Stanford



Frederick U Nitta

Ph.D. Student in Electrical Engineering, admitted Autumn 2024

Bio

BIO

Frederick received his B.S. with EE and Chemistry from Stanford (2024), alongside a co-term in MSE (2024) at Stanford. He completed his EE honors thesis with Prof. Krishna Saraswat and Prof. Eric Pop on the efficiency limits of transition metal dichalcogenide (TMD) solar cells, receiving the Firestone Medal for Excellence in Undergraduate Research. He is now pursuing his Ph.D. in EE, on 3R-phase TMDs and their bulk photovoltaic effect, and on the physics and applications of transition metal oxides. He is co-advised by Prof. Eric Pop and Prof. Andrew Mannix.

LINKS

- LinkedIn: https://www.linkedin.com/in/fredericknitta/

Publications

PUBLICATIONS

- **The Need for Fundamental Photovoltaics Research to Ensure Energy Security** *PROGRESS IN PHOTOVOLTAICS*
  Saive, R., Conibeer, G., Einhaus, L., Guillemoles, J., Hayibo, K., Hinzer, K., Krich, J., Lenio, M., Nielsen, M., Nitta, F., Sellers, I., Suchet, D., Tervo, et al
  2026

- **Transition metal dichalcogenide solar cells for indoor energy harvesting** *DEVICE*
  Nitta, F. U., Nazif, K., Pop, E.
  2025; 3 (7)

- **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

- **Efficiency Limit of Transition Metal Dichalcogenide-Silicon Tandem Solar Cells**
  Nitta, F. U., Nazif, K., Pop, E., IEEE
  IEEE.2025: 1275

- **Resolving the Electron Plume within a Scanning Electron Microscope.** *ACS nano*
  Alcorn, F. M., Perez, C., Smoll, E. J., Hoang, L., Nitta, F. U., Mannix, A. J., Talin, A. A., Nakakura, C. Y., Chandler, D. W., Kumar, S.
  2024

- **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

- **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

- **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

- **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)

- **Efficiency Limit of Transition Metal Dichalcogenide Solar Cells**
  Nazif, K., Nitta, F. U., Daus, A., Saraswat, K. C., Pop, E., IEEE
  IEEE.2023

- **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