

# Ewelina Zatorska

## Curriculum Vitae

Department of Mathematics,  
Imperial College London  
South Kensington Campus

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### Personal information

Date of Birth 17.12.1985.  
Place of Birth Nowa Dęba, Poland.  
Nationality Polish.  
Family/career breaks 1 child, maternity leave 02-09.2020,  
sabbatical in Poland for caring responsibilities 09.2021-02.2022.

### Employment

2020-present **Senior Lecturer in Applied and Numerical Analysis**, *Imperial College London*.  
2017-2020 **Lecturer in Applied Mathematics**, *University College London*.  
2015-2017 **Chapman Fellow**, *Imperial College London*.  
2013-2017 **Assistant Professor**, *University of Warsaw*.  
2014-2015 **Research associate**, *Polish Academy of Sciences, Warsaw*.  
2013-2014 **Postdoc**, *École Polytechnique, Paris*.  
2006-2008 **Science Entertainer**, *Copernicus Science Centre in Warsaw*.

### Professional qualification

11/2021 **Habilitation in Mathematics (summa cum laude)**, *University of Warsaw*, Department of Mathematics, Informatics and Mechanics.  
09/2013 **Ph.D. in Mathematics (summa cum laude)**, *University of Warsaw*, Ph.D. Programme: Mathematical Methods in Natural Sciences.  
Supervisors: prof. Piotr Mucha & Doc. Mgr. Milan Pokorný, Ph.D.  
09/2009 **Master's Degree in Mathematics (with physics)**, *University of Warsaw*, College of Inter-faculty Individual Studies in Mathematics and Natural Sciences.

### Visiting positions

2021/2022 **Junior Research Leader**, *Simons Semesters in Banach Center, Warsaw, Poland*, 2 months.  
2021 **Visiting Professor**, *University of Warsaw, Poland*, 3 months.  
2018 **Junior Research Leader**, *Simons Semesters in Banach Center, Warsaw, Poland*, 1 month.  
2016 **Postdoctoral Fellow**, *Institut Mittag-Leffler, Djursholm, Sweden*, 1 month.

- 2015 **Visiting Professor**, *Waseda University, Tokyo, Japan*, 1 month.  
 2015 **Invited Professor**, *Université Paris Dauphine, France*, 1 month.  
 2011–2013 **PhD Researcher**, *Charles University in Prague, Czech Republic*, 24 months.

## Short research visits

- 02-05/2022 **Isaac Newton Institute for Mathematical Science**, *University of Cambridge, UK*, thematic programme: Frontiers in kinetic equations for plasmas and collective behavior.
- 08/2019 **Charles University, Prague, Czech Republic**, 1 week, visiting Milan Pokorný.
- 07/2019 **The Maxwell Institute for Mathematical Sciences in Edinburgh, UK**, 1 week, visiting Michela Ottobre.
- 06/2019 **Vienna University of Technology, Austria**, 1 week, visiting Gaurav Dhariwal.
- 03/2019 **Waseda University, Tokyo, Japan**, 2 weeks, visiting Yoshihiro Shibata.
- 02/2019 **University of Maryland, USA**, 1 week, visiting Eitan Tadmor.
- 11/2018 **University of York, UK**, 1 week, visiting Zdzislaw Brzezniak.
- 11/2018 **University of Orleans, France**, 1 week, visiting Julien Barré.
- 07/2018 **Nanjing University, China**, 2 weeks, visiting Yongzhong Sun.
- 04/2018 **Gran Sasso Scientific Institute, L'Aquila, Italy**, 1 week, visiting Pierangelo Marcati and Donatella Donatelli.
- 03/2018 **Charles University, Prague, Czech Republic**, 1 week, collaboration with Milan Pokorný and Antonin Novotný.
- 02/2018 **Claude Bernard University Lyon 1, Lyon, France**, 1 week, collaboration with Francesco Fanelli.
- 09/2017 **University of Warsaw, Poland**, 1 week, collaboration with Piotr Mucha.
- 08/2017 **University Savoie Mont Blanc, Chambéry, France**, 1 week, collaboration with Didier Bresch.
- 04/2017 **Pierre and Marie Curie University, Paris, France**, 1 week, collaboration with Nicolas Vauchelet.
- 04/2016 **KAUST, Saudi Arabia**, 1 week, collaboration with Athanasios Tzavaras and José A. Carrillo.
- 03/2015 **Universite du Sud Toulon-Var, France**, 1 week, collaboration with Eduard Feireisl, Rupert Klein and Antonin Novotný.
- 11/2014 **Charles University in Prague, Czech Republic**, 1 week, visiting Milan Pokorný.
- 2013–2014 **Université de Savoie, France**, 5 weeks, visiting Didier Bresch and Charlotte Perrin.
- 07/2013 **Technische Universität Berlin, Germany**, 2 weeks, visiting Etienne Emmrich.
- 04/2013 **Ecole Polytechnique, France**, 1 week, visiting Vincent Giovangigli.
- 06/2011 **Universität Bielefeld & Universität Duisburg-Essen, Germany**, 1 week, visiting Etienne Emmrich & Perta Wittbold.

