

7. Bibliografija

- [1] Boehm B.W., „Software Engineering Economics”, *Prentice-Hall*, New York, 1981.
- [2] Blottner F. G., „Accurate Navier-Stokes results for the hypersonic flow over a spherical nosetip”, *AIAA J. Spacecraft Rockets*, **27** (2), pp.113-122, 1990.
- [3] Roache P.J., „Quantification of Uncertainty in Computational Fluid Dynamics”, *Annu. Rev. Fluid Mech.*, **29**, pp. 123-160, 1997.
- [4] Marini M., Desideri J.-A., Grasso F., Periaux J., “The FLOWNET Database Project” *ERCOFTAC Bulletin No. 52*, 2002.
- [5] AGARD, “Validation of Computational Fluid Dynamics”, *NATO Advisory Group for Aeronautical Research and Development*, Lisbon, Portugal, 1998.
- [6] Freitas C. J., Ed., „The CFD Triathlon: Three Laminar Flow Simulations by Commercial CFD Codes”, *ASME Fluids Engineering Conference*, **160**, Washington, DC, 1993.
- [7] *Proc. of 7th ERCOFTAC/IAHR Workshop on Refined Turbulence Modeling*, UMIST, Manchester, UK, 1998.
- [8] *Proc. of the Seminar EURO THERM 69 Heat and Mass Transfer In Solid-Liquid Phase Change Processes*, Bistra Castel, Ljubljana, Slovenia, 2003.
- [9] NPARC Alliance CFD Code Validation Web Site, <http://www.grc.nasa.gov/WWW/wind/valid/>
- [10] Coleman H. W., Steele W. G., “Experimentation and Uncertainty Analysis for Engineers, 2nd Edition”, *Wiley*, New York, 1999.
- [11] Freitas C. J., „Editorial Policy Statement on the Control of Numerical Accuracy”, *ASME Journal of Fluids Engineering*, **115** (3),pp. 339-340,1993.
- [12] Gresho P. M., Taylor C., “Editorial”, *International Journal for Numerical Methods in Fluids*, **19**, p. iii, 1994.
- [13] AIAA, ”Editorial Policy Statement on Numerical Accuracy and Experimental Uncertainty”, *AIAA Journal*, **32** (1), p.3 , 1994.
- [14] ASME Editorial Board, “Journal of Heat Transfer Editorial Policy Statement on Numerical Accuracy”, *ASME Journal of Heat Transfer*, **116**, pp. 797-798,1994.
- [15] de Vahl Davis G., “Natural Convection of Air in a Square Cavity: A Bench Mark Numerical Solution”, *International Journal for Numerical Methods in Fluids*, **3** (3), pp. 249-264,1983.
- [16] Le Quere P., „Accurate Solutions to the Square Thermally Driven Cavity at High Rayleigh Number”, *Computers and Fluids*, **20** (1), pp.29-41, 1991
- [17] Le Quere P., Behnia M., „From onset of unsteadiness to chaos in a differentially heated square cavity“, *Journal of Fluid Mechanics*, **358**, pp. 81-107,1998.

- [18] IEEE, “IEEE Standard dictionary of electrical and electronics terms”, *ANSI/IEEE Std 100-1984*, 1984.
- [19] IEEE, “IEEE standard glossary of software engineering terminology”, *IEEE Std 610.12-1990*, New York, 1991.
- [20] ISO, “ISO 9000-3: Quality management and quality assurance standards – Part 3: guidelines for the application of ISO 9001 to the development, supply and maintenance of software”, *International Standards Organization*, Geneva, Switzerland, 1991.
- [21] AIAA, “Guide for the verification and validation of computational fluid dynamics simulations”, *AIAA-G-077-1998*, *American Institute of Aeronautics and Astronautics*, Reston, VA, 1998.
- [22] Roache P.J., “Verification of codes and calculations”, *AIAA Journal*, **36** (5), pp. 696-702, 1998.
- [23] Roache P.J., “Verification and validation in Computational Science and Engineering”, *Hermosa Publishers*, Albuquerque, NM, 1998.
