

عنوان مقاله:

Improved High-Order Free Vibration Analysis Of Thick Sandwich Panel Containing Magneto-rheological Core Using Exponential And Third Order Shear Deformation Theory

محل انتشار:

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نویسندگان:

Mehdi Keshavarzian - Department of Mechanical Engineering, Technical and Vocational University (TVU), Hamedan, Iran

Reza Mohammadi - Department of Mechanical Engineering, School of Engineering, Islamic Azad University. malayer, Iran

Farid ahmadian - Department of Mechanical Engineering, Technical and Vocational University (TVU), Hamedan, Iran

Mahnaz zohrevand - Technical and Vocational University (TVU), Hamedan, Iran

خلاصه مقاله:

This study deals with free vibration analysis of composite sandwich panel via multi-layer face sheets with magneto-rheological (MR) fluid core based on higher-order sandwich panel theory. For the first time, the effects of magnetic smart oils on the natural frequencies of a rectangular plate with the composite layers have been compared. The formulation used the third-order shear deformation theory for composite face sheets and polynomial description for the displacement field in the core layer which was based on the displacement field of Frostig's second model. The governing equations and the boundary conditions are derived by Hamilton's principle. Transverse shear and rotary inertia effects of face sheets are also taken into consideration. Numerical results are presented and compared with the experimental and theoretical results found in the literature. The damping effects of the sandwich plate system can be controlled and changed when different magnetic field strengths are applied.

کلمات کلیدی:

mszohrevand@gmail.com

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