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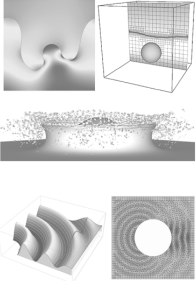
## Info

Personal website: <https://www.raducimpeanu.com/>

Institutional profile: <https://warwick.ac.uk/rcimpeanu/>

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## Research Interests



My research efforts are concentrated on the study of interfacial flows and associated asymptotic methods for multi-scale systems, coupled with a strong interest in computational fluid dynamics and high performance computing tools in general. The developed methodologies have been generated and used to address technologically important problems in areas such as aerospace, smart agriculture, and manufacturing in bioengineering contexts (needle and bioreactor design). High performance computing tools have been used to construct a virtual computational laboratory that addresses the highly sensitive (and expensive) production and maintenance costs of the target multi-fluid systems.

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## Career History

University of Warwick, United Kingdom

09/2019-to date

**Associate Professor (Reader), Warwick Mathematics Institute.**

- Assistant Professor (09/2019-07/2022), Associate Professor (07/2022-07/2023), promoted to Associate Professor (Reader) starting 08/2023.
- Research activities concentrated at the interface between asymptotic analysis and high performance computing, spanning topics such as modelling across scales, control theory, fluid-structure interaction and multi-phase flows.
- Instructor for the MA124 Mathematics by Computer, MA398 Matrix Analysis & Algorithms, MA934 Numerical Algorithms & Optimisation and MA999 Topics in Mathematical Modelling.
- MathSys CDT M.Sc. coordinator, with associated pastoral care and management duties.
- Collaborative roles within the Warwick Centre for Predictive Modelling, Warwick Manufacturing Group, the Fluid Dynamics Research Centre, and the Centre for Applications of Mathematical and Computing Sciences.

University of Oxford, United Kingdom

08/2017-08/2019

**Hooke Research Fellow, Mathematical Institute.**

- Independent research position, with nonlinear phenomena in fluid-structure interaction across scales as the main investigative topic. Additional interests include continuum mechanics in industry, as well as computational acoustics, numerical analysis and scientific computing.
- Stipendiary Lecturer at Mansfield College starting Michaelmas Term (MT) 2017.
- Intercollegiate class instructor in the department (C5.7 Topics in Fluid Mechanics).
- Active role in the InFoMM (Industrially Focused Mathematical Modelling) CDT programme.

Imperial College London, United Kingdom

07/2015-07/2017

**Research Associate in Applied Mathematics and Mathematical Physics.**

- Research centred on the analytical and numerical study of fluid-fluid interfaces, with a particular emphasis on electrohydrodynamically induced nonlinear dynamics at small scales. EPSRC grant EP/K041134/1: The Mathematics of Multilayer Microfluidics.
- Additional active interests include high speed drop impact, with research supported by Innovate UK Project 113001, as well as topics in areas such as numerical methods for wave propagation, industrial system modelling and high performance computing.

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## Education

Imperial College London, United Kingdom

10/2012-07/2015

**Ph.D. in Applied Mathematics and Mathematical Physics.**

- Focus on the development of analytical and numerical methods for multi-fluid systems.
- Additional interests include electrohydrodynamical effects on multi-phase flows, high speed droplet impact and transition to turbulence, as well as topics in high performance computing.
- Recipient of the *Roth Doctoral Fellowship* and the *2015 Doris Chen Merit Award*.
- Supervisors: Prof. Demetrios T. Papageorgiou, Prof. Anatoly I. Ruban.

Imperial College London, United Kingdom

09/2011-09/2012 **M.Sc. in Applied Mathematics (Distinction).**

- Dissertation: *Modelling and Simulation of Single- and Two-Phase Flows Around Solid Bodies.*
- Supervisors: Prof. Demetrios T. Papageorgiou, Dr. Enkeleida Lushi.

