

Publikationsliste

Dissertation

- [T1] J. Giesselmann: *Modelling and Analysis for Curvature Driven Partial Differential Equations*. Dissertation, Fakultät für Mathematik und Physik, Universität Stuttgart, Verlag Dr. Hut, München, 2011.

Publikationen in wissenschaftlichen Zeitschriften

- [J1] J. Giesselmann: *A Convergence Result for Finite Volume Schemes on Riemannian Manifolds*. M2AN Math. Model. Numer. Anal., Vol. 43(5), pp. 929 – 955, 2009.
- [J2] W. Dreyer, J. Giesselmann, C. Kraus, C. Rohde: *Asymptotic Analysis for Korteweg Models*. Interfaces Free Bound., Vol. 14(1), pp. 105 – 143, 2012.
- [J3] J. Giesselmann, C. Makridakis, T. Pryer: *Energy Consistent DG Methods for the Navier–Stokes–Korteweg System*. Math. Comp., Vol. 83, pp. 2071 – 2099, 2014.
- [J4] G. L. Aki, W. Dreyer, J. Giesselmann, C. Kraus: *A Quasi–Incompressible Diffuse Interface Model with Phase Transition*. Math. Models Methods Appl. Sci., Vol. 24(5), pp. 827 – 861, 2014.
- [J5] J. Giesselmann, A. E. Tzavaras: *Singular limiting induced from continuum solutions and the problem of dynamic cavitation*. Arch. Ration. Mech. Anal., Vol. 212(1), pp. 241 – 281, 2014.
- [J6] W. Dreyer, J. Giesselmann, C. Kraus: *A compressible mixture model with phase transition*. Phys. D, Vol. 273-274, pp. 1 – 13, 2014.
- [J7] J. Giesselmann, T. Müller: *Geometric Error of Finite Volume Schemes for Conservation Laws on Evolving Surfaces*. Numer. Math., Vol. 128(3), pp. 489 – 516, 2014.
- [J8] J. Giesselmann: *A relative entropy approach to convergence of a low order approximation to a nonlinear elasticity model with viscosity and capillarity*. SIAM J. Math. Anal., Vol. 46(5), pp. 3518 – 3539, 2014.
- [J9] J. Giesselmann: *Low Mach asymptotic preserving scheme for the Euler–Korteweg model*. IMA J. Numer. Anal., Vol. 32(2), pp. 802 – 832, 2015.
- [J10] J. Giesselmann, T. Pryer: *Energy consistent discontinuous Galerkin methods for a quasi-incompressible diffuse two phase flow model*. M2AN Math. Model. Numer. Anal., Vol. 49(1), pp. 275 – 301, 2015.
- [J11] J. Giesselmann: *Relative entropy in multi-phase models of 1d elastodynamics: Convergence of a non-local to a local model*. J. Differential Equations, Vol. 258(10), pp. 3589 – 3606, 2015.

- [J12] J. Giesselmann, C. Makridakis, T. Pryer: *A posteriori analysis of discontinuous Galerkin schemes for systems of hyperbolic conservation laws*. SIAM J. Numer. Anal., Vol. 53(3), pp. 1280 – 1303, 2015.
- [J13] J. Giesselmann, T. Pryer: *Reduced relative entropy techniques for a posteriori analysis of multiphase problems in elastodynamics*. BIT Numerical Mathematics, Vol. 56(1), pp. 99 – 127, 2016.
- [J14] J. Giesselmann, T. Pryer: *Reduced relative entropy techniques for a priori analysis of multiphase problems in elastodynamics*. IMA J. Numer. Anal., Vol. 36(4), pp. 1685 – 1714, 2016.
- [J15] J. Giesselmann: *Relative entropy based error estimates for discontinuous Galerkin schemes*, Bull. Braz. Math. Soc. (N.S.), Vol. 47(1), pp. 359 – 372, 2016.
- [J16] A. Dedner, J. Giesselmann: *A posteriori analysis of fully discrete method of lines DG schemes for systems of conservation laws*. SIAM J. Numer. Anal., Vol. 54(6), pp. 3523 – 3549, 2016.
- [J17] J. Giesselmann, C. Lattanzio, A. E. Tzavaras: *Relative energy for the Korteweg theory and related Hamiltonian flows in gas dynamics*. Arch. Ration. Mech. Anal., Vol. 223(3), pp. 1427 – 1484, 2017.
- [J18] J. Giesselmann, A. E. Tzavaras: *Stability properties of the Euler-Korteweg system with nonmonotone pressures*. Appl. Anal., Vol. 96(9), pp. 1528 – 1546, 2017.
- [J19] J. Giesselmann, T. Pryer: *A posteriori analysis for dynamic model adaptation in convection dominated problems*. Math. Models Methods Appl. Sci., Vol. 27(13), pp. 2381 – 2423, 2017.
- [J10] J. Giesselmann, N. Kolbe, M. Lukacova-Medvidova, N. Sfakianakis: *Existence and uniqueness of global classical solutions to a two species cancer invasion haptotaxis model*. Discrete Contin. Dyn. Syst. Ser. B, Vol. 23(10), pp. 4397 – 4431, 2018.
- [J21] F. Meyer, J. Giesselmann, C. Rohde: *A posteriori error analysis for random scalar conservation laws using the stochastic Galerkin method*. IMA J. Numer. Anal., Vol. 40(2), pp. 1094 – 1121, 2020.
- [J22] J. Giesselmann, P. G. LeFloch: *Formulation and convergence of the finite volume method for conservation laws on spacetimes with boundary*. Numer. Math., Vol. 144, pp. 751 – 785, 2020.
- [J23] F. Meyer, J. Giesselmann, C. Rohde: *A posteriori error analysis and adaptive non-intrusive numerical schemes for systems of random conservation laws*. BIT Numerical Mathematics, Vol. 60(3), 619–649, 2020.
- [J24] N. Sarna, J. Giesselmann, M. Torrilhon: *Convergence Analysis of Grad’s Hermite Expansion for Linear Kinetic Equations*. SIAM J. Numer. Anal. Vol. 58(2), pp. 1164 – 1194, 2020.

