Stanford

Eric Pop

Pease-Ye Professor, Professor of Electrical Engineering, Senior Fellow at the Precourt Institute for Energy and Professor, by courtesy, of Materials Science and Engineering and of Applied Physics

Curriculum Vitae available Online

Bio

BIO

Eric Pop is the Pease-Ye Professor of Electrical Engineering (EE) and, by courtesy, of Materials Science & Engineering and Applied Physics at Stanford and SLAC. He is also the faculty co-lead of the SystemX Alliance and a Senior Fellow at the Precourt Institute for Energy. Prior to Stanford, he spent several years on the faculty of UIUC, and in industry at Intel and IBM. His research interests include semiconductors, nanoelectronics, data storage, and energy. He received his PhD in EE from Stanford (2005) and three degrees from MIT (MEng and BS in EE, BS in Physics). His honors include the Intel Outstanding Researcher Award, the PECASE from the White House (highest honor given by the US government to early-career scientists & engineers), Young Investigator Awards from the Navy, Air Force, NSF CAREER, DARPA, and several best-paper awards with his students. He is an APS and IEEE Fellow, a Clarivate Highly Cited Researcher, he was Chair of the IEEE Device Research Conference (DRC) and the IEEE Non-Volatile Memory Technology Symposium (NVMTS), and he has also served on committees of the APS, MRS, IEDM, and VLSI conferences. In his spare time he tries to avoid injuries while snowboarding, and in a past life he was a college radio DJ at KZSU 90.1. More information about the Pop Lab is at https://poplab.stanford.edu and on Twitter/X at @profericpop.

ACADEMIC APPOINTMENTS

- Professor, Electrical Engineering
- Senior Fellow, Precourt Institute for Energy
- Professor (By courtesy), Materials Science and Engineering
- Professor (By courtesy), Applied Physics
- Member, Bio-X
- Affiliate, Precourt Institute for Energy

ADMINISTRATIVE APPOINTMENTS

- Faculty Co-Director of the SystemX Alliance, SystemX Alliance, (2024- present)
- Chair of EE faculty search committee, Electrical Engineering, (2023-2024)
- Chair of EE Culture, Equity, and Inclusion (CEI) Committee, Electrical Engineering, (2019-2022)
- Co-Lead of Heterogeneous Integration Focus Area, SystemX Alliance, (2015-2024)

HONORS AND AWARDS

- Pease-Ye Professorship, Stanford University (2023)
- Viskanta Fellowship, Purdue University (2023)
- APS Fellow, American Physical Society (2022)

- Intel 2021 Outstanding Researcher Award, Intel (2021)
- IEEE Fellow, IEEE (2021)
- Highly Cited Researcher, Clarivate (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, E\PCOS 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, APS (2022 - present)
- 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 Website: https://poplab.stanford.edu
- 2D Transistor Benchmarking: https://2d.stanford.edu
- Google Scholar: https://scholar.google.com/citations?user=tRW2V-0AAAAJ
- Twitter: https://twitter.com/profericpop
- LinkedIn: https://www.linkedin.com/in/eric-pop

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

2025-26

- Modern Semiconductor Fabrication and Manufacturing Seminar: EE 292N (Aut)
- Principles and Models of Semiconductor Devices: EE 216 (Aut)

2024-25

- Principles and Models of Semiconductor Devices: EE 216 (Aut)

2023-24

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

2022-23

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

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Koustav Jana, Yuya Nishio, Mary Vaughan

Postdoctoral Faculty Sponsor

Zherui Han, Hao Yu Lan, Tara Pena

Doctoral Dissertation Advisor (AC)

Lauren Hoang, Yuan-Mau Lee, Young Suh Song, Haotian Su, Maritha Wang, Jerry Yang

Master's Program Advisor

Deborah Chiao, Larry Gu, Ryan Hurley, Ronan Locker

Doctoral Dissertation Co-Advisor (AC)

