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## A FINITE FRACTURE MODEL FOR THE ANALYSIS OF MULTI-CRACKING IN WOVEN CERAMIC MATRIX COMPOSITES

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### Abstract :

A finite fracture approach based on the Coupled Criterion is used to analyze multi-cracking in a woven ceramic matrix composite. In-situ micrographic observations obtained during tensile and bending tests performed on chemical vapor infiltrated SiC/SiC samples are utilized to identify cracking mechanisms. A two dimensional finite element model is generated to approximate the actual specimen section geometry including matrix, fiber tows and porosity. Numerical simulations are carried out with a dedicated algorithm to simulate nucleation and propagation of cracks. Comparing the simulation results with experimental ones shows that the model captures the main cracking features.

**Keywords :** A. Coupled criterion, B. Finite element analysis, C. Ceramic matrix composites

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