- [J25] F. Meyer, J. Giesselmann, C. Rohde: *Error control for statistical solutions*. *Calcolo*, 2021. doi: 0.1007/s10092-021-00417-6
- [J26] M. Gugat, J. Giesselmann: *Boundary feedback stabilization of a semilinear model for the flow in star-shaped gas networks*. *ESAIM:COCV*, 2021. doi: 10.1051/cocv/2021061
- [J27] A. Dedner, J. Giesselmann, T. Pryer, J. K. Ryan: *Residual estimates for post-processors in elliptic problems*. *J. Sci. Comp.* Vol. 88, 2021. doi: 10.1007/s10915-021-01502-2
- [J28] M. Gugat, J. Giesselmann, T. Kunkel: *Exponential synchronization of a nodal observer for a semilinear model for the flow in gas networks*. *IMA J. Math. Cont. Inf.* 2021. doi: 10.1093/imamci/dnab029

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- [T1] J. Giesselmann: *Convergence Rate of Finite Volume Schemes for Hyperbolic Conservation Laws on Riemannian Manifolds*. In: R. Eymard, J.-M. Herard (eds.), *Finite Volumes for Complex Applications V*, pp. 463 – 470, ISTE, London, 2008.
- [T2] J. Giesselmann: *Sharp Interface Limits for Korteweg Models*. In: T. Li, S. Jiang (eds.), *Hyperbolic Problems: Theory, Numerics, Applications*, Vol. 2, pp. 422 – 430, World Scientific, Singapore, 2012.
- [T3] J. Giesselmann, M. Wiebe: *Finite Volume Schemes for Balance Laws on Time-Dependent Surfaces*. In: E. Vazquez-Cendon, A. Hidalgo, P. Garcia-Navarro, L. Cea (eds.), *Numerical Methods for Hyperbolic Equations*, pp. 251 – 258, CRC Press, London, 2012.
- [T4] G. L. Aki, J. Daube, W. Dreyer, J. Giesselmann, M. Kränkel, C. Kraus: *A Diffuse Interface Model for Quasi-Incompressible Flows: Sharp Interface Limits and Numerics*. *ESAIM: Proc.* 38, pp. 54 – 77, 2012.
- [T5] E. Audusse, C. Chalons, O. Delestre, N. Goutal, M. Jodeau, J. Sainte-Marie, J. Giesselmann, G. Sadaka: *Sediment Transport Modelling: Relaxation Schemes for Saint-Venant, Exner and Three Layer Models*. *ESAIM: Proc.* 38, pp. 78 – 98, 2012.
- [T6] J. Giesselmann: *Cavitation and Singular Solutions in Nonlinear Elastodynamics*. *Proc. Appl. Math. Mech.*, Vol. 13, pp. 363 – 364, 2013.
- [T7] J. Giesselmann, A. E. Tzavaras: *On cavitation in elastodynamics*. In: F. Ancona, A. Bressan, P. Marcati, A. Mason (eds.), *Hyperbolic Problems: Theory, Numerics, Applications*, pp. 599 – 606, AIMS, 2014.
- [T8] J. Giesselmann, T. Pryer: *On A Posteriori Error Analysis of DG Schemes Approximating Hyperbolic Conservation Laws*. In: J. Fuhrmann, M. Ohlberger, C. Rohde (eds.), *Finite Volumes for Complex Applications VII*, pp. 313 – 322, Springer, Berlin, 2014.

