**List of Publications**

Jens Lorenz

April 2020

1. Lorenz, J., Melo, W., and S. de Souza: Regularity Criteria for Weak Solutions of the Magneto–Micropolar Equations. Accepted for publication in *Electronic Research Archive*, April 22, 2020.

2. Hagstrom, T., Lorenz, J., Zingano, J.P., and Zingano, P.R.: On Two New Inequalities for Leray Solutions of the Navier–Stokes Equations in $\mathbb{R}^n$. *Journal of Mathematical Analysis and Applications*, Vol. 483, Issue 1, 1 March 2020, 123601.

3. Lorenz, J., Melo, W., and Rocha, N.: The Magneto-Hydrodynamic Equations: Local Theory and Blow-up of Solutions. *Discrete and Continuous Dynamical Systems, Series B.* 2019, 24(8): 3819-3841. (The journal is published by the American Institute of Mathematical Sciences.)

4. Lorenz, J., Zingano, P.: Properties at Potential Blow–Up Times for the Incompressible Navier–Stokes Equations. *Boletim da Sociedade Paranaense de Matemática* 35(2), pp. 127–158 (2017).

5. Silva, P., Lorenz, J., Melo, W., and Zingano, P.: On the Large Time Approximation of the Navier–Stokes Equations in $\mathbb{R}^n$ by Stokes Flows. *Methods and Applications of Analysis*, Vol. 23 (no. 4), December 2016, pp. 293-316

6. Lorenz, J., Melo, W.: On the Blow–Up Criterion of Periodic Solutions for Micropolar Equations in Homogeneous Sobolev Spaces. *Nonlinear Analysis Series B: Real World Applications*, pp. 93–106 (2016). Published online on Aug. 12, 2015.

7. Guba, O., Lorenz, J., and D. Sulsky: On Well–Posedness of the Viscous–Plastic Sea–Ice Model, *J. of Physical Oceanography*, Vol. 43 (10), pp. 2194–2209 (2013).

8. Lorenz, J.: *Deterministic and Random Evolution*, Nova Publishers, New York, 2013.

9. Lorenz, J., R. Ott: An Example of Self–Acceleration for Incompressible Flows, *Bol. Soc. Paran. Mat.*, Series 3, Vol. 31 (2), pp. 149–159 (2013).

10. Guba, O., Lorenz, J.: Continuous Spectra and Numerical Eigenvalues. *Math. Comp. Modelling*, **54**, (2011), pp. 2616-2622.

11. Qiu, Y., Lorenz, J.: A nonlinear Black–Scholes equation. *International Journal of Business Performance and Supply Chain Modelling*, **1**, No. 1, (2009), pp. 33-40.

12. Beyn, W.–J., Lorenz, J.: Nonlinear stability of rotating patterns. *Dynamics of Partial Differential Equations*, **5**, No. 4, (2008), pp. 349-400.

13. Edoh, K.D., Lorenz, J.: Modelling by a planar map: Lyapunov–type numbers in the presence of spiral points. *Math. Comp. Modelling*, **48**, No. 7-8, (2008), pp. 1068-1080.

14. Kreiss, G., Kreiss, H.–O., and Lorenz, J.: Stability of viscous shocks on finite intervals. *Archive for Rat. Mechanics and Analysis*, **187**, (2008), pp. 157-183.

15. Edoh, K.D., Lorenz, J.: Lyapunov–type numbers for Poincaré maps. *Boletim da Sociedade Paranaense de Matemática (BSPM)*, **24**, (2006), pp. 89-98.

16. Lorenz, J.: Review of the book *Numerical Solution of Partial Differential Equations* by *K.W. Morton and D.F. Mayers*. In: *SIAM Review* **48**, No. 4 (2006), pp. 807-808.

17. Nadiga, B., Taylor, M., and Lorenz, J.: Ocean modelling for climate studies: Eliminating short time–scales in long–term, high–resolution studies of ocean circulation. *Math. Comp. Modelling*, **44**, (2006), pp. 870-886.

18. Beyn, W.–J., Lorenz, J.: Stability of viscous profiles: Proofs via dichotomies. Journal of Dynamics and Differential Equations **18**, No. 1, pp. 141-195, 2006.

