

عنوان مقاله:

Large deformation induced bending of a thermally activated hydrogel layered beam: a finite element analysis

محل انتشار:

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خلاصه مقاله:

In recent years, layered of smart hydrogel beams have been utilized to design sensors and actuators for various applications. In this work, we introduce a three layers beam which is capable of bending bi directionally. This structure is composed of a combination of positive and negative temperature responsive hydrogels and an elastomeric layer. A Finite Element Method (FEM) is developed to solve the finite bending of the layered beam deformation. This layered beam is triggered only by temperature variation under plane strain condition. Several parametric studies have been conducted to investigate effects of various materials and temperatures on the deformation and the stress field

کلمات کلیدی:

Layered beam, Temperature sensitive hydrogels, Finite bending, Finite element method

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