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Nota di contenuto	Acoustics & Vibration of Mechanical Structures; Preface and Committees; Table of Contents; Chapter 1: Analytical Approaches to Nonlinear Vibrations; On the Van Der Pol Oscillator: an Overview; Nonlinear Oscillators with a Power-Form Restoring Force: Non-Isochronous and Isochronous Case; Approximate Solutions to a Cantilever Beam Using Optimal Homotopy Asymptotic Method; Optimal Homotopy Asymptotic Approach to Self-Excited Vibrations; Physical Instability and Functional Uncertainties of the Dynamic Systems in Resonance Approximate Analytical Solutions to Nonlinear Vibrations of a Thin Elastic Plate The Study of the Pendulum with Heavy Neo-Hookean Rod; The Vibrations of the Engine with Neo-Hookean Suspension; Chapter 2: Damage Assessment of Structures; Multiple Fault Identification Using Vibration Signal Analysis and Artificial Intelligence Methods; Rolling Element Bearings Fault Identification in Rotating Machines, Existing Methods of Vibration Signal Processing Techniques and Practical Considerations; Recent Advances in Vibration Signal Processing Techniques for Gear Fault Detection-A Review

Methods of Interpreting the Results of Vibration Measurements to Locate Damages in Beams Evaluation of Crack Depth in Beams for Known Damage Location Based on Vibration Modes Analysis; Assessment of Corrosion Damages with Important Loss of Mass and Influences on the Natural Frequencies of Bending Vibration Modes; Vibration Tests for Determination of Longitudinal Elasticity Modulus and Shear Modulus of some Structures Welded with Tubular Wire; Monitoring the Behaviour of Fireworks to Vibrations and the Establishment of the Mechanical Conditioning Influence Acoustical Methods Used in the Study of Concrete Durability Testing of Level of Vibration and Parameters of Bearings in Industrial Fan; Chapter 3: Modeling and Simulation Techniques with Applications; Influence of Heavy Data Transmission Losses on Spectra of Signals; Compensations of the Discontinuous Nonlinearities in the Independent Joints Control of an Articulated Robot; Modeling and Testing of a New Dynamic Balancing System Based on Magnetic Interaction; Analytic-Experimental Method for Determining the Eccentricity of a Cantilever Rotor Study on Vibration Transmission, with Application to the Calibration of a Measuring Stand Vibrations Modeling and Simulation Using Stochastic Bondsim Elements; Considerations on Kinematics and Dynamics of Gravitational Separators with Non-Balanced Eccentric Masses Used for Cereal Seeds Cleaning; Impact of a Kinematic Link with MATLAB and Solid Works; Active Synthesis of Machine Drive Systems; Random Excitation of a Car Component from the Road; Study of a Half Car Suspension Model; An Analysis of Forced Vibrations to Railway Vehicles; Chapter 4: Biomechanics Particularities of Upper Limb Movements of Healthy and Pathologic Subjects

Sommario/riassunto

The book covers a broad range of topics related to acoustics and vibration problems encountered in various fields of engineering. It presents some analytical, numerical and experimental techniques applicable to analyze linear and non-linear noise and vibration problems. The 58 papers are grouped as follow: Chapter 1: Analytical Approaches to Nonlinear Vibrations; Chapter 2: Damage Assessment of Structures; Chapter 3: Modeling and Simulation Techniques with Applications; Chapter 4: Biomechanics; Chapter 5: Environmental and Occupational Noise and Vibrations; Chapter 6: Structural Vibration, Att