Jacobs University Bremen, Germany

09/2008-06/2011 **B.Sc. in Applied and Computational Mathematics (equiv. 1<sup>st</sup>).**

- Thesis: *A Perfectly Matched Layer Model of the Time Harmonic Focusing Wave Equation.*
- Supervisors: Prof. Tobias Preusser, Dr. Joachim Georgii.

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## Funding and Research Output

### Grants

- 05/2023-06/2023 **EPSRC Impact Acceleration Award**, *Creating the next generation low-cost sustainable composite material technology*, Award: £4,778 (as PI).
- 11/2021-03/2022 **EPSRC Digital Research Infrastructure EP/W032201/1**, *Expanding, supporting, and training the Sulis user community*, Award: £372,898 (as co-I).
- 09/2021-12/2021 **EPSRC Impact Acceleration Award**, *A novel strategy for high-speed impact data generation and adoption into industrial design pipelines*, Award: £4,920 (as PI).
- 08/2021-08/2024 **CBET-EPSRC Grant Scheme EP/W016036/1**, *Droplet impact on fluid interfaces: 3D effects across scales*, Award: £870,160 (as co-I).
- 08/2021-07/2023 **University of Warwick International Partnership Fund**, *Efficient multi-scale computational modelling for next generation food sources*, Award: £8,180 (as PI).
- 04/2021-10/2021 **Good Food Institute Exploratory Research Grant**, *Computational Modeling of Fluid Dynamics and Transport Processes in Wave Bioreactors via Open-Source CFD Software*, Award: £36,457 (as co-I).
- 03/2021-06/2022 **University Challenge Seed Fund 166841**, *A new dual-channel needle for the extraction of oocytes during the in vitro fertilisation process*, Award: £92,500 (as Co-I).
- 02/2021-01/2022 **EPSRC Small Grant Scheme EP/V051385/1**, *A new hierarchical modelling framework for active control: making waves in interfacial flow-based technologies*, Award: £49,182 (as PI).
- 10/2020-03/2021 **UKRI QR Strategic Priorities Fund**, *Rapid Assistance in Modelling the Pandemic (RAMP) Rapid Review Group (RRG) follow-up activities*, Award: £1,170 (as PI).

### Publications

- 08/2023 **O.H. Holroyd, R. Cîmpeanu, S.N. Gomes**, *Linear quadratic regulation control for falling liquid films*, SIAM Journal on Applied Mathematics, under review.
- 08/2023 **R. Cîmpeanu, A.A. Castrejon-Pita, L.N. Lim, M. Vatish, E.X. Georgiou**, *A new flow-based design for double-lumen needles*, Journal of Biomechanics, under review.
- 08/2023 **T.C. Sykes, R. Cîmpeanu, B.D. Fudge, J.R. Castrejon-Pita, A.A. Castrejon-Pita**, *Droplet impact dynamics on shallow pools*, Journal of Fluid Mechanics, accepted for publication, in production stage.
- ★ 03/2023 **B.D. Fudge, R. Cîmpeanu, A. Antkowiak, J.R. Castrejon-Pita, A.A. Castrejon-Pita**, *Drop splashing after impact onto immiscible pools of different viscosities*, Journal of Colloid and Interface Science **641**, 585-594, doi:10.1016/j.jcis.2023.03.040.
- ★ 03/2023 **L.F.L Alventosa, R. Cîmpeanu, D.M. Harris**, *Inertio-capillary revound of a droplet impacting a fluid bath*, Journal of Fluid Mechanics **958**, A24, doi:10.1103/10.1017/jfm.2023.88.
- ★ 12/2022 **A.W. Wray, R. Cîmpeanu, S.N. Gomes**, *Electrostatic control of the Navier-Stokes equations for thin films*, Physical Review Fluids **7**, L122001, doi:10.1103/PhysRevFluids.7.L122001.

