

Prof. RNDr. Vít Dolejší, Ph.D., DSc.

## A. Monographs

1. V. Dolejší and M. Feistauer: Discontinuous Galerkin Method – Analysis and Applications to Compressible Flow, Springer, 2015

## B. Chapters in monographs

1. K. Böhmer: Numerical Methods for Nonlinear Elliptic Differential Equations, chapter (V. Dolejší): DCGMs for Nonlinear Elliptic Differential Equations, Oxford University Press, Oxford, (2010)

### B1. Chapters in lecture notes

- SC** 2. V. Dolejší, M. Holík, J. Hozman: IPG discretizations of the compressible Navier-Stokes equations, In N. Kroll, H. Bieler, H. Deconinck, V. Couaillier, H. Ven, K. Sorensen (eds): Notes on Numerical Fluid Mechanics 113, 2010, pages 81-93
- SC** 3. V. Dolejší, M. Holík, J. Hozman: Semi-implicit time discretization of the discontinuous Galerkin method for the Navier-Stokes equations, In N. Kroll, H. Bieler, H. Deconinck, V. Couaillier, H. Ven, K. Sorensen (eds): Notes on Numerical Fluid Mechanics 113, 2010, pages 243-255
- SC** 4. V. Dolejší: Treatment of the non-polygonal boundary with the aid of NURBS, In N. Kroll, H. Bieler, H. Deconinck, V. Couaillier, H. Ven, K. Sorensen (eds): Notes on Numerical Fluid Mechanics 113, 2010, pages 413-425

## C. Original scientific works

### C1 Papers in foreign journals

- ZBL SC** 1. M. Feistauer, J. Felcman and V. Dolejší: Numerical Simulation of Compressible Viscous Flow through Cascades of Profiles. *ZAMM*, **76**:297–300, 1996. **IF**
- ZBL SC** 2. J. Felcman and V. Dolejší: Adaptive Methods for the Solution of the Euler Equations in Elements of the Blade Machines. *ZAMM*, **76**:301–304, 1996. **IF**
- ZBL WS** 3. J. Felcman and V. Dolejší: Numerical Solution of Compressible Flow. *ZAMM*, **77**:473–476, 1997. **IF**
- ZBL** 4. V. Dolejší: Anisotropic mesh adaptation for finite volume and finite element methods on triangular meshes. *Comput. Visual. Sci.*, **1**(3):165–178, 1998.
- ZBL MR WS SC** 5. V. Dolejší, M. Feistauer and J. Felcman: On the discrete Friedrichs inequality for non-conforming finite elements, *Numer. Func. Anal. and Optimiz.*, **20**(5&6):437-447, 1999. **IF**
- ZBL MR SC** 6. V. Dolejší: Anisotropic Mesh Adaptation Technique for Viscous Flow Simulation. *East-West Journal of Numerical Mathematics*, **9**(1):1–24, 2001.
- ZBL MR WS SC** 7. V. Dolejší, M. Feistauer, C. Schwab: A Finite Volume Discontinuous Galerkin Scheme for Nonlinear Convection-Diffusion Problems. *Calcolo* , **39**:1–40, 2002. **IF**

<sup>1</sup>**IF**= publication with Impact Factor

<sup>2</sup>**ZBL**= publication in Zentrallblatt for Mathematics, **MR**= publication in Mathematical Reviews, **WS**= publication in Web of Science, **SC**= publication in Scopus

- ZBL MR WS SC** 8. V. Dolejší, M. Feistauer and C. Schwab: On some aspects of the Discontinuous Galerkin finite element method for conservation laws, *Math. Comput. Simul.*, **61**:333–346, 2003. **IF**
9. V. Dolejší: Numerical simulation of compressible flow through cascade of profiles, *TASK Quarterly*, **6**(1):177-186, 2002.
- ZBL MR WS SC** 10. V. Dolejší and J. Felcman. Anisotropic mesh adaptation for numerical solution of boundary value problems. *Numer. Meth. Partial Differ. Eqs.*, **20**:576–608, 2004. **IF**
- ZBL MR WS SC** 11. V. Dolejší: On the Discontinuous Galerkin Method for the Numerical Solution of the Navier–Stokes Equations, *Int. J. Numer. Methods Fluids*, **45**:1083–1106, 2004. **IF**
- ZBL MR WS SC** 12. V. Dolejší, M. Feistauer: A Semi-implicit Discontinuous Galerkin Finite Element Method for the Numerical Solution of Inviscid Compressible Flow, *J. Comput. Phys.*, **198**(2): 727-746, 2004. **IF**
- ZBL MR WS SC** 13. V. Dolejší, M. Feistauer, V. Sobotíková: Analysis of the Discontinuous Galerkin Method for Nonlinear Convection–Diffusion Problems, *Comput. Methods Appl. Mech. Eng.*, **194**: 2709-2733, 2005. **IF**
- MR** 14. M. Feistauer, V. Dolejší, V. Kučera: Numerical simulation of compressible flow with a wide range of the Mach number by the discontinuous Galerkin method, *IASME Transactions*, **6**(2): 964-973, 2005.
- ZBL MR WS SC** 15. V. Dolejší, M. Feistauer: Error estimates of the discontinuous Galerkin method for nonlinear nonstationary convection-diffusion problems, *Numer. Funct. Anal. Optim.*, **26**(3): 349-383, 2005. **IF**
16. J. Felcman, V. Dolejší, M. Feistauer: Towards adaptive methods for the modelling of the compressible flows, *Journal of Applied Mathematics, Statistics and Informatics*, **1**(2): 5-32, 2005.
- SC** 17. V. Dolejší: Discontinuous Galerkin method for the numerical simulation of unsteady compressible flow, *WSEAS Transactions on Systems*, **5**(5): 1083-1090, 2006.
- ZBL MR WS SC** 18. M. Breuss, V. Dolejší and A. Meister. On an adaptive method for heat conduction problems with boundary layers, *ZAMM* **86**(6), 450-463, 2006. **IF**
- MR SC** 19. M. Feistauer, V. Dolejší, V. Kučera: On the Discontinuous Galerkin Method for the Simulation of Compressible Flow with Wide Range of Mach Numbers, *Comput. Visual. Sci.*, **10**:17–27, 2007.
- ZBL MR WS SC** 20. V. Dolejší, M. Feistauer, J. Hozman: Analysis of semi-implicit DGFEM for nonlinear convection-diffusion problems on non-conforming meshes, *Comput. Methods Appl. Mech. Engrg.*, **196**: 2813–2827, 2007. **IF**
- ZBL MR WS SC** 21. V. Dolejší, P. Kůs, Adaptive backward difference formula – Discontinuous Galerkin finite element method for the solution of conservation laws, *Int. J. Numer. Meth. Engng.* **73**(12): 1739-1766, 2008. **IF**
- ZBL MR WS SC** 22. V. Dolejší: Analysis and application of the IIPG method to quasilinear nonstationary convection-diffusion problems, *J. Comp. Appl. Math.*, **222**: 251-273, 2008. **IF**
- ZBL MR WS SC** 23. V. Dolejší, M. Feistauer, V. Kučera, V. Sobotíková: An optimal  $L^\infty(L^2)$ -error estimate for the discontinuous Galerkin approximation of a nonlinear non-stationary convection-diffusion problem, *IMA J. Numer. Anal.*, **28**(3):496-521, 2008. **IF**
- WS SC** 24. V. Dolejší, T. Gallouët: A numerical solution of particular nonconservative hyperbolic problem, *Comput. Fluids*, **37**:10771091, 2008. **IF**
- MR WS SC** 25. V. Dolejší: Semi-implicit Interior Penalty Discontinuous Galerkin Methods for Viscous Compressible Flows, *Commun. Comput. Phys.* **4**(2): 231-274, 2008. **IF**
- ZBL MR WS SC** 26. V. Dolejší, M. Vlasák: Analysis of a BDF – DGFE scheme for nonlinear convection-diffusion problems, *Numer. Math.*, **110**:405-447, 2008. **IF**

