Area Seminar

Title	Perturbed Relativistic Coupled-Cluster Theory for Atomic Calculations
Date and Time	26/04/2012 16:00:00
Speaker	Siddhartha Chattopadhyay Physical Research Laboratory, Ahmedabad
Area	Theoretical Physics
Venue	Room No. 469
Abstract	The coupled-cluster theory is one of the most reliable quantum many-body theory.It has been used with great success in atomic, nuclear, molecular and condensed matter physics calculations. In the present work, we have developed perturbed relativistic coupled-cluster (PRCC) theory to incorporate the effect of external electric field as a perturbation in the atomic many-body calculations. For this, the coupled-cluster equations for singles and doubles cluster operators are derived and the contributing diagrams are examined. The PRCC operators, obtained by solving the coupled non-linear equations, are then used for the dipole polarizability calculation of closed-shell systems. In this talk, we will examine the results of electric dipole polarizability for noble gas atoms, using the PRCC theory.