- ★ 11/2021 **B.D. Fudge, R. Cîmpeanu, A.A. Castrejon-Pita**, *Dipping into a new pool: the interface dynamics of drops impacting onto a different liquid*, *Physical Review E* **104**, 065102, doi:10.1103/PhysRevE.104.065102.
- 06/2021 **M. Dalwadi, R. Cîmpeanu, H. Ockendon, J.R. Ockendon, T. Mullin**, *Levitation of a cylinder by a thin viscous film*, *Journal of Fluid Mechanics* **917**, A28, doi:10.1017/jfm.2021.284.
- ★ 06/2021 **M.J. Negus, M.R. Moore, J.M. Oliver, R. Cîmpeanu**, *Droplet impact onto a spring-supported plate: analysis and simulations*, *Journal of Engineering Mathematics* **128**, 3, doi:10.1007/s10665-021-10107-5.
- ★ 04/2021 **C.A. Galeano-Rios, R. Cîmpeanu, I.A. Bauman, A. MacEwen, P.A. Milewski, D.M. Harris**, *Capillary-scale solid rebounds: experiments, modelling and simulations*, *Journal of Fluid Mechanics* **912**, A17, doi:10.1017/jfm.2020.1135.
- ★ 02/2021 **R. Cîmpeanu, S.N. Gomes, D.T. Papageorgiou**, *Active control of liquid film flows: beyond reduced-order models*, *Nonlinear Dynamics* **104**, 267-287, doi:10.1007/s11071-021-06287-5.
- 12/2020 **C.J. Ojiako, R. Cîmpeanu, H.C. Hemaka Bandulasena, R. Smith, D. Tseluiko**, *Deformation and dewetting of liquid films under gas jets*, *Journal of Fluid Mechanics* **905**, R1, doi:10.1017/jfm.2020.751.
- ★ 09/2020 **A.W. Wray, R. Cîmpeanu**, *Reduced-order modelling of thick inertial flows around rotating cylinders*, *Journal of Fluid Mechanics* **898**, R1, doi:10.1017/jfm.2020.421.
- ★ 01/2020 **R.J. Tomlin, D.T. Papageorgiou, R. Cîmpeanu**, *Instabilities and dripping of electrified liquid films on inverted substrates*, *Physical Review Fluids* **5**, 013703, doi:10.1103/PhysRevFluids.5.013703 and APS Physics Synopsis.
- 12/2019 **C.J. Ojiako, R. Cîmpeanu, H. Bandulasena, R. Smith, D. Tseluiko**, *Deformation of a Liquid Film by an Impinging Gas Jet: Modelling and Experiments*, *Proceedings of the 6<sup>th</sup> International Conference of Fluid Flow, Heat and Mass Transfer*.
- ★ 10/2019 **M.R. Moore, R. Cîmpeanu, H. Ockendon, J.R. Ockendon, J.M. Oliver**, *Boundary layers in Helmholtz flows*, *Journal of Fluid Mechanics* **882**, R1, doi:10.1017/jfm.2019.832.
- 10/2019 **A. Kalogirou, R. Cîmpeanu, M.G. Blyth**, *Asymptotic modelling and direct numerical simulations of multilayer pressure-driven flows*, *European Journal of Mechanics - B/Fluids*, in press, doi:10.1016/j.euromechflu.2019.10.011.
- ★ 10/2018 **R. Cîmpeanu, M.R. Moore**, *Early-time jet formation in liquid-liquid impact problems: theory and simulations*, *Journal of Fluid Mechanics* **856**, 764-796, doi:10.1017/jfm.2018.704.
- ★ 06/2018 **R. Cîmpeanu, D.T. Papageorgiou**, *Three-dimensional high speed drop impact onto solid surfaces at arbitrary angles*, *International Journal of Multiphase Flow* **107**, 192-207, doi:10.1016/j.ijmultiphaseflow.2018.06.011.
- 05/2017 **T.G. Anderson, R. Cîmpeanu, D.T. Papageorgiou, P.G. Petropoulos**, *Electric field stabilization of viscous liquid layers coating the underside of a surface*, *Physical Review Fluids* **2** 054001, doi:10.1103/PhysRevFluids.2.054001.
- 01/2017 **R. Cîmpeanu, M.T. Devine, C. O'Brien**, *A simulation model for the management and expansion of extended port terminal operations*, *Transportation Research Part E: Logistics and Transportation Review* **98** 105-131, doi:10.1016/j.tre.2016.12.005.
- ★ 10/2016 **A. Kalogirou, R. Cîmpeanu, E.E Keaveny, D.T. Papageorgiou**, *Capturing nonlinear dynamics of two-fluid Couette flows with asymptotic models*, *Journal of Fluid Mechanics - Rapids* **806** (R1)1-13, doi:10.1017/jfm.2016.612.
- 06/2015 **R. Cîmpeanu, D.T. Papageorgiou**, *Electrostatically induced mixing in confined stratified multi-fluid systems*, *International Journal of Multiphase Flow* **75**, 194-204, doi:10.1016/j.ijmultiphaseflow.2015.05.012.