- [24] Oberkampf W.L., Blottner F.G., Aeschliman D.P., “Methodology for Computational Fluid Dynamics Code Verification/Validation”, *AIAA Paper 95-2226*, *26th AIAA Fluid Dynamics Conference*, San Diego, California, 1995.
- [25] Stern F., Wilson R.V., Coleman H.W., Paterson E.G., “Comprehensive Approach to Verification and Validation of CFD Simulations – Part1: Methodology and Procedures”, *Journal of Fluids Engineering*, **123**, pp.793-802, 2001.
- [26] Roache P.J., “Conservatism of the grid convergence index in finite volume computations on steady-state fluid flow and heat transfer”, *Journal of Fluids Engineering*, **125** (4), pp.731-732, 2003.
- [27] Roache P.J., “Criticism of the >> correction factor<< verification method “”, *Journal of Fluids Engineering*, **125** (4), pp732-733, 2003
- [28] Oberkampf W.L., Trucano T.G., “Verification and validation in computational fluid dynamics”, *Progress in Aerospace Science*, **38**, pp.209-272, 2002.
- [29] Coleman H.W., “Some observation on Uncertainties and the Verification and Validation of a Simulation”, *Journal of Fluids Engineering*, **125** (4), pp.733-735, 2003.
- [30] Oberkampf W.L., Trucano T.G., “Validation methodology in computational fluid dynamics”, *AIAA Journal*, 2000-2549, 2000.
- [31] Richtmeyer R.D., Morton K.W., “Difference methods for initial-value problems”, *Interscience*, New York, 1967.
- [32] Johnson C., Rannacher R., Boman M., “Numerics and Hydrodynamics Stability: Toward Error Control in Computational Fluid Dynamics”, *SIAM Journal on Numerical Analysis*, **32**, pp.1058-1079, 1995
- [33] Ciarlet G., “The Finite Element Method for Elliptic Problems”, *NorthHolland Publishing Co.*, 1978.

- [34] Roache P.J., “Code verification by the method of manufactured solutions”, *Journal of Fluids Engineering*, **124** (1), 2002.
- [35] Salari K., Roache P.J., “The Influence of Sweep on Dynamic Stall Produced by a Rapidly Pitching Wing”, *AIAA Paper 90-9581*, 1990.
- [36] Huang H., Li M., „Finite-Difference Approximation for the Velocity-Vorticity Formulation on Staggered and Non-Staggered Grids”, *Computers and Fluids*, **26** (1), pp.59-82, 1995.
- [37] Wang C.Y., “Exact Solutions of the Steady-State Navier-Stokes Equations”, *Annual Review of Fluid Mechanics*, **23**, pp.159-177,1991.
- [38] Kovacevic I., Poredos A., Sarler B., “Solving the Stefan problem with the radial basis function collocation method”, *Numerical Heat Transfer Part B-Fundamentals*, **44** (6), pp.575-599, 2003.
- [39] Ghia U., Ghia K.N., Shin C.T., “High-Re Solutions for Incompressible Flows Using the Navier-Stokes Equations and a Multigrid Method”, *Journal of Computational Physics*, **48**, pp.387-411, 1982.
- [40] Hortman M., Peric M., Scheuerer G., „Finite volume multigrid prediction of laminar natural convection: bench-mark solutions”, *International Journal for Numerical Methods in Fluids*, **11**, pp. 189-207, 1990.
- [41] Richardson L.F., “The Approximate Arithmetical Solution by Finite Differences of Physical Problems Involving Differential Equations, with Application to the Stress in a Masonry Dam”, *Transactions of the Royal Society of London, Series A*, **210**, pp. 307-357, 1908.
- [42] Ferziger J.H., “Estimation and Reduction of Numerical Error”, Proc. of Fluids Engineering Conference, *FED - Vol.158*, Washington, 1993.
- [43] Khosla P.K., Rubin S.G., “A diagonally dominant second-order accurate implicit scheme”, *Computers and Fluids*, **2**, pp.207-209, 1974.
- [44] Babuska I., Strouboulis T., Updhayay C.S., “A Model Study of the Quality of A Posteriori Error Estimators for Linear Elliptic Problems. Error Estimation in the Interior of Patchwise Uniform Grid of Triangles”, *Computer Methods in Applied Mechanics and Engineering*, **114**, pp.307-378, 1994.