## Grants, awards, and research funding

- 2022 **London Mathematical Society, Research in Pairs Grant**, (£ 1,200).

- 2021-2026 **EPSRC Early Career Fellowship**, "*Hydrodynamic Models of Interacting Agents*", Principal Investigator, (£ 1 254,741).
- 2021-2026 **South-West Network in Generalised Solutions for Nonlinear PDEs**, led by R. Moser (*University of Bath*).
- 2019 **QJMAM**, *Travel Grant*, (£ 1,080).
- 2019 **London Mathematical Society**, *Research in Pairs Grant*, (£ 1,100).
- 2016–2019 **Polish Ministry of Science Grant "Iuventus Plus"**, *Reduced models for complex flows*, Principal Investigator, 158 400 PLN (£ 28,514).
- 2016 **London Mathematical Society**, *Travel grant*, (£ 510).
- 2016 **Polish Ministry of Science (DUN), Banach Center, and Warsaw Center of Mathematics and Computer Science**, *Funding for organization of the conference: X Forum of PDEs, Bedlewo 2016*, 93,600 PLN (£ 16,838).
- 2016 **KI-Net: Center for Scientific Computation and Mathematical Modelling**, *Travel Grant*, (\$ 1,500).
- 2015–2018 **National Science Centre grant "Harmonia"**, *Basic systems of fluid mechanics. Regularity, stability, structure of solutions*, Co-investigator, 468,000 PLN (£ 84,244).
- 2014 Fellowship **START** of the Foundation for Polish Science for outstanding young scientists (8% success rate).
- 2013–2015 **Alexander von Humboldt Foundation grant for research group linkage**, *Nonlinear differential equations: analysis, discretization methods, and applications*, Junior investigator, (54,905 EUR).
- 2012 **Polish Ministry of Science and Higher Education Award** for outstanding scientific achievements (the only recipient in Mathematics).
- 2011–2014 **National Science Centre grant "Preludium"**, *Compressible, chemically reacting fluids mixtures*, Principal Investigator, 97,300 PLN (£ 17,515).
- 2010–2013 **MS Grant Nr N N201 547438**, *Mathematical aspects of the fluid mechanics and related topics*, Co-investigator, 400,000 PLN (£ 72,000).
- 2011–2014 **Programme IDEAS PLUS ID 2011 0006 61**, *Physical systems in the mathematical setting*, Co-investigator, 1113,800 PLN (£ 200,495).
- 2011 Fellowship **Modern University** for the best doctoral students of the University of Warsaw.
- 2009 Fellowship of the Foundation for Polish Science.
- 2008 Scholarship within the Erasmus Programme.
- 2006 Scholarship of the Director of the College of Inter-faculty Individual Studies in Mathematics and Natural Sciences for the best students.