- ZBL MR WS SC** 27. M. Feistauer, V. Dolejší, V. Kučera, V. Sobotíková:  $L^\infty(L^2)$ -error estimates for the DGFEM applied to convection-diffusion problems on nonconforming meshes, *J. Numer. Math.*, 17(1):45-65, 2009. **IF**
- MR WS SC** 28. V. Dolejší, O. Havle: The  $L^2$ -optimality of the IIPG method for odd degrees of polynomial approximation in 1D, *J. Sci. Comput.*, 42(1):122-143, 2010. **IF**
29. M. Vlasák, V. Dolejší, J. Hájek: A priori error estimates of extrapolated space-time discontinuous Galerkin method for nonlinear convection-diffusion problem, *Numer. Meth. Partial Diff. Eqs.*, 27(6):1456-1482, 2011 **IF**
- SC** 30. V. Dolejší, M. Holík, J. Hozman: Efficient solution strategy for the semi-implicit discontinuous Galerkin discretization of the Navier-Stokes equations, *J. Comput. Phys.* 230(11): 4176-4200, 2011. **IF**
- ZBL** 31. V. Dolejší, H.-G. Roos: BDF-FEM for parabolic singularly perturbed problems with exponential layers on layer-adapted meshes in space. *Neural Parallel Sci. Comput.* 18(2): 221-235, 2010
- ZBL** 32. V. Dolejší, A. Ern and M. Vohralík: A framework for robust a posteriori error control in unsteady nonlinear advection-diffusion problems, *SIAM J. Numer. Anal.*, 51(2): 773-793, 2013. **IF**
- ZBL** 33. V. Dolejší:  $hp$ -DGFEM for nonlinear convection-diffusion problems, *Math. Comput. Simul.*, 87:87-118, 2013. **IF**
- ZBL** 34. V. Dolejší: A design of residual error estimates for a high order BDF-DGFE method applied to compressible flows, *Int. J. Numer. Meth. Fluids*, 73(6): 523-559, 2013 **IF**
- ZBL** 35. V. Dolejší: Anisotropic  $hp$ -adaptive method based on interpolation error estimates in the  $L^q$ -norm, *Appl. Numer. Math.*, 82: 80-114, 2014 **IF**
- ZBL** 36. V. Dolejší, I. Šebestová, M. Vohralík: Algebraic and Discretization Error Estimation by Equilibrated Fluxes for Discontinuous Galerkin Methods on Nonmatching Grids, *J. Sci. Comput.*, 64(1): 1-34, 2015 **IF**
- ZBL** 37. V. Dolejší, F. Roskovec and M. Vlasák: Residual based error estimates for the space-time discontinuous Galerkin method applied to the compressible flows, *Comput. Fluids* 117:404-324, 2015 **IF**

## C2 Papers in journals published in the Czech Republic

38. J. Felcman and V. Dolejší: Investigation of accuracy for higher order finite volume schemes. *Journal of Engineering Mechanics*, 5(5):327–337, 1998.
- ZBL MR SC** 39. P. Angot, V. Dolejší, M. Feistauer and J. Felcman: Analysis of a Combined Barycentric Finite Volume–Nonconforming Finite Element Method for Nonlinear Convection–Diffusion Problem. *Applications of Mathematics*, 43:263-310, 1998.
- ZBL MR SC** 40. V. Dolejší, M. Feistauer, J. Felcman, and A. Kliková. Error estimates for barycentric finite volumes combined with nonconforming finite elements applied to nonlinear convection–diffusion problems. *Applications of Mathematics*, 47(4): 301-340, 2002.
41. V. Dolejší and J. Felcman: Numerical Methods for Hyperbolic Systems - Application in Fluid Dynamics, *Journal of Engineering Mechanics*, 9(3):139–152, 2002.
- ZBL MR** 42. V. Dolejší, M. Feistauer and C. Schwab: On Discontinuous Galerkin Methods for Nonlinear Convection–Diffusion Problems and Compressible Flow, *Mathematica Bohemica*, 127(2):163-179, 2002.
43. V. Dolejší, T. Gallouët: Numerical simulation of three-phase flow with a virtual mass effect, *Journal of Engineering Mechanics*, 12(6):403-415, 2005.
- ZBL MR WS SC** 44. V. Dolejší: On the solution of linear algebraic systems arising from the semi-implicit DGFE discretization of the compressible Navier-Stokes equations, *Kybernetika*, 46(2): 260-280, 2010. **IF**

- ZBL SC** 45. O. Havle, V. Dolejší, M. Feistauer: Discontinuous Galerkin method for nonlinear convection-diffusion problems with mixed Dirichlet-Neumann boundary conditions, *Appl. Math.*, **55**(5): 353-372, 2010. **IF**
- ZBL SC** 46. I. Šebestová, V. Dolejší: A posteriori error estimates of the discontinuous Galerkin method for the heat conduction equation, *Acta Universitatis Carolinae, Mathematica et Physic*, **53**(1): 77-94, 2012.

