, Z., Ramanathan, S., Pop, E.
2020; 41 (2): 292–95

• Stacking Independence and Resonant Interlayer Excitation of Monolayer WSe2/MoSe2 Heterostructures for Photocatalytic Energy Conversion  *ACS APPLIED NANO MATERIALS*
Chen, J., Bailey, C., Cui, D., Wang, Y., Wang, B., Shi, H., Cai, Z., Pop, E., Zhou, C., Cronin, S. B.
2020; 3 (2): 1175–81

• Monolithic mtesla-level magnetic induction by self-rolled-up membrane technology.  *Science advances*
Huang, W., Yang, Z., Kraman, M. D., Wang, Q., Ou, Z., Rojo, M. M., Yalamarthi, A. S., Chen, V., Lian, F., Ni, J. H., Liu, S., Yu, H., Sang, et al
2020; 6 (3): eaay4508

• Improved Current Density and Contact Resistance in Bilayer MoSe2 Field Effect Transistors by AlOx Capping.  *ACS applied materials & interfaces*
Somvanshi, D. n., Ber, E. n., Bailey, C. S., Pop, E. n., Yalon, E. n.
2020; 12 (32): 36355–61

• Large temperature coefficient of resistance in atomically thin two-dimensional semiconductors  *Applied Physics Letters*
Khan, A., Khakbaz, P., Brenner, K. A., Smithe, K., Mleczko, M. J., Esseni, D., Pop, E.
2020; 116 (20)

• Flexible Low-Power Superlattice-Like Phase Change Memory
Khan, A., Daus, A., Pop, E., IEEE
IEEE.2020

• Ultra-scaled MoS2 transistors and circuits fabricated without nanolithography  *2D MATERIALS*
Patel, K., Grady, R. W., Smithe, K. H., Pop, E., Sordan, R.
2020; 7 (1)

• Nonvolatile Electrically Reconfigurable Integrated Photonic Switches Using Phase-Change Materials
Zheng, J., Fang, Z., Wu, C., Zhu, S., Xu, P., Doylend, J. K., Deshmukh, S., Pop, E., Dunham, S., Li, M., Majumdar, A., IEEE
IEEE.2020

• Highly confined plasmons in individual single-walled carbon nanotube nanoantennas
Yu, S., Roberts, J., Lin, Q., Bohaichuk, S., Luo, Y., Choi, Y., Ho, P., Lee, K., Falk, A. L., Wilson, W. L., Pop, E., Wong, H., Fan, et al
IEEE.2020

• Phase Change Material Integrated Silicon Photonics: GST and Beyond
Fang, Z., Zheng, J., Xu, P., Deshmukh, S., Pop, E., Majumdar, A., Jiang, S., Digonnet, M. J.
SPIE-INT SOC OPTICAL ENGINEERING.2020

• Uncovering the Effects of Metal Contacts on Monolayer MoS2.  *ACS nano*
Schauble, K. n., Zakhidov, D. n., Yalon, E. n., Deshmukh, S. n., Grady, R. W., Cooley, K. A., McClellan, C. J., Vaziri, S. n., Passarello, D. n., Mohney, S. E., Toney, M. F., Sood, A. K., Salleo, et al
2020

• Localized Heating and Switching in MoTe2-Based Resistive Memory Devices.  *Nano letters*
Datye, I. M., Rojo, M. M., Yalon, E. n., Deshmukh, S. n., Mleczko, M. J., Pop, E. n.
• Thermal conductivity of crystalline AlN and the influence of atomic-scale defects. *Journal of Applied Physics*
Xu, R., Rojo, M., Islam, S. M., Sood, A., Vareskic, B., Katte, A., Mingo, N., Goodson, K. E., Xing, H., Jena, D., Pop, E.
2019; 126 (18)

• Temperature-Dependent Contact Resistance to Nonvolatile Memory Materials. *IEEE Transactions on Electron Devices*
Deshmukh, S., Yalon, E., Lian, F., Schauble, K. E., Xiong, F., Karpov, I. V., Pop, E.
2019; 66 (9): 3816–21

• Layer-Dependent Interfacial Transport and Optoelectrical Properties of MoS2 on Ultraflat Metals. *ACS Applied Materials & Interfaces*
Lee, H., Deshmukh, S., Wen, J., Costa, V. Z., Schuder, J. S., Sanchez, M., Ichimura, A. S., Pop, E., Wang, B., Newaz, A. M.
2019; 11 (34): 31543–50

• Localized Triggering of the Insulator-Metal Transition in VO2 Using a Single Carbon Nanotube. *ACS Nano*
Bohaichuk, S. M., Munoz Rojo, M., Pitner, G., McClellan, C. J., Lian, F., Li, J., Jeong, J., Samant, M. G., Parkin, S. S., Wong, H. P., Pop, E.
2019

• Thermal boundary conductance of two-dimensional MoS2 interfaces. *Journal of Applied Physics*
Suryavanshi, S., Gabourie, A. J., Farimani, A., Pop, E.
2019; 126 (5)

• Ultrahigh thermal isolation across heterogeneously layered two-dimensional materials. *Science Advances*
Vaziri, S., Yalon, E., Munoz Rojo, M., Suryavanshi, S. V., Zhang, H., McClellan, C. J., Bailey, C. S., Smithe, K. K., Gabourie, A. J., Chen, V., Deshmukh, S., Bendersky, L., Davydov, et al
2019; 5 (8): eaax1325

• Strain- and Strain-Rate-Invariant Conductance in a Stretchable and Compressible 3D Conducting Polymer Foam. *Matter*
Chen, G., Rastak, R., Wang, Y., Yan, H., Feig, V., Liu, Y., Jiang, Y., Chen, S., Lian, F., Molina-Lopez, F., Jin, L., Cui, K., Chung, et al
2019; 1 (1): 205–18

• Significant Phonon Drag Enables High Power Factor in the AlGaN/GaN Two-Dimensional Electron Gas. *Nano Letters*
Yalamarthy, A. S., Munoz Rojo, M., Bruefach, A., Boone, D., Dowling, K. M., Sutterthwaite, P. F., Goldhaber-Gordon, D., Pop, E., Senesky, D. G.
2019

• Understanding the switching mechanism of interfacial phase change memory. *Journal of Applied Physics*
Okabe, K. L., Sood, A., Yalon, E., Neumann, C. M., Asheghi, M., Pop, E., Goodson, K. E., Wong, H.
2019; 125 (18)

• Quasi-Ballistic Thermal Transport Across MoS2 Thin Films. *Nano Letters*
Sood, A., Xiong, F., Chen, S., Cheaito, R., Lian, F., Asheghi, M., Cui, Y., Donadio, D., Goodson, K. E., Pop, E.
2019; 19 (4): 2434–42

• Strongly tunable anisotropic thermal transport in MoS2 by strain and lithium intercalation: first-principles calculations. *2D Materials*
Chen, S., Sood, A., Pop, E., Goodson, K. E., Donadio, D.
2019; 6 (2)

• Quasi-Ballistic Thermal Transport Across MoS2 Thin Films. *Nano Letters*
Sood, A., Xiong, F., Chen, S., Cheaito, R., Lian, F., Asheghi, M., Cui, Y., Donadio, D., Goodson, K. E., Pop, E.
2019

• Thermal transport in layer-by-layer assembled polycrystalline graphene films. *NPJ 2D Materials and Applications*
Estrada, D., Li, Z., Choi, G., Dunham, S. N., Serov, A., Lee, J., Meng, Y., Lian, F., Wang, N. C., Perez, A., Haasch, R. T., Zuo, J., King, et al
2019; 3

• Ternary content-addressable memory with MoS2 transistors for massively parallel data search. *Nature Electronics*
Yang, R., Li, H., Smithe, K. H., Kim, T. R., Okabe, K., Pop, E., Fan, J. A., Wong, H.
2019; 2 (3): 108–14

• Plasmon-Resonant Enhancement of Photocatalysis on Monolayer WSe2. *ACS Photonics*
Chen, J., Bailey, C. S., Hong, Y., Wang, L., Cai, Z., Shen, L., Hou, B., Wang, Y., Shi, H., Sambur, J., Ren, W., Pop, E., Cronin, et al
• Energy-Efficient Indirectly Heated Phase Change RF Switch. *IEEE Electron Device Letters*
  Yalon, E., Datye, I. M., Moon, J., Son, K., Lee, K., Pop, E.
  2019; 40 (3): 455–58

• Engineering thermal and electrical interface properties of phase change memory with monolayer MoS2. *Applied Physics Letters*
  Neumann, C. M., Okabe, K. L., Yalon, E., Grady, R. W., Wong, H., Pop, E.
  2019; 114 (8)

