1. Record Nr. UNINA990000283250403321

Autore	Baker, Henry Dean
Titolo	Temperature measurement in engineering / By H. Dean Baker, E.A. Ryder, N.H. Baker
Pubbl/distr/stampa	New York : Wiley, 1953
Descrizione fisica	VI,179 p. ; 24 cm
Disciplina	620
Locazione	DINCH
Collocazione	04 045-78
Lingua di pubblicazione	Italiano
Formato	Materiale a stampa
Livello bibliografico	Monografia

2. Record Nr. UNINA9911019509103321

Autore	Adams Doug <1945->
Titolo	Health monitoring of structural materials and components : methods with applications / / Douglas E. Adams
Pubbl/distr/stampa	Chichester, England ; ; Hoboken, N.J., : John Wiley & Sons, c2007
ISBN	9786610900893 9781280900891 128090089X 9780470511589 0470511583 9780470511572 0470511575
Descrizione fisica	1 online resource (478 p.)
Disciplina	624.171
Soggetti	Structural analysis (Engineering) Vibration - Measurement
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia

Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Health Monitoring of Structural Materials and Components; Contents; Preface; Acknowledgments; 1 Introduction; 1.1 Basics of Health Monitoring; 1.2 Commercial Needs for Health Monitoring Technology; 1.3 Defense Needs for Health Monitoring Technology; 1.4 Technical Approach to Health Monitoring; 1.5 Definitions of Common Terminology; 1.6 Comparison of Nondestructive Testing (NDT) and Health Monitoring Techniques; 1.7 Potential Impact of Health Monitoring Technologies; 1.8 Overview of Technical Areas in Health Monitoring; 1.9 Summary; References; Problems; 2 Modeling Components 2.1 Modeling Needs2.2 First-Principle Models; 2.2.1 Component Vibration Models; 2.2.2 Vibration Natural Frequencies and Modal Deflection Shapes; 2.2.3 Free Vibration Response; 2.2.4 Forced Vibration Response (Frequency Response Models); 2.2.5 Impedance and Compliance Models; 2.2.6 Transmissibility Forced Response Models; 2.2.7 Nonlinear Dynamic Models; 2.2.8 Wave Propagation Models (One Dimensional); 2.2.8.1 Analytical Solution for Longitudinal Waves; 2.2.8.2 Longitudinal Wave Propagation Finite Element Model; 2.2.8.3 Analytical Solution for Rod with Transverse Waves 2.2.8.4 Transverse Wave Propagation Finite Element Model2.2.9 Wave Propagation Models (Two Dimensional); 2.3 Data-Driven Models; 2.3.1 Experimental Time Domain Models; 2.3.1.1 Direct Parameter Models; 2.3.1.2 Restoring Force and Phase-Plane Models; 2.3.1.3 Discrete Time Models; 2.3.2 Experimental Frequency Response Models; 2.3.2.1 Frequency Response Sensitivity Functions; 2.3.2.2 Virtual Force Models; 2.3.3 Experimental Modal Vibration Models; 2.3.4 Other Data-Driven Models; 2.4 Load Models; 2.4.1 External Mechanical Excitations; 2.4.1.1 Impulsive Excitations; 2.4.1.2 Narrowband Excitations 2.4.1.3 Broadband Random Excitations2.4.2 Acoustic Pressure, Temperature and Other Environmental Loads; 2.5 Summary; References; Problems; 3 Modeling Damage; 3.1 Static Damage Models; 3.1.1 Fasteners and Joints; 3.1.2 Cracking; 3.1.3 Plastic Deformation, Penetration and Erosion; 3.1.4 Delamination, Debonding and Separation; 3.1.5 Creep and Buckling; 3.1.6 Corrosion and Oxidation; 3.1.6.1 Fiber Pull Out and Fiber Breakage; 3.1.7 Matrix Cracking; 3.1.8 Microstructural Changes; 3.2 Dynamic Models for Damage; 3.2.1 Phenomenological Models; 3.2.2 Generalized Damage Growth Models 3.3 Failure Models3.4 Performance Models; 3.5 Summary; References; Problems; 4 Measurements; 4.1 Measurement Needs; 4.2 Data Environment; 4.2.1 Amplitude and Frequency Ranges; 4.2.2 Nature of Data; 4.2.3 Environmental Factors; 4.3 Transducer Attachment Methods; 4.3.1 Durability; 4.3.2 Stability; 4.3.3 Directionality; 4.3.4 Frequency Range (Wavelength); 4.4 Transducers; 4.4.1 Overview of Sensors and Actuators; 4.4.2 Passive Sensors; 4.4.2.1 Resistance Strain Gauge Model; 4.4.2.2 Piezoelectric Accelerometer Model; 4.4.2.3 Transmission Models (Cable, Amplifier and Power Supply) 4.4.3 Active Piezoelectric Transducers (Actuators)
Sommario/riassunto	The first complete introduction to health monitoring, encapsulating both technical information and practical case studies spanning the breadth of the subject. Written by a highly-respected figure in structural health monitoring, this book provides readers with the technical skills and practical understanding required to solve new problems encountered in the emerging field of health monitoring. The book presents a suite of methods and applications in loads identification (usage monitoring), in-situ damage identification

(diagnostics), and damage and performance prediction (prognostics)