- [45] Babuska I., Strouboulis T., Gangaraj S.K., Updhayay C.S., “Pollution Error in the h-Version of the Finite Element Method and the Local Quality of the Recovered Derivatives”, *Computer Methods in Applied Mechanics and Engineering*, **140**, pp.1-37, 1997.
- [46] Chang S., Haworth D.C., “Adaptive Grid Refinement Using Cell-Level and Global Imbalances”, *International Journal for Numerical Methods in Fluids*, **24**, pp. 375-392, 1997.
- [47] Zienkiewicz O.C., Zhu J.Z., “A Simple Error Estimator and Adaptive Procedure for Practical Engineering Analysis”, *International Journal for Numerical Methods in Engineering*, **24**, pp. 337-357, 1987.
- [48] Zhu J.Z., Zienkiewicz O.C., “Superconvergence Recovery Technique and A Posteriori Error Estimates”, *International Journal for Numerical Methods in Engineering*, **30**, pp.1321-1339, 1990.

- [49] Pelletier D., Ignat L., "On the Accuracy of the Grid Convergence Index and the Zhu-Zienkiewicz Error Estimator", *Joint JSME-ASME Fluid Mechanics Meeting, Quantification of Uncertainty in Computational Fluids Dynamics*, ASME FED Vol. **213**, pp. 31-36, 1995.
- [50] Pelletier D., Ignat L., Ilinca F., "An Adaptive Finite Element Method for Conjugate Heat Transfer", *AIAA Paper 95-0637, AIAA 33rd Aerospace Sciences Meeting and Exhibit*, Reno, Nevada, 1997
- [51] Aeschliman D.P., Oberkampf W.L., „Experimental Methodology for Computational Fluid Dynamics Code Validation”, *SAND95-1189*, Sandia National Laboratories, Albuquerque, New Mexico, 1997.
- [52] Marvin J.G., "Perspective on Computational Fluid Dynamics Validation", *AIAA Journal*, **33** (10), pp.1778-1787, 1995.
- [53] Moffat R.J., "Contribution to the Theory of Uncertainty Analysis for Single-Sample Experiments", *The 1980-81 AFOSR/HTTM-Stanford Conference on Complex Turbulent Flows*, **1**, ThermoSciences Division, Mechanical Engineering Department, Stanford University, 1981.
- [54] ERCOFTAC Fluid Dynamics Databases <http://ercoftac.mech.surrey.ac.uk>
- [55] NAS Data Set Archive <http://www.nas.nasa.gov>
- [56] QNET-CFD <http://www.qnet-cfd.net>
- [57] ASME Journal of Fluids Engineering <http://www.asme.org>
- [58] Muller A., Ed. Proc. of the Basel World CFD User Days 1994, *Second World Conference in Applied Computational Fluid Dynamics*, Basel, Switzerland, 1994.
- [59] Muller A., Loffler B. Eds. Proc. of the Basel World CFD User Days 1996, *Third World Conference in Applied Computational Fluid Dynamics*, Basel, Switzerland, 1996.
- [60] Upson C.D., Gresho P.M., Lee R.L., "Finite-element simulation of thermally induced convection in an enclosed cavity", *Report UCID-18602*, Lawrence Livermore Lab., Livermore, California, 1980.
- [61] Quon C. "Effects of grid distribution on the computation of high Rayleigh convection in a differentially heated cavity", *Proc. of Natn. Symp. On Numerical Methods in Heat Transfers*, Univ. of Maryland, Baltimore, 1981.
- [62] Winters K., "Prediction of laminar natural convection in heated cavities", *Numerical Methods in Heat Transfer*, **2**, pp.179-204, Wiley, New York, 1983.
- [63] Lauriat G., Altimir I., "A new formulation of the SADI method for the prediction of natural convection flows in cavities", *Computers and Fluids*, **13**, 1983.
- [64] Chenoweth D.R., Paolucci S., "Natural Convection in an enclosed vertical layer with large horizontal temperature differences", *Journal of Fluid Mechanics*, **169**, 1986.