19. Kreiss, G., Kreiss, H.–O., and Lorenz, J.: Stability of viscous shocks on finite intervals. In: Proceedings of the Tenth International Conference on Hyperbolic Problems: Theory, Numerics and Applications. Asakura, editor. Yokohama Publishers Inc. (2006).

20. Goodrich, J., Hagstrom, T., and Lorenz, J.: Hermite methods for hyperbolic initial–boundary–value problems. *Math. Comp.* **75**, (2006), pp. 595-630.

21. Lorenz, J.: Review of the book *Difference Schemes with Operator Factors* by *A.A. Samarskii, P.P. Matus, and P.N. Vabishchevich*. In: *SIAM Review* **46**, No. 4 (2004), pp. 752-753.

22. Kreiss, H.–O., Lorenz, J.: A priori estimates in terms of the maximum norm for the solutions of the Navier–Stokes equations. *J. Diff. Equations*, Vol. **203** (2004), pp. 216-231.

23. Kreiss, H.-O., Lorenz, J.: Initial-boundary value problems and the Navier-Stokes equations. Classics in Applied Mathematics **47**, SIAM, 2004.

24. Edoh, K.D., Lorenz, J.: Numerical approximation of rough invariant curves of planar maps. *SIAM J. on Scientific Computing*, Vol. **25**, No. 1 (2003), pp. 213-223.

25. Kreiss, H.–O., Hagstrom, T., Lorenz, J., and Zingano, P.: Decay in time of incompressible flows. *J. math. fluid mech.* **5** (2003), pp. 231-244.

26. Hagstrom, T., Lorenz, J.: On the stability of approximate solutions of hyperbolic–parabolic systems and the all–time existence of smooth, slightly compressible flows. *Indiana University Math. J.* **51** No. 6 (2002), pp. 1339-1387.

27. Edoh, K.D., Lorenz, J.: A new algorithm for the computation of invariant curves using arc–length parametrization. In: Proceedings, International Conference on Computing and Information Technologies, World Scientific, 2001.

28. Edoh, K.D., Lorenz, J.: Computation of Lypunov–type numbers for invariant curves of planar maps. *SIAM J. Scientific Computing*, **23** No. 4 (2001), pp. 1113-1134.

29. Drumm, C.R., Fan, W.C., Lorence, L., Powell, J., and Lorenz, J.: Experience with unstructured–mesh electron transport code CEPTRE. In: Proceedings American Nuclear Society, Annual Meeting, 2000.

30. Drumm, C.R., Fan, W.C., and Lorenz, J.: Even/Odd parity transport with internal voids. In: Proceedings American Nuclear Society, Annual Meeting, 2000.

31. Kreiss, H.–O., Lorenz, J.: Resolvent Estimates and Quantification of Nonlinear Stability. *Acta Mathematica Sinica*, English Series, Vol. **16**, No. 1 (2000), pp. 1-20.

32. Lorenz, J., Jackett, S., and Wangguo Qin: Self–organized criticality: Analysis and simulation of a 1D sandpile. In: *Numerical Methods for Bifurcation Problems and Large–Scale Dynamical Systems*, IMA Volumes in Mathematics and its Applications, Vol. 119. E. Doedel and L.S. Tuckerman (eds.), Springer Verlag, New York, 2000.

33. *Dynamics of Algorithms*, The IMA Volumes in Math. and Its Applications, Vol. 118, L. Petzold, R. de la Llave, J. Lorenz (eds.), Springer–Verlag, 2000.

34. Drumm, C.R., Lorenz, J.: FE solutions of the even/odd parity form of the linear Boltzmann equation. *Mathematical and Computer Modelling* **11**, No. 2–3 (2000), 55-71.

35. Drumm, C.R., Lorenz, J.: Parallel FE Electron–Photon Transport Analysis on a 2–D Unstructured Mesh. In: Mathematics and Computation, Reactor Physics and Environmental Analysis in Nuclear Applications, J.M. Aragonés (ed.), Senda Editorial, Spain, 1999.

36. Lorenz, J., Schroll, J.: Hyperbolic systems with relaxation: Characterization of stiff well–posedness and asymptotic expansion. *J. Mathematical Analysis and Applications* **235** (1999), 497-532.