- [T9] J. Giesselmann, T. Müller: *Estimating the Geometric Error of Finite Volume Schemes for Conservation Laws on Surfaces for Generic Numerical Flux Functions*. In: J. Fuhrmann, M. Ohlberger, C. Rohde (eds.), *Finite Volumes for Complex Applications VII*, pp. 323 – 332, Springer, Berlin, 2014.
- [T10] J. Giesselmann, T. Pryer: *Goal-oriented error analysis of a DG scheme for a second gradient elastodynamics model*. In: C. Cancès, P. Omnes (eds.), *Finite Volumes for Complex Applications VIII-Methods and Theoretical Aspects*, pp. 457 – 466, Springer, Berlin, 2017.
- [T11] A. Dedner, J. Giesselmann: *Residual error indicators for dG schemes for discontinuous solutions to systems of conservation laws*. In: Ch. Klingenberg, M. Westdickenberg (eds.), *Hyperbolic Problems: Theory, Numerics, Applications*, pp. 459 – 471, Springer, Berlin, 2018.
- [T12] J. Giesselmann, D. Zacharenakis: *A posteriori analysis for the Euler-Korteweg model*. In: Ch. Klingenberg, M. Westdickenberg (eds.), *Hyperbolic Problems: Theory, Numerics, Applications*, pp. 631 – 642, Springer, Berlin, 2018.
- [T13] J. Giesselmann, H. Joshi: *Model Adaptation of chemically reacting flows based on a posteriori error estimates*. In: A. Bressan, M. Lewicka, D. Wang, Y. Zheng (eds.) *Hyperbolic Problems: Theory, Numerics, Applications*, pp.442 – 448, AIMS, 2020.
- [T14] J. Giesselmann, J. Meyer, Ch. Rohde: *An a posteriori error analysis based on non-intrusive spectral projections for systems of random conservation laws*. In: A. Bressan, M. Lewicka, D. Wang, Y. Zheng (eds.) *Hyperbolic Problems: Theory, Numerics, Applications*, pp.449 – 456, AIMS, 2020.
- [T15] J. Giesselmann, D. Zacharenakis: *A posteriori analysis for the Navier-Stokes-Korteweg model*. In: A. Bressan, M. Lewicka, D. Wang, Y. Zheng (eds.) *Hyperbolic Problems: Theory, Numerics, Applications*, pp.682 – 690, AIMS, 2020.
- [T16] J. Giesselmann, H. Joshi: *Model Adaptation of Balance Laws Based on A Posteriori Error Estimates and Surrogate Fluxes*. In: R. Klöforn, E. Keilegavlen, F. A. Radu, J. Fuhrmann (eds.) *Finite Volumes for Complex Applications IX - Methods, Theoretical Aspects, Examples*, Springer, 2020.
- [T17] J. Giesselmann, H. Minbashian: *Deep Learning for Hyperbolic Conservation Laws with Non-convex Flux*. *Proc. Appl. Math. Mech.*, DOI: 10.1002/pamm.202000347, 2021.

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- [P1] W. Dreyer, J. Giesselmann, C. Kraus: *Modeling of compressible electrolytes with phase transition*. <https://arxiv.org/abs/1405.6625>
- [P2] N. Sarna, J. Giesselmann, P. Benner: *Data-Driven Snapshot Calibration via Monotonic Feature Matching*. <https://arxiv.org/abs/2009.08414>

- [P3] J. Giesselmann, E. Mäder-Baumdicker: *A posteriori error estimates for wave maps into spheres*. <https://arxiv.org/abs/2010.07552>
- [P4] H. Egger, J. Giesselmann: *Stability and asymptotic analysis for instationary gas transport via relative energy estimates*. <https://arxiv.org/abs/2012.14135>
- [P5] G. W. Alldredge, M. Frank, J. Giesselmann: *On the convergence of the regularized entropy-based moment method for kinetic equations*. <https://arxiv.org/abs/2105.10274>
- [P6] H. Egger, J. Giesselmann, T. Kunkel, N. Philippi: *An asymptotic-preserving discretization scheme for gas transport in pipe networks*. <https://arxiv.org/abs/2108.13689>

Sonstiges

- [S1] J. Giesselmann, A. Miroschnikov, A. E. Tzavaras: *The problem of dynamic cavitation in nonlinear elasticity*. Seminaire Laurent Schwartz - EDP et applications (2012-2013), Exp No. 14. https://slsedp.cedram.org/slsedp-bin/fitem?id=SLSEDP_2012-2013____A14_0
- [S2] J. Giesselmann: *Energy consistent DG schemes for compressible two-phase flows*. Oberwolfach Report 29/2013, pp. 1705 – 1707, 2013.
- [S3] J. Giesselmann: *Geometric Errors in Finite Volume Schemes for Hyperbolic Conservation Laws on Manifolds*. Oberwolfach Report 55/2015, pp. 63 – 64, 2015.
- [S4] J. Giesselmann, C. Lattanzio, A. E. Tzavaras: *Relative Entropy for Hamiltonian Flows in Gas Dynamics*. Oberwolfach Report 30/2016, pp. 23 – 25, 2016.
- [S5] J. Giesselmann: *Relative Entropy for Isothermal Euler Equations on Networks*. Oberwolfach Report 24/2019, pp. 26 – 28, 2019.
- [S6] J. Giesselmann, S. G. Krupa: *A posteriori error analysis of finite volume approximations to scalar conservation laws using only one entropy*. Oberwolfach Report 11/2021, pp. 31 – 32, 2021.