• Thermal transport in MoS2 from molecular dynamics using different empirical potentials. *Physical Review B*
  Xu, K., Gabourie, A. J., Hashemi, A., Fan, Z., Wei, N., Farimani, A., Komsa, H., Krasheninnikov, A., Pop, E., Ala-Nissila, T.
  2019; 99 (5)

• Spatial Separation of Carrier Spin by the Valley Hall Effect in Monolayer WS2 Transistors. *Nano Letters*
  Barre, E., Incorvia, J. A., Kim, S. H., McClellan, C. J., Pop, E., Wong, H. P., Heinz, T. F.
  2019

• 3D Heterogeneous Integration with 2D Materials
  McClellan, C., Bailey, C., Datye, I., Gabourie, A., Grady, R., Schauble, K., Vaziri, S., Pop, E., IEEE
  IEEE.2019: 89–90

• Fast Spiking of a Mott VO2-Carbon Nanotube Composite Device. *Nano Letters*
  Bohaichuk, S. M., Kumar, S. n., Pitner, G. n., McClellan, C. J., Jeong, J. n., Samant, M. G., Wong, H. P., Parkin, S. S., Williams, R. S., Pop, E. n.
  2019

• Contact Engineering High-Performance n-Type MoTe2 Transistors. *Nano Letters*
  Mleczko, M. J., Yu, A. C., Smyth, C. M., Chen, V. n., Shin, Y. C., Chatterjee, S. n., Tsai, Y. C., Nishi, Y. n., Wallace, R. M., Pop, E. n.
  2019

• Publisher Correction: An electrochemical thermal transistor. *Nature Communications*
  Sood, A. n., Xiong, F. n., Chen, S. n., Wang, H. n., Selli, D. n., Zhang, J. n., McClellan, C. J., Sun, J. n., Donadio, D. n., Cui, Y. n., Pop, E. n., Goodson, K. E.
  2019; 10 (1): 4465

• Reconfigurable Infrared Spectral Imaging with Robust Phase Change Materials
  Moon, J., Seo, H., Son, K., Yalon, E., Lee, K., Flores, E., Candia, G., Pop, E., George, T., Islam, M. S.
  SPIE-INT SOC OPTICAL ENGINEERING.2019

• Dry Transfer of van der Waals Crystals to Noble Metal Surfaces To Enable Characterization of Buried Interfaces. *ACS Applied Materials & Interfaces*
  Krayev, A. n., Bailey, C. S., Jo, K. n., Wang, S. n., Singh, A. n., Darlington, T. n., Liu, G. Y., Gradecak, S. n., Schuck, P. J., Pop, E. n., Jariwala, D. n.
  2019

• Reduction of hysteresis in MoS2 transistors using pulsed voltage measurements. *2D Materials*
  Datye, I. M., Gabourie, A. J., English, C. D., Smithe, K. H., McClellan, C. J., Wang, N. C., Pop, E.
  2019; 6 (1)

• Thermal transport across graphene step junctions. *2D Materials*
  Rojo, M., Li, Z., Sievers, C., Bornstein, A. C., Yalon, E., Deshmukh, S., Vaziri, S., Bae, M., Xiong, F., Donadio, D., Pop, E.
  2019; 6 (1)

• Recommended Methods to Study Resistive Switching Devices. *Advanced Electronic Materials*
  Lanza, M., Wong, H., Pop, E., Ielmini, D., Strukov, D., Regan, B. C., Larcher, L., Villena, M. A., Yang, J., Goux, L., Belmonte, A., Yang, Y., Puglisi, et al
  2019; 5 (1)

• Nanoelectronics and Heterogeneous Integration with 2D Materials
  Pop, E., IEEE
  IEEE.2019

• Process-induced anomalous current transport in graphene/InAlN/GaN heterostructured diodes
  Satterthwaite, P. F., Yalamarthi, A., Vaziri, S., Rojo, M., Pop, E., Senesky, D. G., IEEE
IEEE.2019

- **An electrochemical thermal transistor** *NATURE COMMUNICATIONS*
  Sood, A., Xiong, F., Chen, S., Wang, H., Selli, D., Zhang, J., McClellan, C. J., Sun, J., Donadio, D., Cui, Y., Pop, E., Goodson, K. E.
  2018; 9

- **An electrochemical thermal transistor.** *Nature communications*
  Sood, A., Xiong, F., Chen, S., Wang, H., Selli, D., Zhang, J., McClellan, C. J., Sun, J., Donadio, D., Cui, Y., Pop, E., Goodson, K. E.
  2018; 9 (1): 4510

- **Research Update: Recent progress on 2D materials beyond graphene: From ripples, defects, intercalation, and valley dynamics to straintronics and power dissipation** *APL MATERIALS*
  Lin, Z., Lei, Y., Subramanian, S., Briggs, N., Wang, Y., Lo, C., Yalon, E., Lloyd, D., Wu, S., Koski, K., Clark, R., Das, S., Wallace, et al
  2018; 6 (8)

- **Electronic synapses made of layered two-dimensional materials** *NATURE ELECTRONICS*
  Shi, Y., Liang, X., Yuan, B., Chen, V., Li, H., Hui, F., Yu, Z., Yuan, F., Pop, E., Wong, H., Lanza, M.
  2018; 1 (8): 458–65

- **High-Field Transport and Velocity Saturation in Synthetic Monolayer MoS2** *NANO LETTERS*
  Smithie, K. H., English, C. D., Suryavanshi, S. V., Pop, E.
  2018; 18 (7): 4516–22

- **GST-on-silicon hybrid nanophotonic integrated circuits: a non-volatile quasi-continuously reprogrammable platform** *OPTICAL MATERIALS EXPRESS*
  Zheng, J., Khanolkar, A., Xu, P., Deshmukh, S., Myers, J., Frantz, J., Pop, E., Hendrickson, J., Doylend, J., Bocchler, N., Majumdar, A.
  2018; 8 (6): 1551–61

- **Tuning Electrical and Thermal Transport in AlGaN/GaN Heterostructures via Buffer Layer Engineering** *ADVANCED FUNCTIONAL MATERIALS*
  Yalamarthy, A., So, H., Rojo, M., Suria, A. J., Xu, X., Pop, E., Seshesky, D. G.
  2018; 28 (22)

- **Unipolar n-Type Black Phosphorus Transistors with Low Work Function Contacts** *NANO LETTERS*
  Wang, C., Incorvia, J. C., McClellan, C. J., Yu, A. C., Mleczko, M. J., Pop, E., Wong, H.
  2018; 18 (5): 2822–27

- **Probing the Optical Properties and Strain-Tuning of Ultrathin Mo1–ITx&ITW&ITx&ITTe2** *NANO LETTERS*
  Aslan, O., Datye, I. M., Mleczko, M. J., Cheung, K., Krylyuk, S., Bruma, A., Kalish, I., Davydov, A. V., Pop, E., Heinz, T. F.
  2018; 18 (4): 2485–91

- **Ultra-low contact resistance in graphene devices at the Dirac point** *2D MATERIALS*
  Anzi, L., Mansouri, A., Pedrinazzi, P., Guerrero, E., Fiocco, M., Pesquera, A., Centeno, A., Zurutuza, A., Behnam, A., Carrion, E. A., Pop, E., Sordan, R.
  2018; 5 (2)

- **Flexural resonance mechanism of thermal transport across graphene-SiO2 interfaces** *JOURNAL OF APPLIED PHYSICS*
  Ong, Z., Qiu, B., Xu, S., Ruan, X., Pop, E.
  2018; 123 (11)

- **Carbon nanomaterials for non-volatile memories** *NATURE REVIEWS MATERIALS*
  Ahn, E. C., Wong, H., Pop, E.
  2018; 3 (3)

- **Microstructural origin of resistance-strain hysteresis in carbon nanotube thin film conductors** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Jin, L., Chortos, A., Lian, F., Pop, E., Linder, C., Bao, Z., Cai, W.
  2018; 115 (9): 1986–91

- **Detection of Methylation on dsDNA at Single-Molecule Level using Solid State Nanopores**
  Bello, J., Kim, Y., Banerjee, S., Smithie, K., Estrada, D., Myong, S., Nardulli, A., Pop, E., Bashir, R., Shim, J.
  CELL PRESS.2018; 216A
• Theoretical potential for low energy consumption phase change memory utilizing electrostatically-induced structural phase transitions in 2D materials *NPJ COMPUTATIONAL MATERIALS*
  Rehn, D. A., Li, Y., Pop, E., Reed, E. J.
  2018; 4

• Low Power Nanoscale Switching of VO2 using Carbon Nanotube Heaters
  Bohaiuchuk, S., Rojo, M., Pitner, G., McClellan, C., Lian, F., Li, J., Jeong, J., Samant, M., Parkin, S., Wong, H., Pop, E., IEEE
  IEEE.2018

• 3D Monolithic Stacked 1T1R cells using Monolayer MoS2 FET and hBN RRAM Fabricated at Low (150 degrees C) Temperature
  Wang, C., McClellan, C., Shi, Y., Zheng, X., Chen, V., Lanza, M., Pop, E., Wong, H., IEEE
  IEEE.2018

