
# Theoretical and Experimental analysis of temperature dependent nonlinear behaviour of tri-layered magnetoelectric composites

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**Highlights**

- A thermodynamically consistent three-dimensional non-iterative constitutive model is built to predict the nonlinear magnetostrictive behaviour under various operating temperatures.
- Experimental setup is developed to measure magnetoelectric voltage coefficient as a function of volume fraction of constituents and the operating temperature.
- Homogenized magnetoelectric response of the composites is validated with experimental measurements.
- It is observed that the coupling response of composite is strongly influenced by configuration of the composites, volume fraction of materials and the operating temperature.