## Seminar invitations

- 24/11/2022 Warwick Analysis Seminar.
- 03/11/2022 London Analysis Seminar (unable to take up).
- 25/10/2022 Joint UCLA-Caltech-USC Analysis and PDE seminar (online).
- 18/10/2022 Geometry, Analysis and Gravitation Seminar at Queen Mary University of London.
- 07/06/2022 Mathematics for Computer Science and Applications Online Seminar Of Cracow University of Technology and University of Warmia and Mazury in Olsztyn (online).

13/05/2022 Mathematics Colloquium, University of Warwick, UK.  
 04/05/2022 PDE Seminar, South China University of Technology, Guangzhou, China (online).  
 09/02/2022 Virtual seminar: PolWoMaths Seminar (online).  
 25/05/2021 Analysis Seminar of the Czech Academy of Science, Prague, Czech Republic (online).  
 18/03/2021 AMCS Seminar, KAUST, Saudi Arabia (online).  
 09/03/2021 AMCS Seminar, KAUST, Saudi Arabia (online).  
 17/12/2020 Oberseminar Würzburg, Germany (online).  
 11/12/2020 Colloquium "Interfaces, Complex Structure and Singular Limits", Regensburg, Germany (online).  
 04/12/2020 Séminaire du Laboratoire Jacques-Louis Lions, Paris, France (online).  
 17/11/2020 Seminar of the Mathematical Physics, Department of Physics, University of Warsaw, Poland (online).  
 17/12/2019 Analysis & PDE seminar, University of Sussex (unable to take up).  
 05/11/2018 Mathematics Seminar, University of Orleans, France.  
 18/10/2018 CDT PDE Lunchtime seminar, Oxford, UK.  
 29/08/2018 Math-Bio Seminar Series, Heriot-Watt University Edinburgh, UK.  
 18/07/2018 PDEs Seminar Nanjing University, Nanjing, China.  
 29/05/2018 Seminar of the Program PDEs/SPDEs & Functional Inequalities, Warsaw, Poland.  
 12/04/2018 GSSI Mathematics Seminar, L'Aquila Italy.  
 14/03/2018 Applied Maths Seminar Series, School of Mathematics, University of Manchester, UK.  
 12/02/2018 Mathematical Finance and Stochastic Analysis Seminar, University of York, UK.  
 06/02/2018 Séminaire EDP-Analyse, Université Claude Bernard - Lyon 1, France.  
 14/12/2017 Analysis Seminar, University of Bath, UK.  
 10/10/2017 Applied Mathematics Seminar, UCL, UK.  
 15/06/2017 PDE Seminar Oxford, UK.  
 22/09/2016 Institut Mittag-Leffler, Sweden.  
 25/04/2016 Applied Mathematics Seminar, University of York.  
 13/04/2016 AMCS Seminar, KAUST, Saudi Arabia.  
 13/11/2015 Pure Analysis and PDE's working group seminar, Imperial College London.  
 3/11/2015 Applied PDEs Seminar, Imperial College London.  
 29/10/2015 Analysis seminar, King's College London  
 04/02/2015 PDE seminar, Waseda University Tokyo.  
 24/11/2014 Necas Seminar on Continuum Mechanics, Charles University in Prague.  
 17/11/2014 PDE seminar, IMPAN Warsaw.  
 10/04/2014 Séminaire Groupe de Travail EDP, Université Paris XII - Val de Marne, Creteil.  
 18/02/2014 Séminaire d'EDPs et Applications, Institut Élie Cartan, Université de Lorraine, Nancy.  
 14/02/2014 Seminar of team EDPs, LAMA, Université de Savoie, Chambéry.  
 04/02/2014 Séminaire du CEREMADE Analyse-Probabilités, Université Paris Dufrene.  
 17/12/2013 Séminaire du CMAP, École Polytechnique.

- 20/02/2013 Compact Seminar: Renormalized and entropy solutions to partial differential equations, IWR, University of Heidelberg.
- 11/12/2012 Seminar on PDEs of the Mathematical Institute of the Academy of Sciences of the Czech Republic.
- 09/12/2011 Seminar of the project: Modelling of gasification and combustion of the produced gas. Institute of Geophysics, University of Warsaw.
- 22/06/2011 Seminar on PDEs, Universität Duisburg-Essen.
- 20/06/2011 Numerical Analysis Seminar, Universität Bielefeld.
- 12/04/2010 Necas Seminar on Continuum Mechanics, Charles University in Prague.

