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Simulation of the Carpiuc test with the Thick Level Set model

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Abstract

The Thick Level Set model, introduced in [1, 2], is a non-local damage model embedding fracture mechanics discontinuity. By taking advantage of its damage driven capability this method is well adapted to branching and coalescence situation that appears in the Carpiuc benchmark.

Compare to all previous TLS publication this work adds a new loading control that intermix energy dissipation driven evolution with varying loading state. Many features of the TLS method have been tested with this benchmark and are presented in this work. Among them we can cite searching for initiation, branching, coalescence, tracking and analyzing the crack closure, ...

References

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Keywords: Thick Level Set, TLS, crack coalescence, crack branching, crack initiation, damage mechanics

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