• The Heat Conduction Renaissance
  Sood, A., Pop, E., Asheghi, M., Goodson, K. E., IEEE
  IEEE.2018: 1396–1402

• Investigation of Monolayer MX2 as Sub-Nanometer Copper Diffusion Barriers
  Smithe, K. H., Zhu, Z., Bailey, C. S., Pop, E., Yoon, A., IEEE
  IEEE.2018

• Localized Heating in MoTe2-Based Resistive Memory Devices
  Datye, I. M., Rojo, M., Yalon, E., Mleczko, M. J., Pop, E., IEEE
  IEEE.2018

• Probing Self-Heating in RRAM Devices by Sub-100 nm Spatially Resolved Thermometry
  Deshmukh, S., Rojo, M., Yalon, E., Vaziri, S., Pop, E., IEEE
  IEEE.2018

• Sub-Thermionic Steep Switching in Hole-Doped WSe2 Transistors
  McClellan, C. J., Yalon, E., Cai, L., Suryavanshi, S., Zheng, X., Pop, E., IEEE
  IEEE.2018

• Energy-Efficient Phase Change Memory Programming by Nanosecond Pulses
  Yalon, E., Okabe, K., Neumann, C. M., Wong, H., Pop, E., IEEE
  IEEE.2018

• Temperature-Dependent Thermal Boundary Conductance of Monolayer MoS2 by Raman Thermometry *ACS APPLIED MATERIALS & INTERFACES*
  Yalon, E., Aslan, O., Smithe, K. H., McClellan, C. J., Suryavanshi, S. V., Xiong, F., Sood, A., Neumann, C. M., Xu, X., Goodson, K. E., Heinz, T. F., Pop, E.
  2017; 9 (49): 43013–20

• Studies of two-dimensional h-BN and MoS2 for potential diffusion barrier application in copper interconnect technology *NPJ 2D MATERIALS AND APPLICATIONS*
  Lo, C., Catalano, M., Smithe, K. H., Wang, L., Zhang, S., Pop, E., Kim, M. J., Chen, Z.
  2017; 1

• Dense Vertically Aligned Copper Nanowire Composites as High Performance Thermal Interface Materials *ACS APPLIED MATERIALS & INTERFACES*
  Barako, M. T., Isaacson, S. G., Lian, F., Pop, E., Dauskardt, R. H., Goodson, K. E., Tice, J.
  2017; 9 (48): 42067–74

• Dense Vertically Aligned Copper Nanowire Composites as High Performance Thermal Interface Materials. *ACS applied materials & interfaces*
  Barako, M. T., Isaacson, S. G., Lian, F., Pop, E., Dauskardt, R. H., Goodson, K. E., Tice, J.
  2017; 9 (48): 42067-42074

• Improved Hysteresis and Reliability of MoS2 Transistors With High-Quality CVD Growth and Al2O3 Encapsulation *IEEE ELECTRON DEVICE LETTERS*
  Illarionov, Y., Smithe, K. H., Waltl, M., Knobloch, T., Pop, E., Grasser, T.
  2017; 38 (12): 1763–66

• Spatially Resolved Thermometry of Resistive Memory Devices *SCIENTIFIC REPORTS*
  Yalon, E., Deshmukh, S., Rojo, M., Lian, F., Neumann, C. M., Xiong, F., Pop, E.
Detection of methylation on dsDNA using nanopores in a MoS2 membrane. *Nanoscale*  
Shim, J., Banerjee, S., Qiu, H., Smithe, K. H., Estrada, D., Bello, J., Pop, E., Schulten, K., Bashir, R.  
2017; 9 (39): 14836–45

Low Variability in Synthetic Monolayer MoS2 Devices. *ACS Nano*  
Smithe, K. H., Suryavanshi, S. V., Rojo, M., Tedjarati, A. D., Pop, E.  
2017; 11 (8): 8456–63

HfSe2 and ZrSe2: Two-dimensional semiconductors with native high-# oxides. *Science Advances*  
Mleczko, M. J., Zhang, C., Lee, H. R., Kuo, H. H., Magyari-Köpe, B., Moore, R. G., Shen, Z. X., Fisher, I. R., Nishi, Y., Pop, E.  
2017; 3 (8): e1700481

Nano letters  
Cai, L., McClellan, C. J., Koh, A. L., Li, H., Yalon, E., Pop, E., Zheng, X.  
2017

High-Gain Graphene Transistors with a Thin AlOx Top-Gate Oxide. *Scientific reports*  
Guerriero, E., Pedrizzetti, P., Mansouri, A., Habibpour, O., Winters, M., Rorsman, N., Behnam, A., Carrion, E. A., Pesquera, A., Centeno, A., Zurutuza, A., Pop, E., Zirath, et al.  
2017; 7 (1): 2419–?

Photosresponse of Natural van der Waals Heterostructures. *ACS nano*  
Ray, K., Yore, A. E., Mou, T., Jha, S., Smithe, K. K., Wang, B., Pop, E., Newaz, A. K.  
2017

Electronics. *Nano letters*  
Yalon, E., McClellan, C. J., Smithe, K. K., Muñoz Rojo, M., Xu, R. L., Suryavanshi, S. V., Gabourie, A. J., Neumann, D. M., Xiong, F., Farimani, A. B., Pop, E.  
2017

Transistors by Ultra-High Vacuum Metal Deposition. *Nano letters*  
English, C. D., Shine, G., Dorgan, V. E., Saraswat, K. C., Pop, E.  
2017; 17 (4): 2739–?

Intrinsic electrical transport and performance projections of synthetic monolayer MoS2 devices. *2D Materials*  
Smithe, K. K., English, C. D., Suryavanshi, S. V., Pop, E.  
2017; 4 (1)

Sub-15 nm Nanowires Enabled by Cryo Pulsed Self-Aligned Nanotrench Ablation on Carbon Nanotubes  
Deshmukh, S., Lian, F., Yalon, E., Pitner, G., Wang, H., Pop, E., IEEE  
IEEE.2017: 489–90

INVITED: In Quest of the Next Information Processing Substrate Extended Abstract  
Datta, S., Seabaugh, A., Niemier, M., Raychowdhury, A., Schlom, D., Jena, D., Xing, G., Wong, H., Pop, E., Salahuddin, S., Gupta, S., Gaha, S., IEEE  
IEEE.2017

Invited: A Systems Approach to Computing in Beyond CMOS Fabrics  
Patil, A., Shankarag, N., Varshney, L., Pop, E., Wong, H., Mitra, S., Rabaey, J., Weldon, J., Pileggi, L., Manipatruni, S., Nikonov, D., Young, I., IEEE  
IEEE.2017

Metasurfaces Based on Nano-Patterned Phase-Change Memory Materials  
Colburn, S., Zhan, A., Deshmukh, S., Myers, J., Frantz, J., Pop, E., Majumdar, A., IEEE  
IEEE.2017

Effective n-type Doping of Monolayer MoS2 by AlOx  
McClellan, C. J., Yalon, E., Smithe, K. H., Suryavanshi, S. V., Pop, E., IEEE  
IEEE.2017

2D Molybdenum Disulfide (MoS2) Transistors Driving RRAMs with IT1R Configuration  
Yang, R., Li, H., Smithe, K. H., Kim, T. R., Okabe, K., Pop, E., Fan, J. A., Wong, H., IEEE  
IEEE.2017
IEEE 2017

- **Thermal Boundary Conductance of the MoS2-SiO2 Interface**  
  Suryavanshi, S. V., Gabourie, A. J., Farimani, A., Yalon, E., Pop, E., IEEE  
  IEEE 2017: 26–29

- **Active metasurfaces based on phase-change memory material digital metamolecules**  
  Colburn, S., Zhan, A., Majumdar, A., Deshmukh, S., Pop, E., Myers, J., Frantz, J., IEEE  
  IEEE 2017: 5–8

- **Electronic, Thermal, and Unconventional Applications of 2D Materials**  
  Pop, E., Yalon, E., Munoz-Rojo, M., Mleczko, M., English, C., Wang, N., Smithe, K., Suryavanshi, S., Datye, I., McClellan, C., Gabourie, A., IEEE  
  IEEE 2017: 916–17

- **S2DS: Physics-based compact model for circuit simulation of two-dimensional semiconductor devices including non-idealities**  
  Journal of Applied Physics  
  Suryavanshi, S. V., Pop, E.  
  2016; 120 (22)

- **Gate tunneling current and quantum capacitance in metal-oxide-semiconductor devices with graphene gate electrodes**  
  Applied Physics Letters  
  An, Y., Shekhawat, A., Behnam, A., Pop, E., Ural, A.  
  2016; 109 (22)