## Main Conference Talks

- 08/11/2022 Kinetic and hydrodynamic descriptions in collective behavior, Granada, Spain.
- 19/08/2022 Workshop on Stability Analysis for Nonlinear PDEs, Oxford, UK.
- 14/07/2022 Keynote speaker at Equadiff 15, Brno, Czech Republic (unable to take up).
- 27/06/2022 Summer school on fluids and turbulence, Lyon, France (unable to take up).
- 10/06/2022 Imperial-ENSTA-Fresnel workshop, Paris, France (online).
- 28/04/2022 Frontiers in kinetic equations for plasmas and collective behaviour, Cambridge, UK.
- 18/03/2022 SIAM PDEs meeting (online).
- 18/11/2021 Asymptotic Behaviors of systems of PDEs arising in physics and biology - 4th edition, Lille, France.
- 20/09/2021 XII Forum of Partial Differential Equations, Będlewo, Poland.
- 22/07/2021 Mathematical Congress of the Americas, session "Geometric Potential Analysis" (unable to take up).
- 08/05/2021 Science: Polish Perspectives, Zurich, Switzerland (online).
- 24/11/2020 Multiscale Models for Complex Fluids: Modeling and Analysis, BIRS, Canada (online).
- 10/12/2019 Imperial College London/CNRS workshop on Interacting Particle Systems and Applications, Imperial College London (unable to take up).
- 21/11/2019 Workshop in honour of prof. Milan Pokorný and his fiftieth birthday, Prague, Czech Republic.
- 26/10/2019 Inhomogeneous Flows: Asymptotic Models and Interfaces Evolution, CIRM Luminy, France.
- 13/07/2019 Summer School in Analysis of PDEs and Fluid Dynamics, Bayes Centre in Edinburgh, UK.
- 15/07/2019 ICIAM 2019, Valencia, Spain.
- 17/06/2019 Women in PDEs, Vienna, Austria.
- 11/02/2019 Transport, Mixing and Fluids, Munster, Germany.
- 21/11/2018 Particle Systems and PDE's VII, Palermo, Italy.
- 08/07/2018 AIMS, 12th Conference on Dynamical Systems, Differential Equations and Applications, Taipei, Taiwan.
- 26/06/2018 Workshop "Complex fluids and granular flow", Université d'Aix-Marseille, France.
- 27/04/2018 Workshop on PDEs/SPDEs and Functional Inequalities I, Będlewo, Poland.