37. Beyn, W.–J., Lorenz, J.: Stability of traveling waves: Dichotomies and eigenvalue conditions on finite intervals. *Numer. Funct. Anal. and Optimiz* **20**, No. 3& 4 (1999), 201-244.

38. Lorenz, J., Schroll, J.: Hyperbolic systems with relaxation: Symmetrizers and entropies. In: Hyperbolic Problems: Theory, Numerics, Applications. Fey, Jeltsch (eds.), pp. 823-832. ISNM Vol. 130, Birkhäuser, Basel, 1999.

39. Kreiss, G., Kreiss, H.–O., and Lorenz, J.: On stability of conservation laws. *SIAM J. Math. Analysis* **30**, No. 2 (1999), 401-430.

40. Qin, W., Lorenz, J.: *Self–Organized Criticality: Simulation Of A 1–D Sandpile Model.* In: MHPCC Applications Briefs, 1998. *http://www.mhpcc.edu/research/ab98/98ab18.html*

41. Hagstrom, T., Lorenz, J.: All–time existence of classical solutions for slightly compressible flows. *SIAM J. Math. Analysis* **29**, No. 3 (1998), 652-672.

42. Lorenz, J., Schroll, J.: Well–posedness of stiff hyperbolic systems. In: M. Feistauer, K. Kizel, and R. Rannacher (eds.), Matfyzpress, Prague. Numerical Modelling in Continuum Mechanics, Proceedings of the 3rd Summer Conference, Prague, pp. 384-391, 1998.

43. Kreiss, H.–O., Lorenz, J.: Stability for time dependent differential equations. *Acta Numerica* **8** (1998), 203-285.

44. Lorenz, J., Schroll, J.: Stiff well–posedness and asymptotic expansion for hyperbolic systems with relaxation. Mittag–Leffler Report, 1997.

45. Lorenz, J., Schroll, J.: Stiff well–posedness for hyperbolic systems with large relaxation terms (linear constant–coefficient problems). *Adv. Differential Equations* **2** (1997), no. 4, 643–666.

46. Dieci, L., Lorenz, J.: Lyapunov–type numbers and torus breakdown: Numerical aspects and a case study. *Numer. Algorithms* **14** (1997), no.1–3, 79–102.

47. Baumert, A., Lorenz, J., and Hagstrom, T.: Boundary conditions at artificial boundaries for singular perturbations. IGPM–Report Nr. 118, RWTH–Aachen, Germany, 1995.

48. Dieci, L., Lorenz, J.: Computation of invariant tori by the method of characteristics. SIAM J. Numer. Anal. Vol. 32, No. 5, 1436-1474 (1995).

49. Hagstrom, T., Lorenz, J.: All–time existence of smooth solutions to PDEs of mixed type and the invariant subspace of uniform states. Advances in Applied Mathematics 16, 219-257 (1995).

50. Lorenz, J., editor, Mathl. Comput. Modelling, Vol. 20, No. 10/11 (1994). Special Issue on Theory and Numerical Methods for Initial–Boundary Value Problems.

51. Lorenz, J.: Numerics of attractors and invariant manifolds. In: Chaotic Numerics (P. Kloeden, K. Palmer, eds.), AMS Series on Contemporary Mathematics 172 (1994), pp. 185 – 202.

52. Hagstrom, T., Lorenz, J.: Boundary conditions and the simulation of low Mach number flows. In: Environmental Acoustics, International Conference on Theoretical and Computational Acoustics, Vol. 2. D. Lee, M. H. Schultz (eds.), World Scientific, Singapore, 1994.

53. Kreiss, H.-O., Lorenz, J.: On the existence of slow manifolds for problems with different time scales. Phil. Trans. R. Soc. Lond. A, 346, 159-171 (1994).

54. Kloeden, P. E., Lorenz, J.: Lyapunov functions and the approximation of attractors. In: Nonlinear Dynamics: Attractor Approximation and Global Behaviour, pp. 93-98. N. Koksch, V. Reitmann, T. Riedrich (Editors), Technische Universität Dresden, 1993.

55. Hagstrom, T., Lorenz, J.: Boundary conditions for models of slightly compressible flow. In: Applications of Advanced Computational Methods for Boundary and Interior Layers. J.J.H. Miller (editor), Boole Press, Dublin (1993).

