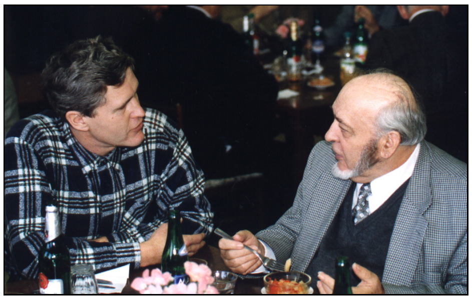
TO THE 70TH ANNIVERSARY OF BIRTHDAY OF PROF. NEČAS

Conference Partial Differential Equations and Applications was held in Olomouc, December 13–17, 1999, to honour one of the most famous Czech mathematicians, Professor Jindřich Nečas on the occasion of his 70th birthday. This meeting gathered up mostly collaborators and former students of Professor Nečas and was organized by Instituto Superior Técnico (Lisbon, Portugal), Mathematical Institute of Charles University (Prague), Mathematical Institute of Academy of Sciences of the Czech Republic (Prague), and Palacký University (Olomouc).

Many outstanding mathematicians all over the world, working especially in partial differential equations, calculus of variations, functional analysis and applications of mathematics, presented communications at the conference. The high quality of the papers is reflected in the quality of those accepted for publication in the proceedings. During the event, the book Applied Nonlinear Analysis, edited by A. Sequeira, H. Beirão da Veiga and J. Videman (1999, Kluwer Academic/Plenum Publishers, New York) containing contributions of many of his former students and collaborators, was offered to Professor Nečas as a special birthday gift.

Professor Nečas was born in Prague on December 14, 1929. He studied mathematics at the Faculty of Sciences of Charles University in Prague in 1948–1952. After a short period at the Faculty of Civil Engineering of the Czech Technical University, he joined the Mathematical Institute of the Czechoslovak Academy of Sciences where he became Head of Department of Partial Differential Equations. He has been a member of staff of the Faculty of Mathematics and Physics of Charles University since 1977, Head of Department of Mathematical Analysis in 1967–1971 and, for many years, Head of Department of Mathematical Modelling, and an active and distinguished member of the Scientific Council of the Faculty. Since 1995 he has also been member of staff of Northern Illinois University where he got the Presidential Research Professorship in 1997.

We would like to thank all those who contributed to the success of the conference and thus made a dignified celebration of the 70th birhtday of Prof. Nečas possible. The organization of the conference was facilitated by a generous financial support of the AMIF Program from the European Science Foundation. We also want to thank Palacký University, Olomouc, in particular the Faculty of Sciences, for the very important local support; we would like to mention especially the Joint Laboratory of Optics of Palacký University and the Czech Academy of Sciences for the conference facilities and Department of Mathematical Analysis and Applications of Mathematics led by Professor Lubomír Kubáček. Special thanks go to the graduate students of this department for technical help before and during the conference.



We express our gratitude to all organizers of the conference: V. Souček (Math. Institute of Charles University, Prague), P. Krejčí (Math. Institute of the Academy of Sciences), J. Andres (Palacký University, Olomouc). Our thanks are also due to all other people who took part in the preparatory works of the conference and in the publishing of the book Nonlinear Applied Analysis; we would like to mention in particular E. Feireisl, P. Galdi, J. Neustupa, P. Kaplický, S. Kračmar, and I. Straškraba as well as J. Franců for wonderful conference pictures.

We appreciate Prof. Š. Schwabik's help in publishing the conference proceedings in Mathematica Bohemica as well as J. Bočková's enthusiasm and effort during their preparation. Thanks are also due to E. Ritterová and to K. Horák who helped with TEX problems and to J. Jarník for correcting the English.

Finally, on behalf of all participants, we would like to wish good health and many great new ideas in mathematics to Prof. Nečas.

Š. Nečasová, H. Petzeltová, M. Pokorný, A. Sequeira (eds.)

Here we refer only to works published in 1988 and later. For a complete list of publications until 1988, see Časopis pro pěstování matematiky, Vol. 114, 1989, No. 4, 412–435. The most significant works can be found in the book Applied Nonlinear Analysis.