- 21/02/2018 Young Researchers Workshop: Kinetic models in biology and social sciences, Arizona State University, USA, 2018.
- 22/01/2018 Transport Phenomena in Mathematical Biology, Polish Academy of Sciences, Warsaw, Poland.
- 18/12/2017 Prague Compressible Meeting (In honour of the 60th birthday of Professor Eduard Feireisl), Prague, Czech Republic.
- 03/10/2017 Analysis and Control of Fluid-Structure Interaction Systems, Bordeaux, France.
- 28/06/2017 Analysis/Stochastic Analysis workshop, Imperial College London, UK.
- 19/06/2017 Workshop on PDEs: Modelling, Analysis and Numerical Simulation, Granada, Spain.
- 16/05/2017 EPSRC Symposium: Emerging PDE models in Socio-Economic Sciences, Warwick, UK.
- 02/12/2016 The International Research Training Group on 'Mathematical Fluid Dynamics' meeting, Darmstadt, Germany.
- 20/07/2016 7ECM, Berlin, Germany.
- 20/06/2016 X Forum of PDEs, Będlewo, Poland.
- 25/05/2016 Mixing and Mixtures in Geo- and Biophysical Flows: A Focus on Mathematical Theory and Numerical Methods, CSCAMM, University of Maryland, College Park, USA.
- 08/12/2015 SIAM PDEs meeting, Scottsdale, Arizona USA.
- 17/09/2015 Mathflows 2015, Porquerolles, France.
- 30/08/2015 Mathematical Fluid Mechanics: Old Problems, New Trends - A week for Wojciech Zajączkowski, Będlewo, Poland.
- 06/07/2015 Equadiff 2015, Lyon, France.
- 29/10/2014 Autumn School and Workshop: Mathematical Fluid Dynamics, Bad Boll, Germany.
- 01/10/2014 ECI2014- Electrochemical Interfaces: Recent Topics and Open Questions, WIAS Berlin.
- 11/07/2014 10th AIMS Conference on Dynamical Systems Differential Equations and Applications, Madrid, Spain.
- 16/04/2014 8es Journées Scientifiques de l'UTLN, Workshop Mathématiques en Mécanique de Fluides, Toulon, France.
- 01/04/2014 Workshop: Maxwell-Stefan meets Navier-Stokes, Halle (Saale), Germany.
- 28/01/2014 Winter Seminar and Klausurtagung "Fluids and Snow", La Clusaz, France.
- 10/12/2013 SIAM Conference on Analysis of Partial Differential Equations, Orlando, Florida, USA.
- 29/08/2013 Equadiff13, Prague, Czech Republic.
- 12/07/2013 SIAM Annual Meeting, San Diego, California, USA.
- 25/05/2013 13th School: Mathematical Theory in Fluid Mechanics, Kacov, Czech Republic.
- 08/04/2013 ITN-Springschool Optimization in Partial Differential Equations, Reaction-Diffusion Systems and Phase-Field Models, Frejus, France.
- 23/10/2012 Mathflows 2012, Porquerolles, France.
- 04/09/2012 Parabolic and Navier-Stokes equations, Będlewo, Poland.
- 04/07/2012 9th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Orlando, Florida, USA.

- 01/11/2011 Recent Trends in Differential Equations: Analysis and Discretisation Methods, Bielefeld, Germany.
- 05/06/2011 12th School: Mathematical Theory in Fluid Mechanics, Kacov, Czech Republic.
- 06/09/2010 Regularity aspects of PDEs a week for Wojciech Zajączkowski, Będlewo, Poland.
- 01/07/2010 International Summer School on Mathematical Fluid Dynamics, Levico Terme (Trento), Italy.
- 30/03/2010 2nd Spring School: Analytical and Numerical Aspects of Evolution Equations, Berlin, Germany.

## Organizational Activity

- 12/2022 Conference "MathFlows" CIRM Luminy, France.
- 07/2022 Thematic session "Analysis of compressible multiphase systems" at Equadiff 15, Brno, Czech Republic.
- 09/2021-present Applied PDEs Seminar, Imperial College London.
- 09/2018 Minisymposium: Advances in Kinetic Theory at Joint Polish-Italian Meeting UMI-SIMAI-PTM 2018, Wrocław, Poland.
- 03/2018 Minisymposium: Agent-based, Kinetic and Multi-scale modelling in Mathematical Biology at 60th British Applied Mathematics Colloquium, University of St Andrews.
- 01/2017 Workshop Mathflows 2017, Będlewo, Poland.
- 06/2016 Conference: X Forum of Differential Equations, Będlewo, Poland.
- 12/2015 Minisymposium: Equations of 3D flows at SIAM PDEs meeting, Scottsdale, Arizona, USA.
- 10/2015-09/2017 Applied PDEs Seminar, Imperial College London.
- 03/2014 Conference: Compflows 2014, Będlewo, Poland.
- 10/2013 Workshop: Engaging Flows, Institute of Mathematics of the Polish Academy of Sciences, Warsaw.
- 04/2013 The doctoral session at ITN-Springschool: Optimization in Partial Differential Equations, Reaction-Diffusion Systems and Phase-Field Models, Frejus, France.
- 01/2011 International Winter School: Mathematical analysis in fluid mechanics 2011, Białka Tatrańska, Poland.
- 06/2010 Conference: VII Forum of Differential Equations, Będlewo, Poland.
- 02-06/2010 Joint PDEs Seminar of Mathematical Institutes of University of Warsaw, Technical University of Warsaw and Polish Academy of Sciences, Warsaw, Poland.

