

**INDIAN ASSOCIATION FOR THE CULTIVATION OF
SCIENCE**

2A&B, Raja S.C. Mullick Road, Jadavpur, Kolkata-700032, India

Seminar Notice

Org. by

Theoretical Physics Department

Title:	Quantum oscillations without a Fermi surface
Speaker:	Hridis K Pal, Laboratoire de Physique des Solides, Université Paris-Sud, Orsay Cedex, France & School of Physics, Georgia Institute of Technology, Atlanta, USA
Date:	November 22, 2017 (Wednesday)
Time:	4:00 p.m.
Venue:	Theoretical Physics Seminar Room (C406), 3rd Floor, Centenary Building, IACS
Abstract:	Quantum oscillations are conventionally understood to arise from the Fermi level; hence, they are considered to be a proof of the existence of an underlying Fermi surface. This understanding forms the basis for experiments measuring these oscillations to study metallic systems and map the Fermi surface. In this talk, I will show that this conventional understanding is not always true: in certain situations quantum oscillations can also arise from inside the Fermi sea. The necessary condition and possible scenarios for such unusual behavior will be pointed out. These unconventional oscillations are not described by the standard Lifshitz-Kosevich theory valid for metals. Their temperature dependence is drastically different from that in metals and shows rich phenomenology. Such new insights open the door to the possibility of using quantum oscillations to study

	features in systems traditionally thought to be outside the scope of this technique--I will point out some examples where such unconventional oscillations could show up.
--	---

All are cordially invited to attend the seminar