- ★ 05/2015 **R. Cîmpeanu, A. Martinsson, M. Heil**, *A parameter-free perfectly matched layer formulation for the finite-element-based solution of the Helmholtz equation*, *Journal of Computational Physics* **296**, 329-347, doi:10.1016/j.jcp.2015.05.006.
- 11/2014 **R. Cîmpeanu, M.T. Devine, D. Tocher, L. Clune**, *Development and analysis of a port terminal loader model at RUSAL Aughinish*, *Simulation Modelling Practice and Theory* **51**, 14-30, doi:10.1016/j.simpat.2014.11.001.
- 09/2014 **R. Cîmpeanu, D.T. Papageorgiou**, *Electrohydrodynamically induced pumping and mixing of multifluid systems in microchannels*, *Proc. Micro and Nano Flows 2014* **10**, 978-1-908549-16-7, 1-8.
- 06/2014 **R. Cîmpeanu, D.T. Papageorgiou**, *On the generation of nonlinear travelling waves in confined geometries using electric fields*, *Philosophical Transactions (A) of the Royal Society* **372** (2020), 20140066, doi:10.1098/rsta.2014.0066.
- ★ 02/2014 **R. Cîmpeanu, D.T. Papageorgiou, P.G. Petropoulos**, *On the control and suppression of the Rayleigh-Taylor instability using electric fields*, *Physics of Fluids* **26** (2), 022105, doi:10.1063/1.4865674.

#### Patents

- 08/2019 **A. Castrejon-Pita, R. Cîmpeanu, E. Georgiou, L. Lim and M. Vatish**, *Arrow-shaped aspiration and flushing needle for the retrieval of oocytes in in vitro fertilisation (IVF) procedures*, filed with Oxford University Innovation, PCT/GB2020/052316.
- 04/2018 **R. Cîmpeanu and D.T. Papageorgiou**, *Methods and apparatus for simulating liquid collection on aerodynamic components*, filed with Imperial Innovations, PCT/GB2019/050870.

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#### Work and Consultancy Experience