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## Teaching

- Graduate level Lecturer of the LTCC Course: *Mathematical theory of compressible viscous flow* 2019.  
Lecturer at *CNRS-PAN Mathematics Summer Institute*, Jagiellonian University Cracow, 2016.  
Lecturer of the TCC course: *The Basis of the Mathematical Theory of Compressible Viscous Flow* ICL 2015.  
Lecturer at PhD school: *Winter Seminar and Klausurtagung "Fluids and Snow"*, La Clusaz, France, 2014.
- Undergraduate level Lecturer of *Theory of Partial Differential Equations* at ICL 2022.  
Lecturer of *Multivariable Analysis* at UCL 2017 and 2018.  
Lecturer of *Introduction to Partial Differential Equations* at ICL 2016.  
Personal tutor for the the 1st, 2nd, 3rd year students in Mathematics and 1st year tutor in Mathematics at ICL 2015-2017 and at UCL 2017-2019.  
Teaching assistant for *Elements of Mathematical Analysis* 2009-2010 and *Functional Analysis I* 2011-2012, University of Warsaw.

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## Supervision/mentorship

- Postdocs Esther Bou Dhager (ICL, 2022-2023), funded by EPSRC-Imperial Postdoctoral Award.  
Nilais Chaudhuri (ICL, 2021-2023), funded by EPSRC fellowship: Hydrodynamic Models of Interacting Agents.  
Gaurav Dhariwal (UCL, one month 2019), funded by LMS Research in Pairs Grant.
- PhD students Muhammed Ali Mehmood (ICL, to start in 2022).  
Co-supervision of Maja Szlenk (supervisor: Piotr Mucha, University of Warsaw, exp. graduation in 2023).  
Anna Song (ICL-Crick Institute, 2019–2022), member of the Thesis Committee.  
Joanna Skonieczna (University of Warsaw, interrupted), co-supervised with P.B. Mucha.
- Master students Hehuizi Chen (UCL, 2019), co-supervised with S. Timoshin.  
Hao Hao (UCL, 2019).  
Bede Frank (UCL, 2018), awarded Faculty Postgraduate Prize and Frank Smith Prize.  
Nicolas Brigouleix (ICL, 2016), co-supervised with P. Degond.  
Barry M. Cavin (ICL, 2017), co-supervised with P. Degond.
- Undergraduate apprentices Anna Staipale, University College London (10 weeks Mary Lister McCammon Summer Research Fellowship at ICL, Summer 2022).  
Yuxin Zhang, Imperial College London (2 months UROP at ICL, Summer 2022).  
Yuze Jiang, Harbin Institute of Technology (2 months UROP at ICL, Summer 2021).  
Ayoub Hafid University of Tokyo (3 months UROP at UCL, Summer 2019).
- Group projects Supervisor of 30 1st year students' individual projects in Applied Mathematics, ICL, Summer 2022.  
Supervisor of a cohort of 50 2nd year students' group projects in Pure and Applied Analysis, UCL 2019.  
Supervisor of two group summer projects for the 2nd year students in Game Theory, ICL 2016 and 2017.



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## Visitors received at Imperial College London

- 04/2022 Eduard Feireisl, Czech Academy of Science, Nelder Fellow, 1 month.
- 05/2022 Piotr Mucha, University of Warsaw, 1 week.
- 06/2022 Young-Pil Choi Yonsei University, South Korea, 1 week.
- 06/2022 Oliver Tse, Eindhoven University of Technology, 1 week.
- 08/2022 Milan Pokorny, Charles University in Prague, 1 week.
- 09/2022 Piotr Mucha, University of Warsaw, 1 week.
- 10/2022 Piotr Gwiazda, Polish Academy of Sciences, 1 week.
- 11/2022 Charlotte Perrin, CIRM Marseille, 1 week.
- 11/2022 Aneta Wroblewska-Kaminska, Polish Academy of Sciences, 1 week.

