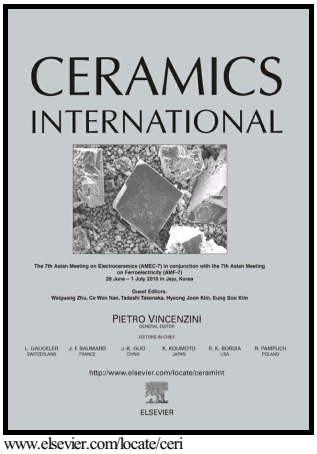

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Abstract

Annealing parameter and thickness are two significant factors affecting microstructure and electrical performance of sol-gel derived $0.65Pb(Mg_{1/3}Nb_{2/3})O_3$-$0.35PbTiO_3$ (0.65PMN-0.35PT) thin film. In this paper, various durations are firstly selected for the investigations on annealing parameter of 0.65PMN-0.35PT thin film. Enhanced insulating and ferroelectric properties can be obtained for the film annealed for 1 min due to its phase-pure and homogeneous perovskite structure. Based on this, a series of 0.65PMN-0.35PT thin films with various thicknesses by modifying deposition layers are synthesized annealed for 1 min and the effects of thickness on crystalline, insulating, ferroelectric and dielectric properties are characterized. It reveals that thickness-dependent behavior can be noticed for 0.65PMN-0.35PT thin film with the results that the 8-layered film possesses a relative large remanent polarization (P_r) of 23.34 $\mu C/cm^2$, and reduced leakage current density of 10^{-9} A/cm^2 with low dissipation factor ($\tan\delta$) of 0.03 can be achieved for the 14-layered film.

Keywords: A. Thin films; B. Sol-gel processes; C. Electronic properties

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