Sydney Fultz-Waters

Doctoral (Program)

Connor Cremers, Lauren Hoang, Cassandra Huff, Koustav Jana, Frederick Nitta, Heather Phillips, Young Suh Song, Haotian Su, Jennifer Toy, Jerry Yang

Publications

PUBLICATIONS

- **Wide-field hyperspectral optical microscopy for rapid characterization of two-dimensional semiconductors and heterostructures** *2D MATERIALS*
  Peng, Z., Uthman, A., Zhang, Z., Hoang, A., Zhu, X., Pop, E., Mannix, A. J.
  2026; 13 (2)

- **Spatio-Kinetic Electronic Heterogeneity in MoS₂ Revealed by Ultrafast Electron Microscopy: Implications for Optoelectronics** *ACS APPLIED NANO MATERIALS*
  Alcorn, F. M., Ellis, S. R., Perez, C., Hoang, L., Smoll, E. J., Fuller, E. J., Mannix, A. J., Pop, E., Chandler, D. W., Talin, A., Leonard, F., Kumar, S.
  2026

- **Gate-Dielectric Engineering with an Ultrathin Silicon Oxide Interfacial Dipole Layer for Low-Leakage Oxide-Semiconductor Memories.** *Nano letters*
  Athena, F. F., Hartanto, J., Passlack, M., Evans, J. C., Qin, J., Dede, D., Jana, K., Liu, S., Peña, T., Pop, E., Pitner, G., Radu, I. P., McIntyre, et al
  2026

- **Electrothermally Induced Channel Formation in a Spin-Crossover Neuron.** *ACS nano*
  Salagre, E., Islam, M., Yu, Y., Goyal, S., Brown, T. D., Jardali, F., Oh, S., Pop, E., Williams, R. S., Talin, A. A., Kumar, S., Shamberger, P. J., Fuller, et al
  2026

- **Nondestructive Atomic Defect Quantification of Two-Dimensional Materials and Devices.** *ACS applied materials & interfaces*
  Yang, Y., Xu, K., Peña, T., Neilson, K., Zheng, X., Hoang, A. T., Yang, K., Hennighausen, Z., Zhang, T., Holtzman, L. N., Nattoo, C. A., Hone, J. C., Barmak, et al
  2026

- **Low resistance p-type contacts to monolayer WSe2 through chlorinated solvent doping.** *Nature communications*
  Hoang, L., Bennett, R. K., Hoang, A. T., Peña, T., Zhang, Z., Hocking, M., Saunders, A. P., Jaikissoon, M., Liu, F., Pop, E., Mannix, A. J.
  2026; 17 (1): 718

- **Precursor Engineering of Atomic Layer Deposition for Top-Gate Insulators on Monolayer MoS2 Transistors.** *ACS nano*
  Shearer, A. B., Ko, J. S., Hoang, A. T., Werbrouck, A., Rothman, A., Volcanjk, D. F., Lee, Y. M., Bennett, R. K., Mannix, A. J., Saraswat, K. C., Pop, E., Bent, S. F.
  2025

- **Role of Oxygen Deficiencies on the Stability of Indium Tin Oxide (ITO) Transistors** *IEEE ELECTRON DEVICE LETTERS*
  Wahid, S., Toprasertpong, K., Islam, M., Kumar, A., Ul Karim, M., Simka, H., Wong, H., Pop, E.
  2025; 46 (9): 1553-1556

- **Optoelectronic Properties of Atomic Layer Deposited and Sputtered MoS2 Films.** *ACS applied materials & interfaces*
  Nattoo, C. A., Peña, T., Nassiri Nazif, K., Wu, X., Rahimisheikh, S., D'Acunto, G., Bent, S. F., Hadermann, J., Pop, E.
  2025

