



Numerical Fracture Analysis Under Temperature Variation by Energetic Method

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Mots-clés	finite element method [9], mixed mode crack growth [10], path independent integral [11], Thermal fields [12], time-dependent material [13], wood material [14]
Résumé en anglais	<p>It is known that temperature change can induce sudden crack propagation especially when the material is composed of fibers. In this fact, the crack growth process under mixed-mode coupling mechanical and thermal loads in orthotropic materials like wood is investigated in this work. The analytical formulation of A integral's combines the real and virtual mechanical and thermal stress/strain fields under transient diet in 2D. The Mixed Mode Crack Growth specimen providing the decrease of energy release rate during crack propagation is considered in order to compute the various mixed mode ratios. By using three specific routines, the analytical formulation is implemented in finite element software Cast3m. The efficiency of the proposed model is justified by showing the evolution of energy release rate and the stress intensity factors versus crack length and versus temperature variation in time dependent material</p>
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