Part 1: Journal papers

[1] *Málek, J.; Nečas, J.; Růžička, M.*: On weak solutions to a class of non-Newtonian incompressible fluids in bounded three-dimensional domains: the case $p \geqslant 2$. Adv. Differential Equations *6* (2001), 257–302.

[2] *Mošna, F.; Nečas, J.*: Nonlinear hyperbolic equations with dissipative temporal and spatial non-local memory. Z. Anal. Anwendungen *18* (1999), 939–951.

[3] *Leonardi, S.; Málek, J.; Nečas, J.; Pokorný, M.*: On axially symmetric flows in $\mathbb{R}^3$. Z. Anal. Anwendungen *18* (1999), 639–649.

[4] *Málek, J.; Nečas, J.; Pokorný, M.; Schonbek, M. E.*: On possible singular solutions to the Navier-Stokes equations. Math. Nachr. *199* (1999), 97–114.

[5] *Bellout, H.; Nečas, J.; Rajagopal, K. R.*: On the existence and uniqueness of flows (of) multipolar fluids of grade 3 and their stability. Internat. J. Engrg. Sci. *37* (1999), 75–96.

[6] *Bellout, H.; Nečas, J.*: The exterior problem in the plane for a non-Newtonian incompressible bipolar viscous fluid. Rocky Mountain J. Math. *26* (1996), 1245–1260.

[7] *Nečas, J.; Růžička, M.; Šverák, V.*: Sur une remarque de J. Leray concernant la construction de solutions singulières des équations de Navier-Stokes. C. R. Acad. Sci. Paris Sér. I Math. *323* (1996), 245–249.

[8] *Nečas, J.; Růžička, M.; Šverák, V.*: On Leray's self-similar solutions of the Navier-Stokes equations. Acta Math. *176* (1996), 283–294.

[9] *Hao, W.; Leonardi, S.; Nečas, J.*: An example of irregular solution to a nonlinear Euler-Lagrange elliptic system with real analytic coefficients. Ann. Scuola Norm. Sup. Pisa Cl. Sci. *23* (1996), 57–67.

[10] *Málek, J.; Nečas, J.*: A finite-dimensional attractor for three-dimensional flow of incompressible fluids. J. Differ. Equations *127* (1996), 498–518.

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[12] *Bellout, H.; Bloom, F.; Nečas, J.*: Existence, uniqueness, and stability of solutions to the initial-boundary value problem for bipolar viscous fluids. Differ. Integral Equ. *8* (1995), 453–464.

[13] *Bellout, H.; Bloom, F.; Nečas, J.*: Young measure-valued solutions for non-Newtonian incompressible fluids. Comm. Partial Differential Equations *19* (1994), 1763–1803.

[14] *Gupta, C. P.; Kwong, Y. C.; Nečas, J.*: Landesman-Lazer condition for properly elliptic operators. Boll. Un. Mat. Ital. A *8* (1994), 65–74.

[15] *Bellout, H.; Nečas, J.*: Existence of global weak solutions for a class of quasilinear hyperbolic integro-differential equations describing viscoelastic materials. Math. Ann. *299* (1994), 275–291.

[16] *Bellout, H.; Bloom, F.; Nečas, J.*: Solutions for incompressible non-Newtonian fluids. C. R. Acad. Sci. Paris Sér. I Math. *317* (1993), 795–800.

[17] *Bellout, H.; Bloom, F.; Nečas, J.*: Existence of global weak solutions to the dynamical problem for a three-dimensional elastic body with singular memory. SIAM J. Math. Anal. *24* (1993), 36–45.

[18] *Málek, J.; Nečas, J.; Růžička, M.*: On the non-Newtonian incompressible fluids. Math. Models Methods Appl. Sci. *3* (1993), 35–63.

[19] *Bellout, H.; Bloom, F.; Nečas, J.*: Uniqueness and stability to the initial boundary value problem for bipolar viscous fluids. SIAM J. Math. Anal. *24* (1993), 26–45.

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[21] *Bellout, H.; Bloom, F.; Nečas, J.*: A model of wave propagation in a nonlinear superconducting dielectric. Differ. Integral Equ. *5* (1992).

