Šárka Nečasová (Matušů)

Date and place of birth: 26 April 1965; Prague, Czechoslovakia

Nationality: Czech

Family situation: 3 kids: Martin, Jan, Lucie

Education

- 1979-1983 Grammar School, gymnazium of Sladkovský, Prague 3

- 1983-1988 Faculty of Mathematics and Physics, Charles University in Prague, RNDr. degree 1988,

  thesis: *Strongly Nonlinear Elliptic Equations and Their Numerical Solution by FEM*,

  supervisor: Prof. S. Feistauer.

- 1988-1991 PhD student, Faculty of Mechanical Engineering, Czech Technical University in Prague,Prague, CSc. degree 1991(equivalent PhD.)

  thesis: *Quantitative and Qualitative Properties of Motion Equations and their Numerical Solution*,

  supervisors: Prof. J. Neustupa and Prof. K. Kozel

Academic Career:

- Habilitation - Diriger des Recherches del'Université de Pau et des Pays de l'Adour (France), 2010

- DSc. (Doctor of Sciences) Academy of Sciences of the Czech Republic, 2013

Appointments and professional activities:

1991-1995   Assistant Professor, Dept. of Mathematics, Faculty of Mechanical Engineering, Czech Technical University, Prague

1995 - 2010   Researcher, Institute of Mathematics, Czech Academy of Sciences of the Czech Rep., Prague

2010- date   Head of the Department of Evolution DEs and Researcher, Institute of Mathematics, Czech Academy of Sciences of the Czech Rep., Prague,

One of the main organizer:

- Partial differential Equations and Applications, Oloumouc 1999 (To honor of Jindřich Nečas)

- Minisymposium (Š. Nečasová, M. Pokorný, J. Neustupa) in the framework of International Conference on Fluid Dynamics and Aerodynamics, Corfu, August, 2005

- Minisymposium (Š. Nečasová) in the framework of International Conference on Continuum Mechanics, Evia, Greece, May
  2006

- Minisymposium (Š. Nečasová, R. Rautmann, V. S. Solonnikov, J. Heywood) in the framework of World Congress of Nonlinear Analysis 2007

- Nonlinear PDE's to commemorate the work of Jindřich Nečas (14. 12. 1929 – 5. 12. 2002) together with M. Pokorný

- together with T. Bodnár organizer of minisymposia ECCOMAS CFD, 2010, Lisbon

- together with T. Bodnár : Summer school - Fluid-Structure Interaction for Biomedical Applications, August, 2011, Prague

- together with T. Bodnár and M. Pokorný: Summer School - Nonhomogeneous Fluids and Flow, August, 2012, Prague

- together with R. Rautmann and W. Varnhorn organizers of minisymposia (*The Navier-Stokes Equations and Related Problems*) 9th AIMS conference, Orlando 2012

- together with E. Feireisl organizer of minisymposia (*Recent progress in the mathematical theory of compressible and incompressible fluid flows*), 9th AIMS conference, Orlando 2012

- together with R. Rautmann and W. Varnhorn organizers of minisymposia (*The Navier-Stokes Equations and Related Problems*) 10th AIMS conference, Madrid 2014

Member of Scientific Council of Institute of Mathematics

Member of Editorial Board of Differential Equations and Applications

Awards:

2003 Wichterle prize - Prize of Academy of Sciences of the Czech Republic for young resercher

Visiting positions:

1993-1994 Postdoctoral Fellow, Department of Mathematics, University of Ferrara, Italy (Invited by Prof.Padula and Prof.Galdi)

1998, 2 months research position on the Northern Illionis University, 1998

1999 7 months research position, Institute Superior Tecnico, Lisbon, Portugal and CIM, Coimbra, Portugal (Invited by Prof.Sequeira)

2000 4 months as a visiting professor on University of Pittsburgh, Department of Mathematics

2002, 2011 visiting professor on University de Toulone et du Var

2003, 2006, 2007, 2010,2014 Université de Pau et des Pays de l'Adour, France, visiting professor

2008, 2009, 2010, 2011, 2012, 2013 visiting position CEA

Editorial work:

- **Proceedings of Partial Differential Equations and Applications**, Olomouc 1999, in the occasion of the 70th anniversary of birthday of Prof. Nečas, edited by Š. Nečasová, H. Petzeltová, M. Pokorný, A. Sequeira