**C3** Papers in revised foreign proceedings

47. J. Felcman, V. Dolejší and M. Feistauer: Adaptive Finite Volume Method for the Numerical Solution of the Compressible Euler Equations. In S. Wagner, E. H. Hirschel, J. Périaux and R. Piva, editors, *Computational Fluid Dynamics '94*, pages 894-901, John Wiley and Sons, Stuttgart, 1994.
48. V. Dolejší and P. Angot: Finite Volume Methods on Unstructured Meshes for Compressible Flows. In F. Benkhaldoun and R. Vilsmeier, editors, *Finite Volumes for Complex Applications (Problems and Perspectives)*, pages 667-674, Hermes, Rouen, 1996.
- MR** 49. J. Felcman and V. Dolejší: Adaptive Methods in Internal and External Flow Computations. In M. Brøns, M. P. Bendsøe and M. P. Sørensen, editors, *Progress in Industrial Mathematics at ECMI 96*, pages 424-431, B. G. Teubner, Stuttgart, 1997.
- WS** 50. V. Dolejší: Adaptive Methods for the Numerical Simulation of the Compressible Navier-Stokes Equations. In K. D. Papailiou, D. Tsahalis, J. Périaux, C. Hirsch, and M. Pandolfi, editors, *Computational Fluid Dynamics'98*, volume 1, pages 393-397. ECCOMAS, John Wiley & Sons, 1998.
- ZBL MR** 51. V. Dolejší and M. Feistauer: On the Discontinuous Galerkin Method for the Numerical Solution of Compressible High-Speed Flow In F. Brezzi, A. Buffa, S. Corsaro, A. Murli (eds): *Numerical Mathematics and Advanced Applications, ENUMATH 2001*, pages 65-84, Springer-Verlag, Italia, 2003.
- ZBL MR** 52. V. Dolejší: A higher order scheme based on the finite volume approach. In R. Herbin and D. Kröner, editors, *Finite Volumes for Complex Applications III (Problems and Perspectives)*, pages 333-340, Hermes, 2002.
53. V. Dolejší, J. Felcman: Anisotropic mesh adaptation for transonic and supersonic flow simulation. In A. Handličová, Z. Krivá, K. Mikola, D. Ševčovič, editors, *Algoritmy 2002, 16<sup>th</sup> Conference on Scientific Computing*, Slovak University of Technology, Bratislava, pages 78-85, 2002.
- ZBL MR WS** 54. V. Dolejší: Discontinuous Galerkin finite element method for the numerical solution of viscous compressible flow. In M. Feistauer, V. Dolejší, P. Knobloch, K. Najzar (eds): *Numerical Mathematics and Advanced Applications, ENUMATH 2003*, pages 260-268, Springer-Verlag, Berlin Heidelberg, 2004.
- WS** 55. V. Dolejší: Anisotropic mesh adaptation method for computational mechanics problems, In K. J. Bathe, editor, *Computational Fluid and Solid Mechanics 2003*, vol. 2, pages 1925-1928, 2003.
56. V. Dolejší, T. Gallouët: On Finite Volume Schemes for Nonconservative Hyperbolic Problems. In F. Bankhaldoun, D. Ouzar, S. Raghay (eds): *Finite volumes for complex applications IV, Problems & Perspectives*, pages: 295-304, Hermes Science Publishing, London, 2005.
- ZBL** 57. M. Feistauer, V. Dolejší, V. Kučera: On a semi-implicit discontinuous Galerkin FEM for the nonstationary compressible Euler equations, In F. Asukara, H. Aiso, S. Kawashima, A. Matsumura, S. Nishibata, K. Nishihara (eds): *Hyperbolic Problems: Theory Numerics and Applications*, proceeding of Tenth international conference in Osaka, September 2004, pages 391-398, Yokohama Publishers, Inc. 2006.

- ZBL MR WS 58.** V. Dolejší: Higher order semi-implicit discontinuous Galerkin finite element schemes for nonlinear convection-diffusion problems In A. Bermúdez de Castro, D. Gómez, P. Quintela, P. Salgado (eds): *Numerical Mathematics and Advanced Applications, ENUMATH 2005*, pages 432-439, Springer-Verlag, Berlin Heidelberg, 2006.
- WS 59.** V. Dolejší: Numerical simulation of compressible flows with the aid of the BDF - DGFE scheme, In: T. Simons, G. Maroulis (eds.) Recent Progress in Computational Science and Engineering, ICCSME 2006 conference, volume 7A, Koninklijke Brill NV, Leiden, The Netherlands, pages 137-140, 2006.
- ZBL MR WS 60.** V. Dolejší: Higher Order Numerical Schemes for Hyperbolic Systems with an Application in Fluid Dynamics, In S. Benzoni-Gavage, D. Serre (eds): *Hyperbolic Problems: Theory, Numerics and Applications*, proceeding of the Eleventh International Conference in Lyon, July 2006, pages 77–88, Springer-Verlag Berlin Heidelberg, 2008.
- ZBL WS 61.** V. Dolejší: Incomplete interior penalty Galerkin method for a nonlinear convection-diffusion equation, In K. Kunisch, G. Of, O. Steinbach (eds): *Numerical Mathematics and Advanced Applications, ENUMATH 2007*, pages 457-464, Springer-Verlag, Berlin Heidelberg, 2008.
- ZBL WS 62.** J. Hozman, V. Dolejší: BDF-DGFE method for the compressible Navier-Stokes equations, In K. Kunisch, G. Of, O. Steinbach (eds): *Numerical Mathematics and Advanced Applications, ENUMATH 2007*, pages 331-338, Springer-Verlag, Berlin Heidelberg, 2008.
- ZBL WS 63.** M. Vlasák, V. Dolejší: Implicit-Explicit Runge-Kutta discontinuous Galerkin finite element method for convection-diffusion problems, In K. Kunisch, G. Of, O. Steinbach (eds): *Numerical Mathematics and Advanced Applications, ENUMATH 2007*, pages 355-362, Springer-Verlag, Berlin Heidelberg, 2008.
- WS SC 64.** V. Dolejší, M. Holík, J. Hozman and M. Vlasák: Semi-Implicit Solution of the Convection-Diffusion Problems with Applications in Fluid Dynamics, International Conference on Numerical Analysis and Applied Mathematics, Sep 18-22, 2009 Rethymno, Greece, Numerical Analysis and Applied Mathematics, Book Series: AIP Conference Proceedings 1168: 1200-1203, 2009
65. V. Dolejší: Semi-implicit discontinuous Galerkin finite element method for the steady state compressible flows, In J. C. F. Pereira, A. Sequeira, J. M. C. Pereira (eds): *Proceeding of the Fifth European Conference on Computational Fluid Dynamics*, Lisbon, Portugal, June 14-17, 2010, pages 1-20.
66. M. Vlasák, V. Dolejší: Implicit-Explicit backward difference formulae discontinuous Galerkin finite element methods for convection-diffusion problems In G. Kreiss, P. Lotstedt, A. Malqvist, M. Neytcheva (eds): *Numerical Mathematics and Advanced Applications, ENUMATH 2009*, Springer, p. 921- 928, 2010.
67. V. Dolejší, M. Holík: Semi-implicit DGFE discretization of the compressible Navier-Stokes equations: efficient solution strategy In G. Kreiss, P. Lotstedt, A. Malqvist, M. Neytcheva (eds): *Numerical Mathematics and Advanced Applications, ENUMATH 2009*, Springer, p. 15-28, 2010.
68. J. Hozman, V. Dolejší: A priori error estimates for DGFEM applied to nonstationary nonlinear convection-diffusion equation In G. Kreiss, P. Lotstedt, A. Malqvist, M. Neytcheva (eds): *Numerical Mathematics and Advanced Applications, ENUMATH 2009*, Springer, p. 459-467, 2010.

#### C4 Papers in revised proceedings of conferences held in the Czech Republic

69. M. Feistauer, V. Dolejší: Discontinuous Galerkin method for compressible flow and conservation laws. In J. Chleboun, P. Přikryl, K. Segeth (eds): *Programs and Algorithms of Numerical Mathematics 12*, Academy of Science of the Czech Republic, Prague, 2004, 47–62.

