

Structural and Electrical Characterization of Polypyrrole and Cobalt Aluminum Oxide Nanocomposites

Authors : Sutar Rani Ananda, M. V. Murugendrappa

Abstract : To investigate electrical properties of conducting polypyrrole (PPy) and cobalt aluminum oxide (CAO) nanocomposites, impedance analyzer in frequency range of 100 Hz to 5 MHz is used. In this work, PPy/CAO nanocomposites were synthesized by chemical oxidation polymerization method in different weight percent of CAO in PPy. The dielectric properties and AC conductivity studies were carried out for different nanocomposites in temperature range of room temperature to 180 °C. With the increase in frequency, the dielectric constant for all the nanocomposites was observed to decrease. AC conductivity of PPy was improved by addition of CAO nanopowder.

Keywords : polypyrrole, dielectric constant, dielectric loss, AC conductivity

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