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## Departmental activities

- At Imperial College
  - Member of the interview panels for UG Women's Scholarship funded in part by Imperial alumna Marjorie McDermott, November-December 2022.
  - Member of the Research Committee.
  - Member of LSR Committee for Marc Nualart Batalla.
  - Preparation of CDT application in Analysis and Applications led by UCL.
  - Academic contact for the TCC courses, 2021-present.
  - Academic contact for the 3D printing project, 2021-present.
  - Organisation of Eduard Feireisl's visit (application for Nelder Fellowship), April 2022.
  - Member of the interview panels for UG Women's Scholarship funded in part by Imperial alumna Marjorie McDermott, November-December 2021.
  - Member of the search committee for the positions in: analysis of PDEs, fluid dynamics/scientific computing, November-December 2021.
  - Member of the Chapman interview panel 2020-2021.
  - Second Marker for the exam: "Function Spaces and Applications".
  - Peer Reviewer for the EPSRC grant applications.
- At UCL
  - Member of the MSc Mathematical Modelling admission board and of MSc Board of Examiners.
  - Member of recruiting panel for 5 postdoctoral positions (for PDRAs of D. Hewett, E. Burman, C. Bellettini, M. Hadzic, and E. Segal).
  - Advisor during feedback sessions for 4th year students in Mathematics on how to present their projects.

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## Editorial boards and Memberships

- Associate Editor in *IMA Journal of Applied Mathematics*.
- Elected member of Mathematical Sciences EPSRC Early Career Forum (2021-present).
- Member of: the London Mathematical Society, European Women in Mathematics, The Institute of Mathematics and its Applications, UKRI Early Career Research Forum.

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## List of publications

### Preprints

- 45. N. Chaudhuri, P. B. Mucha, E. Zatorska: A new construction of weak solutions to compressible

Navier-Stokes equations. *arXiv:2211.12189, submitted (2022)*.

44. N. Chaudhuri, L. Navoret, C. Perrin, E. Zatorska: Hard congestion limit of the dissipative Aw-Rascle system. *arXiv:2209.12449, submitted (2022)*.

43. N. Chaudhuri, E. Feireisl, E. Zatorska: Nonuniqueness of weak solutions to the dissipative Aw-Rascle model. *arXiv:2208.02547, submitted (2022)*.

42. N. Chaudhuri, P. Gwiazda, E. Zatorska: Analysis of the generalised Aw-Rascle model. *arXiv:2202.03557, submitted (2022)*.

41. Z. Brzeźniak, G. Dhariwal, E. Zatorska: Sequential stability of weak martingale solutions to stochastic compressible Navier-Stokes equations with viscosity vanishing on vacuum. *arXiv:2201.02070, submitted (2022)*.

40. F. Fanelli, E. Zatorska: Low Mach number limit for degenerate Navier-Stokes equations in presence of strong stratification *arXiv:2107.05157, submitted (2021)*.

### Peer-reviewed journal publications

39. M. Pokorný, A. Wróblewska-Kamińska, E. Zatorska: Two-phase compressible/incompressible Navier–Stokes system with inflow-outflow boundary conditions. *J. Math Fluid Mech.*, 24(87) (2022).

38. D. Breit, E. Feireisl, M. Hofmanova, E. Zatorska: Compressible Navier–Stokes system with transport noise. *SIAM J. Math. Anal.*, 54(4), 937-972 (2022).

37. Y. Li, E. Zatorska: Remarks on weak-strong uniqueness for two-fluid model. *Geometric Potential Analysis, De Gruyter (2022)*.

36. T. Piasecki, E. Zatorska: Maximal Regularity for Compressible Two-Fluid System. *J. Math Fluid Mech.*, 24(9) (2022).

35. Y. Li, E. Zatorska: On weak solutions to the compressible inviscid two-fluid model *J. Differential Equations*, 299, 33-50, (2021).

