

CURRICULUM VITAE

Matteo Caggio

Institute of Mathematics of Czech Academy of Science, Prague

University of West Bohemia, Pilsen, Czech Republic

PERSONAL DATA

Born March 11, 1986, Ferrara, Italy.

RESEARCH INTEREST

Navier-Stokes equations. Turbulence.

EDUCATION

2011: M.Sc. in Physics, University of Ferrara.

CURRENT POSITION

Ph.D. student in Applied Mathematics at University of West Bohemia, Pilsen.

Employer at the Institute of Mathematics of Czech Academy of Science in Prague under the supervision of Prof. Šárka Nečasová.

RESEARCH ACTIVITY

Singular limits for compressible fluids. Conditional regularity for incompressible Navier-Stokes equations in the whole space. Compressible non-Newtonian fluids. Turbulent boundary layer.

PUBLICATIONS (physics)

Generation of limited-area ensemble system targeted for Northern Europe: a case study of wind gust (joint work with Andrea Montani – ARPA-SIMC, Bologna, Italy; in connection to the project: Limited-area ensemble forecasts of windstorms over Northern Europe).

PUBLICATIONS (mathematics)

Accepted

Regularity criteria for the Navier-Stokes equations based on one component of velocity (joint work with Zhengguang Guo and Zdeněk Skalák; *Nonlinear Analysis: Real World Applications*, 2017).

Submitted

Inviscid incompressible limits for rotating fluids (joint work with Šárka Nečasová).

The rotating Navier-Stokes-Fourier-Poisson system on thin domains (joint work with Bernard Doucomet, Šárka Nečasová and Milan Pokorný; arXiv:1606.01054v1).

Papers in proceedings

Note on the use of Camassa-Holm equations for simulation of incompressible fluid turbulence (joint work with Tomáš Bodnár) – Topical Problems in Fluid Mechanics, Prague, 15–17 February 2017.

Note on the Problem of Dissipative Measure-Valued Solutions to the Compressible Non-Newtonian System (joint work with Hind Al Baba, Bernard Ducomet and Šárka Nečasová) – Topical Problems in Fluid Mechanics, Prague, 15–17 February 2017.

CONFERENCES WITH CONTRIBUTION TALK

Theory of the incompressible Navier-Stokes system and related topics, (Calais, France, 9 – 10/03/2017) – talk: Inviscid incompressible limits for rotating fluids.

Topical Problems in Fluid Mechanics, (Prague, Czech Republic, 15 – 17/02/2017) – talk: On the Camassa-Holm equations for fluid turbulence.

First China-Czech Conference in Mathematical Fluid Mechanics (Beijing, China, 26 – 30/09/2016) – talk: Regularity criteria for the Navier-Stokes equations based on one component of velocity.

Seminar in Differential Equations (Ostrov, Czech Republic, 30/05 – 03/06/2016) – talk: On the problem of singular limits in fluid dynamics.

Workshop on CENTRAL Trends In Analysis and Numerics for PDEs, Charles University, Faculty of Mathematics and Physics (Prague, Czech Republic, 26 – 28/05/2016) – talk: On the problem of singular limits in fluid dynamics.

Singular PDEs, Analytical Tools and Applications (Male Ciche, Poland, 23 – 27/06/2015) – talk: Inviscid incompressible limits for rotating fluids.

Two Days for Young Researchers in Fluid Dynamics (Darmsdtadt, Germany, 18 – 19/06/2015) – talk: Inviscid incompressible limits for rotating fluids.

OTHER CONFERENCES

Mathflows2017 (Mathematical Research and Conference Center; Bedlewo, Poland, 15 – 20/01/2017).

Wall-Bounded Turbulence (International Center for Mechanical Sciences (CISM); Udine, Italy, 18 – 22/07/2016).

Topical Problems of Fluid Mechanics (Institute of Thermomechanics, Prague, Czech Republic, 11 – 13/02/2015).

Classical problems and new trends in mathematical fluid dynamics (Mathematical Department University of Ferrara, Italy, 29/09/2014 – 03/10/2014).

Regularity theory for elliptic and parabolic systems and problems in continuum mechanics (Telč, Czech Republic, 01 – 03/05/2014; 27 – 30/04/2016).

Topical Problems of Fluid Mechanics (Institute of Thermomechanics, Prague, Czech Republic, 19 – 21/02/2014).

Colloquium on Fluid Dynamics (Institute of Thermomechanics, Prague, Czech Republic, 23 – 25/10/2013).

Navier-Stokes Equations (Institute of Mathematics RWTH University of Aachen, Germany, 21 – 24/05/2013).

Navier-Stokes Equations (Institute of Mathematics RWTH University of Aachen, Germany, 29/05/2012 – 01/06/2012).

Consortium for Small-Scale Modeling meeting, Centro Alti Studi della Difesa (CASD), Rome, Italy, 05 – 09/09/2011).

Consortium for Small-Scale Modeling meeting (Academy of Sciences, Moscow, Russia, 06 – 10/09/2010).

SCHOOLS

CrossFields PDEs - Winter School - (Mathematical Research and Conference Center; Bedlewo, Poland, 5 – 9/12/2016).

Fluids Under Pressure - summer school and workshop (Mathematical Institute, Prague, Czech Republic, 28/08/2016 - 02/09/2016)

Singular Random Dynamics (International Mathematical Summer Centre (CIME), Cetraro, Italy, 22 - 26/08/2016)

International Summer School on Evolution Equations (Prague, Czech Republic, 11 - 15/07/2016)

School on Turbulence (European High-Performance Infrastructures in Turbulence (EuHIT), Warsaw, Poland, 4 - 6/07/2016)

Mathematical theory in fluid mechanics (Kacov, Czech Republic, 22 – 29/05/2015).

Autumn School and Workshop (Bad Boll, Germany, 27 – 30/10/2014).

Particles in Flows, workshop and summer school (Institute of Mathematics, Academy of Sciences of the Czech Republic, Prague, 25 – 31/08/2014).

International Winter School on Mathematical Fluid Dynamics (Levico Terme, Trento, Italy, 16 – 21/12/2012).

SHORT COURSES

University Paris-Est, Créteil (16 – 20/12/2015) – course: Turbulence in fluids.

ADDITIONAL ACTIVITIES

BHAITECH Advanced Vehicle Centre, Padova, Italy (May – June 2013): Racing line optimization (project).

Mathematics Department, University of Ferrara, Italy (February – September 2012): Navier-Stokes equations and theory of turbulence (activity proposal).

National Research Council (CNR) Bologna, Italy (March - September 2011): Analysis of turbulence in the atmospheric surface layer (activity proposal).

Deutscher Wetterdienst (DWD), Offenbach, Germany (May 2011): Turbulence-schema modifications in the meteorological model COSMO (activity proposal).

ARPA - SIMC Bologna, Italy (November 2010 – January 2011): Turbulence in the atmospheric boundary layer (internship).

ARPA - SIMC Bologna, Italy (April – July 2008): Limited-area ensemble forecasts of windstorms over Northern Europe (project).

SKILLS

Languages: Italian (mother tongue), English (fluent), French (school level), Czech (basic level; certificate A2).

Informatics: Windows, Linux, Fortran, Matlab.

CONTACTS

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