56. Kreiss, H.-O., Lorenz, J.: Manifolds of slow solutions for highly oscillatory problems. Indiana University Math. J. 42, 1169-1191 (1993).

57. Lorenz, J.: Computation of invariant manifolds. In: Numerical Analysis 1991, pp. 118-127. D. F. Griffiths, G. A. Watson (editors), Longman Scientific & Technical, Harlow, Essex, UK, 1992.

58. Morlet, A. C., Lorenz, J.: Numerical solution of a functional equation on a circle. SIAM J. Numer. Anal. 29, 1741-1768 (1992).

59. Dieci, L., Lorenz, J.: Block M-matrices and computation of invariant tori. SIAM J. Sci. Stat. Comput. 13, 885-903 (1992).

60. Van de Velde, E., Lorenz, J.: Adaptive data distribution for concurrent continuation. Numer. Math. 62, 269-294 (1992).

61. Van de Velde, E., Lorenz, J.: Applications of adaptive data distributions. In: The Proceedings of the Fifth Distributed Memory Computing Conference, pp. 249-253. IEEE Computer Society, Los Alamitos (1991).

62. Dieci, L., Lorenz, J., Russell, R.: Numerical calculation of invariant tori. SIAM J. Sci. Stat. Comput. 12, 607-647 (1991).

63. Kreiss, H.-O., Lorenz, J., Naughton, M.: Convergence of the solutions of the compressible to the solutions of the incompressible Navier-Stokes equations. Advances in Applied Mathematics 12, 187-214 (1991).

64. Kloeden, P.E., Lorenz, J.: A note on multistep methods and attracting sets of dynamical systems. Numer. Math. 56, 667-673 (1990).

65. Lorenz, J., Van de Velde, E.: Concurrent computations of invariant manifolds. In: The Proceedings of the Fourth Conference on Hypercubes,

Concurrent Computers, and Applications, pp. 1315-1320. Golden Gate Enterprises, Los Altos (1990).

66. Kreiss, H.-O., Lorenz, J.: Initial-boundary value problems and the Navier-Stokes equations. Vol. 136, Pure and Applied Mathematics, Academic Press, New York (1989).

67. Franklin, J., Lorenz, J.: On the scaling of multidimensional matrices. Linear Algebra and Appl. 114/115, 717-735 (1989).

68. Kloeden, P.E., Lorenz, J.: Lyapunov stability and attractors under discretization. In: Differential Equations, C. M. Dafermos, G. Ladas, G. Papanicolaou (eds). Marcel Dekker, New York (1989).

69. Dieci, L., Lorenz, J., Russell, R.: Decoupling of dynamical systems using boundary value techniques. Technical report, Applied Mathematics, Simon Fraser University (1988).

70. Beyn, W.-J., Lorenz, J.: Center manifolds of dynamical systems under discretization. Numer. Funct. Anal. and Optimiz. 9, 381-414 (1987).

71. Brown, D.L., Lorenz, J.: A high-order method for stiff boundary-value problems with turning points. SIAM J. Sci. Stat. Comput. 8, 790-805 (1987).

72. Lorenz, J., Sanders, R.: On the rate of convergence of viscosity solutions for boundary value problems. SIAM J. Math. Anal. 18, 306-320 (1987).

73. Kloeden, P.E., Lorenz, J.: Stable attracting sets in dynamical systems and in their one step discretizations. SIAM J. Numer. Anal. 23, 986-995 (1986).

74. Lorenz, J.: Convergence of upwind schemes for a stationary shock. Math. Comp. 46, 45-57 (1986).

75. Lorenz, J., Sanders, R.: Second order nonlinear singular perturbation problems with boundary conditions of mixed type. SIAM J. Math. Anal. 17, 580-594 (1986).

76. Lorenz, J.: Analysis of difference schemes for a stationary shock. SIAM J. Numer. Anal. 21, 1038-1053 (1984).

77. Lorenz, J.: Study of a numerical method of a shock problem. ZAMM 64, T298-T299 (1984).

78. Lorenz, J.: Numerical solution of a singular perturbation problem with turning points. In: Equadiff 82, H.W. Knobloch, K. Schmitt (eds.), Lecture Notes in Math. 1017, Springer (1983).

