Analysis of Fiber Orientation Influence to Dynamic Properties of Composite Structures

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In modern analysis of structures it is not only important to study structures subjected to static loading but also to study the effects of dynamic loading. One of the results of impact loading is the dynamic response of structures. This can cause far more damage than the effects of static loading. Composite materials are more and more used in engineering praxis. This allows the creation materials of high strength at low weight which are more durable then the same construction made of homogenous materials. This paper presents a study of dynamic response of carbon fiber reinforced polymer composite plates in the form of modal analysis and transient response (subjected to unit pulse point load in the center of the plate). The plate consists of layered uniaxial carbon fiber fabric and the layers are layered symmetrically at different angles for various variants. The response in the form of displacement magnitude is measured. At the end a comparison study is presented for each analysis.

Keywords: Finite element method, Composite Materials, Carbon Fiber Reinforced Materials, Response of Structures

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