

MATERIALS AND STRUCTURES SYMPOSIUM (C2)
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ChinaRESEARCH ON INFLUENCE OF PREFORM PARAMETERS ON PROPERTIES OF
CARBON/CARBON COMPOSITES**Abstract**

Needle-punched carbon fiber preforms possessing high designable characteristic, good global property and anti-shear strength have been applied in reinforcing framework of high temperature composites for aerospace. The influences of needle-punched density, needle-punched depth and the plane density of fiber felt on the preform density and the properties of carbon/carbon composites are investigated. Forecasting the mechanical properties of carbon/carbon composites by the density of preforms is analyzed. With the increasing of the needle-punched density, the tensile strength increases first and then decreases, while the interlaminar shear strength increases; the tensile strength and the interlaminar shear strength all increase with the increasing of needle-punched depth, while decrease with the increasing of plane density of fiber felt. Simulating by origin software when only one of the needle-punched density, needle-punched depth and plane density of fiber felt changes, the preform density influences the tensile strength and interlaminar shear strength remarkably, which shows that preform density can forecast the properties of carbon/carbon composites as macro-parameter.