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:	**Dynamical synchronization transition in interacting electron systems**
Speaker:	**Tanay Nag, MPIPKS, Dresden, Germany**
Date:	**November 19, 2018 (Monday)**
Time:	**4:00 p.m.**
Venue:	**Physics Seminar Room (C406),3rd Floor, Centenary Building, IACS**
Abstract:	Using graphene irradiated by an intense bi-circular pulse laser as a prototypical example, we theoretically investigate how to selectively generate coherent oscillation of electronic orders such as charge density waves (CDW), where the key is to use tailored fields that match the crystalline symmetry broken by the target order. After the pump, a macroscopic number of electrons start oscillating and coherence is built up through a dynamical synchronization transition described by an effective Kuramoto model. The oscillation is detectable as a coherent light emission at the synchronized frequency and may be used as a purely electronic way of realizing a Floquet state respecting space-time crystalline symmetries. In the process, we explore possible flipping of existing static CDW order and generation of higher harmonics. The analysis is done within the time-dependent mean field treatment of the extended Hubbard model on the honeycomb lattice.

All are cordially invited to attend the seminar