- **Synthesis-Related Nanoscale Defects in Mo-Based Janus Monolayers Revealed by Cross-Correlated AFM and TERS Imaging.** *Small (Weinheim an der Bergstrasse, Germany)*
  Zhang, T., Krayev, A., Yang, T. H., Mao, N., Hoang, L., Wang, Z., Liu, H., Peng, Y. R., Zhu, Y., Zheng, X., Isotta, E., Kira, M. E., Righi, et al
  2025: e2504742

- **An electro-optical Mott neuron based on niobium dioxide** *NATURE ELECTRONICS*
  Islam, M., Bohaichuk, S. M., Brown, T. D., Oh, S., Perez, C., Zhang, C., Park, T., Park, M., Talin, A., Ramanathan, S., Kumar, S., Pop, E.
  2025

- **Vibronically Coherent Exciton Trapping in Monolayer WS2.** *ACS nano*
  Boeije, Y., Hoang, A. T., Lim, J., Stranks, S. D., Chhowalla, M., Pop, E., Mannix, A. J., Rao, A.
  2025
- **Transition metal dichalcogenide solar cells for indoor energy harvesting** *DEVICE*
  Nitta, F. U., Nazif, K., Pop, E.
  2025; 3 (7)
- **Fringe current correction for unpatterned-channel thin-film transistors including contact resistance and velocity saturation effects** *JOURNAL OF APPLIED PHYSICS*
  Koroglu, C., Daus, A., Wahid, S., Munoz Rojo, M., Pop, E.
  2025; 137 (22)
- **Threshold Voltage Control through Solvent Doping of Monolayer MoS2Transistors.** *Nano letters*
  Neilson, K., Mokhtarzadeh, C., Jaikissoon, M., Bennett, R. K., Buragohain, P., Verma Penumatcha, A., Kumar Pinnepalli, S. S., Rogan, C., Kozhakhmetov, A., Maxey, K., Clendenning, S., Pop, E., Metz, et al
  2025
- **High-Field Breakdown and Thermal Characterization of Indium Tin Oxide Transistors.** *ACS nano*
  Su, H., Lee, Y., Pena, T., Fultz-Waters, S., Kang, J., Koroglu, C., Wahid, S., Newcomb, C. J., Song, Y. S., Wong, H. P., Wang, S. X., Pop, E.
  2025
- **Monte Carlo Simulation of Electrical Transport with Joule Heating and Strain in Monolayer MoS2 Devices.** *Nano letters*
  Wang, M. A., Pop, E.
  2025
- **Achieving 1-nm-Scale Equivalent Oxide Thickness Top-Gate Dielectric on Monolayer Transition Metal Dichalcogenide Transistors With CMOS-Friendly Approaches** *IEEE TRANSACTIONS ON ELECTRON DEVICES*
  Ko, J., Shearer, A. B., Lee, S., Neilson, K., Jaikissoon, M., Kim, K., Bent, S. F., Pop, E., Saraswat, K. C.
  2025; 72 (3): 1514-1519
- **Excitation Laser Energy Dependence of the Gap-Mode TERS Spectra of WS₂ and MoS₂ on Silver** *ACS PHOTONICS*
  Krayev, A., Isotta, E., Hoang, L., Yang, J. A., Neilson, K., Wang, M., Haughn, N., Pop, E., Mannix, A., Balogun, O., Wang, C.
  2025
- **Mobility and threshold voltage extraction in transistors with gate-voltage-dependent contact resistance** *NPJ 2D MATERIALS AND APPLICATIONS*
  Bennett, R. K. A., Hoang, L., Cremers, C., Mannix, A. J., Pop, E.
  2025; 9 (1)
- **Sub-Nanometer Equivalent Oxide Thickness and Threshold Voltage Control Enabled by Silicon Seed Layer on Monolayer MoS2 Transistors.** *Nano letters*
  Ko, J. S., Lee, S., Bennett, R. K., Schauble, K., Jaikissoon, M., Neilson, K., Hoang, A. T., Mannix, A. J., Kim, K., Saraswat, K. C., Pop, E.
  2025
- **Surface conduction and reduced electrical resistivity in ultrathin noncrystalline NbP semimetal.** *Science (New York, N.Y.)*
  Khan, A. I., Ramdas, A., Lindgren, E., Kim, H. M., Won, B., Wu, X., Saraswat, K., Chen, C. T., Suzuki, Y., da Jornada, F. H., Oh, I. K., Pop, E.
  2025; 387 (6729): 62-67
- **Deep Learning to Automate Fitting and Parameter Extraction of 2D Transistors**
  Bennett, R. K. A., Gault, H. F., Khan, A., Hoang, L., Pena, T., Neilson, K., Song, Y., Zhang, Z., Mannix, A. J., Pop, E., IEEE
  IEEE.2025: 122-123
- **Impact of Dielectrics on Hysteresis and Bias Stress Stability in Oxide Semiconductor and 2D-Material Field-Effect Transistors**
  Dausl, A., Wahid, S., Phung, Q., Pope, E., IEEE
  IEEE.2025
- **Efficiency Limit of Transition Metal Dichalcogenide-Silicon Tandem Solar Cells**
  Nitta, F. U., Nazif, K., Pop, E., IEEE