70. V. Dolejší: An efficient implementation of the semi-implicit discontinuous Galerkin method for compressible flow simulation. In J. Chleboun, K. Segeth, T. Vejchodský (eds): Programs and Algorithms of Numerical Mathematics 13, Academy of Science of the Czech Republic, Prague, 2006, 74–79.
71. P. Kůs, V. Dolejší: Solution of time-dependent convection-diffusion equations with the aid of higher order adaptive methods with respect to space and time. In J. Chleboun, K. Segeth, T. Vejchodský (eds): Programs and Algorithms of Numerical Mathematics 13, Academy of Science of the Czech Republic, Prague, 2006, 184–189.
- MR 72. J. Hozman, V. Dolejší: Analysis of the discontinuous Galerkin finite element method applied to a scalar nonlinear convection-diffusion equation. In J. Chleboun, K. Segeth, T. Vejchodský (eds): Programs and algorithms of numerical mathematics 14, 97102, Acad. Sci. Czech Repub. Inst. Math., Prague, 2008,
- MR 73. J. Holík, V. Dolejší: Discontinuous Galerkin method for the simulation of 3D viscous compressible flows, In J. Chleboun, K. Segeth, T. Vejchodský (eds): Programs and algorithms of numerical mathematics 14, 9196, Acad. Sci. Czech Repub. Inst. Math., Prague, 2008,

#### D. Textbooks

1. V. Dolejší, M. Feistauer: Analysis of the discontinuous Galerkin method, Lecture Series 2008-08, von Karman Institute for Fluid Dynamics, Belgie, 2008
2. V. Dolejší, K. Najzar: Nelineární funkcionální analýza, skriptum, Matfyzpress, 2011.

#### E. Other scientific works

##### E1 Original papers in nonrevised proceedings of conferences held abroad

1. V. Dolejší. Numerical simulation of compressible viscous flow. In M. Deville and R. Owens, editors, *Proceedings of 16<sup>th</sup> IMACS World Congress 2000*. EPFL Lausanne, Switzerland, 2000.
2. J. Felcman, V. Dolejší: Mathematical modelling of 3D flow problems. In R. Kaszynski (eds): *Proceeding of 7th IEEE International Conference on Methods and Models in Automation and Robotics*, volume 1, pages 39–44, Technical University of Szczecin, 2001.
3. V. Dolejší: Numerical Simulation and Adaptive Methods for Transonic Flow. In *EC-COMAS 2000*, CD-Rom, 2000.
4. V. Dolejší: Numerical simulation of compressible flow through cascade of profiles. In proceeding of Seminar/Summer School CFD for Turbomachinery Applications, September 1-3, 2001, Gdansk, CD-Rom, 2001.
5. V. Dolejší and J. Hozman: Semi-implicit discontinuous Galerkin method for the solution of the compressible Navier-Stokes equations, In P. Wesseling, E. Onate, J. Périaux (eds): *European Conference on Computational Fluid Dynamics, Egmond aan Zee, The Netherlands, September 5-8, 2006*, TU Delft, The Netherlands, pp.1061-1080, 2006.

##### E2 Original papers in nonrevised proceedings of conferences held in the Czech Republic

6. V. Dolejší: Numerical Solution of the Navier - Stokes Equation. In K. Kozel and J. Příhoda, editors, *Dynamika tekutin'95*, pages 15–16, Ústav termomechaniky AV ČR, Praha, 1995.
7. V. Dolejší: Higher Order Finite Volume Methods for Compressible Flows. In K. Kozel and J. Příhoda, editors, *Dynamika tekutin'96*, pages 7–8, Ústav termomechaniky AV ČR, Praha, 1996.

8. V. Dolejší, M. Feistauer and J. Felcman: Algebraic turbulence model for unstructured meshes. In P. Jonáš and V. Uruba, editors, *Dynamika tekutin'97*, pages 9–10, Ústav termomechaniky AV ČR, Praha, 1997.
9. M. Feistauer, V. Dolejší and J. Felcman: Higher Order Adaptive Methods for the Solution of Transonic Flows. In K. Kozel and J. Příhoda, editors, *Aktuální problémy mechaniky tekutin'96*, Ústav termomechaniky AV ČR, Praha, 1996.
10. V. Dolejší: Anisotropic Mesh Adaption for Compressible Flows. In K. Kozel and J. Příhoda, editors, *Aktuální problémy mechaniky tekutin'97*, pages 13–14, Ústav termomechaniky AV ČR, Praha, 1997.
11. M. Feistauer, V. Dolejší, J. Felcman, A. Kliková: Adaptive mesh refinement for problems of fluid dynamics, Proceedings of the colloquium *Fluid Dynamics 99*, Institute of Thermomechanics of the Czech Academy of Sciences, Praha, October 1999, 53–60.
12. M. Feistauer, V. Dolejší, J. Felcman, A. Kliková and M. Rokyta: Numerical schemes for nonlinear convection–diffusion problems, theory and applications, Proceedings of the international conference *Software and Algorithms of Numerical Mathematics*, Nečtiny, September 1999, 51–74,
13. J. Felcman, V. Dolejší, M. Feistauer and P. Šolín: Numerics for convection dominated flow, Proceedings of the international conference *Software and Algorithms of Numerical Mathematics*, Nečtiny, September 1999, 75–94,
14. V. Dolejší, J. Felcman: An Alternative Mathematical Formulation of Anisotropic Mesh Adaptation, Proceedings of the XIV Summer School *Software and Algorithms of Numerical Mathematics*, Kvilda, 41-58, 2002.
15. M. Bejček, V. Dolejší and M. Feistauer: On Discontinuous Galerkin Method for Numerical Solution of Conservation Laws and Convection–Diffusion Problems. Proceedings of the XIV Summer School *Software and Algorithms of Numerical Mathematics*, Kvilda, 7-32, 2002.
16. V. Dolejší: Numerical Solver for Compressible Flows–Anisotropic Mesh Adaption. In M. Feistauer, R. Rannacher and K. Kozel, (eds), *Numerical Modeling in Continuum Mechanics 1996*, pages 246–253, Matfyzpress, Praha, 1997.
17. V. Dolejší: Adaptation of Triangular Meshes in Continuum Mechanics, In: M. Feistauer, R. Rannacher, K. Kozel (eds): *Numerical Modeling in Continuum Mechanics 2000*, pages 88–97, Matfyzpress, Praha, 2001.
18. V. Dolejší, M. Feistauer: Discontinuous Galerkin method for compressible flow, In K. Kozel, J. Příhoda, M. Feistauer (eds): *4<sup>th</sup> Seminar Euler and Navier Stokes Equations*, Institute of Thermodynamics, Academy of Science, Prague, May 23-25, 2001, pages 31–34.
19. V. Dolejší, L. Staněk: Numerical simulation of a pipe flow with virtual mass effect, P. Jonáš, V. Uruba (eds), Proceedings of the colloquium *Fluid Dynamics 2004*, Institute of Thermomechanics of the Czech Academy of Sciences, Praha, 2004, 27–30.
20. V. Dolejší: Higher order semi-implicit discontinuous Galerkin finite element schemes for compressible flow simulation. In I. Marek (eds): *Software and Algorithms of Numerical Mathematics*, Srní, Bohemia, 2006, 41-57.
21. M. Feistauer, V. Dolejší, V. Kučera: Numerical Solution of Compressible Flow, In P. Kučera (ed): *Seminar of Applied Mathematics*, Union of Czech Mathematicians and Physicians, Prague 2005, 63–82.
22. V. Dolejší: Numerical simulation of inviscid compressible flow by higher order numerical schemes In D. Bialek, M. Stork, M. Husak, Y. Li, J. Jakovenko (eds): Proceedings of the 8th WSEAS International Conference on Automatic Control, Modeling and Simulation, 405-410, Prague, Czech Republic, March 12-14, 2006

### E3 Editor of proceeding

- ZBL MR** 23. M. Feistauer, V. Dolejší, P. Knobloch, K. Najzar, K.: Numerical mathematics and advanced applications. Proceedings of ENUMATH 2003, the 5th European conference on numerical mathematics and advanced applications, Prague, Czech Republic, August 18–22, 2003. (2004).

