

# Convergence issues of the FEM solution to the fiber/matrix interface crack problem

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## Abstract

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## 1. Introduction

## 2. The fiber/matrix interface crack problem

## 3. Finite Element Discretization

Comparison of different formulations in a bottom-up approach to FEM modeling:

1. applied displacement vs applied stress
2. small displacement vs finite displacement formulation
3. surface-to-surface vs node-to-surface formulation
4. small sliding vs finite sliding
5. Abaqus built-in vs in-house VCCT

4. Convergence of the VCCT solution
5. Path independence of the J-integral
6. Accuracy of contact zone estimation
7. Conclusions & Outlook