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4 Variation of the Hysteresis Loop with the Bouc-Wen Model Parameters
4.1 Introduction; 4.2 Background Results and Methodology of the Analysis; 4.2.1 Background Results; 4.2.2 Methodology of the Analysis; 4.3 Maximal Value of the Hysteretic Output; 4.3.1 Variation with Respect to δ ; 4.3.2 Variation with Respect to σ ; 4.3.3 Variation with Respect to n ; 4.3.4 Summary of the Obtained Results; 4.4 Variation of the Zero of the Hysteretic Output; 4.4.1 Variation with Respect to δ ; 4.4.2 Variation with Respect to σ ; 4.4.3 Variation with Respect to n ; 4.4.4 Summary of the Obtained Results
4.5 Variation of the Hysteretic Output with the Bouc-Wen Model Parameters; 4.5.1 Variation with Respect to δ ; 4.5.2 Variation with Respect to σ ; 4.5.3 Variation with Respect to n ; 4.5.4 Summary of the Obtained Results; 4.6 The Four Regions of the Bouc-Wen Model; 4.6.1 The Linear Region R_l ; 4.6.2 The Plastic Region R_p ; 4.6.3 The Transition Regions R_t and R_s ; 4.7 Interpretation of the Normalized Bouc-Wen Model Parameters; 4.7.1 The Parameters ρ and δ ; 4.7.2 The Parameter σ ; 4.7.3 The Parameter n ; 4.8 Conclusion
5 Robust Identification of the Bouc-Wen Model Parameters
5.1 Introduction; 5.2 Parameter Identification of the Bouc-Wen Model; 5.2.1 Class of Inputs; 5.2.2 Identification Methodology; 5.2.3 Robustness of the Identification Method; 5.2.4 Numerical Simulation Example; 5.3 Modelling and Identification of a Magnetorheological Damper; 5.3.1 Some Insights into the Viscous + Bouc-Wen Model for Shear Mode MR Dampers; 5.3.2 Alternatives to the Viscous + Bouc-Wen Model for Shear Mode MR Dampers; 5.3.3 Identification Methodology for the Viscous + Dahl Model; 5.3.4 Numerical Simulations; 5.4 Conclusion
6 Control of a System with a Bouc-Wen Hysteresis

Sommario/riassunto

Hysteresis is a system property that is fundamental to a range of engineering applications as the components of systems with hysteresis are able to react differently to different forces applied to them. Control theory is used to model these complex systems and cause them to behave in the desired manner; the Bouc-Wen model is a well-known semi-physical model that is used extensively to describe the hysteresis of systems in the areas of smart structures and civil engineering. The Bouc-Wen model for system hysteresis has increased in popularity due to its capability of capturing in an analytical