- **Visualization of Defect-Induced Excitonic Properties of the Edges and Grain Boundaries in Synthesized Monolayer Molybdenum Disulfide**  
  Journal of Physical Chemistry C  
  Yore, A. E., Smithe, K. K., Crumrine, W., Miller, A., TUCK, J. A., Redd, B., Pop, E., Wang, B., Newaz, A. K.  
  2016; 120 (42): 24080-24087

- **Interfaces. Nano letters**  
  Koh, Y. K., Lyons, A. S., Bae, M., Huang, B., Dorgan, V. E., Cahill, D. G., Pop, E.  
  2016; 16 (10): 6014-6020

- **SANTA: Self-aligned nanotrench ablation via Joule heating for probing sub-20 nm devices**  
  Nano Research  
  Xiong, F., Deshmukh, S., Hong, S., Dai, Y., Behnam, A., Lian, F., Pop, E.  
  2016; 9 (10): 2950-2959

- **Role of Remote Interfacial Phonon (RIP) Scattering in Heat Transport Across Graphene/SiO2 Interfaces**  
  Nano Letters  
  Koh, Y. K., Lyons, A. S., Bae, M., Huang, B., Dorgan, V. E., Cahill, D. G., Pop, E.  
  2016; 16 (10): 6014-6020

- **High Current Density and Low Thermal Conductivity of Atomically Thin Semimetallic WTe2.**  
  ACS Nano  
  Mleczko, M. J., Xu, R. L., Okabe, K., Kuo, H., Fisher, I. R., Wong, H. P., Nishi, Y., Pop, E.  
  2016; 10 (8): 7507-7514

- **Electrical and Thermoelectric Transport by Variable Range Hopping in Thin Black Phosphorus Devices**  
  Nano Letters  
  Choi, S. J., Kim, B., Lee, T., Kim, Y. H., Li, Z., Pop, E., Kim, J., Song, J. H., Bae, M.  
  2016; 16 (7): 3969-3975

- **Role of Pressure in the Growth of Hexagonal Boron Nitride Thin Films from Ammonia-Borane**  
  Chemistry of Materials  
  Koepke, J. C., Wood, J. D., Chen, Y., Schmucker, S. W., Liu, X., Chang, N. N., Nienhaus, L., Do, J. W., Carrion, E. A., Hewaparakrama, J., Ranaarajan, A., Datye, I., Mehta, et al  
  2016; 28 (12): 4169-4179

- **Improved Contacts to MoS2 Transistors by Ultra-High Vacuum Metal Deposition**  
  Nano Letters  
  English, C. D., Shine, G., Dorgan, V. E., Saraswat, K. C., Pop, E.  
  2016; 16 (6): 3824-3830

- **Kinetic Study of Hydrogen Evolution Reaction over Strained MoS2 with Sulfur Vacancies Using Scanning Electrochemical Microscopy**  
  Journal of the American Chemical Society  
  Li, H., Du, M., Mleczko, M. J., Koh, A. L., Nishi, Y., Pop, E., Bard, A. J., Zheng, X.  
  2016; 138 (15): 5123-5129
• Thermal conductivity of chirality-sorted carbon nanotube networks *APPLIED PHYSICS LETTERS*
  Lian, F., Llinas, J. P., Li, Z., Estrada, D., Pop, E.
  2016; 108 (10)

• Energy-Efficient Abundant-Data Computing: The N3XT 1,000x *COMPUTER*
  Aly, M. M., Gao, M., Hills, G., Lee, C., Pitner, G., Shulaker, M. M., Wu, T. F., Asheghi, M., Bokor, J., Franchetti, F., Goodson, K. E., Kozyrakis, C., Markov, et al
  2015; 48 (12): 24-33

• Energy-Efficient Phase-Change Memory with Graphene as a Thermal Barrier. *Nano letters*
  Ahn, C., Fong, S. W., Kim, Y., Lee, S., Sood, A., Neumann, C. M., Asheghi, M., Goodson, K. E., Pop, E., Wong, H. P.
  2015; 15 (10): 6809-6814

• Energy-Efficient Phase-Change Memory with Graphene as a Thermal Barrier *NANO LETTERS*
  Ahn, C., Fong, S. W., Kim, Y., Lee, S., Sood, A., Neumann, C. M., Asheghi, M., Goodson, K. E., Pop, E., Wong, H. P.
  2015; 15 (10): 6809-6814

• Engineering Ultra-Low Work Function of Graphene *NANO LETTERS*
  Yuan, H., Chang, S., Bargatin, I., Wang, N. C., Riley, D. C., Wang, H., Schwede, J. W., Provine, J., Pop, E., Shen, Z., Pianetta, P. A., Melosh, N. A., Howe, et al
  2015; 15 (10): 6475-6480

• Li Intercalation in MoS2: In Situ Observation of Its Dynamics and Tuning Optical and Electrical Properties *NANO LETTERS*
  Xiong, F., Wang, H., Liu, X., Sun, J., Brongersma, M., Pop, E., Cui, Y.
  2015; 15 (10): 6777-6784

• Nanoscale phase change memory with graphene ribbon electrodes *APPLIED PHYSICS LETTERS*
  Behnam, A., Xiong, F., Cappelli, A., Wang, N. C., Carrion, E. A., Hong, S., Dai, Y., Lyons, A. S., Chow, E. K., Piccinini, E., Jacoboni, C., Pop, E.
  2015; 107 (12)

• Forward-bias diode parameters, electronic noise, and photoresponse of graphene/silicon Schottky junctions with an interfacial native oxide layer *JOURNAL OF APPLIED PHYSICS*
  An, Y., Behnam, A., Pop, E., Bosman, G., Ural, A.
  2015; 118 (11)

• A Compact Virtual-Source Model for Carbon Nanotube FETs in the Sub-10-nm Regime-Part II: Extrinsic Elements, Performance Assessment, and Design Optimization *IEEE TRANSACTIONS ON ELECTRON DEVICES*
  Lee, C., Pop, E., Franklin, A. D., Haensch, W., Wong, H. P.
  2015; 62 (9): 3070-3078

• A Compact Virtual-Source Model for Carbon Nanotube FETs in the Sub-10-nm Regime-Part I: Intrinsic Elements *IEEE TRANSACTIONS ON ELECTRON DEVICES*
  Lee, C., Pop, E., Franklin, A. D., Haensch, W., Wong, H. P.
  2015; 62 (9): 3061-3069

• Graphene-Based Platform for Infrared Near-Field Nanospectroscopy of Water and Biological Materials in an Aqueous Environment. *ACS nano*
  Khatib, O., Wood, J. D., McLeod, A. S., Goldflam, M. D., Wagner, M., Damhorst, G. L., Koepke, J. C., Doidge, G. P., Rangarajan, A., Bashir, R., Pop, E., Lyding, J. W., Thiemens, et al
  2015; 9 (8): 7968-7975

• Graphene-Based Platform for Infrared Near-Field Nanospectroscopy of Water and Biological Materials in an Aqueous Environment *ACS NANO*
  Khatib, O., Wood, J. D., McLeod, A. S., Goldflam, M. D., Wagner, M., Damhorst, G. L., Koepke, J. C., Doidge, G. P., Rangarajan, A., Bashir, R., Pop, E., Lyding, J. W., Thiemens, et al
  2015; 9 (8): 7968-7975

• Bright visible light emission from graphene *NATURE NANOTECHNOLOGY*
  Kim, Y. D., Kim, H., Cho, Y., Ryoo, J. H., Park, C., Kim, P., Kim, Y. S., Lee, S., Li, Y., Park, S., Yoo, Y. S., Yoon, D., Dorgan, et al
  2015; 10 (8): 676-681

• Solution-Mediated Selective Nanosoldering of Carbon Nanotube Junctions for Improved Device Performance *ACS NANO*
  Do, J., Chang, N. N., Estrada, D., Lian, F., Cha, H., Duan, X. J., Haasch, R. T., Pop, E., Girolami, G. S., Lyding, J. W.
  2015; 9 (5): 4806-4813
• Annealing free, clean graphene transfer using alternative polymer scaffolds. *Nanotechnology*
  Wood, J. D., Doidge, G. P., Carrion, E. A., Koepke, J. C., Kaitz, J. A., Datye, I., Behnam, A., Hewaparakrama, J., Aruin, B., Chen, Y., Dong, H., Haasch, R. T., Lyding, et al
  2015; 26 (5): 055302-

• Annealing free, clean graphene transfer using alternative polymer scaffolds. *Nanotechnology*
  Wood, J. D., Doidge, G. P., Carrion, E. A., Koepke, J. C., Kaitz, J. A., Datye, I., Behnam, A., Hewaparakrama, J., Aruin, B., Chen, Y., Dong, H., Haasch, R. T., Lyding, et al
  2015; 26 (5): 055302-