79. Lorenz, J.: Stability and monotonicity properties of stiff quasi-linear boundary problems. Review of Research, Faculty of Science, Math. Series 12, University Novi Sad, 151-175 (1982).

80. Lorenz, J.: Iterative solution of nonlinear difference equations for shock problems. In: Introduction to Computational and Asymptotic Methods for Boundary and Interior Layers. Miller (ed.), Boole Press Limited, Dublin (1982).

81. Lorenz, J.: Discretization of conservation laws and numerical dissipation. In: Introduction to Computational and Asymptotic Methods for Boundary and Interior Layers. Miller (ed.), Boole Press Limited, Dublin (1982).

82. Lorenz, J.: An elementary introduction to and analytical properties of some shock problems. In: Introduction to Computational and Asymptotic Methods for Boundary and Interior Layers. Miller (ed.), Boole Press Limited, Dublin (1982).

83. Lorenz, J.: Nonlinear boundary value problems with turning points and properties of difference schemes. In: de Jager, Eckhaus (eds.), Theory and Applications of Singular Perturbations, 150-169. Lecture Notes in Math. 942, Springer (1982).

84. Beyn, W.-J., Lorenz, J.: Spurious solutions for discrete superlinear boundary value problems. Computing 28, 43-51 (1982).

85. Lorenz, J.: Nonlinear singular perturbation problems and the Engquist-Osher difference scheme. Mathematisch Institut, Katholieke Universiteit Nijmegen, Report 8115 (1981).

86. Lorenz, J.: Resonance in equations with a diagonal field. Linear Algebra and Appl. 38, 103-107 (1981).

87. Lorenz, J.: Exponentially fitted difference schemes for singular perturbation problems. ZAMM 61, T293-T294 (1981).

88. Lorenz, J.: Stability and consistency analysis of difference methods for singular perturbation problems. In: Axelsson, Frank, van der Sluis (eds.), Analytical and Numerical Approaches to Asymptotic Problems in Analysis, 141-156. North-Holland, Amsterdam (1981).

89. Lorenz, J.: Zur Theorie und Numerik von Differenzenverfahren für singuläre Störungen. Habilitationsschrift, Universität Konstanz (1980).

90. Bohl, E., Lorenz, J.: Inverse monotonicity and difference schemes of higher order. A summary for two-point boundary value problems. Aequ. Math. 19, 1-36 (1979).

91. Lorenz, J., Mackens, W.: Toeplitz matrices with totally nonnegative inverses. Linear Algebra and Appl. 24, 133-141 (1979).

92. Lorenz, J.: Zur numerischen Lösung steifer Randwertaufgaben. *ZAMM* **59** (1979), pp. T65-T66.

93. Lorenz, J.: Combinations of initial and boundary value methods for a class of singular perturbation problems. In: Hemker, Miller (eds.), Numerical Analysis of Singular Perturbation Problems, 295-315. Academic Press, London, New York, San Francisco (1979).

94. Griffiths, D.F., Lorenz, J.: An analysis of the Petrov-Galerkin finite element method. *Comput. Methods Appl. Mech. Engrg.* **14** (1978), pp. 39-64.

95. Lorenz, J.: Die Konvergenzordnung bei Diskretisierungen mit Formeln höherer Genauigkeit. *ZAMM* **57** (1977), pp. T288-T289.

96. Lorenz, J.: Zur Inversmonotonie diskreter Probleme. *Numer. Math.* **27** (1977), pp. 227-238.

97. Beyn, W.-J., Lorenz, J.: On convergence of finite element methods for non-coercive problems. Department of Math. and Statistics, Calgary, Research paper 330 (1976).

98. Lorenz, J.: Die Inversmonotonie von Matrizen und ihre Anwendung beim Stabilitätsnachweis von Differenzenverfahren. Dissertation, Universität Münster (1975).

99. Bohl, E., Beyn, W.-J., Lorenz, J.: Zur Anwendung der Theorie über den Spektralradius linearer, streng-monotoner Operatoren. ISNM 24, Birkhäuserverlag, Basel, Stuttgart, 23-31 (1974).