Record Nr. UNINA9910830419403321 **Titolo** Damage prognosis for aerospace, civil and mechanical systems [[electronic resource] /] / edited by Daniel J. Inman ... [et al.] Pubbl/distr/stampa Chichester, England;; Hoboken, NJ,: Wiley, c2005 **ISBN** 1-280-28789-6 9786610287895 0-470-30056-6 0-470-86909-7 0-470-86908-9 Descrizione fisica 1 online resource (471 p.) Altri autori (Persone) InmanD. J 624.1/71 Disciplina 624.171 Soggetti Structural analysis (Engineering) Materials - Deterioration 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. Damage Prognosis; Contents; List of Contributors; Preface; 1 An Nota di contenuto Introduction to Damage Prognosis: 1.1 Introduction: 1.2 The Damage-Prognosis Solution Process; 1.3 Motivation for Damage-Prognosis Solutions: 1.4 Disciplines Needed to Address Damage Prognosis: 1.5 Summary; References; Part I Damage Models; 2 An Overview of Modeling Damage Evolution in Materials; 2.1 Introduction; 2.2 Overview of General Modeling Issues; 2.3 Characterization of Material Behavior: Damage Initiation and Evolution; 2.4 Material Modeling: General Considerations and Preliminary Concepts 2.5 Classical Damage-Modeling Approaches 2.6 Phenomenological Constitutive Modeling; 2.7 Micromechanical Modeling of Materials; 2.8 Summary; References; 3 In Situ Observation of Damage Evolution and Fracture Toughness Measurement by SEM; 3.1 Overview of Fracture Mechanics Related to Damage Prognosis; 3.2 In Situ Observation of Damage Evolution and Fracture Toughness Measurement; 3.3 Concluding remarks; Acknowledgements; References; 4 Predictive

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Sommario/riassunto

Damage prognosis is a natural extension of damage detection and structural health monitoring and is forming a growing part of many businesses. This comprehensive volume presents a series of fundamental topics that define the new area of damage prognosis. Bringing together essential information in each of the basic technologies necessary to perform damage prognosis, it also reflects the highly interdisciplinary nature of the industry through the extensive referencing of each of the component disciplines. Taken from lectures given at the Pan American Advanced Studies Institute in Damage Pro