• Scaling of graphene integrated circuits *NANOSCALE*
  Bianchi, M., Guerriero, E., Fiocco, M., Alberti, R., Polloni, L., Behnam, A., Carrion, E. A., Pop, E., Sordan, R.
  2015; 7 (17): 8076-8083

• Direct observation of resistive heating at graphene wrinkles and grain boundaries *APPLIED PHYSICS LETTERS*
  Grosse, K. L., Dorgan, V. E., Estrada, D., Wood, J. D., Vlassiouk, I., Eres, G., Lyding, J. W., King, W. P., Pop, E.
  2014; 105 (14)

• Heterogeneous nanometer-scale Joule and Peltier effects in sub-25 nm thin phase change memory devices *JOURNAL OF APPLIED PHYSICS*
  Grosse, K. L., Pop, E., King, W. P.
  2014; 116 (12)

• Nanometer-scale temperature imaging for independent observation of Joule and Peltier effects in phase change memory devices *REVIEW OF SCIENTIFIC INSTRUMENTS*
  Grosse, K. L., Pop, E., King, W. P.
  2014; 85 (9)

• Nanometer-scale temperature imaging for independent observation of Joule and Peltier effects in phase change memory devices. *The Review of scientific instruments*
  Grosse, K. L., Pop, E., King, W. P.
  2014; 85 (9): 094904

• Phase change materials and phase change memory *MRS BULLETIN*
  Raoux, S., Xiong, F., Wuttig, M., Pop, E.
  2014; 39 (8): 703-710

• Theoretical analysis of high-field transport in graphene on a substrate *JOURNAL OF APPLIED PHYSICS*
  Serov, A. Y., Ong, Z., Fischetti, M. V., Pop, E.
  2014; 116 (3)

• Substrate-supported thermometry platform for nanomaterials like graphene, nanotubes, and nanowires *APPLIED PHYSICS LETTERS*
  Li, Z., Bae, M., Pop, E.
  2014; 105 (2)

• Self-aligned Cu etch mask for individually addressable metallic and semiconducting carbon nanotubes. *ACS nano*
  Jiang, Y., Xiong, F., Tsai, C. L., Ozel, T., Pop, E., Shim, M.
  2014; 8 (6): 6500-8

• Ultrafast terahertz-induced response of GeSbTe phase-change materials *APPLIED PHYSICS LETTERS*
  Shu, M. J., Zalden, P., Chen, F., Weems, B., Chatzakis, I., Xiong, F., Jeyasingh, R., Hoffmann, M. C., Pop, E., Wong, H. P., Wuttig, M., Lindenberg, A. M.
  2014; 104 (25)

• Monolithic III-V Nanowire Solar Cells on Graphene via Direct van der Waals Epitaxy. *Advanced materials*
  Mohseni, P. K., Behnam, A., Wood, J. D., Zhao, X., Yu, K. J., Wang, N. C., Rockett, A., Rogers, J. A., Lyding, J. W., Pop, E., Li, X.
  2014; 26 (22): 3755-3760

• Self-Aligned Cu Etch Mask for Individually Addressable Metallic and Semiconducting Carbon Nanotubes *ACS NANO*
  Jiang, Y., Xiong, F., Tsai, C., Ozel, T., Pop, E., Shim, M.
  2014; 8 (6): 6500-6508
• **Hysteresis-Free Nanosecond Pulsed Electrical Characterization of Top-Gated Graphene Transistors** *IEEE TRANSACTIONS ON ELECTRON DEVICES*
  Carrion, E. A., Serov, A. Y., Islam, S., Behnam, A., Malik, A., Xiong, F., Bianchi, M., Sordan, R., Pop, E.
  2014; 61 (5): 1583-1589

• **Carbon Nanotube Circuit Integration up to Sub-20 nm Channel Lengths** *ACS NANO*
  Shulaker, M. M., Van Rethy, J., Wu, T. F., Liyanage, L. S., Wei, H., Li, Z., Pop, E., Gielan, G., Wong, H. P., Mitra, S.
  2014; 8 (4): 3434-3443

• **Nanoscale thermal transport. II. 2003-2012** *APPLIED PHYSICS REVIEWS*
  Cahill, D. G., Braun, P. V., Chen, G., Clarke, D. R., Fan, S., Goodson, K. E., Keblinski, P., King, W. P., Mahan, G. D., Majumdar, A., Maris, H. J., Phillpot, S. R., Pop, et al
  2014; 1 (1)

• **High-Field and Thermal Transport in 2D Atomic Layer Devices** *Conference on Micro- and Nanotechnology Sensors, Systems, and Applications VI*
  Serov, A., Dorgan, V. E., Behnam, A., English, C. D., Li, Z., Islam, S., Pop, E.
  SPIE-INT SOC OPTICAL ENGINEERING 2014

• **Energy Efficiency and Conversion in 1D and 2D Electronics** *44th European Solid-State Device Research Conference (ESSDERC)*
  Pop, E., English, C., Xiong, F., Lian, F., Serov, A., Li, Z., Islam, S., Dorgan, V.
  IEEE.2014: 35–37

• **Multi-Valley High Field Transport in 2-Dimensional MoS2 Transistors** *72nd Annual Device Research Conference (DRC)*
  Serov, A. Y., Dorgan, V. E., English, C. D., Pop, E.
  IEEE.2014: 183–184

• **Improving Contact Resistance in MoS2 Field Effect Transistors** *72nd Annual Device Research Conference (DRC)*
  English, C. D., Shine, G., Dorgan, V. E., Saraswat, K. C., Pop, E.
  IEEE.2014: 193–194

• **Variability of Graphene Mobility and Contacts: Surface Effects, Doping and Strain** *72nd Annual Device Research Conference (DRC)*
  Carrion, E. A., Wood, J. D., Behman, A., Tung, M., Lyding, J. W., Pop, E.
  IEEE.2014: 199–200

• **Nanosoldering Carbon Nanotube Junctions by Local Chemical Vapor Deposition for Improved Device Performance** *NANO LETTERS*
  Do, J., Estrada, D., Xie, X., Chang, N. N., Mallek, J., Girolami, G. S., Rogers, J. A., Pop, E., Lyding, J. W.
  2013; 13 (12): 5844-5850

• **Helical Carbon Nanotubes Enhance the Early Immune Response and Inhibit Macrophage-Mediated Phagocytosis of Pseudomonas aeruginosa** *PLOS ONE*
  Walling, B. E., Kuang, Z., Hao, Y., Estrada, D., Wood, J. D., Lian, F., Miller, L. A., Shah, A. B., Jeffries, J. L., Haasch, R. T., Lyding, J. W., Pop, E., Lau, et al
  2013; 8 (11)

• **Compact Model for Carbon Nanotube Field-Effect Transistors Including Nonidealities and Calibrated With Experimental Data Down to 9-nm Gate Length** *IEEE TRANSACTIONS ON ELECTRON DEVICES*
  Luo, J., Wei, L., Lee, C., Franklin, A. D., Guan, X., Pop, E., Antoniadis, D. A., Wong, H. P.
  2013; 60 (6): 1834-1843

• **Gigahertz Integrated Graphene Ring Oscillators** *ACS NANO*
  Guerriero, E., Polloni, L., Bianchi, M., Behnam, A., Carrion, E., Rizzi, L. G., Pop, E., Sordan, R.
Resistive Random Access Memory Enabled by Carbon Nanotube Crossbar Electrodes  *ACS NANO*
Tsai, C., Xiong, F., Pop, E., Shim, M.
2013; 7 (6): 5360-5366

Direct observation of nanometer-scale Joule and Peltier effects in phase change memory devices  *APPLIED PHYSICS LETTERS*
Grosse, K. L., Xiong, F., Hong, S., King, W. P., Pop, E.
2013; 102 (19)

Signatures of dynamic screening in interfacial thermal transport of graphene  *PHYSICAL REVIEW B*
Ong, Z., Fischetti, M. V., Serov, A. Y., Pop, E.
2013; 87 (19)

The Role of External Defects in Chemical Sensing of Graphene Field-Effect Transistors  *NANO LETTERS*
Kumar, B., Min, K., Bashirzadeh, M., Farimani, A. B., Bae, M., Estrada, D., Kim, Y. D., YASAEI, P., Park, Y. D., Pop, E., Aluru, N. R., Salehi-Khojin, A.
2013; 13 (5): 1962-1968

Using nanoscale thermocapillary flows to create arrays of purely semiconducting single-walled carbon nanotubes  *NATURE NANOTECHNOLOGY*
Jin, S. H., Dunham, S. N., Song, J., Xie, X., Kim, J., Lu, C., Islam, A., Du, F., Kim, J., Felts, J., Li, Y., Xiong, F., Wahab, et al
2013; 8 (5): 347-355

Ballistic to diffusive crossover of heat flow in graphene ribbons  *NATURE COMMUNICATIONS*
Bae, M., Li, Z., Aksamija, Z., Martin, P. N., Xiong, F., Ong, Z., Knezovic, I., Pop, E.
2013; 4

