**Abstract**

A wide range of investigations have been focused on transition metals doped II-VI compound semiconductor ZnO, because of its direct band gap of 3.37 eV at room temperature. It has attracted intensive research effort for its unique properties and versatile applications in transparent electronics, ultraviolet (UV) light emitters, piezoelectric devices, chemical sensors and spintronics. Nano zinc oxide is non-toxic and has also been identified as a promising semiconductor material for exhibiting ferromagnetism at room temperature when doped with the transition metal elements. Transition metal doped nanostructure is an effective method to adjust the energy level surface states of ZnO. This can further be improved by varying the doping concentrations of doped materials and thereby changing its physical, especially optical properties. An attempt is made to synthesize Ag doped Zinc oxide nanoparticles by chemical precipitate method. The synthesized nanoparticles are analyzed using FT-IR, UV, XRD and SEM. These nanoparticles may be used in various optoelectronic device applications like solar cells and sensors.