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Dielectric Relaxation of Double Perovskite Ba_2LaSbO_6

Abstract : The Ba_2LaSbO_6 (BLS) ceramic is synthesized by the solid-state reaction technique. The Raman spectrum at room temperature suggests the rhombohedral $R\bar{3}$ space group of the material. The frequency-dependent dielectric properties of the sample are investigated in the temperature range from 30 ºC to 300 ºC. The Cole–Cole model is used to study the dielectric relaxation of the sample. The dielectric relaxation frequencies at different temperatures are found to obey the Arrhenius law with activation energy of 0.48 eV. Impedance formalism is used to study the relaxation mechanism in BLS. The frequency dependent conductivity spectra follow the power law.

Keywords : Raman spectroscopy, Dielectric properties, Cole–Cole model, ac-conductivity, impedance formalism.