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Prediction of crack paths in a quenched glass plate by using peridynamic theory. (English)

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Summary: The peridynamic theory is employed to predict crack growth patterns in quenched glass plates previously considered for an experimental investigation. The plates containing single and multiple pre-existing initial cracks are simulated to investigate the effects of peridynamic and experimental parameters on the crack paths. The critical stretch value in the peridynamic theory and the gap size between the heat reservoirs are determined to be the most significant parameters. The simulation results are in good agreement with the experimental observations published in the literature.

MSC:

74R10 Brittle fracture

Cited in **23** Documents

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