

## MATERIALS AND STRUCTURES SYMPOSIUM (C2)

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A NEW CONCEPT OF THREE-DIMENSIONAL FULL FIVE-DIRECTIONAL BRAIDED  
COMPOSITES**Abstract**

Three-dimensional braided composites which have superior properties as a new type of advanced composite materials are rapidly developed at home and abroad and have been widely applied in all kinds of hi-tech fields, such as aerospace, aviation, automotive, medical and health, sports and other fields. So, much more attention on industrial and academic fields has been attracted. Now the study of three-dimensional braided composites has become a popular direction in the fields of composites study. In this paper, the advantages and the disadvantages of the existing three-dimensional braided composites were analyzed; and the major factors which affect the application and the development of the composites were put forward. Especially, the deficiencies of mechanical properties for existing three-dimensional five directional composites are studied, and a new concept of three-dimensional full five-directional braided composites was put forward from the aspect of material micro-structure. Finally, the superiorities of the new composites and the possibility of the improvements on the structure properties were discussed and the applications of the new composites were predicted in the future.