

Bibliography

- [1] C. K. Aidun, N. G. Triantafillopoulos, and J. D. Benson. Global stability of a lid-driven cavity with throughflow: Flow visualization studies. *Phys. Fluids A*, 3(9):2081–2091, 1991.
- [2] D. Armbruster. Analyzing spatio-temporal complexity. In E. Kreuzer, editor, *1st European nonlinear oscillation conference*, pages 1–21. Academic verslag, 1993.
- [3] N. Aubry. On the hidden beauty of the proper orthogonal decomposition. *Theoret. Comput. Fluid Dynamics*, 2:339–352, 1991.
- [4] N. Aubry, P. Holmes, J. L. Lumley, and E. Stone. The dynamics of coherent structures in the wall region of a turbulent boundary layer. *J. Fluid Mech.*, 192:115–173, 1988.
- [5] H. P. Bakewell and J. L. Lumley. Viscous sublayer and adjacent wall region in turbulent pipe flow. *The Physics of Fluids*, 10(9):1880–1889, 1967.
- [6] K. S. Ball, L. Sirovich, and L. R. Keefe. Dynamical eigenfunction decomposition of a turbulent channel flow. *Int. J. Num. Meth. Fluids*, 12:585–604, 1991.
- [7] G. Berkooz. Observations on the the proper orthogonal decomposition. In T.B. Gatski, S. Sarkar, and C.G. Speziale, editors, *Studies in Turbulence*, pages 229–247. Springer-Verlag, 1992.
- [8] G. Berkooz, J. Elezgaray, P. Holmes, J.L. Lumley, and A. Poje. The proper orthogonal decomposition, wavelets and modal approaches to the dynamics of coherent structures. *Applied Scientific Research*, 53:321–338, 1994.
- [9] G. Berkooz, P. Holmes, and J.L. Lumley. The proper orthogonal decomposition in the analysis of turbulent flows. *Annu. Rev. Fluid Mech.*, 25:539–575, 1993.
- [10] D.S. Broomhead, R. Indik, A.C. Newell, and D.A. Rand. Local adaptive Galerkin bases for large dynamical systems. *Nonlinearity*, 4:159–197, 1991.
- [11] W. Cazemier, R. Verstappen, and A.E.P. Veldman. 3D proper orthogonal decomposition of a driven cavity flow. In C. Taylor and P. Durbetaki, editors, *Numerical methods in laminar and turbulent flow*, pages 240–250. Pineridge Press, 1995.
- [12] W. Cazemier, R. Verstappen, and A.E.P. Veldman. The stability of steady and periodic solutions of a low-dimensional dynamical system for 2D driven cavity flows.