### E4 Research reports

23. V. Dolejší: Combined Finite Volume–Finite Element Methods for Compressible Flow on Unstructured Meshes. September 1995, Prague–Marseille.
24. V. Dolejší: Sur des méthodes combinant des volumes finis et des éléments finis pour l'écoulement des fluides compressibles sur des maillages non conformes I. February 1996, Prague–Marseille. (*in French*)
25. V. Dolejší: Sur des méthodes combinant des volumes finis et des éléments finis pour l'écoulement des fluides compressibles sur des maillages non conformes II. September 1996, Prague–Marseille. (*in French*)
26. V. Dolejší and J. Felcman: Numerical Solution of Compressible Flow through Cascade of Profile. May 1996, Prague.
27. V. Dolejší and J. Felcman: Multilevel Adaptive Methods for the Solution of the Euler Equation. May 1996, Prague.
28. V. Dolejší and J. Felcman: Computation of Viscous Compressible Flows in the GAMM–channel. May 1996, Prague.
29. V. Dolejší M. Feistauer and J. Felcman: Algebraic turbulence models for unstructured meshes. September 1998, Prague.

### E5 Software products

30. V. Dolejší: Barycentric finite volumes for NS equations. MFF UK Praha, 1996. Version 1.0, 410 kB.
31. V. Dolejší: Anisotropic mesh generator. MFF UK Praha, 1996. Version 1.0, 270 kB.
32. V. Dolejší: Higher order schemes for FVM. MFF UK Praha, 1996. Version 1.0, 80 kB.
33. V. Dolejší: Anisotropic mesh generator. MFF UK Praha, 1997. Version 2.0, 260 kB.
34. V. Dolejší: Combined triangular FV - FE schemes for compressible flow. MFF UK Praha, 1998. Version 1.0, 600 kB.
35. V. Dolejší: ANGENER 3.0, Anisotropic mesh generator. MFF UK Praha, 2000. Version 3.0, 280 kB.
36. V. Dolejší: FVEM 1.0, Combined FV and FE methods for the simulation of compressible flow. MFF UK Praha, 2000. Version 1.0, 1130 kB.
37. V. Dolejší: DGM 1.0, Discontinuous Galerkin method for the simulation of compressible flow. MFF UK Praha, 2001. Version 1.0, 800 kB.
38. V. Dolejší: DGM 2.0, Discontinuous Galerkin method for the simulation of compressible flow. MFF UK Praha, 2002. Version 2.0, 1.2 MB.
39. V. Dolejší: DGM 3.0, Discontinuous Galerkin method for the simulation of compressible flow. MFF UK Praha, 2003. Version 3.0, 1.4 MB.
40. V. Dolejší: DGM-impl 1.0, Semi-implicit Discontinuous Galerkin method for the simulation of inviscid compressible flow. MFF UK Praha, 2003. Version 2.0, 1.2 MB.
41. V. Dolejší: DGFEM 1.0, Discontinuous Galerkin finite element method for convection-diffusion problem. MFF UK Praha, 2004. Version 1.0, 2.1 MB.



42. V. Dolejší: ADGFEM 2.0, Adaptive discontinuous Galerkin finite element method for the Euler equations, MFF UK Praha, 2005. Version 2.0, 2.1 MB.
43. V. Dolejší, J. Hozman: ADGFEM 3.0, Adaptive discontinuous Galerkin finite element method for the Navier-Stokes equations, MFF UK Praha, 2006. Version 3.0, 4.8 MB.
44. V. Dolejší, J. Hozman: ADGFEM 4.1, Adaptive discontinuous Galerkin finite element method for the Navier-Stokes equations, MFF UK Praha, 2007. Version 4.1, 5.1 MB.
45. V. Dolejší, J. Hozman: ADGFEM 5.1, Adaptive discontinuous Galerkin finite element method for the Navier-Stokes equations, MFF UK Praha, 2008. Version 5.1, 5.9 MB.

#### **E6 Posters**

46. V. Dolejší: Simulation of viscous compressible flow. *3rd European Mathematical Congress*, Barcelona, Spain, July 10–14, 2000
47. V. Dolejší: Anisotropic mesh adaptation method for viscous compressible flows. *ICTAM 2000 congress*, Chicago, USA, August 27–September 2, 2000
48. V. Dolejší: A higher order scheme based on the finite volume approach. *Finite Volumes for Complex Applications III (Problems and Perspectives)*, Porquerolles, France, June 24–28, 2002.
49. V. Dolejší, J. Felcman: Anisotropic mesh adaptation for transonic and supersonic flow simulation. *Algoritmy 2002, 16th Conference on Scientific Computing*, Podbanske, Vysoke Tatry, Slovakia, September 9–13, 2002.

#### **E. Invited lectures**

1. Compressible Flow Solvers, keynote lecture, *Workshop of Mathematical Aspects of Computational Fluid Dynamics*, Oberwolfach, Germany, November 9–15, 2003.
2. Higher Order Numerical Schemes for Hyperbolic Systems with an Application in Fluid Dynamics, *Eleventh International Conference on Hyperbolic Problems Theory, Numerics, Applications*, Lyon, France, July 17-21, 2006
3. Study of the BDF-DGFE method for the solution of the compressible Navier-Stokes equations, *Computational Methods with Applications*, Harrachov, Czech Republic, August 19-25, 2007
4. On the solution of linear algebraic systems arising from the semi-implicit DGFE discretization of the compressible Navier-Stokes equations, *Conference Algoritmy, Podbánské*, Slovakia, March 16-20, 2009
5. Discontinuous Galerkin finite element method: from numerical analysis to application to compressible flow simulation, *The Eighth European Conference on Numerical Mathematics and Advanced Applications (ENUMATH)*, Uppsala, Sweden, July 29 - June 3, 2009

#### **G. Survey papers**

#### **H. Patents**

#### **I. Thesis/Disertations**

1. V. Dolejší: Combined Finite Volume–Finite Element Methods for Compressible Flow on Unstructured Meshes, Charles University Prague and Université Méditerranée Marseille, PhD Thesis, 1998 (partly written in French).
2. V. Dolejší: Adaptive higher order methods for compressible flow. Charles University Prague, Faculty of Mathematics and Physics, Habilitation thesis, Prague, 2003.
3. V. Dolejší: Discontinuous Galerkin method for convection-diffusion problems with applications in fluid dynamics. Charles University Prague, Faculty of Mathematics and Physics, Doctoral thesis, Prague, 2008.

## K. Other publications

- ZBL** 1. V. Dolejší, M. Feistauer, J. Felcman: Výpočtová matematika a počítačová dynamika tekutin. Pokroky matematiky, fyziky a astronomie, **47**(3):206-220, 2002.
2. Charles University Prague, Faculty of Mathematics and Physics, publikace k 50. výročí založení MFF UK, několik obrázků a krátký komentář, 2002.