InxGa1-xAs Nanowire Growth on Graphene: van der Waals Epitaxy Induced Phase Segregation  *NANO LETTERS*
Mohseni, P. K., Behnam, A., Wood, J. D., English, C. D., Lyding, J. W., Pop, E., Li, X.
2013; 13 (3): 1153-1161

Role of Joule Heating on Current Saturation and Transient Behavior of Graphene Transistors  *IEEE ELECTRON DEVICE LETTERS*
Islam, S., Li, Z., Dorgan, V. E., Bae, M., Pop, E.
2013; 34 (2): 166-168

Self-Aligned Nanotube-Nanowire Phase Change Memory  *NANO LETTERS*
Xiong, F., Bae, M., Dai, Y., Liao, A. D., Behnam, A., Carrion, E. A., Hong, S., Ielmini, D., Pop, E.
2013; 13 (2): 464-469

Effect of grain boundaries on thermal transport in graphene  *APPLIED PHYSICS LETTERS*
Serov, A. Y., Ong, Z., Pop, E.
2013; 102 (3)

Metal-semiconductor-metal photodetectors based on graphene/p-type silicon Schottky junctions  *APPLIED PHYSICS LETTERS*
An, Y., Behnam, A., Pop, E., Ural, A.
2013; 102 (1)

Atomic-Scale Evidence for Potential Barriers and Strong Carrier Scattering at Graphene Grain Boundaries: A Scanning Tunneling Microscopy Study  *ACS NANO*
Koeck, J. C., Wood, J. D., Estrada, D., Ong, Z., He, K. T., Pop, E., Lyding, J. W.
2013; 7 (1): 75-86

Substrate Dependent High-Field Transport of Graphene Transistors  *71st Device Research Conference (DRC)*
Islam, S., Serov, A. Y., Meric, I., Shepard, K. L., Pop, E.
IEEE.2013: 35–36

Realistic Simulation of Graphene Transistors Including Non-Ideal Electrostatics  *71st Device Research Conference (DRC)*
Serov, A. Y., Islam, S., Pop, E.
IEEE.2013: 31–32

Reliability, Failure, and Fundamental Limits of Graphene and Carbon Nanotube Interconnects  *IEEE International Electron Devices Meeting (IEDM)*
Liao, A. D., Behnam, A., Dorgan, V. E., Li, Z., Pop, E.
IEEE 2013

- **Novel 3D random-network model for threshold switching of phase-change memories** *IEEE International Electron Devices Meeting (IEDM)*
  Piccinini, E., Cappelli, A., Xiong, F., Behnam, A., Buscemi, F., Brunetti, R., Rudan, M., Pop, E., Jacoboni, C.
  IEEE 2013

- **High-Field Transport and Thermal Reliability of Sorted Carbon Nanotube Network Devices** *ACS NANO*
  Behnam, A., Sangwan, V. K., Zhong, X., Lian, F., Estrada, D., Jariwala, D., Hoag, A. J., Lauhon, L. J., Marks, T. J., Hersam, M. C., Pop, E.
  2013; 7 (1): 482-490

- **Electrochemistry at the Edge of a Single Graphene Layer in a Nanopore** *ACS NANO*
  Banerjee, S., Shim, J., Rivera, J., Jin, X., Estrada, D., Solovyeva, V., You, X., Pak, J., Pop, E., Aluru, N., Bashir, R.
  2013; 7 (1): 834-843

- **Impact of thermal boundary conductances on power dissipation and electrical breakdown of carbon nanotube network transistors** *JOURNAL OF APPLIED PHYSICS*
  Gupta, M. P., Chen, L., Estrada, D., Behnam, A., Pop, E., Kumar, S.
  2012; 112 (12)

- **Thermal properties of graphene: Fundamentals and applications** *MRS BULLETIN*
  Pop, E., Varshney, V., Roy, A. K.
  2012; 37 (12): 1273-1281

- **Quantitative Thermal Imaging of Single-Walled Carbon Nanotube Devices by Scanning Joule Expansion Microscopy** *ACS NANO*
  Xie, X., Grosse, K. L., Song, J., Lu, C., Dunham, S., Du, F., Islam, A. E., Li, Y., Zhang, Y., Pop, E., Huang, Y., King, W. P., Rogers, et al
  2012; 6 (11): 10267-10275

- **Transport in Nanoribbon Interconnects Obtained from Graphene Grown by Chemical Vapor Deposition** *NANO LETTERS*
  Behnam, A., Lyons, A. S., Bae, M., Chow, E. K., Islam, S., Neumann, C. M., Pop, E.
  2012; 12 (9): 4424-4430

- **Cascading Wafer-Scale Integrated Graphene Complementary Inverters under Ambient Conditions** *NANO LETTERS*
  Rizzi, L. G., Bianchi, M., Behnam, A., Carrion, E., Guerriero, E., Polloni, L., Pop, E., Sordan, R.
  2012; 12 (8): 3948-3953

- **Scanning Tunneling Microscopy Study and Nanomanipulation of Graphene-Coated Water on Mica** *NANO LETTERS*
  He, K. T., Wood, J. D., Doidge, G. P., Pop, E., Lyding, J. W.
  2012; 12 (6): 2665-2672

- **Effect of Carbon Nanotube Network Morphology on Thin Film Transistor Performance** *NANO RESEARCH*
  Timmermans, M. Y., Estrada, D., Nasibulin, A. G., Wood, J. D., Behnam, A., Sun, D., Ohno, Y., Lyding, J. W., Hassanien, A., Pop, E., Kauppinen, E. I.
  2012; 5 (5): 307-319

- **Effects of tip-nanotube interactions on atomic force microscopy imaging of carbon nanotubes** *NANO RESEARCH*
  Alizadegan, R., Liao, A. D., Xiong, F., Pop, E., Hsia, K. J.
  2012; 5 (4): 235-247

- **Nanometalization of single-wall carbon nanotubes and graphene quantum dots** *Symposium on Ionic Liquids - Science and Applications / 243rd National Spring Meeting of the American-Chemical-Society*
  Ye, W., Martin, P. A., Kumar, N., Estrada, D., Daly, S. R., Rockett, A. A., Abelson, J. R., Pop, E., Girolami, G. S., Lyding, J. W.
  AMER CHEMICAL SOC. 2012

- **New Technique of DNA Sensing: Nanoribbon Transverse Electrodes** *56th Annual Meeting of the Biophysical-Society*
  Solovyeva, V., Chow, E., Bae, M., Estrada, D., Banerjee, S., Behnam, A., Dorgan, V. E., Chang, W., Pop, E., Bashir, R.
  CELL PRESS. 2012; 428A–428A

- **Chemical sensors based on randomly stacked graphene flakes** *APPLIED PHYSICS LETTERS*
  Salehi-Khojin, A., Estrada, D., Lin, K. Y., Ran, K., Haasch, R. T., Zuo, J., Pop, E., Masel, R. I.
  2012; 100 (3)
Atomic-scale Study of Scattering and Electronic Properties of CVD Graphene Grain Boundaries

Koepke, J. C., Wood, J. D., Estrada, D., Ong, Z., Xiong, F., Pop, E., Lyding, J. W.

12th IEEE International Conference on Nanotechnology (IEEE-NANO)

IEEE.2012

IMPACT OF CONTACT RESISTANCES ON ELECTRICAL AND THERMAL TRANSPORT IN CARBON NANOTUBE NETWORK TRANSISTORS

Gupta, M. P., Estrada, D., Pop, E., Kumar, S.

3rd ASME Micro/Nanoscale Heat and Mass Transfer International Conference (MNHMT2012)

AMER SOC MECHANICAL ENGINEERS.2012: 769–776

Scanning Tunneling Microscopy Characterization of Graphene-coated Few-layered Water on Mica

He, K. T., Wood, J. D., Doidge, G. P., Pop, E., Lyding, J. W.

12th IEEE International Conference on Nanotechnology (IEEE-NANO)

IEEE.2012

Nanosoldering Carbon Nanotube Junctions with Metal via Local Chemical Vapor Deposition for Improved Device Performance

Do, J., Estrada, D., Xie, X., Chang, N. N., Girolami, G. S., Rogers, J. A., Pop, E., Lyding, J. W.

12th IEEE International Conference on Nanotechnology (IEEE-NANO)

IEEE.2012

Graphene Nanopores for Nucleic Acid Analysis

Shim, J., Solovyeva, V., Estrada, D., Banerjee, S., Rivera, J., Pop, E., Bashir, R.

12th IEEE International Conference on Nanotechnology (IEEE-NANO)

IEEE.2012

Improved Graphene Growth and Fluorination on Cu with Clean Transfer to Surfaces

Wood, J. D., Schmucker, S. W., Raasch, R. T., Doidge, G. P., Nienhaus, L., Damhorst, G. L., Lyons, A. S., Gruebele, M., Bashir, R., Pop, E., Lyding, J. W.