- [65] Haldenwang P., Labrosse G., “2-D and 3-D spectral Chebyshev solutions for free convection at high Rayleigh number”, *Proc. of 6th Finite Element Methods in Flow Problems*, pp. 261-266, 1986.
- [66] Banaszek J., Jaluria Y., Kowalewski T.A., Rebow M., „Semi-Implicit FEM Analysis of Natural Convection in Freezing Water”, *Numerical Heat Transfer, Part A*, **36**, pp.449-472,1999.
- [67] Kowalewski T.A., Cybulski A., „Experimental and numerical investigation of natural convection in freezing water”, *Proc. of Conf. On Heat Transfer with Change of Phase*, Kielce, 61 (2), pp. 7-16, 1996.
- [68] Kowalewski T.A., Rebow M., „Freezing of Water in a Differentially Heated Cubic Cavity”, *International Journal on Computational Fluid Dynamics*, **11**, pp.193-210,1999.
- [69] Hiller W.J., Koch St., Kowalewski T.A., Stella F., “Onset of natural convection in a cube”, *International Journal Heat and Mass Transfer*, **36**, pp. 3251-3263, 1993.
- [70] Giangi M., Kowalewski T.A., Stella F., Leonardi E., “Natural Convection during ice formation: numerical simulation vs. experimental results”, *Comp. Assisted Mech. And Eng. Scs.*, **7**, pp. 321-342,2000.
- [71] Giangi M., Stella F., Kowalewski T.A., “Phase-change problems with free convection: fixed grid simulation”, *Comp. & Vis. Scs.*, **2**, pp.123-130, 1999.
- [72] Zubkov P.T., Kalabin E.V., “Numerical Investigation of the Natural Convection of Water in the Neighborhood of the Density Inversion Point for Grashof Number up to 10^6 ”, *Fluid Dynamics*, **36** (6), pp. 944-951, 2001.
- [73] Gebhart B., Mollendorf J., “A new density relation for pure and saline water”, *Deep Sea Res.*, **24**, 831,1977.
- [74] Le Quere P., “Transition to unsteady natural convection in a tall water-filled cavity”, *Phys. Fluids A*, **2** (4), 1990.
- [75] Paterson J., Imberg J. “Unsteady natural convection in a rectangular cavity”, *J. Fluid Mechanics*, **100**, pp. 65-86, 1980.
- [76] Bejan A. “Convection Heat Transfer”, *John Wiley & Sons*, 2nd Edition, New York, 1995.
- [77] Schladow S.G., Paterson J.C., Street R.L., “Transient flow in a side-heated cavity at high Rayleigh number: a numerical study”, *J. Fluid Mech.*, **200**, pp. 121-148, 1989.
- [78] Patterson J.C., Armifield S.W., “Transient features of natural convection in a cavity”, *J. Fluid Mech.*, **219**, pp.469-497, 1990.
- [79] Armifield S.W., Patterson J.C., ”Wave properties of natural-convection boundary layers”, *J. Fluid Mech.*, **239**, pp. 195-211, 1992.
- [80] Schopf W., Patterson J.C., “Natural Convection in a side-heated cavity: visualization of the initial flow features”, *J. Fluid Mech.*, **295**, pp. 357-379, 1995.

- [81] Hiller W., Kowalewski T. A., “Simultaneous Measurement of the Temperature and Velocity Fields In Thermal Convective Flows”, *Flow Visualization IV, Hemisphere*, pp. 617-622, Paris, 1987.
- [82] Quénot G. M., “Image Matching Using Dynamic Programming: Application to Stereovision and Image Image Interpolation”, *Proc. IMAGE' COM*, pp. 265-270, 1996.
- [83] Quénot G. M., Pakleza J., Kowalewski T. A., “Particle Image Velocimetry Using Optical Flow for Image Analysis”, *Proc. 8th International Symposium on Flow Visualisation*, Sorrento, Italy, 1998.
- [84] Kowalewski T. A., Cybulski A., Sobiecki T., “Experimental Model for Casting Problems”, *Computational Methods and Experimental Measurements*, **1**, pp. 179-188, WIT Press, Southampton, 2001.
