

Tutorial - Introductory Talk - An Introduction to System-theoretic Methods for Model Reduction - Part V - Balancing-based Methods for Nonlinear Systems

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Building on Parts I (Benner), II (Gugercin), III (Beattie) of the earlier tutorial talks on system-theoretic methods for model reduction and using the generalization of transfer functions concepts of Part IV (Gugercin), we will extend the concepts of balancing-based model order reduction to special classes of nonlinear systems described by bilinear, quadratic, and polynomial nonlinearities. We will use various numerical examples to illustrate the theoretical concepts introduced.