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Memristive behavior of undoped and doped PVA/CdS nanocomposites

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Cadmium Sulphide (CdS) is one of the most popular semiconductors of II-VI group for electronics and optoelectronic applications. Doping of cadmium sulfide has attracted a lot of attention as it is a convenient way to tailor its physical properties and optical properties by introduction of trap states. Currently studies, on 'memristor' for application as memory device is into focus. It has also been proposed, that in nanoscale systems with coupled ionic and electronic transports 'memristor' can be realized and for application as memory device presence of traps can effects the retention time of memory device. This paper reports synthesis of PVA/CdS and PVA/CdS: Cu nanocomposites by adopting chemical route. The structure and morphology of the fabricated samples were investigated by X-ray diffraction (XRD), scanning electron microscopy (SEM), atomic force microscopy (AFM) and transmission electron microscopy (TEM). The optical characterization of samples was carried out by UV-visible (UV-vis) and photoluminescence (PL) spectroscopy. The observed characteristics confirm nano formation. I-V characteristics of the samples are studied for investigating the hysteresis characteristics of the samples for possible application as 'memristor'.

Biography

Sweety Sarma has completed her PhD from Gauhati University, India. She is a Postdoctoral fellow in the Department of Physics, College of Science and Engineering Technology, University of South Africa.

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