Stabilized projection-based reduced order models for uncertainty quantification

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Projection-based model reduction is a promising tool that can enable the parametric exploration necessary for UQ. To serve as a viable surrogate model for UQ, a ROM must be stable, accurate, robust and efficient. This talk focuses on ROM stability. A new approach for stabilizing ROMs that moves the unstable eigenvalues of a ROM system into the stable half of the complex-plane through the solution of an optimization problem is presented. UQ applications are discussed.