



Sol gel synthesis of perovskite calcium manganese oxide nanopowder

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Abstract: In this paper calcium manganese oxide ($\text{Ca}_{0.74}\text{Mn}_{0.253}\text{O}_1$) nanopowder was synthesized via a sol gel method. The synthesized oxide was characterized by x-ray diffraction (XRD), transmission electron microscopy (TEM), Fourier transform infrared spectroscopy (FT-IR), thermal gravimetric analysis (TGA) and differential scanning calorimetry (DSC). The magnetic and electrical properties of the synthesized nanopowder were demonstrated. XRD and IR results revealed the formation of $\text{Ca}_{0.74}\text{Mn}_{0.253}\text{O}_1$ and the TEM investigation showed the formation of heterogeneous particles with sizes range from 30 to 100 nm. Investigation of the magnetization as a function of magnetic field indicated the paramagnetic behaviour of the synthesized material. The electrical conductivity was found to increase with the increase in temperature.

Keywords : Calcium manganese oxide, Nanoparticles, Sol-gel, Perovskite, thermoelectric materials.

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