- **Special Issue Dedicated to Professor Vsevolod Aleksevich Solonnikov on the Occasion of his 75th Birthday**, Discrete and Continuos Dynamical Systems, S, 3, 2, June 2010, edited by Š. Nečasová, Reimund Rautmann and Werner Varnhorn

- **Special Issue Dedicated to Professor Vsevolod Aleksevich Solonnikov on the Occasion of his 75th Birthday**, Applicable Analysis: 90, 1, January 2011, 1-3, edited by Š. Nečasová, Reimund Rautmann Roger Temam and Werner Varnhorn

- Jindřich Nečas, **Directed Methods in the Theory of Elliptic Equations** translated by G. Tronel and A. Kufner, editorial coordination by Š. Nečasová, contribution of C. Simader, Springer 2012

- **Fluid-Structure Interaction and Biomedical Applications**, Series Advances in Mathematical Fluid Mechanics, editors: T. Bodnár, G. P. Galdi, Š. Nečasová,2014, XIV, 569 p. 101 illus., 54 illus. in color.,Birkhauser Basel

- **Selected works of Jindřich Nečas**, edited by M. Pokorný, Š. Nečasová, V. Šverák, will appeared in January 2015 (publisher Birkhauser)

- Archiv of Prof. J. Nečas (together with A. Šolcová, J. Švecová)

Invited lectures at international conferences
1) March 1993
Mathematical problems for Navier-Stokes equations, Cento, Italy

2) May 1994, Madeira
Third International Conference on Navier-Stokes equations and Related Nonlinear Problems

3) **International Conference on Applied Analysis**,
Lisbon, 26.2.-1.3.1997

4) **International Conference on Navier-Stokes equations ,Theory and Numerical Methods**, Varenna, Italy, 2.6.-6.6., 1997,

5) **International Conference on Navier-Stokes equations ,Theory and Numerical Methods**, Varenna, Italy, May, 1999

6) **International conference on Dynamics of Continuous, Discrete and Impulsive Systems**, London, Canada, July 27-31, 2001

7) Workshop : **Navier-Stokes equations: Theory meets simulations**, June 21, 2002, Centre de Mathematiques et d'Informatique, Technopole de Chateaux-Gombert

8) **Mathematical Fluid Mechanics - Recent results and open questions**, Czech Republic, Trest, June 29 - July 4, 2002

9) **World Congress of Nonlinear Analysts, Session of Mathematical Fluid Mechanics**, Orlando 2004

10) **International Workshop on Current topics in Mathematical Fluid Mechanics**, Lisbon, Portugal 2005

11) **Mathematical Fluid Mechanics and Applications**, June 2006, Evora, Portugal

12) **6th Conference Internationale AIMS Systems Dynamique, Equations Differentielles et Applications**, Poitiere, June 2006, France

13) **Parabolic equations and Navier-Stokes equations**, Bedlewo, Poland, September 2006

14) **Mathematical Fluid Mechanics**, Estoril 2007, Portugal

15) Equadiff 2007, Vienna, Austria

16) **Nonlocal and abstract parabolic equations and their applications**, Bedlewo, 2007

17) **First Joint International Meeting**, AIMS, Warsawa, 2007

18) **Conference on the Navier-Stokes equations and their Applications**, Kyoto, Japan, 2006

19) **Vorticity, rotation and symmetry-stabilizing and destabilizing fluid motion**, Luminy, France, 18.5.-24.5.08, *On the motion of several rigid bodies in an incompressible non-Newtonian fluids*

20) **WCNA**, (one of organizers of minisymposia) The Navier-Stokes equations and related problems, Orlando 08,1.7.-11.7.08, *Motion of fluid around a rotating rigid body*

21) **Parabolic and Navier-Stokes equations 08**, Będlewo 08, 3.9.-5.9.08, *Motion of a flow around a rotating body in a weighted L^q spaces*

22) **Mathematical Fluid Dynamics**, Darmstadt 08,7.9.-10.9.08, *The problem of the motion of several rigid bodies in viscous fluids*

23) **50 years of optimal control**, Bedlewo 08

24) **Parabolic equations 09**, May(in honnor of Prof. Amann) *Fundamental solutions of problem of motion of fluids around a rotating body*

25) **Partial Differential Equations in Fluid Dynamics and related field**, Jilin, Northeast Dianli University, China *Motion of several rigid bodies in viscous fluids*

26) **Career Oportunities for Women in Mathematical Fluids Dynamics**, TU Darmstadt *Motion of several rigid bodies in viscous fluids*