IEEE.2025: 1275

- **Direct ALD of amorphous MoS2 thin films for extra-terrestrial photovoltaic applications**
  Hamtaei, S., Kim, S., Nazif, K., Nattoo, C., Carr, J. M., Romanetz, L., Nitta, F. U., Reid, O. G., Vermang, B., Elam, J., Pop, E., IEEE
  IEEE.2025: 1472

- **First Comparative Thermal Evaluation of 2D Semiconductor vs. Silicon Nanosheet Transistors**
  Song, Y., Su, H., Pena, T., Persson, A. E. O., Yang, K., Yalon, E., Bennett, R. K. A., Han, Z., Neilson, K., Kang, J., Yang, J. A., Wong, H., Wang, et al
  IEEE.2025

- **Thermal Evaluation and Comparison of CAA and GAA Indium Tin Oxide Vertical Channel Transistors**
  Song, Y., Kang, J., Gu, H., Su, H., Lee, Y., Wang, S. X., Kwon, J., Wong, H., Pop, E., IEEE
  IEEE.2025

- **Thermal Characterization of Ultrathin MgO Tunnel Barriers.** *Nano letters*
  Su, H., Kwon, H., Xue, F., Sato, N., Bhat, U., Tsai, W., Bosman, M., Asheghi, M., Goodson, K. E., Pop, E., Wang, S. X.
  2024

- **Understanding the Impact of Contact-Induced Strain on the Electrical Performance of Monolayer WS2 Transistors.** *Nano letters*
  Hoang, L., Jaikissoon, M., Köroğlu, Ç., Zhang, Z., Bennett, R. K., Song, J. H., Yang, J. A., Ko, J. S., Brongersma, M. L., Saraswat, K. C., Pop, E., Mannix, A. J.
  2024

- **Low-Energy Spiking Neural Network Using Ge₄Sb₆Te₇ Phase Change Memory Synapses** *IEEE ELECTRON DEVICE LETTERS*
  Bin Hamid, S., Khan, A., Zhang, H., Davydov, A. V., Pop, E.
  2024; 45 (10): 1819-1822

- **CMOS-compatible strain engineering for monolayer semiconductor transistors** *NATURE ELECTRONICS*
  Jaikissoon, M., Koeroglu, C., Yang, J. A., Neilson, K., Saraswat, K. C., Pop, E.
  2024; 7 (10): 885-891

- **Axon-like active signal transmission.** *Nature*
  Brown, T. D., Zhang, A., Nitta, F. U., Grant, E. D., Chong, J. L., Zhu, J., Radhakrishnan, S., Islam, M., Fuller, E. J., Talin, A. A., Shamberger, P. J., Pop, E., Williams, et al
  2024

