

Details of Project Funded by CSIR, Govt. of India.

Reference No: 22(0519)10/EMR-II

Title : Modeling & Simulation of Charge Transport in Nano Devices

Funding Agency: C. S.I.R., MHRD; Govt. of India

Cost: 17,78,000/-

Duration: Two Years.

Summary & Objective: We are planning to carry out first-principles studies of the charge transfer phenomenon in Nano Devices that take all the recent findings fully into account, and make maximal use of the currently available methods in this field. Thus, we will employ a combination of classical molecular dynamics simulations with large-scale ab initio electronic structure calculations to adequately incorporate effects. We expect that our joint efforts will have a significant impact on the field, and that this study will mark a major step forward in the scientific quest to understand charge transfer in Nano devices, with the ultimate goal in mind to utilize this knowledge for future applications in technology and Device fabrication.

The objectives are:

- To implement and develop a model using Applied Mathematics, Physics (Quantum), and the appropriate technology and methodology for nanoscale device modeling;
- To develop new TCAD (technology computer aided design) tools for quantum scale device simulation, and To examine and assess new features of carrier transport in futuristic nanoscale transistors