

Seminar

Moiré matters: Tuning excitons in twisted stacks of 2D materials

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Twisted layers of 2D materials such as transition metal dichalcogenides (TMDs) form nanoscale moiré superlattices, offering control over the arrangement and interactions of quasi-particles. The resulting periodic lattice potential from moiré patterns creates mini-bands for electrons and holes, influencing spectral and spatial characteristics of excited electron-hole pairs (excitons). Such moiré superlattices can induce localisation of excitons which is promising to design arrays of quantum emitters. In this talk, I will delve into probing and modulating moiré excitons in twisted TMD homo- and hetero-bilayers through correlated optical and electron microscopy techniques. These observations help in engineering light-matter interactions using a range of tuning knobs in twisted 2D materials for optoelectronic applications.

Thursday, May 2nd 2024

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

Auditorium, TIFR-H