عنوان مقاله:

Closed Form Solution for Electro-Magneto-Thermo-Elastic Behaviour of Double-Layered Composite Cylinder

محل انتشار:

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خلاصه مقاله:

Electro-magneto-thermo-elastic response of a thick double-layered cylinder made from a homogeneous interlayer and a functionally graded piezoelectric material (FGPM) outer layer is investigated. Material properties of the FGPM layer vary along radius based on the power law distribution. The vessel is subjected to an internal pressure, an induced electric potential, a uniform magnetic field and a temperature gradient. Stresses and radial displacement are studied for different material in-homogeneity parameters in the FGPM layer. It has been shown that the material in-homogeneity parameters significantly affect the stress distribution in both layers. Therefore by selecting a suitable material parameter one can control stress distribution in both homogeneous and FGPM layers. It has been found that under electro-magneto-thermo-mechanical loading minimum effective stress can be achieved by selecting in the .FGPM layer

کلمات کلیدی:

Closed form solution, Electromagnetothermoelastic, Double-walled cylinder, Homogeneous interlayer, FGPM outer layer