

Preparation of colossal magnetoresistance polycrystalline via sol-gel technique: a short review

Abstract

This paper presents a short review of research work on the development of synthesizing the colossal magnetoresistance materials through sol-gel method. Although there are a lot number of methods available, sol-gel method has been widely used and some excellent work has been reported. Two different manganite systems, which are LSMO and PSMO, that have been prepared through sol-gel method was choose for the discussion purpose. It was found that both systems were successfully prepared via the sol-gel method. Both systems showing better magnetoresistance properties compare to sample prepared through solid state reaction. X-ray diffraction technique was used to study the structural characteristic. Atomic force microscope and field emission scanning electron microscope were used in order to investigate surface morphology. Resistivity as a function of temperature was measured by a standard four-probe method.

Keywords — Magnetic, magnetoresistance, manganite, precursor, resistivity, sol-gel