INTRODUCTION:

Nanotechnology is the study of employing matter on an atomic and molecular scale. Generally, a nanotechnology compact with structures sized between 1 to 100 nanometers in at least one dimension, and involves developing materials or devices possessing at least one dimension within that size. Nanomaterials and Nanotechnologies attract tremendous attention in recent researches. New physical properties and new technologies both in sample preparation and device fabrication evoke on account of the development of nanoscience. Various research fields including physics, chemists, material scientists, and engineers of mechanical and electrical are involved in this research. In this review various methods of preparing nanomaterial’s including insulators, semiconductors and metals are discussed. We express the exotic physical properties concerning the linear and nonlinear optical spectra, temperature dependence of resistivity, spin resonance spectra, and magnetic susceptibility measurements. A number of fascinating and provocative results have been developed that lead our perspective understanding of quantum tunneling, quantum phase transition, surface effect, quantum size-effect confinement and nonlinear susceptibility enhancements. Quantum mechanical effects are very important at this scale, which is in the quantum realm. Nanotechnology is very miscellaneous, ranging from additions of conventional device physics to completely new approaches based upon molecular self-assembly, from developing new materials with dimensions on the nanoscale to investigating whether we can directly control matter on the atomic scale. Organic materials exhibit fascinating optical and electronic properties which influence their hybridization with traditional silicon-based electronics in order to achieve novel functionalities and address scaling challenges of these devices [1-4]. The preparation and characterizations of organic materials and nano-particle composites is studied in this proposed synopsis. In this proposed work we have been studied the effect of magnetic and electric field behaviour of composites system and their applications. The design, fabrication, testing and evaluation of some switch a device that employs viscoelastic organic polymers doped with nano-particles as the active material is presented in this dissertation. The conductivity of the nano-composite and pure materials have been determine [5-7].