- **Chemically Tailored Growth of 2D Semiconductors via Hybrid Metal-Organic Chemical Vapor Deposition.** *ACS nano*
  Zhang, Z., Hoang, L., Hocking, M., Peng, Z., Hu, J., Zaborski, G., Reddy, P. D., Dollard, J., Goldhaber-Gordon, D., Heinz, T. F., Pop, E., Mannix, A. J.
  2024

- **Biaxial Strain Transfer in Monolayer MoS2 and WSe2 Transistor Structures.** *ACS applied materials & interfaces*
  Michail, A., Yang, J. A., Filintoglou, K., Balakeras, N., Nattoo, C. A., Bailey, C. S., Daus, A., Parthenios, J., Pop, E., Papagelis, K.
  2024

- **Toward Mass Production of Transition Metal Dichalcogenide Solar Cells: Scalable Growth of Photovoltaic-Grade Multilayer WSe2by Tungsten Selenization.** *ACS nano*
  Neilson, K. M., Hamtaei, S., Nassiri Nazif, K., Carr, J. M., Rahimisheikh, S., Nitta, F. U., Brammertz, G., Blackburn, J. L., Hadermann, J., Saraswat, K. C., Reid, O. G., Vermang, B., Daus, et al
  2024

- **Direct Exfoliation of Nanoribbons from Bulk van der Waals Crystals.** *Small (Weinheim an der Bergstrasse, Germany)*
  Saunders, A. P., Chen, V., Wang, J., Li, Q., Johnson, A. C., McKeown-Green, A. S., Zeng, H. J., Mac, T. K., Trinh, M. T., Heinz, T. F., Pop, E., Liu, F.
  2024: e2403504

- **Flexible Nanoscale Amorphous Oxide Transistors with a Gold-Assisted Transfer Method.** *ACS applied materials & interfaces*
  Wahid, S., Daus, A., Chen, V., Pop, E.
  2024

- **Strain Induced by Evaporated-Metal Contacts on Monolayer MoS₂ Transistors** *IEEE ELECTRON DEVICE LETTERS*
  Jaikissoon, M., Pop, E., Saraswat, K. C.

