عنوان مقاله:

Finite Element Modeling of Thin Composite Plate with EmbeddedPiezoelectric Active Elements

محل انتشار:

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خلاصه مقاله:

The paper presents an approach to effective modeling of active multilayer thin composite plate in finiteelement method (FEM) based software. In the research performed analysis glass-epoxy laminates with integrated piezoelectric actuators are used. Next, Model of an active element made of macro fiber composite (MFC) typeexhibiting d33 effect. The FEM model and further calculations is developed in ABAQUS/ Standard FEM software. For piezoelectric, M-8503-P1 element made by Smart Material Corp, USA is used. Verification of the piezoelectric elementmodel is done by means of two numerical tests given in manufacturer's documentation. In performed tests nonlinear geometric effects corresponding to large structural deflections are taken into account. Finally, the best position ofpiezoelectric places to achieve maximum deflection is found by finite element analysis (FEA). In addition, effective number of .piezoelectric is analyzed numerically

کلمات کلیدی:

Smart structure, smart composite, finite element simulation, piezoelectricity