## J. Participation on grants

### J1 Odpovědný řešitel za MFF UK

1. Adaptivní metody vyššího řádu pro stlačitelné proudění, postdoktorandský grant GAČR, 201/00/D116, září 2000 - srpen 2003.
2. Dynamika čerpacího systému pro dopravu suspenzí, GA ČR, 101/03/0229, 2003-2005.
3. Numerická simulace nestacionárního proudění stlačitelných tekutin pomocí metod vyššího řádu přesnosti, GA UK, 316/2006/B-MAT/MFF, 2006-2008.
4. Adaptive Higher-Order Variational Methods for Aerodynamic Applications in Industry (ADIGMA), Research project No. AST5-CT-2006-030719 financed within the 3<sup>rd</sup> Call of the 6<sup>th</sup> European Framework Programme, 2006-2009.

### J2 Člen řešitelského kolektivu

5. Kvalitativní teorie a numerická analýza problémů dynamiky tekutin, GA ČR, 201/99/0267, 1999-2001.
6. Matematická a numerická analýza problémů mechaniky tekutin, GA ČR, 201/02/0684, 2002-2004.
7. Adaptivní metody pro řešení nelineárních diferenciálních rovnic s aplikacemi v mechanice tekutin a ochraně životního prostředí, GA UK, 3/1998/B MAT/MFF, 1998-2000.
8. Počítačová simulace třírozměrného proudění pomocí adaptivních metod, GA UK, 275/2001/B-MAT/MFF, 2001-2003.
9. Počítačová simulace nestacionárního proudění, GA UK, 343/2005/B-MAT/MFF, 2005-2007.
10. Numerická simulace proudění v oblastech s proměnnou geometrií, GA UK, 344/2005/B-MAT/MFF, 2005-2007.
11. Matematická teorie a numerická simulace problémů mechaniky tekutin, GA ČR, 201/05/0005, 2005-2007.

## L. Lectures at conferences, seminars and workshops

1. Numerical solution of the compressible Navier - Stokes equations. Doctorands week, Charles University, Prague, September 1995
2. On numerical schemes for transonic flow problems. Workshop Prague-Heidelberg, University of Heidelberg, Germany, November 1995
3. Combine finite volume - finite element methods for transonic flow. Seminar: Institute of Mathematic, Université de Pau, France, May 1996
4. Finite volumes methods on unstructured meshes for compressible flow, Seminar: IMT, Université Méditerranée, Marseille, France, May 1996
5. Finite Volume Methods on Unstructured Meshes for Compressible Flows. Finite Volumes for Complex Applications (Problems and Perspectives), Rouen, France, July 15 -18, 1996

6. Anisotropic mesh adaptation. Seminar of Department of Numerical Mathematics, Charles University of Prague, April 1997
7. Anisotropic mesh adaptation for unstructured meshes Workshop: Domain Decomposition and Multifields in Fluid Dynamics and Solid Mechanics. Hirsheg, Austria, November 1997
8. Anisotropic mesh adaptation for unstructured meshes. Seminar of Mathematisches Institute, University of Stuttgart, Germany, November 1997
9. Numerical simulation of compressible flows using combined finite volume–finite element methods on unstructured grids. Seminaire: “Modeles et calculus pour la mecanique des fluids”, IRPHE, Université Aix-Marseille I et II, France, April 6, 1998
10. Analysis of a combined finite volume–finite element method for nonlinear convection–diffusion problem. Seminaire: “Les équations différentielles partielles”, Université Aix-Marseille I et II, France, May 26, 1998
11. Adaptive Methods for the Numerical Simulation of the Compressible Navier–Stokes Equations. ECCOMAS 98, Athens, Greece, September 7–11, 1998.
12. Analysis of a combined finite volume–finite element method for nonlinear convection–diffusion problem. Seminar of Department of Numerical Mathematics, Charles University of Prague, October 22 and November 12, 1998
13. Numerical Schemes for Hyperbolic Systems - Application in Fluid Dynamics. 8<sup>th</sup> International Conference on Hyperbolic Problems, Magdeburg, Germany, February 28– March 3, 2000
14. Anisotropic Mesh Adaptation Technique for Viscous Flow Simulation. Première Conférence Franco–Tchèque sur la Mécanique des Fluides Mathématique, Marseille, France, March 20–24, 2000
15. Adaptive method for simulation of compressible viscous flow. Seminar of Continuum Mechanics, Charles University of Prague, April 17, 2000
16. Anisotropic mesh adaptation technique for finite volume and finite element methods. Seminar of the Department of Mathematics, University Hamburg, Germany, June 23, 2000
17. Adaptation of Triangular Meshes in Continuum Mechanics. Numerical Modeling in Continuum Mechanics. 4<sup>th</sup> Summer Conference, Prague, 31st July–3rd August 2000
18. Numerical simulation of compressible viscous flow. 16<sup>th</sup> IMACS World Congress 2000, EPFL Lausanne, Switzerland, August 21 –25, 2000.
19. Numerical Simulation and Adaptive Methods for Transonic Flow. ECCOMAS 2000, Barcelona, Spain, September 11–14, 2000
20. Numerical methods for partial differential equations. Seminar of Department of Numerical Mathematics, Charles University of Prague, October 12, 2000
21. On the combined finite volume - finite element methods for nonlinear convection-diffusion problems. Seminaire équations aux dérivées partielles non lineaires, Université Paris-Sud, Laboratoire de Mathématique, France, December 7, 2000
22. Discontinuous Galerkin Method, (together with prof. M. Feistauer, Seminar of Continuum Mechanics, Charles University of Prague, May 14, 2001
23. Discontinuous Galerkin Method, (together with prof. M. Feistauer, Seminar of Numerical Mathematics, Charles University of Prague, May 17, 2001

24. Discontinuous Galerkin method for compressible flow, 4<sup>th</sup> Seminar Euler and Navier Stokes Equations, Institute of Thermodynamics, Academy of Science, Prague, May 23-25, 2001
25. Piecewise linear numerical approximation in plane domains. Programme ERASMUS - SOCRATES, Serie of lectures at University of Hamburg, Germany, June 11-22, 2001.
26. The Use of Discontinuous Galerkin Method for the Numerical Solution of Convection-Dominated Problems, ENUMATH conference, Ischia, Italy, July 23-27, 2001.
27. Numerical simulation of compressible flow through cascade of profiles. Seminar/Summer School CFD for Turbomachinery Applications, Gdansk, Poland, September 1-3, 2001.
28. AMA-method independent adaptive technique for triangular grid. Summer school "Software and Algorithms in Numerical Mathematics", Kvilda, Czech Republic, September 3-7, 2001.
29. Mathematical Background of the Anisotropic Mesh Adaptation Technique. Seminar des DFG-Sonderforschungsbereichs 393, Numerische Simulation auf massiv parallelen Rechnern, Chemnitz, Germany, September 17, 2001.
30. Anisotropic Mesh Adaptation-Method Independent Adaptive Technique. Chemnitz Finite Element Method Symposium 2001, September 19-21, 2001
31. Anisotropic mesh adaptation technique for inviscid and viscous flow computation. AMFLOW 2001, Workshop on Adaptive Methods for Flow Computation, Heidelberg University, October 22-24, 2001.
32. On the use of the anisotropic mesh adaptation technique for computation of science problems, Seminar Politechnika Warszawska, Warsaw, Poland, November 23, 2001.
33. Discontinuous Galerkin method for high speed flow. Workshop Heidelberg-Prague, Heidelberg, Germany, December 7-8, 2001.
34. The use of discontinuous Galerkin method for compressible flow simulations. Seminar of Mathematical Institute of AS Czech Republic, *Current problems in numerical analysis*, Prague, June 7, 2002.
35. Numerical methods for convection-diffusion equations. Programme ERASMUS - SOCRATES, Serie of lectures at University of Hamburg, Germany, June 10-15, 2002.
36. A higher order scheme based on the finite volume approach. Finite Volumes for Complex Applications III (Problems and Perspectives), Porquerolles, France, June 24-28, 2002.
37. Numerical solution of the compressible Navier-Stokes equations with the aid of the discontinuous Galerkin method. 2nd Czech-France conference: Mathematical Fluid Mechanics, Třešť, Czech Republic, July 24-28, 2002.
38. Anisotropic mesh adaptation for transonic and supersonic flow simulation. Algoritmy 2002, 16th Conference on Scientific Computing, Podbanske, Vysoke Tatry, Slovakia, September 9-13, 2002.
39. An alternative formulation of the anisotropic mesh adaptation method. FE Symposium, Chemnitz, Germany, September 23-25, 2002.
40. On the discontinuous Galerkin method for the numerical solution of convection-diffusion problems. Centre of Applied Mathematics, West Bohemia University, Plzeň, November, 7, 2002.
41. On the discontinuous Galerkin method for the numerical solution of the Navier-Stokes equations. Workshop Dresden - Prague, Numerical methods for partial differential equations and control, November, 29, 2002.

