



Physical Research Laboratory, Ahmedabad

COLLOQUIUM - 14 - 06

Speaker: Dr. Girish S. Setlur

Associate Professor, Department of Physics, IIT Guwahati.

Title: Rabi Oscillations in Graphene

Time: Wednesday, 26 March, 2014, 16.00 hrs.

Venue: K. R. Ramanathan Auditorium, PRL.

Abstract

In this talk, the ongoing work in the Rabi oscillation phenomenon, which is well-known in two-level systems and also in semiconductors to probe the low energy band structure of graphene, will be discussed. Specifically, we have predicted and shown experimental confirmation of a peculiar type of Rabi oscillation that is unique to graphene which is seen far from conventional resonance. These anomalous Rabi oscillations are shown to be due to the pseudospin degree of freedom of graphene. We also show that anomalous Rabi oscillations are sensitive to changes in the low-energy band structure of graphene whereas conventional Rabi oscillations (which are of course, also present) are only weakly influenced by changes in the band structure.

The Speaker

Dr. Girish S. Setlur did his B.Tech. in Engg. Physics from IIT Bombay (1990), M. S. (1993) and Ph.D. (1999) in Physics from the University of Illinois at Urbana Champaign, USA. After doing Ph.D. he joined as the post doctoral studies at Oklahoma State University (1999) Stillwater, Washington State University, Pullman (2000) and CMT Unit, JNCASR, Bangalore (2001). He then joined the Institute of Mathematical Sciences, Taramani, Chennai in 2002 and worked there as visiting scientist before joining IIT, Guwahati in 2004, where is currently an Associate Professor. His area of research interest is theoretical condensed matter physics, specifically he is interested in understanding and accounting for the properties of everyday bulk materials from a knowledge of the fundamental constituents of the substance and the fundamental physical laws governing those constituents. Dr. Setlur has written a book titled "Dynamics of Classical and Quantum Fields", published by Taylor & Francis (2013).

Tea at 15:30 hrs.

ALL ARE WELCOME