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Titolo	High cycle fatigue : a mechanics of materials perspective / / Theodore Nicholas
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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Front cover; Title page; Copyright page; Table of contents; Preface; Part One Introduction and Background; 1 Introduction; Historical background; What is High Cycle Fatigue?; HCF design considerations; HCF design requirements; Root causes of HCF; Field failures; Damage tolerance; Application to HCF; Current status; Field experience; 2 Characterizing Fatigue Limits; Constant life diagrams; Gigacycle fatigue; Characterizing fatigue cycles; Fatigue limit stresses; Equations for constant life diagrams; Haigh diagram at elevated temperature; Role of mean stress in constant life diagrams Jasper equationObservations on step tests at negative R; 3 Accelerated Test Techniques; Historical background; Coaxing; Early test methods; Step test procedures; Statistical considerations; Influence of number of steps; Validation of the step-test procedure; Observations from the last loading block; Comments on step testing; Staircase testing; Probability plots; Statistical analysis; Dixon and Mood method; Numerical simulations; Sample size considerations; Construction of an "artificial" staircase; Other methods; Random fatigue limit (RFL) model; Data analysis Summary comments on FLS statisticsConstant stress tests; Run-outs and maximum likelihood (ML) methods; Resonance testing techniques; Frequency effects; Part Two Effects of Damage on HCF Properties; 4

LCF-HCF Interactions; Small cracks and the Kitagawa diagram; Behavior of notched specimens; Effects of LCF loading on HCF limit stress; Studies of naturally initiated LCF cracks; Crack-propagation thresholds; Overloads and load-history effects; An overload model; Analysis using an overload model; Examples of LCF-HCF interactions; Design considerations; LCF-HCF nomenclature
 Example of anomalous behavior
 Another example of anomalous behavior; Combined cycle fatigue case studies; 5 Notch Fatigue; Introduction; Stress concentration factor; What is k_t ?; Fatigue notch factor; k_f versus k_t relations; Equations for k_f ; Fracture mechanics approaches for sharp notches; Cracks versus notches; Mean stress considerations; Plasticity considerations; Negative mean stresses; Fatigue limit strength of notched components; Non-damaging notches; Size effects and stress gradients; Critical distance approaches; Analysis methods; Effects of defects on fatigue strength
 Notch fatigue at elevated temperature
 6 Fretting Fatigue; Introduction; Observations of fretting fatigue; Representing total contact loads, Q and P ; Load and stress distributions; Effects of local and bulk stresses on stress intensity; Mechanisms of fretting fatigue; Mechanics of fretting fatigue; Stress analysis of contact regions; Multiple crack considerations; Analytical solutions; Role of slip amplitude; Stress-at-a-point approaches; Fracture mechanics approaches; A combined stress and K approach; Comparison of fretting-fatigue fixtures; Role of coefficient of friction
 Average versus local coefficient of friction

Sommario/riassunto

Dr Theodore Nicholas ran the High Cycle Fatigue Program for the US Air Force between 1995 and 2003 at Wright-Patterson Air Force Base, and is one of the world's leading authorities on the subject, having authored over 250 papers in leading archival journals and books. Bringing his plethora of expertise to this book, Dr Nicholas discusses the subject of high cycle fatigue (HCF) from an engineering viewpoint in response to a series of HCF failures in the USAF and the concurrent realization that HCF failures in general were taking place universally in both civilian and military engines. T

2. Record Nr.	UNINA9911018910303321
Autore	Stevenson Scott C
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Nota di contenuto	Foundation/Corporate Relations Basics -- Doing Your Homework -- Research -- Create Systems to Prioritize, Manage and Track Prospects -- Follow Guidelines and Application Procedures -- Introducing Yourself to Foundations, Corporations -- Cultivating Foundation and Corporate Relationships -- Drafting the Proposal -- Post-Decision Actions -- Ideas, Strategies Worth Considering.
Sommario/riassunto	Originally published by Stevenson, Inc. , this practical resource offers advice on wining more grants.