

Stanford



Yanjie Shao

Assistant Professor of Electrical Engineering

Bio

ACADEMIC APPOINTMENTS

- Assistant Professor, Electrical Engineering

PROFESSIONAL EDUCATION

- Ph.D., Massachusetts Institute of Technology , Electrical Engineering (2023)
- B.S., University of Science and Technology of China , Physics (2019)

Publications

PUBLICATIONS

- **Discrete Ferroelectric Polarization Switching in Nanoscale Oxide-Channel Ferroelectric Field-Effect Transistors.** *Nano letters*
Shao, Y., Rafie Borujeny, E., Navarro Fidalgo, J., Huang, J. C., Espedal, T. E., Antoniadis, D. A., Del Alamo, J. A.
2025; 25 (8): 3173-3179
- **Single-domain Switching Dynamics in BEOL Nanoscale Ferroelectric Field-effect Transistors**
Shao, Y., Kim, M., Huang, J., Antoniadis, D. A., del Alamo, J. A., IEEE
IEEE.2025
- **Enhancement-mode BEOL In₂O₃ FETs with Record Logic Performance: Experiments and Compact Modeling**
Shao, Y., Ma, D., Antoniadis, D. A., Wei, L., del Alamo, J. A., IEEE
IEEE.2025
- **Scaled vertical-nanowire heterojunction tunnelling transistors with extreme quantum confinement** *NATURE ELECTRONICS*
Shao, Y., Pala, M., Tang, H., Wang, B., Li, J., Esseni, D., del Alamo, J. A.
2025; 8 (2): 157-167
- **Highly-Scaled BEOL E-mode Transistor and Discrete-Domain Ferroelectric Memory Platform Enabled by PEALD In₂O₃**
Shao, Y., Huang, J., Borujeny, E., Espedal, T. E., Antoniadis, D. A., del Alamo, J. A., IEEE
IEEE.2024
- **Sub-10-nm Diameter Vertical Nanowire p-Type GaSb/InAsSb Tunnel FETs** *IEEE ELECTRON DEVICE LETTERS*
Shao, Y., del Alamo, J. A.
2022; 43 (6): 846-849
- **Scaling of GaSb/InAs Vertical Nanowire Esaki Diodes Down to Sub-10-nm Diameter** *IEEE TRANSACTIONS ON ELECTRON DEVICES*
Shao, Y., Pala, M., Esseni, D., del Alamo, J. A.
2022; 69 (4): 2188-2195
- **Sub-10-nm Diameter GaSb/InAs Vertical Nanowire Esaki Diodes with Ideal Scaling Behavior: Experiments and Simulations**

Shao, Y., Pala, M. G., Esseni, D., del Alamo, J. A., IEEE
IEEE.2021

- **Atomic lift-off of epitaxial membranes for cooling-free infrared detection.** *Nature*
Zhang, X., Ericksen, O., Lee, S., Akl, M., Song, M. K., Lan, H., Pal, P., Suh, J. M., Lindemann, S., Ryu, J. E., Shao, Y., Zheng, X., Han, et al
2025; 641 (8061): 98-105
- **The impact of interface traps on the subthreshold characteristics of III-V vertical nanowire tunnel field-effect transistors** *JOURNAL OF APPLIED PHYSICS*
Chang, C., Shao, Y., Zhang, Y., Zhang, Q., Wu, L., Zhao, X.
2025; 137 (13)
- **High-performance 2D electronic devices enabled by strong and tough two-dimensional polymer with ultra-low dielectric constant.** *Nature communications*
Fang, Q., Yi, K., Zhai, T., Luo, S., Lin, C. Y., Ai, Q., Zhu, Y., Zhang, B., Alvarez, G. A., Shao, Y., Zhou, H., Gao, G., Liu, et al
2024; 15 (1): 10780
- **Selective visible-light-driven photocatalytic CO₂ reduction to CH₄ mediated by atomically thin CuIn₅S₈ layers** *NATURE ENERGY*
Li, X., Sun, Y., Xu, J., Shao, Y., Wu, J., Xu, X., Pan, Y., Ju, H., Zhu, J., Xie, Y.
2019; 4 (8): 690-699
- **Cu diffusion in CdTe detected by nano-metal-plasmonic enhanced resonant Raman scattering** *JOURNAL OF APPLIED PHYSICS*
Shao, Y., Li, X., Wu, L., Wang, D.
2019; 125 (1)