Stanford



Mahnaz Islam

Ph.D. Student in Electrical Engineering, admitted Autumn 2019

Curriculum Vitae available Online

Bio

BIO

Mahnaz is a PhD Candidate in Stanford EE working in Prof. Eric Pop's lab on insulator-metal-transition oxides for applications in memory selectors and brainlike computing. She also holds a Masters in EE (2021) from Stanford and completed her Bachelors in EEE (2017) from Bangladesh University of Engineering and Technology (BUET), where she worked as a Lecturer prior to joining Stanford in 2019. She is the recipient of Thomas and Sarah Kailath Stanford Graduate Fellowship in Science and Technology and enjoys dancing, hiking, and taking care of her plants in her free time.

HONORS AND AWARDS

• Thomas and Sarah Kailath Fellow, Stanford Graduate Fellowships Program in Science and Engineering (2019 - 2022)

PROFESSIONAL AFFILIATIONS AND ACTIVITIES

- Student Member, IEEE (2015 2022)
- Student Member, IEEE Women in Engineering (2016 present)
- Student Member, IEEE Electron Device Society (2016 present)

EDUCATION AND CERTIFICATIONS

- M.Sc., Stanford University, Electrical Engineering (2021)
- M.Sc., Bangladesh University of Engineering and Technology, Electrical and Electronic Engineering , Electrical and Electronics Engineering (2019)
- B.Sc., Bangladesh University of Engineering and Technology, Electrical and Electronic Engineering , Electrical and Electronics Engineering (2017)

LINKS

• Linked in Profile: https://www.linkedin.com/in/mahnaz-islam-1184b9104/

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

My current research involves working on insulator-metal-transition oxides such as NbO2 and LaCoO3 to understand their switching physics in electrical devices compared to thermal switching, and use various electrical and materials characterization as well as novel in-situ spectroscopy techniques in my work. I am interested in their applications in memory selectors, ESD protection clamps, and brain-inspired computing.

As part of my PhD work, I have collaborated with both academia (Purdue, Rutgers, USC, Sandia NL, Lawrence Berkeley NL) as well as the industry (NGC, On Semi) outside of Stanford.

I have also completed a NAND pathfinding internship at Micron Technology where I used my knowledge of semiconductor device physics and process fabrication skills to design experiments and study the challenges of tier pitch scaling in 3D NAND. As part of the Process Integration team, I have collaborated closely with other Process teams as well as Device and TEM imaging labs.

Publications

PUBLICATIONS

- 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. P., Pop, E. 2023; 19 (4)
- Electro-thermal Characterization of Dynamical VO2 Memristors via Local Activity Modeling. *Advanced materials (Deerfield Beach, Fla.)* Brown, T. D., Bohaichuk, S. M., Islam, M., Kumar, S., Pop, E., Williams, R. S. 2022: e2205451
- Lateral electrical transport and field-effect characteristics of sputtered p-type chalcogenide thin films *APPLIED PHYSICS LETTERS* Wahid, S., Daus, A., Khan, A., Chen, V., Neilson, K. M., Islam, M., Chen, M. E., Pop, E. 2021; 119 (23)
- First-principles calculation of the optoelectronic properties of doped methylammonium lead halide perovskites: A DFT-based study COMPUTATIONAL MATERIALS SCIENCE

Rahman, N., Adnaan, M., Adhikary, D., Islam, M., Alam, M. 2018; 150: 439-447

• Transfer Matrix Formalism-Based Analytical Modeling and Performance Evaluation of Perovskite Solar Cells IEEE TRANSACTIONS ON ELECTRON DEVICES

Wahid, S., Islam, M., Rahman, M., Alam, M. 2017; 64 (12): 5034-5041

• Effect of spatial distribution of generation rate on bulk heterojunction organic solar cell performance: A novel semi-analytical approach ORGANIC ELECTRONICS

Islam, M., Wahid, S., Chowdhury, M., Hakim, F., Alam, M. 2017; 46: 226-241

• Physics-based modeling and performance analysis of dual junction perovskite/silicon tandem solar cells PHYSICA STATUS SOLIDI A-APPLICATIONS AND MATERIALS SCIENCE

Islam, M., Wahid, S., Alam, M. 2017; 214 (2)