12th IEEE International Conference on Nanotechnology (IEEE-NANO)

IEEE.2012

Stacked Graphene-Al2O3 Nanopore Sensors for Sensitive Detection of DNA and DNA-Protein Complexes

Venkatesan, B. M., Estrada, D., Banerjee, S., Jin, X., Dorgan, V. E., Bae, M., Aluru, N. R., Pop, E., Bashir, R.

ACS NANO

2012; 6 (1): 441-450

Polycrystalline Graphene Ribbons as Chemiresistors

Salehi-Khojin, A., Estrada, D., Lin, K. Y., Bae, M., Xiong, F., Pop, E., Masel, R. I.

ADVANCED MATERIALS

2012; 24 (1): 53–?

Pressure tuning of the thermal conductance of weak interfaces

Hsieh, W., Lyons, A. S., Pop, E., Keblinski, P., Cahiill, D. G.

PHYSICAL REVIEW B

2011; 84 (18)

A Web Service and Interface for Remote Electronic Device Characterization

Dutta, S., Prakash, S., Estrada, D., Pop, E.

IEEE TRANSACTIONS ON EDUCATION

2011; 54 (4): 646-651

Effects of Polycrystalline Cu Substrate on Graphene Growth by Chemical Vapor Deposition

Wood, J. D., Schmucker, S. W., Lyons, A. S., Pop, E., Lyding, J. W.

NANO LETTERS

2011; 11 (11): 4547-4554

Reduction of phonon lifetimes and thermal conductivity of a carbon nanotube on amorphous silica

Ong, Z., Pop, E., Shiomi, J.

PHYSICAL REVIEW B

2011; 84 (16)

Scaling of High-Field Transport and Localized Heating in Graphene Transistors

Bae, M., Islam, S., Dorgan, V. E., Pop, E.

ACS NANO

2011; 5 (10): 7936-7944

Electronic, optical and thermal properties of the hexagonal and rocksalt-like Ge2Sb2Te5 chalcogenide from first-principle calculations

Tsafack, T., Piccinini, E., Lee, B., Pop, E., Rudan, M.

JOURNAL OF APPLIED PHYSICS

2011; 110 (6)
• Stretchable, Transparent Graphene Interconnects for Arrays of Microscale Inorganic Light Emitting Diodes on Rubber Substrates  NANO LETTERS
  Kim, R., Bae, M., Kim, D. G., Cheng, H., Kim, B. H., Kim, D., Li, M., Wu, J., Du, F., Kim, H., Kim, S., Estrada, D., Hong, et al
  2011; 11 (9): 3881-3886

• Effect of substrate modes on thermal transport in supported graphene  PHYSICAL REVIEW B
  Ong, Z., Pop, E.
  2011; 84 (7)

• Electrical power dissipation in semiconducting carbon nanotubes on single crystal quartz and amorphous SiO2  APPLIED PHYSICS LETTERS
  Tsai, C., liao, A., Pop, E., Shim, M.
  2011; 99 (5)

• Thermally Limited Current Carrying Ability of Graphene Nanoribbons  PHYSICAL REVIEW LETTERS
  Liao, A. D., Wu, J. Z., Wang, X., Tahy, K., Jena, D., Dai, H., Pop, E.
  2011; 106 (25)

• Nanoscale Joule heating, Peltier cooling and current crowding at graphene-metal contacts  NATURE NANOTECHNOLOGY
  Grosse, K. L., Bae, M., Lian, F., Pop, E., King, W. P.
  2011; 6 (5): 287-290

• Low-Power Switching of Phase-Change Materials with Carbon Nanotube Electrodes  SCIENCE
  Xiong, F., Liao, A. D., Estrada, D., Pop, E.
  2011; 332 (6029): 568-570

• Imaging dissipation and hot spots in carbon nanotube network transistors  APPLIED PHYSICS LETTERS
  Estrada, D., Pop, E.
  2011; 98 (7)

• Reliably Counting Atomic Planes of Few-Layer Graphene (n > 4)  ACS NANO
  Koh, Y. K., Bae, M., Cahill, D. G., Pop, E.
  2011; 5 (1): 269-274

• Imaging, Simulation, and Electrostatic Control of Power Dissipation in Graphene Devices  NANO LETTERS
  Bae, M., Ong, Z., Estrada, D., Pop, E.
  2010; 10 (12): 4787-4793

• Frequency and polarization dependence of thermal coupling between carbon nanotubes and SiO2  JOURNAL OF APPLIED PHYSICS
  Ong, Z., Pop, E.
  2010; 108 (10)

• Thermal dissipation and variability in electrical breakdown of carbon nanotube devices  PHYSICAL REVIEW B
  liao, A., Alizadegan, R., Ong, Z., Dutta, S., Xiong, F., Hsia, K. J., Pop, E.
  2010; 82 (20)

• Heat Conduction across Monolayer and Few-Layer Graphenes  NANO LETTERS
  Koh, Y. K., Bae, M., Cahill, D. G., Pop, E.
  2010; 11 (11): 4363-4368

• Mobility and saturation velocity in graphene on SiO2  APPLIED PHYSICS LETTERS
  Dorgan, V. E., Bae, M., Pop, E.
  2010; 97 (8)

• Molecular dynamics simulation of thermal boundary conductance between carbon nanotubes and SiO2  PHYSICAL REVIEW B
  Ong, Z., Pop, E.
  2010; 81 (15)

• Covalent Functionalization and Electron-Transfer Properties of Vertically Aligned Carbon Nanofibers: The Importance of Edge-Plane Sites  CHEMISTRY OF MATERIALS
  Landis, E. C., Klein, K. L., liao, A., Pop, E., Hensley, D. K., Melechko, A. V., Hamers, R. J.
  2010; 22 (7): 2357-2366
• Reduced Thermal Conductivity in Nanoengineered Rough Ge and GaAs Nanowires  NANO LETTERS
  Martin, P. N., Aksamija, Z., Pop, E., Ravaioli, U.
  2010; 10 (4): 1120-1124

• Energy Dissipation and Transport in Nanoscale Devices  NANO RESEARCH
  Pop, E.
  2010; 3 (3): 147-169

• Reduction of hysteresis for carbon nanotube mobility measurements using pulsed characterization  NANOTECHNOLOGY
  Estrada, D., Dutta, S., liao, A., Pop, E.
  2010; 21 (8)

• Topography and refractometry of nanostructures using spatial light interference microscopy  OPTICS LETTERS
  Wang, Z., Chun, I. S., Li, X., Ong, Z., Pop, E., Millet, L., Gillette, M., Popescu, G.
  2010; 35 (2): 208-210

• Infrared Imaging of Heat Dissipation in Graphene Transistors  2nd International Symposium on Graphene, Ge/III-V and Emerging Materials For Post-CMOS Applications / 217th Meeting of the Electrochemical Society (ECS)
  Bae, M., Ong, Z., Estrada, D., Pop, E.
  ELECTROCHEMICAL SOC INC.2010: 51–62

• Modeling of the Voltage Snap-Back in Amorphous-GST Memory Devices  15th International Conference on Simulation of Semiconductor Processes and Devices (SISPAD 2010)
  Rudan, M., Giovanardi, F., Tsafack, T., Xiong, F., Piccinini, E., Buscemi, F., Liao, A., Pop, E., Brunetti, R., JACOBOINI, C.
  IEEE.2010: 257–260

• Inducing chalcogenide phase change with ultra-narrow carbon nanotube heaters  APPLIED PHYSICS LETTERS
  Xiong, F., liao, A., Pop, E.
  2009; 95 (24)

• Multiband Mobility in Semiconducting Carbon Nanotubes  IEEE ELECTRON DEVICE LETTERS
  Zhao, Y., Liao, A., Pop, E.
  2009; 30 (10): 1078-1080

• Compact Thermal Model for Vertical Nanowire Phase-Change Memory Cells  IEEE TRANSACTIONS ON ELECTRON DEVICES
  Chen, I., Pop, E.
  2009; 56 (7): 1523-1528

• Electrical and Thermal Coupling to a Single-Wall Carbon Nanotube Device Using an Electrothermal Nanoprobe  NANO LETTERS
  Lee, J., liao, A., Pop, E., King, W. P.
  2009; 9 (4): 1356-1361

• Impact of Phonon-Surface Roughness Scattering on Thermal Conductivity of Thin Si Nanowires  PHYSICAL REVIEW LETTERS
  Martin, P., Aksamija, Z., Pop, E., Ravaioli, U.
  2009; 102 (12)

