

## List of Publications Dr. Andreas Dedner

### Diplom/Dissertation

- 1998 A. Dedner, *Numerik und Analysis für ein gekoppeltes System der Eulergleichungen mit der Strahlungstransportgleichung in zwei Raumdimensionen*, Diplomarbeit, Albert–Ludwigs–Universität, Mathematische Fakultät, Freiburg, July 1998.
- 2003 A. Dedner, *Solving the System of Radiation Magnetohydrodynamics for Solar Physical Simulations in 3d*, Dissertation, Albert–Ludwigs–Universität, Fakultät für Mathematik und Physik, Freiburg 2003.

### Journals

- 2001 A. Dedner, D. Kröner, I.L. Sofronov, and M. Wesenberg, *Transparent boundary conditions for MHD simulations in stratified atmospheres*, J. Comput. Phys. **171** (2001), no. 2, 448–478.
- 2002 A. Dedner, F. Kemm, D. Kröner, C.-D. Munz, T. Schnitzer, and M. Wesenberg, *Hyperbolic divergence cleaning for the MHD equations*, J. Comput. Phys. **175** (2002), no. 2, 645–673,
- 2002 A. Dedner and P. Vollmöller, *An adaptive higher order method for solving the radiation transport equation on unstructured grids*, J. Comput. Phys. **178** (2002), 263–289.
- 2004 A. Dedner, C. Rohde, B. Schupp, and M. Wesenberg, *A parallel, load-balanced MHD code on locally adapted, unstructured grids in 3d*, Comput. Vis. Sci. **7**, 79-96 (2004).
- 2004 A. Dedner and C. Rohde, *Numerical approximation of entropy solutions for hyperbolic integro-differential equations*, Numer. Math. Vol. 97, No. 3 (2004)
- 2006 R. Backofen, H.-G. Borrmann, W. Deck, A. Dedner, L. De Raedt K. Desch, M. Diesmann, M. Geier, A. Greiner W.R. Hess, J. Honerkamp, St. Jankowski, I. Krossing, A.W. Liehr, A. Karwath, R. Kloefkorn, R. Pesche, T. Potjans, M.C. Roettger, L. Schmiedt-Thieme, G. Schneider, B. Voss, B. Wiebelt, P. Wienemann, and V.-H. Winterer *A Bottom-up approach to Grid-Computing at a University: the Black-Forest-Grid Initiative*, PIK 29.2 pp. 81-87
- 2007 A. Dedner, C. Makridakis and M. Ohlberger, *Error control for a class of Runge Kutta Discontinuous Galerkin methods for nonlinear conservation laws*, SIAM J. Num. Anal. Vol. 45, No. 2 (2007)
- 2008 P. Bastian, M. Blatt, A. Dedner, C. Engwer, R. Klöfkorn, M. Ohlberger, and O. Sander, *A Generic Grid Interface for Parallel and Adaptive Scientific Computing. Part I: Abstract Framework*, Computing Vol. 82, No. 2-3 (2008).
- 2008 P. Bastian, M. Blatt, A. Dedner, C. Engwer, R. Klöfkorn, R. Kornhuber, M. Ohlberger, and O. Sander, *A Generic Grid Interface for Parallel and Adaptive Scientific Computing. Part II: Implementation and Tests in DUNE*, Computing Vol. 82, No. 2-3 (2008).
- 2008 A. Dedner and R. Klöfkorn, *A generic stabilization approach for higher order Discontinuous Galerkin methods* submitted to SIAM J Sci. Comp.
- 2009 A. Dedner, R. Klöfkorn, M. Nolte, and M. Ohlberger, *A generic interface for parallel and adaptive discretization schemes: Part I: Abstraction principles* submitted to Computing.
- 2009 A. Dedner, R. Klöfkorn, M. Nolte, and M. Ohlberger, *A generic interface for parallel and adaptive discretization schemes: Part II: Implementation and tests in dune-fem* submitted to Computing.

