

# MODELING STABLE GROWTH OF FATIGUE CRACKS IN AERO ENGINE TURBINE DISCS UNDER SIMPLE AND COMPLEX LOADING CYCLES

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Techniques for modeling stable fatigue crack growth in highly stressed structural parts under simple and complex loading cycles have been developed which are based on the theory of local high-energy-type fracture mechanism acting at a crack front in the second stage of fatigue crack kinetics. The techniques have been verified with the use of 3D finite element modeling and microfractographic reconstitution of fatigue crack growth in aero engine turbine discs.

*low cycle fatigue (LCF), fatigue crack kinetic, mechanism of periodic splitting-rupture (MPSR), electron microscopy of a fracture surface, fatigue striations, finite element modeling*

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