**Experimental Stress Analysis for Woven Carbon, Glass, and Kevlar Laminate Shells**

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**Abstract**

Composite shell structures have many applications in aerospace industry in which deal with various loading abundantly. In present paper Strain gauge instrument with rectangular rosette strain gauges were used to detect the maximum stress and strain distributions along the shell composite structure. Also a finite element analysis was done for validation of experimental results. The FEM software used was ANSYS14. Impact test, density measurement, and bending test were performed in order to detect physical and mechanical properties such as toughness, principal stresses, and density, of the three laminated composite shells. In addition, the results between experimental and ANSYS were compared. It was observed that an important discrepancy is found between theoretical and experimental results. It was also found a large difference in modulus of elasticity, toughness, and tensile strength for each composite material. These differences are tabulated in many tables in the last paper.

**Keywords:** Composite, Shell, Carbon fiber, Kevlar fiber, Glass fiber, ANSYS