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Nota di contenuto	Chapter 1. Scattering from a Bi-stable Elastica Arm -- Chapter 2. An Investigation of Complex Mode Shapes -- Chapter 3. Investigating the

Potential of Electrical Connection Chatter Induced by Structural Dynamics -- Chapter 4. Ensemble of Numerics-Informed Neural Networks with Embedded Hamiltonian Constraints for Modeling Nonlinear Structural Dynamics -- Chapter 5. System Identification of Geometrically Nonlinear Structures Using Reduced-Order Models -- Chapter 6. Indirect Reduced-Order Modelling of Nonconservative Nonlinear Structures -- Chapter 7. Hyper-Reduced Computation of Nonlinear and Distributed Surface Loads on Finite Element Structures based on Stress Trial Vectors -- Chapter 8. Nonlinear Modelling of an F16 Benchmark Measurement -- Chapter 9. Mathematical Model Identification of Self-excited Systems Using Experimental Bifurcation Analysis Data -- Chapter 10. Shape Optimisation for Friction Dampers with Stress Constraint -- Chapter 11. Design of Flap-Nonlinear Energy Sinks for Post-Flutter Mitigation using Data-Driven Forecasting -- Chapter 12. TriboMechaDynamics Challenge 2021: A Multi Harmonic Balance Analysis from Imperial College London -- Chapter 13. Experimental Proof-of-Concept of Contact Pressure Distribution Control in Frictional Interfaces with Piezoelectric Actuators -- Chapter 14. Experimental Observations of Nonlinear Damping of Additively Manufactured Components with Internal Particle Dampers -- Chapter 15. Data-Driven Reduced-Order Model for Turbomachinery Blisks with Friction Nonlinearity -- Chapter 16. Determination of Flutter Speed of 2D Nonlinear Wing by using Describing Function Method and State Space Formulation -- Chapter 17. Application of Geometrically Nonlinear Metamaterial Device for Structural Vibration Mitigation -- Chapter 18. Nonlinear Vibration Analysis of Uniform and Functionally Graded Beams with Spectral Chebyshev Technique and Harmonic Balance Method -- Chapter 19. Experimental Characterization of Superharmonic Resonances Using Phase-Lock Loop and Control-Based Continuation -- Chapter 20. On Modelling Statistically-independent Nonlinear Normal Modes with Gaussian-process NARX Models -- Chapter 21. Non-Linear Kinematic Damping in Phononic Crystals with Inertia Amplification -- Chapter 22. Mitigation of Nonlinear Structural Vibrations by Duffing Type Oscillators using Real-Time Hybrid Simulation -- Chapter 23. Approximate Bayesian Inference for Piecewise-Linear Stiffness Systems -- Chapter 24. Experimental Model Update for Single Lap Joints -- Chapter 25. Data-Driven Identification of Multiple Local Nonlinear Attachments Installed on a Single Primary Structure -- Chapter 26. Supervised Learning for Abrupt Change Detection in a Driven Eccentric Wheel -- Chapter 27. Bolt-Jointed Structural Modelling by Including Uncertainty in Contact Interface Parameters -- Chapter 28. Parameter Estimation of Jointed Structures using Alternating Frequency-Time Harmonic-Balance -- Chapter 29. A Novel Test Rig for the Validation of Nonlinear FrictionContact Parameters of Turbine Blade Root Joints -- Chapter 30. Data-driven Identification and Modeling of Nonlinear Dynamic Systems with a Deep Learning Approach: Koopman Operators and Nonlinear Normal Modes -- Chapter 31. Data-driven Nonlinear Modal Analysis: A Deep Learning Approach -- Chapter 32. Higher Order Invariant Manifolds Parametrisation of Geometrically Nonlinear Structures Modelled with Large Finite Element Models -- Chapter 33. Application of Black-Box NIXO to Experimental Measurements -- Chapter 34. Reliable Damage Tracking in Nonlinear Systems via Phase Space Warping: A Case Study -- Chapter 35. Nonlinear Modes of Cantilever Beams at Extreme Amplitudes: Numerical Computation and Experiments -- Chapter 36. Stability and Convergence Analysis of the Harmonic Balance Method for a Duffing Oscillator with Freeplay -- Chapter 37. A Physics-based Modeling Approach for the Dynamics of Bolted Joints: Deterministic and

Stochastic Perspectives -- Chapter 38. A Review of Critical Parameters Required for Accurate Model Updating of Geometrically Nonlinear Dynamic Systems -- Chapter 39. Magnetic Excitation System for Experimental Nonlinear Vibration Analysis -- Chapter 40. Predicting Nonlinearity in the TMD Benchmark Structure using QSMA and SICE -- Chapter 41. Evolution of the Dynamics of Jointed Structures over prolonged Testing -- Chapter 42. On the use of Variational Autoencoders for Nonlinear Modal Analysis.

Sommario/riassunto

Nonlinear Structures & Systems, Volume 1: Proceedings of the 40th IMAC, A Conference and Exposition on Structural Dynamics, 2022, the first volume of nine from the Conference brings together contributions to this important area of research and engineering. The collection presents early findings and case studies on fundamental and applied aspects of Nonlinear Dynamics, including papers on: Experimental Nonlinear Dynamics Jointed Structures: Identification, Mechanics, Dynamics Nonlinear Damping Nonlinear Modeling and Simulation Nonlinear Reduced-Order Modeling Nonlinearity and System Identification .