2024; 45 (8): 1528-1531

- **Thermal optimization of two-terminal SOT-MRAM** *JOURNAL OF APPLIED PHYSICS*
  Su, H., Kwon, H., Hwang, W., Xue, F., Koroglu, C., Tsai, W., Asheghi, M., Goodson, K. E., Wang, S. X., Pop, E.
  2024; 136 (1)
- **Biaxial Tensile Strain Enhances Electron Mobility of Monolayer Transition Metal Dichalcogenides.** *ACS nano*
  Yang, J. A., Bennett, R. K., Hoang, L., Zhang, Z., Thompson, K. J., Michail, A., Parthenios, J., Papagelis, K., Mannix, A. J., Pop, E.
  2024
- **AlN: An Engineered Thermal Material for 3D Integrated Circuits** *ADVANCED FUNCTIONAL MATERIALS*
  Vaziri, S., Perez, C., Datye, I. M., Kwon, H., Hsu, C., Chen, M. E., Noshin, M., Lee, T., Asheghi, M., Woon, W., Pop, E., Goodson, K. E., Liao, et al
  2024
- **Nonvolatile Phase-Only Transmissive Spatial Light Modulator with Electrical Addressability of Individual Pixels.** *ACS nano*
  Fang, Z., Chen, R., Froch, J. E., Tanguy, Q. A., Khan, A. I., Wu, X., Tara, V., Manna, A., Sharp, D., Munley, C., Miller, F., Zhao, Y., Geiger, et al
  2024
- **Design Guidelines for Oxide Semiconductor Gain Cell Memory on a Logic Platform** *IEEE TRANSACTIONS ON ELECTRON DEVICES*
  Liu, S., Jana, K., Toprasertpong, K., Chen, J., Liang, Z., Jiang, Q., Wahid, S., Qin, S., Chen, W., Pop, E., Wong, H.
  2024
- **Novel nanocomposite-superlattices for low energy and high stability nanoscale phase-change memory.** *Nature communications*
  Wu, X., Khan, A. I., Lee, H., Hsu, C. F., Zhang, H., Yu, H., Roy, N., Davydov, A. V., Takeuchi, I., Bao, X., Wong, H. P., Pop, E.
  2024; 15 (1): 13
- **Modeling and Understanding Threshold Voltage and Subthreshold Swing in Ultrathin Channel Oxide Semiconductor Transistors**
  Jana, K., Liu, S., Toprasertpong, K., Jiang, Q., Wahid, S., Kang, J., Chen, J., Pop, E., Wong, H., IEEE
  IEEE.2024
- **Flexible Monolayer WS₂-based Pseudo-CMOS Inverters for In-sensor Computing**
  Yang, J. A., Bora, A., Daus, A., Hoang, L., Zhang, Z., Mannix, A. J., Pop, E., IEEE
  IEEE.2024
- **Flexible Ferroelectric Memory using Non-adhesive Transfer Layer**
  Wahid, S., Saini, B., McIntyre, P., Daus, A., Pop, E., IEEE
  IEEE.2024
- **Scalable production of photovoltaic-grade WSe₂ via tungsten selenization**
  Neilson, K. M., Hamtaei, S., Nazif, K., Carr, J. M., Rahimi, S., Nitta, F., Brammertz, G., Blackburn, J. L., Hadermann, J., Saraswat, K. C., Reid, O. G., Vermang, B., Daus, et al
  IEEE.2024: 0142
- **SpecPCM: A Low-Power PCM-Based In-Memory Computing Accelerator for Full-Stack Mass Spectrometry Analysis** *IEEE JOURNAL ON EXPLORATORY SOLID-STATE COMPUTATIONAL DEVICES AND CIRCUITS*
  Fan, K., Moradifirouzabadi, A., Wu, X., Li, Z., Ponzina, F., Persson, A., Pop, E., Rosing, T., Kang, M.
  2024; 10: 161-169
- **A disposable reader-sensor solution for wireless temperature logging** *DEVICE*
  Kananian, S., Rho, J., Chen, C., Mirjalili, S., Daus, A., Kim, M., Niu, S., Pop, E., Wong, H., Bao, Z., Mani, A., Poon, A. S. Y.
  2023; 1 (6)
- **Efficiency limit of transition metal dichalcogenide solar cells** *COMMUNICATIONS PHYSICS*
  Nazif, K., Nitta, F. U., Daus, A., Saraswat, K. C., Pop, E.
  2023; 6 (1)
- **Effect of Back-Gate Dielectric on Indium Tin Oxide (ITO) Transistor Performance and Stability** *IEEE TRANSACTIONS ON ELECTRON DEVICES*
  Daus, A., Hoang, L., Gilardi, C., Wahid, S., Kwon, J., Qin, S., Ko, J., Islam, M., Kumar, A., Neilson, K. M., Saraswat, K. C., Mitra, S., Wong, et al
  2023; 70 (11): 5685-5689

