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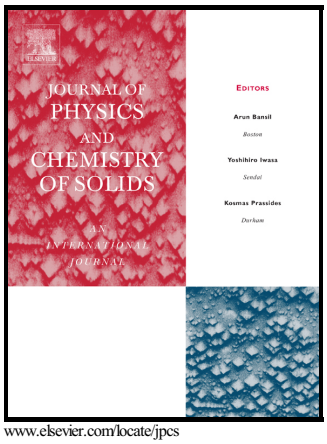

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Abstract

The X-ray powder analysis, thermogravimetric analysis, differential scanning calorimetry analysis and complex impedance spectroscopic data have been carried out on $(C_8H_{12}N)_3SnBr_6.Br$ compound. The results show that this compound exhibits a phase transition at (T= 365±2 K) which has been characterized by differential scanning calorimetry (DSC), AC conductivity and dielectric measurements. The AC conductivity, the modulus analysis, the dielectric constants and the polarizability have been studied using impedance in the temperature range from 334 K to 383 K and in the frequency range between 20 Hz and 2 MHz. The temperature dependence of DC conductivity follows the Arrhenius law. Moreover, the frequency dependence of conductivity follows Jonscher's dynamical law with the relation: $\sigma(\omega,T) = \sigma_{DC} + B(T)\omega^{s(T)}$. Relaxation peaks can be observed in the complex modulus analysis and after a transformation of the complex permittivity ε^* to the complex polarisability α^*.

Keywords

C. Differential scanning calorimetry (DSC); C. Thermogravimetric analysis (TGA); D. Dielectric properties; D. Electrical conductivity

Introduction

Over the past years, much attention has been focused on organic-inorganic hybrid compounds. These compounds attract significant attention for their architectures and topologies [1] and represent an advanced field in material science [2-6]. In this vein,