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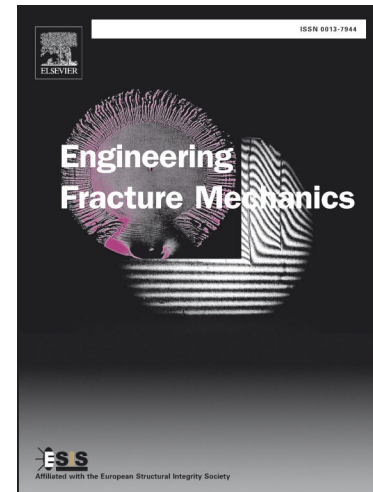
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Tunneling cracks in full scale wind turbine blade joints

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Abstract

A novel approach is presented and used in a generic tunneling crack tool for the prediction of crack growth rates for tunneling cracks propagating across a bond-line in a wind turbine blade under high cyclic loadings.

In order to test and demonstrate the applicability of the tool, model predictions are compared with measured crack growth rates from a full scale blade fatigue test. The crack growth rates, measured for a several metre long section along the blade trailing-edge joint during the fatigue test, are found to be in-between the upper- and lower-bound predictions.

Keywords: Bonded joints, Fatigue crack growth, Residual stresses, Polymer matrix composites, Finite element analysis

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