

Effect of uniform distributions of bonded and debonded
fibers on the growth of the fiber/matrix interface crack
in cross-ply $[0_n^\circ, 90^\circ]_S$ laminates with different fiber
contents under transverse loading

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Abstract

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Target journal(s): Composites Part B: Engineering, Composites Part A: Applied Science and Manufacturing, Composite Science and Technology, Composite Structures, Journal of Composite Materials, Composite Communications

1. Introduction

2. RVE models & FE discretization

2.1. Models of Representative Volume Element(RVE)

2.2. Finite Element (FE) discretization

5 3. Results & Discussion

3.1. Effect of 0° ply thickness on the interaction between debonds in a 90° ply with a single layer of fibers

3.2. Effect of 0° ply thickness on the interaction between layers of fully bonded fibers and a centrally located line of debonded fibers in a 90° ply

10 *3.3. Effect of 0° ply thickness on the interaction of debonds in a 90° ply with multiple layers of fibers*

subsectionComparison with the single fiber model with equivalent boundary conditions

4. Conclusions & Outlook