

THEORETICAL PHYSICS SEMINAR

Title: Generalizing Einstein's derivation of Planck's black-body radiation formula to non-equilibrium systems: the new concept of electro-magneto resistance.

Speaker: Dr. Navinder Singh, THEPH PRL

Date/Time/Venue: 27th April. (Thursday) / 4:00 PM/ Room No. 469

Tea will be served at 3:30pm outside Room 469

ABSTRACT

In this first work under PRL's TDP project (No. TDP-ESR-623) we generalize the magneto-resistance phenomenon where the resistivity of materials change under a transverse magnetic field to a regime where in addition to magnetic field there is also a transverse ac field of resonant frequency with the Zeeman splitting. Our theoretical calculations predict this effect and the experiment to test it is under development (under TDP project).

The idea is the following. In a magnetic field, electron spin levels are Zeeman split. If a resonant ac field is applied there is a new channel of momentum relaxation. An additional resistivity is predicted. The whole work is based upon a generalization of the Einstein's derivation of Planck's black-body radiation formula to non-equilibrium systems. This talk will summarize the theory work.

All are welcome to attend