• A TWO-TEMPERATURE MODEL OF NARROW-BODY SILICON TRANSISTORS UNDER STEADY STATE AND TRANSIENT OPERATION  3rd Energy Nanotechnology International Conference
  Ong, Z., Pop, E.
  AMER SOC MECHANICAL ENGINEERS.2009: 97–108

• Infrared Microscopy of Joule Heating in Graphene Field Effect Transistors  9th IEEE Conference on Nanotechnology (IEEE-NANO)
  Bae, M., Ong, Z., Estrada, D., Pop, E.
  IEEE.2009: 818–821

• Avalanche, Joule Breakdown and Hysteresis in Carbon Nanotube Transistors  47th Annual IEEE International Reliability Physics Symposium
  Pop, E., Dutta, S., Estrada, D., liao, A.
  IEEE.2009: 405–408

• Prediction of Reduced Thermal Conductivity in Nano-Engineered Rough Semiconductor Nanowires  16th International Conference on Electron Dynamics in Semiconductors, Optoelectronics and Nanostructures (EDISON 16)
Eric Pop
http://cap.stanford.edu/profiles/Eric_Pop/

Martin, P. N., Aksamija, Z., Pop, E., Ravaoli, U.
IOP PUBLISHING LTD.2009

• ELECTRON-PHONON INTERACTION AND JOULE HEATING IN NANOSTRUCTURES 3rd Energy Nanotechnology International Conference
  Pop, E.
  AMER SOC MECHANICAL ENGINEERS.2009: 129–132

• Comparison of Energy Relaxation in One-Dimensional Thermionic and Tunneling Transistors 9th IEEE Conference on Nanotechnology (IEEE-NANO)
  Ramasubramanian, B., Pop, E.
  IEEE.2009: 496–499

• Avalanche-Induced Current Enhancement in Semiconducting Carbon Nanotubes PHYSICAL REVIEW LETTERS
  liao, A., Zhao, Y., Pop, E.
  2008; 101 (25)

• The role of electrical and thermal contact resistance for Joule breakdown of single-wall carbon nanotubes NANOTECHNOLOGY
  Pop, E.
  2008; 19 (29)

• Thermal properties of metal-coated vertically aligned single-wall nanotube arrays JOURNAL OF HEAT TRANSFER-TRANSACTIONS OF THE ASME
  Panzer, M. A., Zhang, G., Mann, D., Hu, X., Pop, E., Dai, H., Goodson, K. E.
  2008; 130 (5)

• Operational voltage reduction of flash memory using high-kappa composite tunnel barriers IEEE ELECTRON DEVICE LETTERS
  Verma, S., Pop, E., Kapur, P., Parat, K., Saraswat, K. C.
  2008; 29 (3): 252-254

• Electrically driven light emission from hot single-walled carbon nanotubes at various temperatures and ambient pressures APPLIED PHYSICS LETTERS
  Wang, X., Zhang, L., Lu, Y., Dai, H., Kato, Y. K., Pop, E.
  2007; 91 (26)

• Thickness and stoichiometry dependence of the thermal conductivity of GeSbTe films APPLIED PHYSICS LETTERS
  Reifenberg, J. P., Panzer, M. A., Kim, S., Gibby, A. M., Zhang, Y., Wong, S., Wong, H. P., Pop, E., Goodson, K. E.
  2007; 91 (11)

• Electrical and thermal transport in metallic single-wall carbon nanotubes on insulating substrates JOURNAL OF APPLIED PHYSICS
  Pop, E., Mann, D. A., Goodson, K. E., Dai, H.
  2007; 101 (9)

• Electrically driven thermal light emission from individual single-walled carbon nanotubes NATURE NANOTECHNOLOGY
  Mann, D., Kato, Y. K., Kinkhabwala, A., Pop, E., Cao, J., Wang, X., Zhang, L., Wang, Q., Guo, J., Dai, H.
  2007; 2 (1): 33-38

• Electrical and thermal transport in metallic single-wall carbon nanotubes International Semiconductor Device Research Symposium
  Pop, E.
  IEEE.2007: 401–402

• Heat generation and transport in nanometer-scale transistors PROCEEDINGS OF THE IEEE
  Pop, E., Sinha, S., Goodson, K. E.
  2006; 94 (8): 1587-1601

• Non-equilibrium phonon distributions in sub-100 nm silicon transistors JOURNAL OF HEAT TRANSFER-TRANSACTIONS OF THE ASME
  Sinha, S., Pop, E., DUTTON, R. W., Goodson, K. E.
  2006; 128 (7): 638-647

• Electrical transport properties and field effect transistors of carbon nanotubes NANO
  Dai, H., Javey, A., Pop, E., Mann, D., Kim, W., Lu, Y.
  2006; 1 (1): 1-13

• Thermally and molecularly stimulated relaxation of hot phonons in suspended carbon nanotubes JOURNAL OF PHYSICAL CHEMISTRY B
  Mann, D., Pop, E., Cao, J., Wang, Q., Goodson, K. E., Dai, H. J.
• Thermal conductance of an individual single-wall carbon nanotube above room temperature \textit{NANO LETTERS}
Pop, E., Mann, D., Wang, Q., Goodson, K. E., Dai, H. J.
2006; 6 (1): 96–100

• Electro-thermal transport in silicon and carbon nanotube devices \textit{14th International Conference on Nonequilibrium Carrier Dynamics in Semiconductors}
Pop, E., Mann, D., ROWLETTE, J., Goodson, K., Dai, H.
SPRINGER-VERLAG BERLIN.2006: 195–199

• Multiphysics modeling and impact of thermal boundary resistance in phase change memory devices \textit{10th Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems}
Reifenberg, J., Pop, E., Gibby, A., Wong, S., Goodson, K.
IEEE.2006: 106–113

• Thermal properties of metal-coated vertically-aligned single wall nanotube films \textit{10th Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems}
Panzer, M., Zhang, G., Mann, D., Hu, X., Pop, E., Dai, H., Goodson, K. E.
IEEE.2006: 1306–1313

• Advanced cooling technologies for microprocessors \textit{Workshop on Frontiers in Electronics (WOFE-04)}
Kenny, T. W., Goodson, K. E., Santiago, J. G., Wang, E., Koo, J., Jiang, L., Pop, E., Sinha, S., Zhang, L., Fogg, D., Yao, S., Flynn, R., Chang, et al
WORLD SCIENTIFIC PUBL CO PTE LTD.2006: 301–313

• Negative differential conductance and hot phonons in suspended nanotube molecular wires \textit{PHYSICAL REVIEW LETTERS}
Pop, E., Mann, D., Cao, J., Wang, Q., Goodson, K. E., Dai, H. J.
2005; 95 (15)

• Monte Carlo simulation of Joule heating in bulk and strained silicon \textit{APPLIED PHYSICS LETTERS}
Pop, E., DUTTON, R. W., Goodson, K. E.
2005; 86 (8)

• Thermal phenomena in deeply scaled MOSFETs \textit{IEEE International Electron Devices Meeting}
Rowlette, J., Pop, E., Sinha, S., Panzer, M., Goodson, K.
IEEE.2005: 1005–1008

• Joule heating under quasi-ballistic transport conditions in bulk and strained silicon devices \textit{International Conference on Simulation of Semiconductor Processes and Devices}
Pop, E., Rowlette, J. A., DUTTON, R. W., Goodson, K. E.
JAPAN SOCIETY APPLIED PHYSICS.2005: 307–310

• Electro-thermal transport in metallic single-wall carbon nanotubes for interconnect applications \textit{IEEE International Electron Devices Meeting}
Pop, E., Mann, D., Reifenberg, J., Goodson, K., Dai, H. J.
IEEE.2005: 261–264

• Thermal simulation techniques for nanoscale transistors \textit{IEEE/ACM International Conference on Computer Aided Design}
Rowlette, J., Pop, E., Sinha, S., Panzer, M., Goodson, K.
IEEE.2005: 225–228

• Analytic band Monte Carlo model for electron transport in Si including acoustic and optical phonon dispersion \textit{JOURNAL OF APPLIED PHYSICS}
Pop, E., DUTTON, R. W., Goodson, K. E.
2004; 96 (9): 4998-5005

• Electro-thermal comparison and performance optimization of thin-body SOI and GOI MOSFETs \textit{50th IEEE International Electron Devices Meeting}
Pop, E., Chui, C. O., Sinha, S., Dutton, R., Goodson, K.
IEEE.2004: 411–414

• Thermal phenomena in nanoscale transistors \textit{9th Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems}
Pop, E., Goodson, K. E.
IEEE.2004: 1–7
• Thermal analysis of ultra-thin body device scaling *IEEE International Electron Devices Meeting*
  Pop, E., Dutton, R., Goodson, K.
  IEEE.2003: 883–886

• Detailed heat generation simulations via the Monte Carlo method *IEEE International Conference on Simulation of Semiconductor Processes and Devices*
  Pop, E., Dutton, R., Goodson, K.
  IEEE.2003: 121–124