- 12/2021-08/2023 **Modelling dissolved oxygen transfer**, *The CMMC*, United States of America.
  - Designed and implemented high performance computing tools with multi-physics capabilities in view of understanding fluid dynamics, mixing and oxygen transfer dynamics in physical systems pertaining to the alternative protein space.
- 06/2014-09/2017 **Water Droplet Impingement**, *Bombardier Aerospace*, Belfast, United Kingdom.
  - Developed a novel methodology for the calculation of water collection efficiency on aircraft surfaces, incorporating effects such as drop deformation, coalescence and splashing.
  - Supported by Innovate UK Project 113001 SANTANA (System Advances in Nacelle Technology AerodyNAMics), in partnership with multiple academic and industrial organisations.
- 10/2016-09/2017 **Multi-phase Flow Modelling**, *Syngenta UK Ltd.*, Bracknell, United Kingdom.
  - Development of analytical and computational models for the multi-phase flow inside spray-based devices with the aim to formulate efficient control strategies for microdroplet dynamics within the target products.
- 09/2016-11/2017 **Drag Power Calculation**, *Edwards Vacuum Ltd.*, Burgess Hill, United Kingdom.
  - Development and assessment of models for the flow inside turbomolecular pumps in view of power consumption prediction and assisted performance-based product design.
- 07/2012-07/2015 **PML Integration in oomph-lib**, *University of Manchester*, United Kingdom.
  - Extended the oomph-lib finite element architecture to incorporate the construction of perfectly matched layers for applications in acoustics and linear elasticity.
  - Projects funded by Thales Underwater Systems Ltd. Supervisor: Prof. Matthias Heil.
- 06/2013-06/2015 **Berth Operation Optimisation Modelling**, *MACSI, RUSAL Aughinish*, Ireland.
  - Modelling and software engineering of an operational research model (queueing theory and statistics) for the efficient study of inner and outer berth operations in the context of performance optimisation and strategic expansion.
  - Projects funded by Rusal Aughinish Co. Collaborators: Dr. Mel Devine, Dr. Louise Clune, Conor O'Brien, Dr. Joanna Jordan, Dr. David Tocher.
- 06/2010-09/2011 **Focused Ultrasound Diagnostic Tools**, *Fraunhofer MeVis*, Bremen, Germany.
  - Internship and guided research project in the Modelling and Simulation Group aimed at implementing models of high frequency ultrasound therapy to be used in cancer treatment.
  - Responsible for both mathematical modelling and software engineering of the procedures.

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## Teaching and Supervision Experience

- 10/2019-to date **Student Supervision, University of Warwick, United Kingdom.**
- Supervision under the Undergraduate Research Support Scheme (x8 since 2020), with topics ranging from modelling in interfacial flows to scientific computing for PDEs, computational acoustics to machine-learning-based methods for control design.
  - Guided 3<sup>rd</sup>/4<sup>th</sup>-year projects and MathSys CDT M.Sc. theses focusing on drop deformation under the action of accelerating gas flows, heterogeneous modelling of secondary droplet dynamics, as well as modelling and equation discovery for interfacial flows.
- 10/2017-to date **Student Supervision, University of Oxford, United Kingdom.**
- Co-supervision for three Ph.D. students (Warwick HetSys CDT, Oxford Mathematics and Engineering) on topics related to thin liquid film control, high speed drop impact and jet dynamics. Initial supervision and academic advisor role for students in the Mathematical Modelling and Scientific Computing M.Sc. programme, as well as the Industrially Focused Mathematical Modelling Centre for Doctoral Training.
  - Industrial mini-project (10-week) co-supervision on projects with Elkem and Thales UK.
- 10/2017-08/2019 **Stipendiary Lecturer - Mansfield College, University of Oxford, United Kingdom.**
- Tutor in Differential Equations I/II, Fluids and Waves, Integral Transforms, Dynamics and Introductory Calculus. Responsibilities included holding tutorial/problem sessions, grading student work, marking collections, as well as general support.
  - Additional roles as admissions interview panel member and in incoming student activities.
- 07/2015-07/2017 **Student Supervision, Imperial College London, United Kingdom.**
- Co-supervision of three Applied Mathematics M.Sc. student theses, as well as two separate UROP (Undergraduate Research Opportunities Programme) projects on subjects related to long-wave asymptotics of interfacial flows (falling films and stratified flows) and a 4<sup>th</sup>-year research project on instability interaction in multi-layer flows.
- 07/2015-07/2017 **Assessment/Examination Activities, Imperial College London, United Kingdom.**
- Assessment duties within the Department of Mathematics, varying from Early Stage Assessment examinations to marking M.Sc. dissertations, as well as evaluating oral presentations for the M.Res. degree in the doctoral training centres affiliated to the department.
- 09/2012-07/2015 **Graduate Teaching Assistantship, Imperial College London, United Kingdom.**
- Teaching Assistant in Multivariable Calculus, Introduction to Numerical Analysis, Matlab Laboratory and Scientific Computing. Responsibilities included holding tutorial sessions, grading homework assignments, marking quizzes and examinations, invigilation.

