

Speaker: Ali YAZDANI (Princeton University)

Title: Correlation, Superconductivity and Topology in Magical Flat Bands

I will describe recent experiments with the scanning tunneling microscope to understand the nature of electronic states in magic flat band system of bilayer graphene. I will describe recent effort to characterize the superconducting states, which shows evidence for correlated nodal superconductivity also showing evidence of pseudogap phases. I will also describe how we can detect presence of interaction driven topological phase by using the density-field dependence of spectroscopic gaps in this system. If there is time, I will also describe how our efforts in characterizing the novel real space maps of the graphene in zeroth Landau level is providing us with an approach to understand the nature of electronic wavefunction in magic bilayer graphene.