

## Effect of ZnO nanoparticles on the thermally stimulated depolarization current behavior of Polystyrene Polymer

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Polymers are extensively used materials by changing their various properties from past few decades. From a variety of polymers, we were interested towards Polystyrene (PS) because of its excellent properties. PS is low cost, light weight, easily processible, transparent, chemically, thermally and heat resistant material. Nowadays, polymer nanocomposites are an emerging field due to their innovative applications in diverse areas. ZnO nanoparticles have their own importance due to properties like wide band gap ( $=3.37\text{eV}$ ), large exciton energy ( $=60\text{MeV}$ ) and applications like biosensors, gas sensors, optical devices and solar cells. PS/ZnO nanocomposite films were synthesized by sonication and sol-gel technique, followed by film casting with different wt% of ZnO nanoparticles. PS/ZnO nanocomposite thin films were characterized using SEM and digital microscope for observing homogeneous dispersion of ZnO nanoparticles into PS matrix. We also determined the thickness of prepared thin nanocomposite films using digital microscope in 30-60  $\mu\text{m}$  ranges. Thermally stimulated depolarization current (TSDC) is one of the less explored scientific tool for investigating the dielectric properties of the polymers. Using this technique, we investigated the effect of ZnO nanoparticles in different ratios (1%, 5%, 10%, 15%) on thermally stimulated properties of PS.

### Biography

She is affiliated from JC Bose University of Science and Technology, India. She is a recipient of many awards and grants for her valuable contributions and discoveries in major area of subject research. Her international experience includes various programs, contributions and participation in different countries for diverse fields of study.