

Seminar

Exceptional Points and Raman Emission in Non-Hermitian Polaritonic Systems

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Strong coupling between excitons in anisotropic two-dimensional semiconductors and cavity photons gives rise to exciton–polaritons whose dispersion and dissipation can be engineered through polarization and crystal orientation. Due to exciton decay and cavity photon loss, these systems are intrinsically non-Hermitian, providing a versatile platform to explore open quantum phenomena in light–matter coupled systems. In this talk, I will first discuss how anisotropic light–matter interaction in such microcavities enabled us to realize exceptional points in the exciton–polariton band structure, revealing the crucial role of polarization-dependent coupling in two-dimensional materials. I will then present our recent observation that the same platform can act as an effective two-level system in the polarization modes of stimulated Raman emission, enabling the manifestation of spectral degeneracies characteristic of non-Hermitian systems and the associated underlying physics.

Tuesday, May 19th 2026

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

Auditorium, TIFRH