27) **SIAM** conference PDE 7.12.–10.12. USA *On the problem of motion of fluid around a rotating rigid body*

28) **8th AIMS Conference on Dynamical Systems, Differential Equations and Applications**, 24.5.-28.5. 2010, Dresden *Global existence of solution for the one-dimensional motions of a compressible viscous gas with radiation*

29) **ECCOMAS CFD 2010**, 14.6.-17.6. 2010 *Theoretical aspects of motion of fluid around a rotating rigid body*

30) **Evolution equations**, Schmitten, 10.10.-15.10. 2010 *On a model in radiation hydrodynamics*

31) **Trends in multi-scale analysis and homogenization**, 23.9.-25.9. 2010, CLUJ, *On the asymptotic limit of the Navier-Stokes system with rough boundary*

32) **Conference on Computer Methods in Mechanics**, 9.5.-12.5. 2011 *Boundary behaviour of viscous fluids*

33) **Spring school TH Darmstadt**, 28.2.–3.3. 2011 *On a some model of radiation*

34) **Vorticity, Rotation and Symmetry II**, Luminy, 22.5.–26.5. 2011 *On the motion of several rigid bodies in incompressible and compressible viscous fluids*

35) **International Conference on Mathematical Fluid Mechanics and Biomedical Applications**, Azores, Ponta Delgada, 30.5.–5.6. 2011 *On the*

motion of several rigid bodies in incompressible and compressible viscous fluids

36) **Topics from the Theory of Navier- Stokes System**, Calais, March 22-23, 2012 *Weak solutions for the motion of a self-propelled deformable structure in a viscous incompressible fluid*

37) **Model reduction in continuum thermodynamics: Modeling, analysis and computation, Banff, 16.9.- 22.9, Canada** *Weak solutions to the barotropic Navier-Stokes system with slip boundary conditions in time dependent domains*

38) **Parabolic and Navier-Stokes equations, Bedlewo, 4.9.- 7. 9, 2012** *Weak solutions to the barotropic Navier-Stokes system with slip boundary conditions in time dependent domains*

39) **Dynamical Systems, Differential Equations and Applications, Orlando, 2012** *Weak solutions for the motion of a self-propelled deformable structure in a viscous incompressible fluid*

40) **Workshop on Navier-Stokes Equations, Aachen, May 29.5.- 1.6. 2012** *Weak solutions to the barotropic Navier-Stokes system with slip boundary conditions in time dependent domains*

41) **Worshop on Complex Fluids, 10.7 - 13.7. 2012, Darmstadt** *Weak solutions for the motion of a self-propelled deformable structure in a viscous incompressible fluid*

42) **International Conference on the Mathematical Fluid Dynamics on the occasion of Prof. Shibata, Nara, Japan, 5.3.–9.3.2013** *Compressible barotropic fluids in time-dependent domains:existence and incompressible limits.*

43) **Nonlinearities 2013, 11.6.-15.6.2013, Male Ciche** *Compressible barotropic fluids in time-dependent domains: existence and incompressible limits*

44) **Workshop on Navier-Stokes equations 21.5.- 24.5. 2013, Aachen** *Compressible barotropic fluids in time-dependent domains: existence and incompressible limits*

45)**SIAM meeting** , University of San Diego USA (July 2013) *Incompressible limits of fluids excited by moving boundaries*

46)**Mathematical Hydrodynamics and Parabolic Equations Steklov Institute**, San Petersburgh (September 2013), *Low Mach number limit and diffusion limit in a model of radiative flow*

47)**EQUADIFF 2013** Praha,Czech Republic (August 2013)2 lectures: *On the existence of weak solution to the coupled fluid-structure interaction problem for non-Newtonian shear-dependent fluid, Weak solutions for the motion of a self-propelled deformable structure in a viscous incompressible fluid*

48)**SIAM-PDE meeting**, Orlando, Florida (December 2013) *The motion of the rigid body in viscous fluid including collisions. Global solvability result*

49) **Recent Advances in PDEs and Applications**,Levico Terme,Italy (February 2014),*On the existence of weak solution to the coupled fluid-structure interaction*

50)**Compflows 2014**Bedlewo, Poland (March 2014)*Low Mach number limit and diffusion limit in a model of radiative flow*

51) **Vorticity, Rotation and Symmetry** Luminy, France (May 2014)*Low Mach number and diffusion limit for a radiative flow*

52)**10th AIMS Conference Madrid**, Spain (July 2014)*Linearized stationary incompressible flow around rotating and translating body-Leray solution, asymptotic profile*