42. La simulation numérique de l'écoulement des fluides compressibles, Université Rennes I, Rennes, France, May 7, 2003.
43. La simulation numérique de l'écoulement des fluides compressibles, Université de Bretagne Occidentale, Brest, France, May 13, 2003.
44. Anisotropic mesh adaptation method for computational mechanics problems, 2<sup>nd</sup> MIT Conference on Computational Fluid and Solid Mechanics, Cambridge, USA, June 16-19, 2003.
45. Discontinuous Galerkin finite element method for compressible flow, Kolloquium in Angewandter und Numerische Mathematik, Mathematisches Institut der Universität Basel, June 27, 2003.
46. On the discontinuous Galerkin finite element method for the numerical solution of the compressible Navier–Stokes equations, ENUMATH 2003 conference, Prague, August 18-22, 2003.
47. Discontinuous Galerkin Method for the Compressible Flow Simulation, EFMC conference, Toulouse, France, August 24-28, 2003.
48. The discontinuous Galerkin method for the numerical solution of the compressible flows, 16th Chemnitz FEM Symposium 2003, Chemnitz, Germany, September 22-24, 2003
49. Compressible Flow Solvers, Seminar of Numerical Mathematics, Charles University Prague, November 6, 2003
50. Introduction aux methodes de Galerkin discontinues, Groupe de travail Volumes Finis / Galerkin discontinu, Université de Provence, Marseille, France, January 19, 2004
51. Methodes de Galerkin discontinues pour les systemes de lois de conservation Groupe de travail Volumes Finis / Galerkin discontinu, Université de Provence, Marseille, France, January 26, 2004
52. Discontinuous Galerkin finite element method for convection-diffusion problems, SŠminaire d'analyse appliquŠe, Université de Provence, Marseille, France, February 3, 2004
53. Adaptation des maillages anisotropiques pour les Équations aux dérivées partielles, serie of lectures in the frame of SOCRATES-ERASMUS, ESM2, Université Méditerranée, Marseille, March 15 - 19, 2004
54. On a numerical simulation of multiphase flow with a virtual mass effect, Seminar of Numerical Mathematics, Charles University Prague, January 6, 2005.
55. Analysis of a semi-implicit discontinuous Galerkin finite element method for nonlinear convection-diffusion problems, Workshop on Numerical Analysis Prague-Dresden, May 27, 2005
56. Anisotropic mesh adaptation technique for the partial differential equations, SIAM Conference on Mathematical and Computational Issues in the Geosciences, Avignon, France, June 7-10, 2005
57. On Finite Volume Schemes for Nonconservative Hyperbolic Problems, Finite Volumes for Complex Applications IV, Marrakech, July 4 – 8, 2005
58. On a semi-implicit discontinuous Galerkin finite element method for nonlinear convection-diffusion problems, The Sixth European Conference on Numerical Mathematics and Advanced Applications, Santiago de Compostela, Spain, July 18 – 22, 2005
59. Semi-implicit discontinuous Galerkin finite element method for nonlinear convection-diffusion problems, Seminar of Numerical Analysis , Mathematical Institute of Academy of Science, Prague, December 9, 2005

60. Numerical simulation of inviscid compressible flow by higher order numerical schemes, The 8th WSEAS International Conference on Automatic Control, Modeling and Simulation, Prague, Czech Republic, March 12-14, 2006
61. An efficient implementation of the semi-implicit discontinuous Galerkin method for compressible flow simulation, Programs and Algorithm of Numerical Mathematics, Prague, Czech Republic, May 28-31, 2006
62. Analysis of a higher order semi-implicit discontinuous Galerkin finite element method for nonlinear convection-diffusion problems, The Mathematics of Finite Elements and Applications, Brunel University, West London, UK, June 13-16, 2006
63. Higher Order Numerical Schemes for Hyperbolic Systems with an Application in Fluid Dynamics, Eleventh International Conference on Hyperbolic Problems Theory, Numerics, Applications, Lyon, France, July 17-21, 2006 (invited talk)
64. Semi-implicit discontinuous Galerkin method for the solution of the compressible Navier-Stokes equations, European Conference on Computational Fluid Dynamics, Egmond aan Zee, The Netherlands, September 5-8, 2006
65. Numerical simulation of compressible flows with the aid of the BDF - DGFE scheme, ICCSME conference, Chania, Greece, October 26 -November 1, 2006
66. Higher order semi-implicit discontinuous Galerkin finite element method for nonlinear unsteady convection-diffusion problems, University of Marburg, Germany, November 6, 2006
67. Anisotropic mesh adaptation technique for the simulation of compressible flows Institute of Aeronautics & Applied Mechanics, Warsaw University of Technology, Poland, December 4-5, 2006
68. Perspectives of DGM for convection-diffusion problems with nonlinear diffusion, Workshop on Numerical Analysis Prague-Dresden, Königstein, Germany, April 20-21, 2007
69.  $hp$  error estimates of DGFEM for nonlinear convection-diffusion equations, European Finite Element Fair 2007, Marseille, France, May 17-19, 2007
70. Higher order semi-implicit discontinuous Galerkin finite element method for the solution of the compressible Navier-Stokes equations, International Congress on Industrial and Applied Mathematics, Zürich, Switzerland, July 16-20, 2007
71. Study of the BDF-DGFE method for the solution of the compressible Navier-Stokes equations, Computational Methods with Applications, Harrachov, Czech Republic, August 19-25, 2007
72.  $hp$ -IIPG method for convection-diffusion problems, European Conference on Numerical Mathematics and Advanced Applications, Graz, Austria, September 10-14, 2007
73. Discontinuous Galerkin finite element method for convection-diffusion problems: Numerical Analysis, Baptist University of HongKong, Department of Mathematics, Hong Kong, October 26, 2007
74. Discontinuous Galerkin finite element method for convection-diffusion problems: Application to compressible flow simulations, Baptist University of HongKong, Department of Mathematics, Hong Kong, October 26, 2007
75. Discontinuous Galerkin method, elliptic linear problems and application to compressible flow simulations (invited lectures), Seminar on Numerical Analysis, Liberec, January 31, 2008
76. Discontinuous Galerkin finite element method for nonlinear convection-diffusion problems, Workshop Heidelberg-Prague, University of Heidelberg, Germany, May 7-9, 2008