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## Organisational and Administrative Experience

- 11/2015-to date **Peer-review Activities.**
- Invited reviewer for journals and grant awarding bodies in applied mathematics and computational science, such as *Journal of Fluid Mechanics*, *Physical Review Fluids*, *Science Advances*, *International Journal of Multiphase Flow*, *Journal of Fluids and Structures* and the *EPSRC*.
- 07/2022-to date **Departmental Impact Champion, University of Warwick, United Kingdom.**
- Departmental representative on the EPSRC Impact Acceleration Award panel and Knowledge Exchange Champion as part of the Knowledge Exchange Hub for Mathematical Sciences.
  - Member of the departmental Impact Committee and member of the steering committee for the Centre for Applications of the Mathematical and Computing Sciences.
- 02/2022-to date **UK Fluids Network, United Kingdom.**
- Member of the UK Fluids Network Executive Committee, with management and panel roles in activities such as judging within the national annual thesis prize competition.
  - Member of the National Fellowships in Fluid Dynamics (NFFDy) executive committee.
- 06/2022-to date **Fluid Dynamics Research Centre, University of Warwick, United Kingdom.**
- Deputy Director, with seminar organisation and management responsibilities.
- 10/2021-to date **WMI ED&I Committee, University of Warwick, United Kingdom.**
- Member of the Athena Swan submission working group, doctoral training centre and early career committee liaising activities, cross-departmental event organisation.
- 06/2020-06/2023 **WMI Early Career Committee, University of Warwick, United Kingdom.**
- Co-founder and vice-president, with a focus on the improvement of the available information, practices and work condition quality for ECRs, as well as new staff members in general.

- 04/2020-to date **RAMP - Transmission RRG**, *University of Oxford*, United Kingdom.
- Coordinatination of review efforts within the *transmission* workstream in the Rapid Response Group (RRG), as part of the Royal Society's initiative on Rapid Assistance in Modelling the Pandemic (RAMP). The work concentrates on topics such as the dynamics of droplets, evaporation, airflow, aerosols, particles, face masks and environmental effects.
- 09/2017-08/2019 **Early Career Research Committee**, *University of Oxford*, United Kingdom.
- Active member of the local committee focusing on the areas of relevance to ECRs, notably the department's working environment for postdoctoral researchers, and reviewing, extending and implementing relevant sections of the Good Practice Action Plan. Co-chair of the committee together with Prof. Frances Kirwan FRS in the 2018-2019 academic year.
- 09/2017-12/2017 **North meets South Colloquium**, *University of Oxford*, United Kingdom.
- Co-organiser of departmental seminar series at the Mathematical Institute of the University of Oxford, consisting in the celebration of local research of both pure (North Wing) and applied (South Wing) nature. Supported by the Early Career Research Committee.
- 11/2016 **Drop Impact: from Coalescence to Splashing**, *Imperial College*, United Kingdom.
- Organiser of an international conference on recent developments in drop impact, with participation from leading researchers in the field from institutions in France, Spain, Switzerland and the United Kingdom. Supported by the Centre for Computational Methods in Science and Engineering of Imperial College London.
- 09/2016-07/2017 **PDRA Representative**, *Imperial College London*, United Kingdom.
- Post-doctoral research associate representative in the Department of Mathematics. Duties include collaborating with the Postdoc Development Centre to organise courses and training for the PDRA staff within the Department of Mathematics, organising social activities such as informal seminar sessions, as well as engaging with senior academic staff members in order to provide specialised support for early stage career researchers.
- 09/2014-06/2015 **AMMP Ph.D. Representative**, *Imperial College London*, United Kingdom.
- Postgraduate student representative for the Applied Mathematics and Mathematical Physics (AMMP) section. Duties included representing the student body on the Postgraduate Education Committee, organising events within the department and Graduate Student Union and interfacing between the academic staff and students on both academic and personal matters.
- 06/2014-06/2015 **SIAM Student Chapter**, *Imperial College London*, United Kingdom.
- Co-founder and vice-president of the local SIAM Student Chapter, a student-led organisation aimed at providing a vibrant research communication environment between members of the local student community, in collaboration with academic and industrial institutions worldwide.