- **High Thermal Conductivity of Submicrometer Aluminum Nitride Thin Films Sputter-Deposited at Low Temperature.** *ACS nano*
  Perez, C., McLeod, A. J., Chen, M. E., Yi, S. I., Vaziri, S., Hood, R., Ueda, S. T., Bao, X., Asheghi, M., Park, W., Talin, A. A., Kumar, S., Pop, et al
  2023
- **Spatially-Resolved Thermometry of Filamentary Nanoscale Hot Spots in TiO2 Resistive Random Access Memories to Address Device Variability.** *ACS applied electronic materials*
  Swoboda, T., Gao, X., Rosário, C. M., Hui, F., Zhu, K., Yuan, Y., Deshmukh, S., Köroğlu, Ç., Pop, E., Lanza, M., Hilgenkamp, H., Rojo, M. M.
  2023; 5 (9): 5025-5031
- **Spatially-Resolved Thermometry of Filamentary Nanoscale Hot Spots in TiO2 Resistive Random Access Memories to Address Device Variability** *ACS APPLIED ELECTRONIC MATERIALS*
  Swoboda, T., Gao, X., Rosario, C. M. M., Hui, F., Zhu, K., Yuan, Y., Deshmukh, S., Koroglu, C., Pop, E., Lanza, M., Hilgenkamp, H., Rojo, M.
  2023
- **Area-Selective Atomic Layer Deposition for Resistive Random-Access Memory Devices.** *ACS applied materials & interfaces*
  Oh, I. K., Khan, A. I., Qin, S., Lee, Y., Wong, H. P., Pop, E., Bent, S. F.
  2023
- **Thiol-based defect healing of WSe2 and WS2** *NPJ 2D MATERIALS AND APPLICATIONS*
  Schwarz, A., Alon-Yehezkel, H., Levi, A., Yadav, R., Majhi, K., Tzuriel, Y., Hoang, L., Bailey, C. S., Brumme, T., Mannix, A. J., Cohen, H., Yalon, E., Heine, et al
  2023; 7 (1)
- **Imaging the electron charge density in monolayer MoS2 at the Ångstrom scale.** *Nature communications*
  Martis, J., Susarla, S., Rayabharam, A., Su, C., Paule, T., Pelz, P., Huff, C., Xu, X., Li, H. K., Jaikissoon, M., Chen, V., Pop, E., Saraswat, et al
  2023; 14 (1): 4363
- **A Purcell-enabled monolayer semiconductor free-space optical modulator** *NATURE PHOTONICS*
  Li, Q., Song, J., Xu, F., van de Groep, J., Hong, J., Daus, A., Lee, Y., Johnson, A. C., Pop, E., Liu, F., Brongersma, M. L.
  2023
- **Effect of Top-Gate Dielectric Deposition on the Performance of Indium Tin Oxide Transistors** *IEEE ELECTRON DEVICE LETTERS*
  Wahid, S., Daus, A., Kwon, J., Qin, S., Ko, J., Wong, H., Pop, E.
  2023; 44 (6): 951-954
- **Probing the Melting Transitions in Phase-Change Superlattices via Thin Film Nanocalorimetry.** *Nano letters*
  Zhao, J., Khan, A. I., Efremov, M. Y., Ye, Z., Wu, X., Kim, K., Lee, Z., Wong, H. P., Pop, E., Allen, L. H.
  2023
- **Ambipolar Thickness-Dependent Thermoelectric Measurements of WSe2.** *Nano letters*
  Chen, V., Lee, H. R., Köroğlu, Ç., McClellan, C. J., Daus, A., Pop, E.
  2023
- **Uncovering the Different Components of Contact Resistance to Atomically Thin Semiconductors** *ADVANCED ELECTRONIC MATERIALS*
  Ber, E., Grady, R. W., Pop, E., Yalon, E.
  2023
- **Intrinsic and Extrinsic Factors Influencing the Dynamics of VO2 Mott Oscillators** *PHYSICAL REVIEW APPLIED*
  Bohaichuk, S. M., Kumar, S., Islam, M., Rojo, M., Williams, R., Pitner, G., Jeong, J., Samant, M. G., Parkin, S. S. P., Pop, E.
  2023; 19 (4)
- **Nanoscale temperature sensing of electronic devices with calibrated scanning thermal microscopy.** *Nanoscale*
  Swoboda, T., Wainstein, N., Deshmukh, S., Koroglu, C., Gao, X., Lanza, M., Hilgenkamp, H., Pop, E., Yalon, E., Munoz Rojo, M.
  2023
- **Semimetal-Monolayer Transition Metal Dichalcogenides Photodetectors for Wafer-Scale Broadband Photonics** *ADVANCED PHOTONICS RESEARCH*
  Sinn, H., Kumar, A., Pop, E., Newaz, A.
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