- In S. Gavrilakis, L. Machiels, and P.A. Monkewitz, editors, *Advances in Turbulence VI*, pages 313–316. Kluwer Academic Publishers, 1996.
- [13] E.A. Christensen, J.N. Sorensen, M. Brons, and P.L. Christiansen. Low-dimensional representation of early transition in rotating fluid flow. *Theoret. Comput. Fluid Dynamics*, 5:259–267, 1993.
 - [14] A. E. Deane, I. G. Kevrekidis, G. E. Karniadakis, and S. A. Orsag. Low-dimensional models for complex geometry flows: Application to grooved channels and circular cylinder. *Phys. Fluids A*, 3(10):2337–2354, 1991.
 - [15] A. E. Deane and C. Mavriplis. Low-dimensional description of the dynamics is separated flow past thick airfoils. *AIAA Journal*, 32(6):1222–1227, 1994.
 - [16] J. Deville, S. Bellin, and J. P. Bonnet. The use of proper orthogonal decomposition in a plane turbulent mixing layer. In O. Métais and M. Lesieur, editors, *Turbulent and Coherent structures*, pages 75–90. Kluwer Academic Publishers, 1990.
 - [17] J.J. Dongarra, I.S. Duff, D.C. Sorensen, and H.A. van der Vorst. *Linear System Solving on Vector and Shared Memory Computers*. SIAM, Philadelphia, 1991.
 - [18] A. Feigenbaum. The transition to aperiodic behaviour in turbulent systems. *Commun. Math. Phys.*, 77:65–86, 1980.
 - [19] C. J. Freitas, R. L. Street, A.N. Findikakis, and J.R. Koseff. Numerical simulation of three-dimensional flow in a cavity. *Int. J. Num. Meth. Fl.*, 5:561–575, 1985.
 - [20] U. Ghia, K. N. Ghia, and C. T. Shin. High-Re solutions for incompressible flow using the Navier-Stokes equations and a multigrid method. *J. Comp. Phys.*, 48:387–411, 1982.
 - [21] M. Glauser, X. Zheng, and R. Doering. The dynamics of organized structures in the axisymmetric jet mixing layer. In O. Métais and M. Lesieur, editors, *Turbulent and Coherent structures*, pages 253–265. Kluwer Academic Publishers, 1990.
 - [22] A. Glezer, Z. Kadioglu, and A. J. Pearlstein. Development of an extended proper orthogonal decomposition and its applications to time periodically forced plane mixing layer. *Phys. Fluids A*, 1(8):1363–1373, 1989.
 - [23] J. Guckenheimer and P. Holmes. *Nonlinear oscillations, dynamical systems and bifurcations of vector fields*. Springer-Verlag, 1986.
 - [24] E. Hairer, S.P. Norsett, and G. Wanner. *Solving non-linear differential equations I*. Springer-Verlag, 1987.
 - [25] F.H. Harlow and J.E. Welsh. Numerical calculation of time-dependent viscous incompressible flow of fluid with free surface. *Phys. Fluids*, 8:2282–2189, 1965.
 - [26] S. Herzog. *The large scale structure in the near-wall region of a turbulent pipe flow*. PhD thesis, Cornell University, 1986.

- [27] D. Hilberg, W. Lazik, and H. E. Fiedler. The application of classical POD and snapshot POD in a turbulent shear layer with periodic structures. *Appl. Scientific Research*, 53:283–291, 1994.
- [28] B. Knight and L. Sirovich. Kolmogorov inertial range for inhomogeneous flows. *Phys. Rev. Lett.*, 65(11):1356–1359, 1990.
- [29] M. Kubiček and M. Marek. *Computational methods in bifurcation theory and dissipative structures*. Springer-Verlag, 1983.
- [30] M.T. Landahl and E. Mollo-Christensen. *Turbulence and random processes in fluid mechanics*. Cambridge University Press, 1992.
- [31] K. Liffman. Comments on a collocation spectral solver for the Helmholtz equation. *J. Comp. Phys.*, 128:254–258, 1996.
- [32] J. L. Lumley. The structure of inhomogeneous turbulent flows. In A. M. Yaglom and V. I. Tararsky, editors, *Atmospheric Turbulence and Radio Wave Propagation*, pages 166–178, 1967.
- [33] J. L. Lumley. *Stochastic Tools in Turbulence*. Academic Press, 1970.
- [34] M. Manhart, H. Wengle, P. Schmid, and H. Werner. Eigenmode decomposition of the turbulent shear layer above a square rib. In F. T. M. Nieuwstadt, editor, *Advances in turbulence*, pages 359–364. Kluwer Science Publishers, 1993.
- [35] J.E. Marsden and M. McCracken. *The Hopf Bifurcation and Its Application*. Springer-Verlag, 1976.
- [36] S.G. Mikhlin. *Integral equations, and their applications to certain problems in mechanics, mathematical physics and technology*. Pergamon Press, 1957.
- [37] R. D. Moser. Kolmogorov inertial range spectra for inhomogeneous flows. *Phys. fluids*, 6(2):794–801, 1994.
- [38] F.T.M. Nieuwstadt. *Turbulentie*. Epsilon Uitgaven, Utrecht, 1992.
- [39] H. Park and L. Sirovich. Turbulent thermal convection in a finite domain: Part 2. numerical results. *Phys. Fluids A*, 2(9):1659–1668, 1990.
- [40] F.R. Payne and J.L. Lumley. Large-eddy structure of the turbulent wake behind a circular cylinder. *Phys. Fluids*, 10:S194–196, 1967.
- [41] M. Poliashenko and C.K. Aidun. A direct method for the computation of simple bifurcations. *J. Comp. Phys.*, 121:246–260, 1995.
- [42] A.K. Prasad and J.R. Koseff. Reynolds number and end-wall effects on a lid-driven cavity flow. *Physics of Fluids A*, 1:208–218, 1989.
- [43] R.W. Preisendorfer. *Principal component analysis in meteorology and oceanography*. Elsevier, 1988.

