

List of Publications

Preprints

1. Yao Yue, Lihong Feng, Peter Benner. An Adaptive Pole-Matching Method for Interpolating Reduced-Order Models. *arXiv:1908.00820*, 2019.
2. Mian Muhammad Arsalan Asif, Mian Ilyas Ahmad, Peter Benner, Lihong Feng, Tatjana Stykel. Implicit Higher-Order Moment Matching Technique for Model Reduction of Quadratic-bilinear Systems. *arXiv:1911.05400*, 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. Adaptive Interpolatory MOR by Learning the Error Estimator in the Parameter Domain Sridhar Chellappa, Lihong Feng, Valentin de la Rubia, and Peter Benner 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*, 2020
3. 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.
4. 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. Lefteri (Eds.), *Realization and Model Reduction of Dynamical Systems – A Festschrift in Honor of 70th Birthday of Thanos Antoulas*, Springer, accepted March 2020.
5. 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.
6. 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.
7. 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.
8. P. Benner, T. Breiten, and L. Feng. Matrix equations and model reduction. In Z. Bai, W. Gao, and Y. Su (editors), *Matrix Functions and Matrix Equations*, Series in Contemporary Applied Mathematics, Chapter 3, 50–75, World Scientific, 2015.
9. 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.
10. 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.
11. 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.

Articles in refereed journals

12. 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.
13. C. Kweyu, L. Feng, M. Stein, P. Benner. Fast solution of the linearized Poisson-Boltzmann equation with nonaffine parametrized boundary conditions using the reduced basis method. *Comput. Visual Sci.* 23(15), 2020. <https://doi.org/10.1007/s00791-020-00336-z> *arXiv:1705.08349, 2017*.
14. Sridhar Chellappa, Lihong Feng, Peter Benner. Adaptive Basis Construction and Improved Error Estimation for Parametric Nonlinear Dynamical Systems. *International Journal for Numerical Methods in Engineering*. DOI:10.1002/nme.6462, 2020; *arXiv:1911.05235, 2019*.
15. Lihong Feng, Peter Benner. A New Error Estimator for Reduced-order Modeling of Linear Parametric Systems. *IEEE Transactions on Microwave Theory and Techniques*, pp. 4848-4859, 2019. DOI:10.1109/TMTT.2019.2948858
16. 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)
17. A.C. Antoulas, P. Benner, L. Feng. Model Reduction by Iterative Error System Approximation. *Mathematical and Computer Modelling of Dynamical Systems*. 24:2, 103-118, 2018
18. Mian Ilyas Ahmad, Peter Benner, and Lihong Feng. Interpolatory Model Reduction for Quadratic-Bilinear Systems using Error Estimators. *Engineering computations*. 36(1): 25-44, 2018.
19. Mian Ilyas Ahmada, Peter Benner and Lihong Feng. A New Two-Sided Projection Technique for Model reduction of Quadratic-Bilinear Descriptor Systems. *International Journal of Computer Mathematics*. DOI: 10.1080/00207160.2018.1542134.
20. Yongjin Zhang, Lihong Feng, Andreas Seidel-Morgenstern, Peter Benner. Accelerating optimization and uncertainty quantification of nonlinear SMB chromatography using reduced-order models. *Computers & Chemical Engineering*. 96: 237-247, 2017.
21. Lihong Feng, Athanasios C. Antoulas, and Peter Benner. Some a Posteriori Error Bounds for Reduced Order Modelling of (Non-)Parametrized Linear Systems. *ESAIM: Mathematical Modelling and Numerical Analysis*. 51(6): 2127-2158.
22. Lihong Feng, Michael Mangold, and Peter Benner. Adaptive POD-DEIM Basis Construction and its Application to a Nonlinear Population Balance System. *AIChE Journal*. 63(9): 3832-3844, 2017.
23. Nicodemus Banagaaya, Peter Benner, Lihong Feng, Peter Meuris, and Wim Schoenmaker. An Index-aware Parametric Model Order Reduction Method for Parametrized Quadratic Differential-Algebraic Equations. *Applied Mathematics and Computation*. 319: 409-424, 2017.
24. Jens Bremer, Pawan Goyal, Lihong Feng, Peter Benner, Kai Sundmacher. POD-DEIM for Efficient Reduction of a Dynamic 2D Catalytic Reactor Model. *Computers & Chemical Engineering*. 106: 777-784, 2017.
25. Jens Bremer, Pawan Goyal, Lihong Feng, Peter Benner, Kai Sundmacher. Nonlinear Model Order reduction for Catalytic Tubular Reactors. *Computer Aided Chemical Engineering*. 38: 2373-2378, 2016.
26. Lihong Feng; Yao Yue; Nicodemus Banagaaya; Peter Meuris; Wim Schoenmaker; Peter Benner. Parametric Modeling and Model Order Reduction for (Electro-)Thermal Analysis of Nanoelectronic Structures. *Journal of Mathematics in Industry*. 6:10, 2016.
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 33. S. Li, Y. Yue, L. Feng, and P. Benner, A. Seidel-Morgenstern. Model reduction for linear simulated moving bed chromatography systems using Krylov-subspace methods. *AIChE Journal*, 60(11): 3773-3783, 2014.
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46. Lihong Feng, Peter Benner. Efficient Error Estimator for Model Order Reduction of Linear Parametric Systems. In proceedings of IEEE/MTT-S International Microwave Symposium (IMS). 346-349, 2019.
 47. Yao Yue, Lihong Feng, Peter Benner. An Adaptive Method for Interpolating Reduced-Order Models Based on Matching and Continuation of Poles. In proceedings of IEEE MTT-S International Conference on Numerical Electromagnetic and Multiphysics Modeling and Optimization (NEMO). 2019.
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