53)**Conference on PDE**, Novacella, Italy (May 2014),*On the low Mach number limit and diffusion limit in a model of radiative flow*

54)**Classical Problems and New Trends in Mathematical Fluid Dynamics**, Ferrara, Italy (September 2014), *Low Mach number limit and diffusion limit in radiation hydrodynamics*

Invited lectures at international universities

1) April 1994

Catania, Italy, Dipartimento di Matematica

2) April 1994

Palermo, Italy, Dipartimento di Matematica , Università
degli Studi di Palermo

3) May 1994
Polytechnico Milano, Dipartimento di Matematica

5) June 1996
University of Ferrara

6) February 1997,
Lisbon, Instituto di Matematica

7) TH Darmstadt, Darmstadt 1997

8) University of Pittsburgh, May 1998

9) Northern Illinois University, March-May 1998

10) September 1993-September 1994
Università degli Studi di Ferrara,
series of lectures

11) November 1998
Waseda University, Tokio, Japan

12) January 15 -May 15, 1999 Instituto Superir Tecnico, Lisbon, Portugal
series of lectures(viscoelastic fluids)

13) May 15 - July 31, 1999 Cim, Coimbra, Portugal, series of lectures (compressible fluids, self-propelled motion)

14) August 1999, November 2006 Weierstrass Institute for Applied Analysis
and Stochastics in Forchungsverbund Berlin e.V.

15) January-May 2000 Pittsburgh University, Department of Mathematics (series of lectures on compressible newtonian and non-Newtonian case)

16) April 2000 Carnegie Mellon University

17) November 2001, Ecole Polytechnique, CMAP, Palaseau

18) June 2002, Universite Marne la Valee

19) July 2002, Stuttgart, Dept. of Mathematics

20) May 2002, Northern Illinois University, Dept. of Mathematics

21) July 2003, Equadiff, Hasselt, Belgium

22) December 2004, Instituto Superior Technico, Lisbon, Portugal

23) June 2005, University of Metz, France

24) November 2006, Paderborn University, Germany

25) November 2006, Kassel University, Germany

26) University of Darmstadt, Germany, 2005, 2006, 2007

27) Waseda University, Tokio, Japan, 2006

28) University of Pau, France, 2005, 2006, 2007

29) December 2007, University of Heidelberg, Germany,

30) Universita di Lisboa, Portugal, November 2008, *On the problem of the motion of several rigid bodies in the fluid*

31) TH Hamburg, 2.2.-5.2. 2010, *On the motion of fluid of several rigid bodies in an incompressible non-Newtonian fluids*

32) TU Darmstadt, 7.11.-12.11. 2010, *On pointwised decay of linearized stationary incompressible viscous flow around rotating and translating body*

33) Université de Pau, 28.6. 2010, habilitation lecture *Mathematical modelling of fluid mechanics*

34) University of TH Dresden, 23.6.–24.6. 2011 *Mathematical aspects on the motion of fluid around rotating body and motion of several rigid bodies in fluid*

35) University of Oxford, 5.5.2013 – 11.5.2013 *Compressible barotropic fluids in time-dependent domains: existence and incompressible limits*

36) University of Nanjing, 12.10.2013 – 18.10.2013, *Existence and singular limits for compressible fluids on moving domains*

37) University in Beijing, 18.10.-20.10. 2013, *Weak solutions of deformable body*

Research Projects Proposer

- **Grant Agency of Academy of Sciences**

  – Mathematical modelling of motion of bodies in Newtonian and non-Newtonian fluids and related mathematical problems 2005–2007

  – The motion of rigid bodies in fluids: mathematical analysis, numerical simulation and related problems 2008–2010

- **DAAD projekt (Czech-German)**

  – 2005-2006 together with Prof. R. Farwigem (TU Darmstadt)

  – 2009-2010 together with Prof. R. Farwigem (TU Darmstadt)

- **Barrande project (Czech-France)** 2003-2004 together with Prof. Sokolowski (Univ. of Nancy)

- **CNRS projekt** 2007-2008 together with Prof. Sokolowski (Univ. of Nancy)

- **Common project between Academy of Sciences of Czech Republic and Ukraine** 2008-2009, 20010-2012 together with Prof. I. Skrypnik (Univ. of Donetsk)

- **Grant Agency of the Czech Republic** 2011-2013 Motion of fluids in domains with varying geometry

Scientometry

- 104 items registered by MathSciNet

- 427 citations by 218 authors