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**The study of Einstein relation in Quantum Dots Super Lattices (QDSL) of nonparabolic semiconductors: Simplified theory and suggestions for further experimental determination in biomaterials**

The Semiconductor Super Lattices (SLS) have found wide applications in many electronic device structures and bio devices such as photo detectors, light emitters, avalanche photo diodes, compensatory transistors, tunneling devices, genetic diodes etc. The most extensively studied SL is the one consisting of alternate layers of GaAs and Ga<sub>1-x</sub>Al<sub>x</sub>As, owing to its fabrication. The GaAs layers form the quantum wells and the Ga<sub>1-x</sub>Al<sub>x</sub>As layers form the potential barriers. We wish to note that, therefore mentioned SLS have been proposed with the assumption that the interfaces between the layers are sharply defined with zero thicknesses so as to be devoid of any interface effects. As the potential form changes from a well (barrier) to a barrier (well), an intermediate potential region exists for the electrons. Thus the influence of the finite thickness of the interface on the carrier dispersion law becomes very important since, the carrier energy spectrum governs all the transport properties. In this paper, we shall investigate the DMR for the most interesting case which occurs in QDSLs of graded interfaces and compare the same with that of the constituent materials by formulating the respective one dimensional electron dispersion laws. The proposed approach has been implemented and tested on an embedded system and it exhibits a good performance for monitoring/diagnosis applications.

### Biography

Sudip Chatterjee is working as an Associate Professor in the department of Basic Science at a premier Institute of India. He had received his PhD degree on some electronic transport properties of nano materials from Jadavpur University, Kolkata and he continued his research in the field of characterization and synthesis of bio-nano materials since 2002 and he had carried number of projects as the principal investigator and co-investigator under the sponsorship of some premier research institutes. He has published more than 35 papers in reputed international journals.

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