## Simulation of Non-Crimp 3D Orthogonal Carbon Fabric Composite for Aerospace Applications Using Finite Element Method

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**Abstract :** Non-crimp 3D orthogonal fabric composite is one of the textile-based composite materials that are rapidly developing light-weight engineering materials. The present paper focuses on geometric and micro mechanical modeling of noncrimp 3D orthogonal carbon fabric and composites reinforced with it for aerospace applications. In this research meso-finite element (FE) modeling employs for stress analysis in different load conditions. Since mechanical testing of expensive textile carbon composites with specific application isn't affordable, simulation composite in a virtual environment is a helpful way to investigate its mechanical properties in different conditions.

Keywords : woven composite, aerospace applications, finite element method, mechanical properties

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