عنوان مقاله:

Vibration Analysis of a Magneto Thermo Electrical Nano Fiber Reinforced with Graphene Oxide Powder Under Refined Beam Model

محل انتشار:

تعداد صفحات اصل مقاله: 15

نویسندگان:

R Selvamani - *Department of Mathematics, Karunya Institute of Technology and Sciences, Coimbatore-۶۴۱۱۱۴, Tamilnadu, India*

J Rexy - *Department of Mathematics, Karunya Institute of Technology and Sciences, Coimbatore-۶۴۱۱۱۴, Tamilnadu, India*

F Ebrahimi - *Department of Mechanical Engineering, Imam Khomieni International University, Qazvin, Iran*

خلاصه مقاله:

The present article express the magneto thermo electric deformation of composite nano fiber reinforced by graphene oxide powder (GOP). To reach the governing equation of the problem a higher-order trigonometric refined beam model is utilized according to Hamilton's principle. The effect of a nonuniform magnetic and thermo piezo electric field is applied to the governing equations by combining the field relations with the displacement field equations. Then, obtained equations are solved by using Galerkin's method to consider the influence of different boundary conditions on the vibrational responses of the fiber. The accuracy and efficiency of the presented model is verified by comparing the results with that of published researches. Further, the effects of different variant on the dimensionless frequency of GOP reinforced magneto piezo thermo elastic composite fibers are highlighted through tables and dispersion curves. The weight fraction of GOP and the magneto thermo electro effects have significant influence in the stiffness of the nano composites.

کلمات کلیدی:

Static Stability, Piezo electric fibers, Magneto thermo elastic beam, Graphene oxide powder, Refined trignometric beam theory, NEMS

لینک ثابت مقاله در پایگاه سیویلیکا:

https://civilica.com/doc/1254675