

عنوان مقاله:

Buckling Analysis of Fiber Metal Laminated Circular Cylindrical Shells Reinforced by CNTs

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نویسندگان:

Ahmad Reza Ghasemi - Associate Professor, University of kashan

Mahdi Soleymani - Ph.D. Student, University of kashan

خلاصه مقاله:

In this paper, the buckling of fiber metal laminate (FML) thin walled cylindrical shell reinforced by carbon nanotubes (CNTs) has been investigated. The cylinder is under the hydrostatic pressure and its ends are closed by rigid disks, so the ends of the cylinder can only move along the axial direction. The structure of cylinder is such that isotropic matrix initially is reinforced with CNTs and then used in the production of laminated composite. The novelty of this study is investigating the influence of CNT's distribution type and volume fraction on buckling resistance of CNTs reinforced circular cylindrical composite shell. The effect of the thickness of the aluminum layer used as the reinforcement layer for the composite shell has been investigated as well. Since in this study the critical buckling load of cylinders with different layout of layers and different geometric ratios calculated and compared with each other, the results obtained can be used in the optimal design of pipelines for transferring of fluids under water. In order to ensure the accuracy of the method used in this study, the results of this method are compared with the finite element solving results presented by other researchers.

کلمات کلیدی:

Buckling, FMLs, Carbon Nanotubes, Cylinder

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