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**Aircraft/Aerospace & Aerospace Testing Techniques Energy Harvesting Substructuring in Engineering Dynamics Emerging Numerical and Experimental Techniques Springer** This book reviews the most common state-of-the-art methods for substructuring and model reduction and presents a framework that encompasses most methods, highlighting their similarities and differences. For example, popular methods such as Component Mode Synthesis, Hurty/Craig-Bampton, and the Rubin methods, which are popular within finite element software, are reviewed. Similarly, experimental-to-analytical substructuring methods such as impedance/frequency response based substructuring, modal substructuring and the transmission simulator method are presented. The overarching mathematical concepts are reviewed, as well as practical details needed to implement the methods. Various examples are presented to elucidate the methods, ranging from academic examples such as spring-mass systems, which serve to clarify the concepts, to real industrial case studies involving automotive and aerospace structures. The wealth of examples presented reveal both the potential and limitations of the methods.

**Uncertainty in Mechanical Engineering Proceedings of the 4th International Conference on Uncertainty in Mechanical Engineering (ICUME 2021), June 7-8, 2021 Springer Nature** This open access book reports on methods and technologies to describe, evaluate and control uncertainty in mechanical engineering applications. It brings together contributions by engineers, mathematicians and legal experts, offering a multidisciplinary perspective on the main issues affecting uncertainty throughout the complete system lifetime, which includes process and product planning, development, production and usage. The book is based on the proceedings of the 4th International Conference on Uncertainty in Mechanical Engineering (ICUME 2021), organized by the Collaborative Research Center (CRC) 805 of the TU Darmstadt, and held online on June 7-8, 2021. All in all, it offers a timely resource for researchers, graduate students and practitioners in the field of mechanical engineering, production engineering and engineering optimization.

**Dynamics of Coupled Structures, Volume 4 Proceedings of the 35th IMAC, A Conference and Exposition on Structural Dynamics 2017 Springer** Dynamics of Coupled Structures, Volume 4: Proceedings of the 35th IMAC, A Conference and Exposition on Structural Dynamics, 2017, the fourth volume of ten 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 the Dynamics of Coupled Structures, including papers on: Experimental Nonlinear Dynamics Joints, Friction & Damping Nonlinear Substructuring Transfer Path Analysis and Source Characterization Analytical Substructuring & Numerical Reduction Techniques Real Time Substructuring Assembling & Decoupling Substructures & Boundary Conditions

**MARE-WINT New Materials and Reliability in Offshore Wind Turbine Technology Springer** This book provides a holistic, interdisciplinary overview of offshore wind energy, and is a must-read for advanced researchers. Topics, from the

design and analysis of future turbines, to the decommissioning of wind farms, are covered. The scope of the work ranges from analytical, numerical and experimental advancements in structural and fluid mechanics, to novel developments in risk, safety & reliability engineering for offshore wind. The core objective of the current work is to make offshore wind energy more competitive, by improving the reliability, and operations and maintenance (O&M) strategies of wind turbines. The research was carried out under the auspices of the EU-funded project, MARE-WINT. The project provided a unique opportunity for a group of researchers to work closely together, undergo multidisciplinary doctoral training, and conduct research in the area of offshore wind energy generation. Contributions from expert, external authors are also included, and the complete work seeks to bridge the gap between research and a rapidly-evolving industry. Uncertainty in Mechanical Engineering II Trans Tech Publications Ltd Collection of selected, peer reviewed papers from the 2nd International Conference on Uncertainty in Mechanical Engineering (ICUME 2015), November 19 – 20, 2015, Darmstadt, Germany. The 24 papers are grouped as follows: Chapter 1: Uncertainty in Mechanical Engineering Chapter 2: Uncertainty of Structural Dynamic Improvements in Light Weight Design Chapter 3: Modular Design and Scaling for Reduced Uncertainties in the Design Process Chapter 4: Improved Product Quality by Online Monitoring and Closed-Loop Control of Manufacturing Processes Chapter 5: Uncertainty in High Precision Manufacturing Processes Chapter 6: Modelling Uncertainty Information by Means of Semantics Chapter 7: Uncertainty Quantification Chapter 8: Optimization under Uncertainty Chapter 9: Binary Decisions under Uncertainty Special Topics in Structural Dynamics & Experimental Techniques, Volume 5 Proceedings of the 39th IMAC, A Conference and Exposition on Structural Dynamics 2021 Springer Nature Dynamics of Coupled Structures, Volume 5: Proceedings of the 39th IMAC, A Conference and Exposition on Structural Dynamics, 2021, the fourth 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 the Dynamics of Coupled Structures, including papers on: Methods for Dynamic Substructures Applications for Dynamic Substructures Interfaces & Substructuring Frequency Based Substructuring Transfer Path Analysis Rotating Machinery, Hybrid Test Methods, Vibro-Acoustics & Laser Vibrometry, Volume 8 Proceedings of the 34th IMAC, A Conference and Exposition on Structural Dynamics 2016 Springer Rotating Machinery, Hybrid Test Methods, Vibro-Acoustics & Laser Vibrometry, Volume 8. Proceedings of the 34th IMAC, A Conference and Exposition on Dynamics of Multiphysical Systems: From Active Materials to Vibroacoustics, 2016, the eighth volume of ten 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 Structural Dynamics, including papers on: • Processing Modal Data • Rotating Machinery • Vibro Acoustics •

**Laser Vibrometry • Teaching Practices • Hybrid Testing • Reduced Order Modeling Topics in Modal Analysis & Testing, Volume 8 Proceedings of the 38th IMAC, A Conference and Exposition on Structural Dynamics 2020 Springer Nature**

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