Orissa Journal of Physics
ISSN 0974-8202

Vol. 29, No.2
August 2022
pp. 9-13

High performance Mn doping in BCZT ceramic material for piezoelectric Generator

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Received 1.6.22, Accepted 30.6.22

Abstract : In this article, we report the synthesis and characterization of material used for self-poled and flexible piezoelectric generator using lead free ceramics BCZT and BCZT-Mn3% nanoparticles embedded in PVDF polymer matrix. The result presented in this article shows that the piezoelectric generator containing BCZT doped with 3% Mn shows excellent electrical and piezoelectric performance on comparing with pure PVDF and BCZT-PVDF. It can generate 4.5V under gentle finger tapping. With the integration of Mn in BCZT nanoparticles incorporated with PVDF it enhances the electrical and mechanical properties, leading its enhanced piezoelectric performance.

Keywords- *Polyvinylidene fluoride (PVDF), BCZT_PVDF, BCZT-Mn3%_PVDF, solution casting, Dielectric, Flexible device, Piezoelectric energy generator (PEG).*