List of Publications

Preprints

1. Muhammad Altaf Khattak, Mian Ilyas Ahmad, Lihong Feng, Peter Benner. Multivariate moment matching for model order reduction of quadratic-bilinear systems using error bounds. *arXiv:2105.12966v1*, 2021.

2. Yao Yue, Lihong Feng, Peter Benner. An Adaptive Pole-Matching Method for Interpolating Reduced-Order Models. *arXiv:1908.00820*, 2019.

Books

1. System-level Modeling of MEMS; *Volume 10, Advanced Micro & Nanosystems*, T. Bechtold, G. Schrag, L. Feng (editors), WILEY-VCH, 2013. ISBN/ISSN: 9783527319039

Book Chapters

2. Lihong Feng and Peter Benner. Model Order Reduction based on Moment-Matching. In P. Benner, St. Grivet-Talocia, A. Quarteroni, G. Rozza, W. Schilders, and L. M. Silveira (Eds.), Model Order Reduction: Volume 1: System- and Data-Driven Methods and Algorithms, De Gruyter, pp. 57-96, 2021. DOI: 10.1515/9783110498967-003

3. Sridhar Chellappa, Lihong Feng, Valentin de la Rubia, and Peter Benner. Adaptive Interpolatory MOR by Learning the Error Estimator in the Parameter Domain. In P. Benner, T. Breiten, H. Faßbender, M. Hinze, T. Stykel and R. Zimmermann (Eds.), Model Reduction of Complex Dynamical Systems, Springer, accepted August 2020. *arXiv Preprint arXiv:2003.02569v1*

4. J. Korvink, K. Poletkin, Y. Deng, L. Feng. A digital twin for MEMS and NEMS. In M. Rudan, R. Brunetti, S. Reggiani (Section editors), Springer Handbook of Semiconductor Devices, Part 4, Modeling, Chapter 3, accepted July 2020.

5. S. Chellappa, L. Feng and P. Benner. An Adaptive Sampling Approach for the Reduced Basis Method. In C. Beattie, P. Benner, M. Embree, S. Gugercin, S. Lefteriu (Eds.), Realization and Model Reduction of Dynamical Systems – A Festschrift in Honor of 70th Birthday of Thanos Antoulas, Springer, accepted March 2020.

6. L. Feng and P. Benner. Parametric model order reduction for electro-thermal coupled problems. In E. Jan W. ter Maten, H.-G. Brachtendorf, R. Pulch and W. Schoenmaker (editors), Nanoelectronic Coupled Problems Solutions, part of the Mathematics in Industry book series (MATHINDUSTRY, volume 29), and part of the The European Consortium for Mathematics in Industry book sub series (TECMI, volume 29), Chapter 13, 293-309, 2019.

7. N. Banagaaya, L. Feng and P. Benner. Sparse (P)MOR for electro-thermal coupled problems with many inputs. In E. Jan W. ter Maten, H.-G. Brachtendorf, R. Pulch and W. Schoenmaker (editors), Nanoelectronic Coupled Problems Solutions, part of the Mathematics in Industry book series (MATHINDUSTRY, volume 29), and part of the The European Consortium for Mathematics in Industry book sub series (TECMI, volume 29), Chapter 14, 311-328, 2019.

8. Y. Yue, L. Feng, P. Benner, R. Pulch and S. Schöps. Reduced models and uncertainty quantification. In E. Jan W. ter Maten, H.-G. Brachtendorf, R. Pulch and W. Schoenmaker (editors), Nanoelectronic Coupled Problems Solutions, part of the Mathematics in Industry book series (MATHINDUSTRY, volume 29), and part of the The European Consortium for Mathematics in Industry book sub series (TECMI, volume 29), Chapter 14, 329-346, 2019.

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10. P. Benner and L. Feng. A robust algorithm for parametric model order reduction based on implicit moment-matching. *In Reduced Order Methods for modeling and Computational reduction, MS&A Series* A. Quarteroni, G. Rozza (editors), 9: 159–186, Springer, 2014.

11. L. Feng, P. Benner, and J. G Korvink. System-level modeling of MEMS by means of model order

reduction (mathematical approximations)-mathematical background. *In System-level Modeling of MEMS, Advanced Micro & Nanosystems Vol. 10* T. Bechtold, G. Schrag, L. Feng (editors), 53–93, WILEY-VCH, 2013.

12. P. Benner and L. Feng. Recycling Krylov subspace for solving linear Systems with successive right-hand sides arising in model reduction. *In Model Reduction for Circuit Simulation, Lecture Notes in Electrical Engineering Vol. 74* P. Benner, M. Hinze and E. Jan W. ter Maten (editors), 125–140, Springer-Verlag, Dordrecht, 2010.

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13. C. Kweyu, L. Feng, M. Stein and P. Benner. Reduced basis method for the nonlinear Poisson-Boltzmann equation regularized by the range-separated canonical tensor format. International Journal of Nonlinear Sciences and Numerical Simulation. Accepted, 2022. *arXiv:2103.00245*.

14. Valentin de la Rubia, Sridhar Chellappa, Lihong Feng, Peter Benner. Fast A Posteriori State Error Estimation for Reliable Frequency Sweeping in Microwave Circuits via the Reduced-Basis Method. *IEEE Transactions on Microwave Theory and Techniques.* Accepted, 2022. *arXiv:2110.05925*

15. Sridhar Chellappa, Lihong Feng, and Peter Benner. A Training Set Subsampling Strategy for the Reduced Basis Method. *Journal of Scientific Computing*, 89(63), 2021. DOI: 10.1007/s10915-021-01665-y *arXiv:2103.06185*.

16. Lihong Feng, Guosheng Fu, Zhu Wang. A FOM/ROM Hybrid Approach for Accelerating Numerical Simulations. *Journal of Scientific Computing*, 89(63), 2021. *arXiv Preprint arXiv:2103.08642*.

17. Lihong Feng and Peter Benner. On Error Estimation for Reduced-Order Modeling of Linear Non-Parametric and Parametric Systems. *ESAIM: Mathematical Modelling and Numerical Analysis (M2AN)*, 55(2): 561-594, 2021. DOI: 10.1051/m2an/2021001 *arXiv Preprint arXiv:2003.14319*.

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19. Model Order Reduction for Delay Systems by Iterative Interpolation Dominik Alfke, Giulio Antonini, Peter Benner, Lihong Feng, and Luigi Lombardi *International Journal for Numerical Methods in Engineering*. Published online 28 September 2020. DOI: 10.1002/nme.6554.

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23. Yao Yue, Lihong Feng, Peter Benner. Reduced-order modelling of parametric systems via interpolation of heterogeneous surrogates *Advanced Modeling and Simulation in Engineering Sciences* 6:10, 1-33, 2019. (Springer Open)

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