34. J. Barré, P. Dobson, M. Ottobre, E. Zatorska: Fast non mean-field networks: uniform in time averaging *SIAM J. Math. Anal.*, 53(1), 937-972 (2021).

33. J.A. Carrillo, A. Wróblewska-Kamińska, E. Zatorska: Pressureless Euler with nonlocal interactions as a singular limit of degenerate Navier-Stokes system. *J. Math. Anal. Appl.*, 492(1) (2020).

32. Y. Li, E. Zatorska: Large time behaviour for a compressible two-fluid model with algebraic pressure closure and large initial data *Nonlinearity*, 33(8):4075-4094 (2020).

31. J. Barré, P. Degond, D. Peurichard, E. Zatorska: Modelling pattern formation through differential repulsion. *Networks & Heterogeneous Media*, 15(3), 307-352 (2020).

30. T. Piasecki, Y. Shibata, E. Zatorska: On the maximal  $L_p - L_q$  regularity of solutions to a general linear parabolic system. *J. Differential Equations*, 268 (7), 3332-3369 (2020).

29. T. Piasecki, Y. Shibata, E. Zatorska: On the strong dynamics of compressible two-component mixture flow. *SIAM J. Math. Anal.*, 51(4):2793–2849, (2019).

28. T. Piasecki, Y. Shibata, E. Zatorska: On the isothermal compressible multi-component mixture flow: the local existence and maximal  $L_p - L_q$  regularity of solutions. *Nonlinear Analysis*, 189, 111571, (2019).

27. D. Bresch, P. B. Mucha, E. Zatorska: Finite-Energy Solutions for Compressible Two-Fluid Stokes

System. Arch. Ration. Mech. Anal., 232(2):987–1029, (2019).

26. J.A. Carrillo, A. Wróblewska-Kamińska, E. Zatorska: On long-time asymptotic for viscous hydrodynamic models of collective behaviour with damping and nonlocal interactions. *Math. Models Methods Appl. Sci. Vol. 29, No. 1, 31–63 (2019)*.

25. P. Degond, P. Minakowski, E. Zatorska: Transport of congestion in two-phase compressible/incompressible flows. *Nonl. Anal. Real World Applications, Vol. 42, 485–510 (2018)*.

24. P. Degond, P. Minakowski, L. Navoret, E. Zatorska: Finite Volume approximations of the Euler system with variable congestion. *Computers & Fluids, Vol. 169, 23–39 (2018)*.

23. J. Barré, J. A. Carrillo, P. Degond, D. Peurichard, E. Zatorska: Particle interactions mediated by dynamical networks: assessment of macroscopic descriptions. *Journal of Nonlinear Science, Vol. 28, Issue 1, 235–268 (2018)*.

22. N. Vauchelet, E. Zatorska: Incompressible limit of the Navier-Stokes model with growth term. *Nonlinear Analysis, Vol. 163, 34–59 (2017)*.

21. J. Barré, P. Degond, E. Zatorska: Kinetic theory of particle interactions mediated by dynamical networks. *Multiscale Model. Simul. (SIAM), 15(3), 1294–1323, (2017)*.

20. J. A. Carrillo, Y-P. Choi, E. Zatorska: On the pressureless damped Euler-Poisson equations with non-local forces: Critical thresholds and large-time behavior. *Math. Models Methods Appl. Sci. Vol. 26, No. 12, 2311–2340 (2016)*.

19. D. Maltese, M. Michalek, P. B. Mucha, A. Novotný, M. Pokorný, E. Zatorska: Existence of weak solutions for compressible Navier-Stokes equations with entropy transport. *J. Differential Equations, Vol. 261, no. 8, 4448–4485 (2016)*.

18. E. Feireisl, R. Klein, A. Novotný, E. Zatorska: On singular limits arising in the scale analysis of stratified fluid flows. *Math. Models Methods Appl. Sci. Vol. 26, No. 3, 419–443 (2016)*.

17. B. Haspot, E. Zatorska: From the highly compressible Navier-Stokes equations to the Porous Medium equation - rate of convergence. *DCDS-A Vol. 36, No. 6, 3107–3123 (2016)*.

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