INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE
2A&B, Raja S.C. Mullick Road, Jadavpur, Kolkata-700032, India

Seminar Notice

Org. by

School of Physical Sciences

Title:	**Some interesting optical manifestations in quantum confined excitonic systems**
Speaker:	**Bidisha Roy, Walter Schottky Institute of TU Munich, Germany**
Date:	**October 9, 2018 (Tuesday)**
Time:	**4:00 p.m.**
Venue:	**Physics Seminar Room (C406),3rd Floor, Centenary Building, IACS**
Abstract:	Optical and magneto-optical studies of excitons in a cylindrically stacked system of semiconductor quantum dots with type-II band alignment will be discussed in the first part, particularly addressing the intriguing observation of excitonic Aharonov- Bohm (AB) effect in these systems which gets revealed through magneto-photoluminescence (PL) emission. The AB signature indicated presence of built-in electric field in the system and a detailed spectral analysis of this otherwise purely quantum mechanical effect could lead to the determination of lateral excitonic size with up to sub-nanometer precision. In this light, I will also discuss the decoherence mechanisms in such quantum confined systems. In the second part, I will discuss a plasmonic- semiconductor hybrid system of interest that enabled the tuning and manipulation of optical emission from an overlaid monolayer of two-dimensional transition metal di-Chalcogenide (2D TMDC) semiconductor material. Here I will discuss how the geometry-dependent plasmonic resonance of a nanoplasmonic array could induce a significant degree of linear polarization to the optical emission from an otherwise unpolarized atomically thin excitonic emitter at room temperature. The key factors governing such functional light-matter interactions in low dimensional semiconductor excitonic systems relevant to novel fundamental and applied interests will be the general intent of this talk.

All are cordially invited to attend the seminar