

**A COMPARATIVE STUDY ON THE STRUCTURAL, MAGNETIC AND ELECTRICAL PROPERTIES OF THE  $\text{La}_{0.67}\text{Ca}_{0.33}\text{MnO}_3$  SYNTHESIZED VIA CO-PRECIPIATION METHOD AND SOLID-STATE REACTION**

Hazar A.Salama, S. A. Halim, W.M.D.W. Yusof, Imad Hamadneh, Noorhana Yahya, Zaidan Abdul Wahab, E. B. Saion and Z. Gebrel

*Faculty of Science and Environmental Studies, Universiti Putra Malaysia  
43400 Serdang, Selangor.*

**ABSTRACT**

The structural, magnetic and electrical properties of lanthanum manganites have been reported.  $\text{La}_{0.67}\text{Ca}_{0.33}\text{MnO}_3$  sample synthesized via co-precipitation (COP) method with starting materials derived from metal acetates were compared to the specimens prepared by solid state route (SSR). The Curie temperature,  $T_C$  and the metal-insulator transition temperature,  $T_P$  were obtained by ac susceptibility and four-point probe techniques. The results showed that  $T_C$  and  $T_P$  were 260 K and 276 K respectively for the COP specimen, which is higher than the results obtained for specimen prepared by SSR with  $T_C$  and  $T_P$  were 245 K and 246 K respectively. These results are due to the high chemical homogeneity and high density for the COP specimen as compared to the SSR specimen. The CMR for the COP specimen is observed near the insulator-metal transition with the maximum value of ( $\sim -56\%$ ) at 260 K for  $H = 1.06$  T.

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