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[25] *Nečas, J.; Růžička, M.*: Global solution to the incompressible viscous-multipolar material problem. J. Elasticity *29* (1992), 175–202.

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[35] *Milota, J.; Nečas, J.; Šverák, V.*: On weak solutions to a viscoelasticity model. Comment. Math. Univ. Carolin. *31* (1990), 557–565.

[36] *Nečas, J.; Roubíček, T.*: Approximation of a nonlinear thermoelastic problem with a moving boundary via a fixed-domain method. Apl. Mat. *35* (1990), 361–372.

[37] *Nečas, J.; Novotný, A.; Šilhavý, M.*: Global solution to the ideal compressible heat conductive multipolar fluid. Comment. Math. Univ. Carolin. *30* (1989), 551–564.

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[39] *Ĭon, O.; Kondratev, V. A.; Lekveishvili, D. M.; Nečas, J.; Oleĭnik, O. A.*: Solvability of the system of von Kármán equations with nonhomogeneous boundary conditions in nonsmooth domains. Trudy Sem. Petrovsk. (1988), 197–205.

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Part 2: Books

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[4] *Haslinger, J.; Hlaváček I.; Nečas, J.*: Numerical methods for unilateral problems in solid mathematics. Handbook of numerical analysis, Vol. IV. North-Holland, Amsterodam, 1996, pp. 313–485.

Part 3: Proceedings of conferences

[1] *Nečas, J.*: Theory of multipolar fluids. World Congress of Nonlinear Analysts '92, Vol. I–IV (Tampa, FL, 1992). De Gruyter, Berlin, 1996, pp. 1073–1081.

[2] *Nečas, J.*: Theory of multipolar fluids. Problems and methods in mathematical physics (Chemnitz, 1993). Teubner, Stuttgart, 1994, pp. 111–119.

[3] *Nečas, J.*: Theory of multipolar viscous fluids. The mathematics of finite elements and applications, VII (Uxbridge, 1990). Academic Press, London, 1991, pp. 233–244.

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[6] *Nečas, J.*: A viscosity solution method for transonic flow. Functional and numerical methods in mathematical physics. Naukova Dumka, Kiev, 1988, pp. 155–161. (In Russian.)

Part 4: Editorial work

[1] Advances in Mathematical Fluid Mechanics (Málek, J.; Nečas, J.; Rokyta, M., eds.). Lecture Notes of the Sixth International School Mathematical Theory in Fluid Mechanics, Paseky, Czech Republic, Sept. 19–25, 1999, Springer, Berlin, 2000.

[2] Partial differential equations (Jäger, W.; Nečas, J.; John, O.; Najzar, K.; Stará, J., eds.). Proceedings of the conference held in Praha, August 10–16, 1998. Theory and numerical solution, Chapman & Hall/CRC, Boca Raton, FL, 2000.

[3] Advanced topics in theoretical fluid mechanics (Málek, J.; Nečas, J.; Rokyta, M., eds.). Papers from the 5th Winter School on Mathematical Theory in Fluid Mechanics held in Paseky nad Jizerou, December 6–14, 1997, Longman, Harlow, 1998.

[4] Mathematical theory in fluid mechanics (Galdi, G. P.; Málek, J.; Nečas, J., eds.). Papers from the 4th Winter School held in Paseky, December 3–9, 1995, Longman, Harlow, 1996.

[5] Progress in theoretical and computational fluid mechanics (Galdi, G. P.; Málek, J.; Nečas, J., eds.). Papers from the Third Winter School in Fluid Dynamics held in Paseky, December 12–18, 1993, Longman Scientific & Technical, Harlow, 1994.

[6] Recent developments in theoretical fluid mechanics (Galdi, G. P.; Nečas, J., eds.). Papers from the Second Winter School on Fluid Dynamics held in Paseky, November 29–December 4, 1992, Longman Scientific & Technical, Harlow, 1993.

Part 5: Other publications

[1] *Nečas, J.*: The current state and future of nonlinear analysis in Czechoslovakia. Pokroky Mat. Fyz. Astronom. *35* (1990), 250–255. (In Czech.)