77. On linear algebraic systems arising from the DGFE method for the compressible Navier-Stokes equations, Workshop Dresden-Prague, Staré Splavy, Czech Republic, October 10-11, 2008
78. Analysis of Discontinuous Galerkin method (invited lectures), 35<sup>th</sup> CFD VKI/ADIGMA course, Brussel, Belgium, October 16-17, 2008
79. Interior penalty discontinuous Galerkin methods: analysis and applications to compressible flow simulations, Université Paris 6, France, January 26, 2009
80. Discontinuous Galerkin method and applications to compressible flow, Seminar on Numerical Analysis, Ostrava, February 5-6, 2009, (invited lectures)
81. On the solution of linear algebraic systems arising from the semi-implicit DGFE discretization of the compressible Navier-Stokes equations, Conference Algoritmy, Podbánské, Slovakia, March 16-20, 2009 (invited talk)
82. On the optimality of IPG methods for odd degrees of polynomial approximation, The Mathematics of Finite Elements and Applications, Brunel University, West London, UK, June 9-12, 2009
83. Discontinuous Galerkin finite element method: from numerical analysis to application to compressible flow simulation, The Eighth European Conference on Numerical Mathematics and Advanced Applications (ENUMATH), Uppsala, Sweden, July 29 - June 3, 2009 (invited talk)
84. Efficient solution strategy for the discontinuous Galerkin method applied to steady-state compressible flow, University of Kiel, January 28, 2010
85. Solution of linear algebra systems arising from the compressible Navier-Stokes equations, Seminar on Numerical Analysis, Ostrava, February 18-20, 2010, (invited lectures)
86. Modern methods for the numerical solution of partial differential equations, Seminar in Differential Equations, Bořetice, Czech Republic, May 31 - June 4, 2010 (series of lectures)
87. Modern numerical methods for the solution of PDR, Project: Development of research team for parallel computing, Technical University Liberec, June 21, 2010
88. Semi-implicit discontinuous Galerkin finite element method for the steady state compressible flows, ECCOMAS 2010, Lisbon, Portugal, June 14 - 17, 2010
89. Higher order methods for numerical simulations of compressible flows, Workshop Flow modelling in aircraft and industrial applications, VZLÚ Praha, September 23, 2010
90. *hp*-discontinuous Galerkin method for compressible flows, The International Conference Presentation of Mathematis 2010, Technical University Liberec, October 21-22, 2010.
91. Implementation of finite element and discontinuous Galerkin methods, Project: Development of research team for parallel computing, Technical University Liberec, January 21, 2011.
92. *hp*-DGFE method for compressible flow simulation, 16<sup>th</sup> International Conference Finite Elements in Flow Problems, Technical University München, March 23-25, 2011.
93. DGFE method for convection-diffusion problems: *hp*-strategy, European Finite Elements Fair 2011, Paris, France, June, 3-4 2011
94. An adaptive *hp*-discontinuous Galerkin approach for nonlinear convection-diffusion problems, Applications of Mathematics 2012, Prague, Czech Republic, May, 2-5 2012

95. *hp*-discontinuous Galerkin method for nonlinear problems, International Conference Presentation of Mathematics'12, Technical University Liberec, June, 21-22 2012
96. *hp*-anisotropic mesh adaptive technique based on interpolation error estimates, Applications of Mathematics 2012, Prague, Czech Republic, May, 15-18 2013
97. Perspectives of discontinuous Galerkin method for the numerical solution of computational fluid dynamics problems Programy a algoritmy numerické matematiky 17, Dolní Maxov, Czech Republic, June, 8 - 13 2014
98. Anisotropic *hp*-adaptive discontinuous Galerkin method for numerical solution of partial differential equations, ESCO 2014, Pilsen, Czech Republic, June, 18 2014

#### **M. Educational and Scientific Stays**

1. 1 week, December 1993, Winter School: Navier–Stokes Equations, Paseky, Czech Republic.
2. 1 week, July 1994, Sommer School: Industrial Mathematic and Mathematical Modeling, Rybníky, Czech Republic.
3. 5 months, April 15, 1995– September 15, 1995: PhD Study, Université Méditerranée, Marseille, France
4. 5 months, February 1, 1996–June 30, 1996: PhD Study, Université Méditerranée, Marseille, France
5. 1 week, May 1996, Université Pau, France
6. 1 month, November 1–30, 1996: PhD Study, Université Méditerranée, Marseille, France
7. 1 month, November 1–30, 1997: Universität Stuttgart, Germany.
8. 6 months, December 1, 1997–May 30, 1998: PhD study, Université Méditerranée, Marseille, France
9. 1 week, June 19–23, 2000: Universität of Hamburg, Germany.
10. 2 weeks, December 4–15, 2000: Université Paris-Sud, Orsay, France.
11. 1 week, January 15–19, 2001: ETH Zurich, Switzerland.
12. 1 week, January 22–26, 2001: University of Hamburg, Germany.
13. 2 weeks, June 11–22, 2001: University of Hamburg, Germany.
14. 1 week, September 17–21, 2001: Technical University of Chemnitz, Germany.
15. 3 days, November 22–24, 2001: Politechnika Warszawska, Warsaw, Poland.
16. 1 week, February 25–March 1, 2002: ETH Zurich, Switzerland.
17. 1 week, June 10–14, 2002: University of Hamburg, Germany.
18. 1 week, November 25–30, 2002: Technical University of Dresden, Germany.
19. 1 month, January 15–February 15, 2004: Université de Provence, Marseille, France, MdC visité.
20. 1 weak, March 15 -20, 2004: ESM2, Universite Mediterranee, Marseille, France
21. 4 months, September – December, 2004: Université de Provence, Marseille, France, CNRS position.



22. 2 days, November 6-7, 2006, University of Marburg, Department of Mathematik, Marburg, Germany
23. 2 days, December 4-5, 2006, Institute of Aeronautics & Applied Mechanics, Warsaw University of Technology, Poland
24. 1 week, October 24 - 30, 2007, Baptist University of HongKong, Department of Mathematics, Hong Kong
25. 1 week, January 26 - 30, 2009, Université Paris 6, Laboratoire J. Lions, France
26. 1 week, January 26 - 30, 2010, University of Kiel, Germany

### Statistics

Monographs	A	1	
Chapters in monographs	B	4	
Original scientific works	C	73	with IF: 31
Textbooks	D	2	
Other scientific works	E	49	
Invited lectures	F	5	
Survey papers	G	0	
Patents	H	0	
Thesis/Disertations	I	3	
Participation on grants	J	11	
Other publications	K	2	
Lectures	L	98	
Stays	M	26	
<b>Total number of publications</b>	A+B+C+D+E+G+I+K	<b>134</b>	
Works in databasis	ZentrallBlatt	44	
	Math. Reviews	33	
	Web of Science	30	
	Scopus	33	
	at least one	61	

Praha, 19. 6. 2015

prof. RNDr. Vít Dolejší, Ph.D., DSc.