- 2009 T. Albrecht, A. Dedner, M. Luethi, and T. Vetter, *Curvature Guided Level Set Registration using Adaptive Finite Elements* submitted to Medical Image Analysis.
- 2009 A. Dedner and C. Gersbacher, *A Local Discontinuous Galerkin Discretization for Hydrostatic Free Surface Flows Using  $\sigma$ -transformed Coordinates* submitted to J. Comput. Phys.
- Proceedings**
- 1999 A. Dedner, C. Rohde, and M. Wesenberg, *A MHD-simulation in solar physics*, Finite Volumes for Complex Applications II: Problems and Perspectives (Paris) (R. Vilsmeier, F. Benkhaldoun, and D. Hänel, eds.), Hermès Science Publications, 1999, pp. 491–498.
- 2000 A. Dedner, D. Kröner, C. Rohde, and M. Wesenberg, *MHD instabilities arising in solar physics: A numerical approach*, Hyperbolic Problems: Theory, Numerics, Applications (Basel) (H. Freistühler and G. Warnecke, eds.), International Series of Numerical Mathematics, vol. 140, Birkhäuser, 2001, pp. 277–286.
- 2000 A. Dedner and M. Wesenberg, *Numerical methods for the real gas MHD equations*, Hyperbolic Problems: Theory, Numerics, Applications (Basel) (H. Freistühler and G. Warnecke, eds.), International Series of Numerical Mathematics, vol. 140, Birkhäuser, 2001, pp. 287–296.
- 2001 A. Dedner, D. Kröner, C. Rohde, and M. Wesenberg, *Godunov-type schemes for the MHD equations*, Godunov Methods: Theory and Applications (E.F. Toro, ed.), Kluwer Academic/Plenum Publishers, November 2001, pp. 209–216.
- 2001 A. Dedner, D. Kröner, I.L. Sofronov, and M. Wesenberg, *Absorbing boundary conditions for astrophysical MHD simulations*, Godunov Methods: Theory and Applications (E.F. Toro, ed.), Kluwer Academic/Plenum Publishers, November 2001, pp. 217–224.
- 2002 A. Dedner and C. Rohde, *FV-schemes for a scalar model problem of radiation magnetohydrodynamics*, Finite Volumes for Complex Applications III: Problems and Perspectives (Paris) (R. Herbin and D. Kröner, eds.), Hermès Science Publications, 2002, pp. 179–186.
- 2003 A. Dedner, C. Rohde, and M. Wesenberg, *A note on analysis and numerics for radiative MHD in 3d*, PAMM Vol. 2 (MS 5), 13-15 2003.
- 2003 A. Dedner, C. Rohde, and M. Wesenberg, *Efficient higher-order finite volume scheme for (real gas) magnetohydrodynamics*, T. Hou and E. Tadmor (Eds.), Hyperbolic Problems: Theory, Numerics, Applications, 499-508, Springer, Berlin 2003.
- 2003 A. Dedner, C. Rohde, and M. Wesenberg, *A new approach to divergence cleaning in magnetohydrodynamic simulations*, T. Hou and E. Tadmor (Eds.), Hyperbolic Problems: Theory, Numerics, Applications, 509-518, Springer, Berlin 2003.
- 2003 A. Dedner, D. Kröner, C. Rohde, T. Schnitzer, and M. Wesenberg, *Comparison of finite volume and discontinuous Galerkin methods of higher order for systems of conservation laws in multiple space dimensions*, Geometric Analysis and Nonlinear Partial Differential Equations (S. Hildebrandt and H. Karcher, eds.), Springer, Berlin, 2003, pp. 573–589.
- 2003 A. Dedner, D. Kröner, C. Rohde, and M. Wesenberg, *Efficient divergence cleaning in three-dimensional MHD simulations*, High Performance Computing in Science and Engineering '02 (E. Krause and W. Jäger, eds.), Springer, Berlin, 2003, pp. 323–334.

- 2005 A. Dedner, C. Makridakis, and M. Ohlberger, *A new stable Discontinuous Galerkin approximation for non-linear conservation laws on adaptively refined grids* Proceedings of the Third MIT Conference on Computational Fluid and Solid Mechanics, Cambridge, MA, June 14-17, 2005
- 2005 A. Dedner, D. Kröner, C. Rohde, and M. Wesenberg, *Radiation-Magnetohydrodynamics: Analysis for Model Problems and 3D-Simulations for the Full System* Warnecke, Gerald (ed.), Analysis and numerics for conservation laws. Berlin: Springer. 163-202 2005
- 2006 A. Burri, A. Dedner, R. Klöforn, and M. Ohlberger, *An efficient implementation of an adaptive and parallel grid in DUNE*. Notes on Numerical Fluid Mechanics and Multidisciplinary Design Volume 91/2006 Springer Berlin/Heidelberg, pp. 67-82.
- 2006 A. Burri, A. Dedner, D. Diehl, R. Klöforn, and M. Ohlberger, *A general object oriented framework for discretizing nonlinear evolution equations*, Notes on Numerical Fluid Mechanics and Multidisciplinary Design Volume 93/2006, Springer Berlin/Heidelberg, pp. 69-87.
- 2006 P. Bastian, M. Blatt, C. Engwer, A. Dedner, R. Klöforn, S. P. Kuttanikkad, M. Ohlberger, and O. Sander, *The Distributed and Unified Numerics Environment (DUNE)*, In Proc. of the 19th Symposium on Simulation Technique in Hannover, September 12 - 14, 2006
- 2007 A. Dedner, M. Luethi, T. Albrecht, and T. Vetter, *Curvature Guided Level Set Registration using Adaptive Finite Elements* In Proc. of the 29th Annual Symposium of the German Association for Pattern Recognition, Heidelberg
- 2007 A. Dedner, *Computing the Radiating Source Term in the System of Radiation Magnetohydrodynamics* PAMM Vol 7.1, Dec. 2007.
- 2008 A. Dedner and M. Ohlberger, *A new hp-adaptive DG scheme for conservation laws based on error control*, In Proc. of the Eleventh International Conference on Hyperbolic Problems: Theory, Numerics, Applications, Lyon, France, July 17-21, 2006.
- 2008 A. Dedner and R. Klöforn, *Stabilization for Discontinuous Galerkin Methods Applied to Systems of Conservation Laws* accepted for proceedings for the conference Hyperbolic Problems: Theory, Numerics, Applications, Maryland 2008.