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Autore	Bright, Donald E. JR.
Titolo	Biology and taxonomy of Bark Beetle species in the genus Pseudohylesinus Swaine (Coleoptera : Scolytidae) / Donald E.Bright jr.
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Nota di contenuto	Front Cover; Structural Dynamics and Probabilistic Analyses for Engineers; Copyright Page; Acknowledgments; Table of Contents; List of Figures; List of Tables; Foreword; Preface; Chapter 1. Some Basics of the Theory of Vibrations; 1.1 A Single Degree of Freedom System; 1.2 Response of a SDOF to (any) Transient Load; 1.3 Multiple-Degrees-of-Freedom (MDOF) System; 1.4 Infinite-Degrees-of-Freedom (Continuous) System; 1.5 Mounted Mass; Chapter 2. Dynamic Response of Beams and Other Structures to Deterministic Excitation; 2.1 A Generic Example of a Cantilever Beam 2.2 Some Basics of the Slender Beam Theory2.3 Modal Analysis of a Slender Cantilever Beam; 2.4 Stress Modes of a Slender Cantilever Beam; 2.5 Response of a Slender Beam to Harmonic Excitation; 2.5.1 Response of Beams to Base Excitation; 2.5.2 Response of a Cantilever Beam Toharmonic Tip Force; 2.5.3 Response of a Cantilever Beam to Harmonic Base Excitation; 2.5.4 Two External Forces; 2.6 Response of a Structure with Mounted Mass to Harmonic Excitation; 2.7 Symmetric and Anti-Symmetric Modes and Loads; 2.8 Response of a Simply Supported Plate to Harmonic Excitation; 2.9 Vibrations of Shells Chapter 3. Dynamic Response of a Structure to Random Excitation3.1 Random Excitation and Response; 3.2 Response of an Elastic Structure to Random Excitation; 3.2.1 Closed Form Solution; 3.3 Response of a Cantilever Beam to Clamp Displacement Excitation; 3.4 Response of a Cantilever Beam to Tip Displacement Excitation; 3.5 Simulation of an Important Structural Parameter in a Vibration Test; 3.5.1 Two Examples; 3.6 Response of a Structure to Acoustic Excitation; 3.7 An Example of a Frame Structure; 3.8 Response of a Structure with Mounted Mass to Random Excitation 3.9 Response of a Simply Supported Plate to Random ExcitationChapter 4. Contacts in Structural Systems; 4.1 Static Contact; 4.1.1 An Example of a Static Contact Problem; 4.2 Analytical Solution for a Dynamic Contact Problem; 4.3 The Two Dof Contact Problem; 4.4 Numerical Solution of a Dynamic Contact Problem-Force Excitation; 4.5 Numerical Solution of a Dynamic Contact Problem-Base Excitation; Chapter 5. Nondeterministic Behavior of Structures; 5.1 Probabilistic Analysis of Structures; 5.1.1 The Basic Stress-Strength Case; 5.2 Solutions for the Probability of Failure 5.2.1 Analytical Solution-The Lagrange Multiplier Method5.2.2 The Monte Carlo Simulation; 5.2.3 Solution with a Probabilistic Analysis Program; 5.2.4 Solutions for Cases Where no Closed-Form Expressions Exist; 5.3 Solution with a Commercial Finite Element Program; 5.4 Probability of Failure of Dynamically Excited Structures; 5.5 Structural Systems; 5.6 Model Uncertainties; Chapter 6. Random Crack Propagation; 6.1 Crack Propagation in a Structural Element; 6.2 Effects of a Static Bias on the Dynamic Crack Growth 6.3 Stochastic Crack Growth and the Probability of Failure for Harmonic Excitation
Sommario/riassunto	Probabilistic structural dynamics offers unparalleled tools for analyzing uncertainties in structural design. Once avoided because it is mathematically rigorous, this technique has recently remerged with the aide of computer software. Written by an author/educator with 40 years of experience in structural design, this user friendly manual integrates theories, formulas and mathematical models to produce a guide that will allow professionals to quickly grasp concepts and start solving problems. In this book, the author uses simple examples that provide templates for creating of more robust case