

# Modélisation numérique de la transition endommagement-fissuration des matériaux fragiles et quasi-fragiles en utilisant le critère couplé

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## **Abstract**

In this work, we present a numerical model to deal with the fracture of damaged materials within the framework of the finite fracture mechanics (FFM). Continuum damage mechanics combined with the regularization techniques is first applied to determine the damage field. The transition from continuous damage field to discontinuous crack occurs when the coupled criterion (CC) is fulfilled. Special numerical algorithms were developed in crack path tracking and crack creation for the analysis of the entire failure process from damage development to crack creation. Both initiation and growth of one or multiple cracks can reasonably be simulated. Efficiency and accuracy of the approach are illustrated through several numerical examples and engineering applications.