A FEM Study of Displacement Sensor Based on Magnetostrictive/Piezoelectric Composite Material

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Abstract

This paper studies the application of laminate magnetoelectric (ME) material in displacement sensor. We studied the L-L block composite thanks to designed structure by coupling displacement signal with the displacement potential of ME composite. A nonlinear approximation is adapted to modeling magnetostrictive phase and implemented in COMSOL Multiphysics® software. The simulation results coincide with prediction and prior experimental study. In addition, we study the influence of the pre-stress on the characteristics of the L-L block ME composite material. Upon prior research we have done on MEM displacement sensor, this study will help to push the application of ME material further.

Reference

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