

# Stanford

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## Tara Peña

Postdoctoral Scholar, Electrical Engineering

### CONTACT INFORMATION

- **Academic**

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### Bio

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#### BIO

Tara Peña is a postdoctoral scholar at Stanford University, where she is working with Prof. Eric Pop and is supported by the NSF MPS-Ascend postdoctoral fellowship. Peña received her Ph.D. (2023) in Electrical and Computer Engineering (ECE) from the University of Rochester, where she won the university-wide Provost's Fellowship then the nationwide NSF GRFP award. Before obtaining her doctorate, she earned a M.S. degree in ECE from the University of Rochester (2019) and a B.S. degree in Physics from Adelphi University (2017). Peña's research interests include strain engineering nanomaterials to uncover advanced device structures.

#### PROFESSIONAL EDUCATION

- Doctor of Philosophy, University of Rochester (2023)
- Master of Science, University of Rochester (2019)
- Bachelor of Science, Adelphi University (2017)

#### STANFORD ADVISORS

- Eric Pop, Postdoctoral Faculty Sponsor

#### LINKS

- Google Scholar: <https://scholar.google.com/citations?user=NzbUM7YAAAAJ&hl=en&oi=ao>
- LinkedIn: <https://www.linkedin.com/in/tarapena>
- Pop Lab Website: <http://poplab.stanford.edu/people.html>

### Publications

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#### PUBLICATIONS

- **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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- **Gate-Dielectric Engineering with an Ultrathin Silicon Oxide Interfacial Dipole Layer for Low-Leakage Oxide-Semiconductor Memories.** *Nano letters*  
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- **Nondestructive Atomic Defect Quantification of Two-Dimensional Materials and Devices.** *ACS applied materials & interfaces*  
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- **Advanced undergraduate lab on quantum beats** *AMERICAN JOURNAL OF PHYSICS*  
Wright, M. J., Beban, O. R., McCluney, T. L., St. John, J. P.  
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- **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  
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- **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
- **Patternable Process-Induced Strain in 2D Monolayers and Heterobilayers.** *ACS nano*  
Zhang, Y., Hossain, M. A., Hwang, K. J., Ferrari, P. F., Maduzia, J., Peña, T., Wu, S. M., Ertekin, E., van der Zande, A. M.  
2024
- **Strain engineering in 2D hBN and graphene with evaporated thin film stressors** *APPLIED PHYSICS LETTERS*  
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- **Moire engineering in 2D heterostructures with process-induced strain** *APPLIED PHYSICS LETTERS*  
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Watson, C., Pena, T., Abdin, M., Khan, T., Wu, S. M.  
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- **Nonvolatile Ferroelastic Strain from Flexoelectric Internal Bias Engineering** *PHYSICAL REVIEW APPLIED*  
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- **Uniaxial and biaxial strain engineering in 2D MoS<sub>2</sub> with lithographically patterned thin film stressors** *APPLIED PHYSICS LETTERS*

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- **Strain tuning of the emission axis of quantum emitters in an atomically thin semiconductor** *OPTICA*

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2020; 7 (6): 580-585

- **Strain-based room-temperature non-volatile MoTe<sub>2</sub> ferroelectric phase change transistor** *NATURE NANOTECHNOLOGY*

Hou, W., Azizimanesh, A., Sewaket, A., Pena, T., Watson, C., Liu, M., Askari, H., Wu, S. M.  
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- **Pulsed, controlled, frequency-chirped laser light at GHz detunings for atomic physics experiments** *APPLIED PHYSICS B-LASERS AND OPTICS*

Kaufman, B., Paltoo, T., Grogan, T., Pena, T., St John, J. P., Wright, M. J.  
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