- [44] M. Rajaei, S. K. F. Karlsson, and L. Sirovich. Low-dimensional description of free-shear-flow coherent structures and their dynamical behaviour. *J. Fluid Mech.*, 258:1–29, 1994.
- [45] D. Rempfer. *Kohärente Strukturen und Chaos beim laminar-turbulenten Grenzschichtumschlag*. PhD thesis, Institut für Aerodynamik und Gasdynamik der Universität Stuttgart, 1988.
- [46] D. Rempfer. On the structure of dynamical systems describing the evolution of coherent structures in a convective boundary layer. *Phys. Fluids A*, 6(3):1402–1404, 1994.
- [47] D. Rempfer and H. F. Fasel. Evolution of three-dimensional coherent structures in a flat-plate boundary layer. *J. Fluid Mech.*, 260:351–375, 1994.
- [48] D. Ruelle and F. Takens. On the nature of turbulence. *Commun. Math. Phys.*, 20:167–192, 1971.
- [49] F.M. Selten. *An efficient description of the large-scale atmospheric dynamics*. PhD thesis, Vrije Universiteit van Amsterdam, 1995.
- [50] L. Sirovich. Turbulence and the dynamics of coherent structures. *Quart. Appl. Math.*, 45:561–590, 1987.
- [51] L. Sirovich, K. S. Ball, and L. R. Keefe. Plane waves in a plane turbulent channel flow. *Phys. Fluids A*, 2(12):2217–2226, 1990.
- [52] L. Sirovich, M. Maxey, and H. Tarman. An eigenfunction analysis of turbulent thermal convection. In L. E. lauder, editor, *Proceedings of 6th Symposium on Turbulent Shear Flow*, pages 68–77. Springer, 1989.
- [53] L. Sirovich and H. Park. Turbulent thermal convection in a finite domain: Part 1. theory. *Phys. Fluids A*, 2(9):1649–1658, 1990.
- [54] H. Tennekes and J.L. Lumley. *A first course in turbulence*. MIT Press, 1972.
- [55] L. Ukeiley, M. Glauser, and D. Wick. Downstream evolution of proper orthogonal decomposition eigenfunctions in a lobed mixer. *AIAA Journal*, 31(8):1392–1397, 1993.
- [56] R. Verstappen, J. G. Wissink, W. Cazemier, and A. E. P. Veldman. Direct numerical simulation of turbulent flow in a driven cavity. *Future Generation Computer Systems*, 10:345–350, 1994.
- [57] R. Verstappen, J. G. Wissink, and A. E. P. Veldman. Direct numerical simulation of driven cavity flows. In F. T. M. Nieuwstadt, editor, *Advances in Turbulence IV*, pages 377–381. Kluwer Academic Publishers, 1993.

- [58] R.W.C.P. Verstappen and A.E.P. Veldman. Direct numerical simulation of a 3D turbulent flow in a driven cavity at $Re=10,000$. In S. Wagner et al., editor, *Computational Fluid Dynamics '94*, pages 558–565. John Wiley, 1994.
- [59] R.W.C.P. Verstappen and A.E.P. Veldman. A fourth-order finite volume method for direct numerical simulation of turbulence at higher Reynolds numbers. In J.A. Desideri, editor, *Computational Fluid Dynamics '96*, pages 1073–1079. John Wiley, 1996.
- [60] F.O.O. Wagener. A little more than kin and a little less than kind: distinguishing dynamical systems by their time series. Technical Report W-9410, University of Groningen, 1994.
- [61] D.C. Wilcox. *Turbulence Modeling for CFD*. DCW Industries, Inc., 1993.
- [62] J.W. Wissink. *Direct Numerical Simulation Of Turbulence*. PhD thesis, University of Groningen, 1995.