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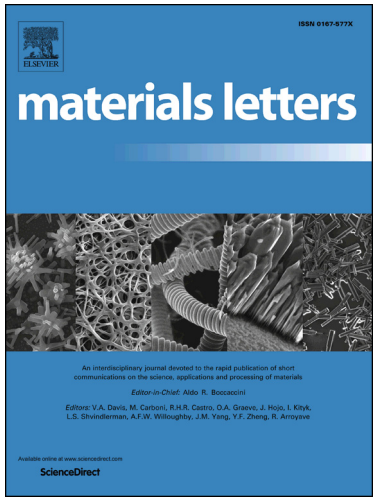

Enhancement of piezoelectric properties of $Pb(Mg_{1/3}Nb_{2/3})_{0.65}Ti_{0.35}O_3$ ceramics by ZnO modification

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Enhancement of piezoelectric properties of $Pb(Mg_{1/3}Nb_{2/3})_{0.65}Ti_{0.35}O_3$ ceramics by ZnO modification

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Abstract

The effects of ZnO modification on the microstructure and piezoelectric properties of $Pb(Mg_{1/3}Nb_{2/3})_{0.65}Ti_{0.35}O_3$ (PMNT) ceramics were investigated. The grain size tended to increase with increasing ZnO content. Secondary phases were observed in the ceramics with 4.0 and 11.0 mol%ZnO. The piezoelectric properties of the PMNT ceramics were enhanced by introduction of 0.4-4.0 mol%ZnO. The piezoelectric properties deteriorated when higher ZnO contents were used. Among all the investigated compositions, the highest piezoelectric performance was observed for the PMNT/0.4mol%ZnO ceramic. This makes the PMNT/0.4mol%ZnO ceramic promising for piezoelectric applications.

Keywords: Ferroelectrics; Piezoelectric materials; PMNT; Electrical induced-strain; Energy harvester