Tata Institute of Fundamental Research
Survey No. 36/P, Gopanpally Village, Serilingampally Mandal, Ranga Reddy Dist., Hyderabad – 500 046

Seminar

Direct Imaging of Quasiparticle formation and Dynamics in 2D Semiconductor Devices

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Atomically thin semiconductors provide a platform for exploring strongly interacting quantum states and controlling their properties at the nanoscale. Understanding these states requires observing how electrons and quasiparticles evolve in energy, momentum, and space on ultrafast timescales. In this talk, I will present time- and angle-resolved photoemission studies of nonequilibrium electronic and many-body states in 2D semiconductors under electrical doping control. I will show how Coulomb interactions, lattice coupling, and doping-induced screening govern valley-selective scattering, relaxation, and renormalisation. These studies connect directly measured momentum-resolved dynamics to their microscopic origins, providing a framework to understand and control quantum states in low-dimensional materials.

Tuesday, Oct 13th 2026

16:00 Hrs (Tea / Coffee 15:45 Hrs)

Auditorium, TIFRH