- [85] Michalek T., Kowalewski T.A., “Experimental model of mould filling flow”, *Proc. of Eurotherm 69 Seminar, Heat and Mass Transfer In Solid-Liquid Phase Change Processes*, Bistra Castle, Ljubljana, Slovenia, 2003.
- [86] Slattery J.C., “Momentum, Energy and Mass Transfer in Continua”, *McGraw-Hill, Inc.*, 1972.
- [87] Truesdell C., Toupin R.A., “Handbuch der Physik”, **3** (1), *Springer-Verlag*, Berlin, 1960.
- [88] Woods L.C., „A Note on the Numerical Solution of Fourth Order Differential Equations“, *Aero. Quart.*, **5**, pp. 176-184, 1954.
- [89] Ferziger J.H., Peric M., „Computational Methods for Fluids Dynamics”, 2nd Edition, *Springer*, 1999.
- [90] Mallinson G.D., de Vahl Davis G., “The Method of the False Transient for the Solution of Coupled Elliptic Equations”, *J. Comp. Phys.*, **12**, pp.435-461, 1973.
- [91] Samarskii A.A., Andreyev V.B., “On a High Accuracy Difference Scheme for Elliptic Equations with Several Space Variables”, *USSR Comp. Math. and Math. Phys.*, **3**, pp. 1373-1382, 1963.
- [92] Ralston A., “Wstęp do analizy numerycznej”, *PWN*, Warszawa, 1971.
- [93] Golub G., Ortega J.M., „Scientific Computing. An Introduction with Parallel Computing”, *Academic Press Ltd.*, 1993.
- [94] Kelson N.A., “The laminar boundary layer regime for natural convection of air in a square cavity.” *Report 1990/FMT/3*, School of Mechanical and Industrial Engineering, Univ. New South Wales, Kensington, NSW.
- [95] Liu G. R., “Mesh-free Methods”, *CRC Press*, Boca Raton, 2003.
- [96] Atluri S. N., Shen S., “The Meshless Local Petrov-Galerkin (MLPG) Method”, *Tech Science Press*, Encino, 2002.
- [97] Sarler B., “Towards Mesh-free Computation of Transport Phenomena”, *Engineering Analysis with Boundary Elements*, **26**, pp. 731-738, 2002.
- [98] De S., Bathe K.J., “The method of finite spheres”, *Computational Mechanics*, **25**, pp. 329-345, 2000.
- [99] Sadat H., Couturier S., “Performance and Accuracy of a Meshless Method For Laminar Natural Convection”, *Numerical Heat Transfer, Part B*, **37**, pp. 455-467, 2000.
- [100] Prax C., Salagnac P., Sadat H., “Diffuse Approximation and Control-Volume-Based Finite-Element Methods: A Comparative Study”, *Numerical Heat Transfer, Part B*, **34**, pp. 303-321, 1998.
- [101] Fluent 6.0., “Users Guide”, *Fluent Inc.*, Lebanon, NH 2002.

- [102] Fidap 8.7., “Users Guide”, *Fluent Inc.*, Lebanon, NH 2002.
- [103] Leonardi E., Kowalewski T. A., Timchenko V., De Vahl Davis G., “Effects of Finite Wall Conductivity on Flow Structures in Natural Convection”, *Proc. of Int. Conf. Comp. Heat and Mass Transfer*, Eds. A.A. Mohamad & I. Sezai, pp. 182-188, Eastern Mediterranean University Printinghouse, Cyprus, 1999.
- [104] Mallinson G. D., De Vahl Davis G., “Three Dimensional Natural Convection in a Box: A Numerical Study”, *J. Fluid Mech.*, **83**, pp. 1-31, 1977.
- [105] Michalek T., Kowalewski T. A., Saler B., “Natural Convection for Anomalous Density Variation of Water: Numerical Benchmark”, *Progress In Computational Fluid Dynamics*, **5** (3-5), pp. 158-170, 2005.
- [106] van Keulen F., Haftka R.T., Kim N.H. „Review of Options for Structural Design Sensitivity Analysis. Part1: Linear System”, *Elsevier Science*, 2004.
- [107] Haftka R.T., “Techniques for thermal sensitivity analysis”, *Int. J. Numerical Methods in Engineering*, **17**, pp.71-80,1981.
