



ME Seminar



Building up Towards Thermal Transport in Heterostructures

Dr. Vasumathy Ravishankar, IISc Institute of Eminence Post-doctoral Research Fellow, ME@IISc

ABSTRACT

The objective being to study thermal transport, there are three aspects to achieving this - sample preparation to validate previous results, heterostructure preparation and characterization, and using computational tools to understand these systems. In this summary of work to date talk, I shall touch upon designing a microscope and a custom Raman setup. I shall discuss preliminary results from using silicon nitride as protective layer for fabrication of silicon membranes. Heterostructures could have complex geometries that require the use of computational methods to understand transport. In this regard, I shall discuss the application of Monte Carlo method to solve Boltzmann transport equation under relaxation time approximation. This was implemented in Fortran with the use of parallelization, and was validated for systems with various boundary conditions.

ABOUT THE SPEAKER

Dr. Vasumathy Ravishankar is an Institute of Eminence post-doctoral research fellow in the Nanoscale Energy Transport Lab (NETLab), with Dr. Navaneetha Krishnan Ravichandran. She currently works on thermal transport in 2D materials and heterostructures. Previously, she was a doctoral student at Indian Institute of Technology Madras working with Prof. Manu Jaiswal and Prof. S Ramaprabhu. Her doctoral thesis was on ion transport in layered graphene oxide membranes.



August 13th, 2021, 4:00 pm, Microsoft Teams