



## 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

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#### 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](https://twitter.com/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, 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, 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

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### 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, MoS<sub>2</sub>, 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

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### 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)

Yuan-Mau Lee, Young Suh Song, Haotian Su, Jerry Yang

#### Doctoral Dissertation Co-Advisor (AC)

Sydney Fultz-Waters

#### Master's Program Advisor

Larry Gu, Ryan Hurley, Ronan Locker

## Doctoral (Program)

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

## Publications

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### PUBLICATIONS

- **Scaling nanoribbon transistors with monolayer transition metal dichalcogenides.** *Nature nanotechnology*  
Peña, T., Persson, A. E., Krayev, A., Friðriksdóttir, Á., Su, H., Lee, Y. M., Song, Y. S., Neilson, K., Zhang, Z., Hoang, A. T., Yang, J. A., Hoang, L., Wang, et al  
2026
- **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
- **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
- **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
- **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
- **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)
- **Fast-Response Flexible Temperature Sensors with Atomically Thin Molybdenum Disulfide.** *Nano letters*  
Daus, A., Jaikissoon, M., Khan, A. I., Kumar, A., Grady, R. W., Saraswat, K. C., Pop, E.  
2022
- **How to report and benchmark emerging field-effect transistors** *NATURE ELECTRONICS*  
Cheng, Z., Pang, C., Wang, P., Le, S. T., Wu, Y., Shahrjerdi, D., Radu, I., Lemme, M. C., Peng, L., Duan, X., Chen, Z., Appenzeller, J., Koester, et al  
2022; 5 (7): 416-423
- **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): eabk1514
- **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
- **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., Katre, A., Mingo, N., Goodson, K. E., Xing, H., Jena, D., Pop, E.  
2019; 126 (18)
- **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
- **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

- **HfSe<sub>2</sub> and ZrSe<sub>2</sub>: Two-dimensional semiconductors with native high-κ oxides.** *Science advances*  
Mleczo, 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
- **High Current Density and Low Thermal Conductivity of Atomically Thin Semimetallic WTe<sub>2</sub>.** *ACS nano*  
Mleczo, M. J., Xu, R. L., Okabe, K., Kuo, H., Fisher, I. R., Wong, H. P., Nishi, Y., Pop, E.  
2016; 10 (8): 7507-7514
- **Improved Contacts to MoS<sub>2</sub> 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
- **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., Vlasiouk, I., Eres, G., Lyding, J. W., King, W. P., Pop, E.  
2014; 105 (14)
- **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., Knezevic, I., Pop, E.  
2013; 4
- **Thermal properties of graphene: Fundamentals and applications** *MRS BULLETIN*  
Pop, E., Varshney, V., Roy, A. K.  
2012; 37 (12): 1273-1281
- **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
- **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
- **Energy Dissipation and Transport in Nanoscale Devices** *NANO RESEARCH*  
Pop, E.  
2010; 3 (3): 147-169
- **Avalanche-Induced Current Enhancement in Semiconducting Carbon Nanotubes** *PHYSICAL REVIEW LETTERS*  
liao, A., Zhao, Y., Pop, E.  
2008; 101 (25)
- **Heat generation and transport in nanometer-scale transistors** *PROCEEDINGS OF THE IEEE*  
Pop, E., Sinha, S., Goodson, K. E.  
2006; 94 (8): 1587-1601
- **Thermal conductance of an individual single-wall carbon nanotube above room temperature** *NANO LETTERS*  
Pop, E., Mann, D., Wang, Q., Goodson, K. E., Dai, H. J.  
2006; 6 (1): 96-100
- **Negative differential conductance and hot phonons in suspended nanotube molecular wires** *PHYSICAL REVIEW LETTERS*  
Pop, E., Mann, D., Cao, J., Wang, Q., Goodson, K. E., Dai, H. J.  
2005; 95 (15)
- **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)
- **Nano-Raman imaging of monolayer MoS<sub>2</sub> nanoribbons** *APPLIED PHYSICS LETTERS*  
Krayev, A., Pena, T., Persson, A. E. O., Neilson, K., Hoang, A., Mannix, A. J., Pop, E.

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2026; 128 (20)

- **Flexible radio-frequency carbon nanotube transistors operating at frequencies above 100 GHz** *NATURE ELECTRONICS*  
Xia, F., Xia, T., Su, H., Gan, L., Hu, Q., Wang, W., Huang, R., Bai, T., Chen, Y., Ma, C., Long, G., Wang, S. X., Pop, et al  
2026
- **Spatio-Kinetic Electronic Heterogeneity in MoS<sub>2</sub> 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 WSe<sub>2</sub> 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 MoS<sub>2</sub> 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 MoS<sub>2</sub> 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
- **Vibronically Coherent Exciton Trapping in Monolayer WS<sub>2</sub>.** *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 MoS<sub>2</sub> Transistors.** *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 MoS<sub>2</sub> 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 WS<sub>2</sub> and MoS<sub>2</sub> 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 MoS<sub>2</sub> 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
- **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 MoS<sub>2</sub> 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 WS<sub>2</sub> Transistors.** *Nano letters*  
Hoang, L., Jaikissoon, M., K roglu,  ., 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 Ge<sub>4</sub>Sb<sub>6</sub>Te<sub>7</sub> 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
- **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 MoS<sub>2</sub> and WSe<sub>2</sub> 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., Papangelis, K.  
2024
- **Toward Mass Production of Transition Metal Dichalcogenide Solar Cells: Scalable Growth of Photovoltaic-Grade Multilayer WSe<sub>2</sub>by 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 MoS<sub>2</sub> 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., Papangelis, 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  
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- **Nonvolatile Phase-Only Transmissive Spatial Light Modulator with Electrical Addressability of Individual Pixels.** *ACS nano*  
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