- [108] Sosnowski W., “Numeryczna symulacja, analiza wrażliwości i optymalizacja nieliniowych procesów deformacji konstrukcji”, 2003.
- [109] Burg C.O.E., Newman III J.C., “Computationally efficient, numerically exact design space derivatives via the complex Taylor’s series expansion method”, *Computers & Fluids*, **32**, pp. 373-383, 2003.
- [110] Borggaard J., Pelletier D., Turgeon E., “Parametric Uncertainty Analysis for Thermal Fluid Calculations”, *Nonlinear Analysis*, **47**, 4533-4543, 2001.
- [111] Blackwell B.F., Dowding K.J., Cochran R.J., “Development and implementation of sensitivity coefficient equations for heat conduction problems”, *Numerical Heat Transfer Part B-Fundamentals*, **36** (1), 1999.
- [112] Dowding K.J., Blackwell B.F., “Sensitivity analysis for nonlinear heat conduction”, *Journal of Heat Transfer*, **123** (1), 2001.
- [113] Gu Y.X., Chen B.S., Zhang H.W., Grandhi R., “A sensitivity analysis method for linear and nonlinear transient heat conduction with precise time integration”, *Structural and Multidisciplinary Optimization*, **24** (1), 2002.
- [114] Turgeon E., Pelletier D., Borggaard J., “A general continuous sensitivity equation formulation for complex flows”, *Proc. 8th AIAA/NASA/USAF/ISSMO Symposium on Multidisciplinary Analysis and Optimization*, AIAA Paper 2000-4732, 2000.
- [115] Westerweel J., “Digital Particle Image Velocimetry – Theory and Application”, *Delft University Press*, 1993.
- [116] Hesselink L., “Digital Image Processing in Flow Visualization”, *Ann. Rev. Fluid Mech.*, **20**, pp. 421-485, 1988.
- [117] Kowalewski T.A., “Particle image velocimetry and thermometry for two-phase flow problems”, *Visualization and Imaging in Transport Phenomena, Annals of the New York Academy of Scs.*, 972, pp.213-219, 2002.
- [118] Westerweel J., Nieuwstadt F. T. M., Flor J. B., “Measurement of Dynamics of Coherent Flow Structures Using Particle Image Velocimetry”, *Applications of Laser Techniques to Fluid Mechanics*, pp. 476-499, 1990.
- [119] Willert C. E., Gharib M., “Digital Particle Image Velocimetry”, *Experiments in Fluids*, **10**, pp. 181-193, 1991.

- [120] Raffel M., Willert C., Kompenhans J., „Particle Image Velocimetry. A Practical Guide”, *Springer*, Berlin, 1998.
- [121] Gouriet J. B., Stitou A., Riethmuller M. L., “Practical Implications Of Camera Resolution And Peak Locking In Actual Measurements”, *4th International Symposium on Particle Image Velocimetry, paper 1012, PIV 01, 2/3, September 17-19, Göttingen, Germany, 2001.*
- [122] Matlab, UserGuide v. 7.0.4, *The MathWorks Inc.*, 1994-2005.
- [123] Kowalewski T.A., Cybulski A. Michalek T., Kowalczyk M. „Laboratoryjne wzorce do walidacji programów odlewniczych”, *Prace IPPT*, Warszawa, 2005.
- [124] Michalek T., Kowalewski T.A., „Numerical Benchmark based on Natural Convection of Freezing Water”, *Proc. Of 4th International Conference on Computational Heat and Mass Transfer*, Cachan, Paris, 2005.
- [125] Kowalewski T.A., Rebow M., “An experimental benchmark for freezing water in the cubic cavity”, *Adv. In Computational Heat Transfer*, pp. 149-156, Begel House Inc., NY 1998.
- [126] Kowalewski T.A. “Experimental validation of numerical codes in thermally driven flows”, *Adv. In Computational Heat Transfer*, pp.1 – 15, Begel House Inc., NY 1998.
- [127] Michalek T., Kowalewski T.A., “Simulations of the water freezing process – numerical benchmarks”, *TASK Quarterly*, **7** (3),pp. 389-408, 2003.