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## Selected Conference Presentations and Invited Talks

Presented in more than 100 scientific meetings since 2012, map available *here*.

- 07/2023 **Applied Mathematics Research Fair**, *Imperial College London*, United Kingdom.
- 07/2023 **Basilisk/Gerris Users' Meeting 2023**, *Sorbonne Université*, Paris, France.
- 05/2023 **Waves and Free Surface Flows: the next twenty years**, *ICMS Edinburgh*, UK.
- 04/2023 **Computational Challenges and Emerging Tools**, *INI Cambridge*, UK.
- 04/2023 **UKACM Conference**, *University of Warwick*, United Kingdom.
- 2013-2023 **British Applied Mathematics Colloquium**, United Kingdom.
- 08/2021 **Droplets 2021**, *Darmstadt University (v)*, Germany.
- 05/2021 **Micro and Nano Flows**, *Imperial College London (v)*, United Kingdom.
- 2013-2022 **66<sup>th</sup>, 68<sup>th</sup>, 69<sup>th</sup>, 73<sup>rd</sup>, 75<sup>th</sup> APS DFD Meetings**, United States of America.
- 11/2020 **MathSys Forum**, *University of Warwick (v)*, United Kingdom.
- 07/2020 **High-Speed Flow Seminar Series**, *Monash University (v)*, Australia.
- 06/2020 **SIAM-IMA Student Chapter**, *University of Strathclyde (v)*, United Kingdom.
- 01/2020 **Leslie Comrie Seminar Series**, *University of Greenwich*, United Kingdom.
- 10/2019 **Centre for Scientific Computing**, *University of Warwick*, United Kingdom.
- 09/2019 **Mathematics Colloquium**, *The Open University*, United Kingdom.
- 09/2019 **Droplets 2019 Meeting**, *Durham University*, United Kingdom.

