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# Fracture And Fatigue Crack Growth Analysis and Modeling

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**Abstract :** Fatigue crack growth prediction has become an important topic in both engineering and non-destructive evaluation. Crack propagation is influenced by the mechanical properties of the material and is conveniently modelled by the Paris-Erdogan equation. The critical crack size and the total number of load cycles are calculated. From a Larson-Miller plot the maximum operational temperature can for a given stress level be determined so that failure does not occur within a given time interval t. The study is used to determine a reasonable inspection cycle and thus enhances operational safety and reduces costs.

**Keywords :** fracturemechanics, crack growth prediction, lifetime of a component, structural health monitoring
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