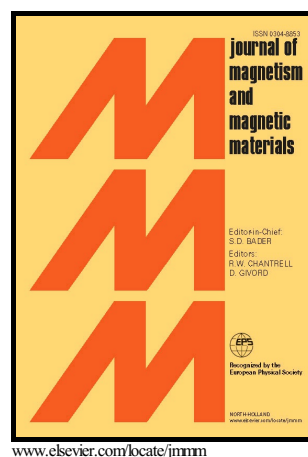


STRUCTURAL AND IMPEDANCE
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 $\text{La}_{0.8}\text{Ba}_{0.1}\text{Ca}_{0.1}\text{Mn}_{1-x}\text{Ru}_x\text{O}_3$ PEROVSKITES

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**STRUCTURAL AND IMPEDANCE SPECTROSCOPY PROPERTIES OF
La_{0.8}Ba_{0.1}Ca_{0.1}Mn_{1-x}Ru_xO₃ PEROVSKITES**

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Abstract

Polycrystalline samples La_{0.8}Ba_{0.1}Ca_{0.1}Mn_{1-x}Ru_xO₃ (x= 0 and 0.075) were prepared by sol-gel-based Pechini method. The X ray diffraction study has shown that all the samples exhibit a single phase with rhombohedral structure (space group $R\bar{3}c$, n°. 167). The complex impedance has been investigated in the temperature range 160–320 K and in the frequency range 40 Hz–1 MHz. The imaginary part of the complex impedance (Z'') frequency dependence revealed one relaxation peak. The Cole-Cole plots of the impedance values exhibited a semi –circular arc that can be described by an R₁+ (R₂//Z_{CPE}) electrical equivalent circuit. The conductance spectra have been investigated by the Jonscher universal power law: $G(\omega) = G_{DC} + A\omega^n$, where ω is the frequency of the ac field, and n is the exponent. The activation energy obtained both from the conductance and from time relaxation analyses are

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