- 07/2019 **ICIAM 2019**, *Universitat de València*, Valencia, Spain.
- 06/2019 **Basilisk/Gerris Users' Meeting 2019**, *Sorbonne Université*, Paris, France.
- 06/2019 **Soft Matter Seminar**, *University of Bath*, United Kingdom.
- 06/2019 **UK Fluids Network**, *University of Strathclyde*, United Kingdom.
- 05/2019 **BIRS Workshop**, *Banff*, Alberta, Canada.
- 2012-2021 **British Applied Mathematics Colloquium**, United Kingdom.
- 04/2019 **Fluids at Brown Seminar**, *Brown University*, Providence, United States of America.
- 03/2019 **APS March Meeting**, *Boston*, Massachusetts, United States of America.
- 03/2019 **Applied Math Lab Seminar**, *Courant Institute*, New York, United States of America.
- 03/2019 **Mech. Eng. Colloquium**, *Tufts University*, Boston, United States of America.
- 01/2019 **Applied Mathematics Seminar**, *University of Warwick*, United Kingdom.
- 11/2018 **Instituto Nacional de Tecnica Aeroespacial**, *Madrid*, Spain.
- 09/2018 **UK Fluids Network**, *University of Oxford*, United Kingdom.
- 09/2018 **12<sup>th</sup> European Fluid Mechanics Conference**, *Vienna*, Austria.
- 06/2018 **Fluid Dynamics Centre Seminar**, *University of Warwick*, United Kingdom.
- 05/2018 **Numerical Analysis Group Seminar**, *University of Oxford*, United Kingdom.
- 04/2018 **Applied Maths Seminar**, *University of Loughborough*, United Kingdom.
- 11/2017 **Applied Maths Research Seminar**, *University of East Anglia*, United Kingdom.
- 10/2017 **Mathematics Seminar Series**, *University of Dundee*, United Kingdom.
- 09/2017 **UK Fluids Network**, *University of Loughborough*, United Kingdom.
- 06/2017 **14<sup>th</sup> FACM Conference**, *Newark*, New Jersey, United States of America.
- 06/2017 **Applied and Interdisciplinary Mathematics Seminar**, *Bath*, United Kingdom.
- 06/2017 **2<sup>nd</sup> IMA Nonlinearity Conference**, *Norwich*, United Kingdom.
- 04/2017 **UK Fluids Network**, *University of Oxford*, United Kingdom.
- 03/2017 **ICERM Semester Program Meeting - Drops, jets and other singularities**, *Providence*, Rhode Island, United States of America.
- 02/2017 **BP Institute Seminar Series**, *Cambridge*, United Kingdom.
- 09/2016 **11<sup>th</sup> European Fluid Mechanics Conference**, *Sevilla*, Spain.
- 07/2015 **8<sup>th</sup> GRACM Congress on Computational Mechanics**, *Volos*, Greece.
- 11/2014 **Alan Tayler Day, TakeAIM 2014**, *Univ. of Oxford*, United Kingdom.
- 10/2014 **Meeting on Numerical Challenges in Two-phase Flows**, *Sevilla*, Spain.
- 09/2014 **IMA Mathematical Modelling of Fluid Systems**, *Bristol*, United Kingdom.
- 09/2014 **4<sup>th</sup> Micro and Nano Flows Conference**, *Univ. College London*, United Kingdom.
- 02/2014 **3<sup>rd</sup> Thales Research Day**, *Univ. of Manchester*, United Kingdom.
- 10/2013 **M.Res. Seminar Series**, *Imperial College London*, United Kingdom.

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### Outreach Activities

- 05/2023 **Food Global Research Priority Webinar**, *University of Warwick*, United Kingdom.  
Accessible cross-disciplinary lecture on mathematical modelling in the alternative protein space.
- 08/2022 **Oxford for Romania Summer School**, *Oxford*, United Kingdom.  
Lecture and living library session on applied mathematics and career progression for high school students from underrepresented backgrounds.
- 06/2021 **Discover Warwick Week and Offer Holder Open Days**, *University of Warwick*.  
Interactive lectures (modelling, linear algebra) for a variety of secondary school years.

- 12/2020 **Romania Science Festival**, *A drop of applied mathematics*, online.  
 Accessible secondary school level webinar (in Romanian, 1500+ viewers) on mathematical modelling in fluid mechanics, with a focus on impact phenomena and splashing.
- 12/2018 **Imperial Lates: Xmaths**, *Imperial College London*, United Kingdom.  
 Exhibitor at large scale outreach event (2000+ participants). Comprehensive experimental demos and theoretical insight into problems in fluid mechanics (jet break-up, drop impact).
- 10/2018 **Research Case Study**, *University of Oxford*, United Kingdom.  
 Article and associated animations on drop impact for wider audience engagement.
- 2018-2019 **2018/19 UK Graduate Modelling Camp**, *University of Oxford*, United Kingdom.  
 Designed one week mathematical modelling project and mentored student team.
- 03/2018 **North meets South Colloquium**, *University of Oxford*, United Kingdom.  
 Presented 'Crash testing mathematical models in fluid dynamics'.
- 07/2017 **Faculty of Natural Sciences Article**, *Imperial College London*, United Kingdom.  
 Interview and scientific communication on 'The beauty of computational mathematics'.
- 07/2017 **Postdoc Pizza Seminar Series**, *Imperial College London*, United Kingdom.  
 Presented 'Making a splash: from high speed drop impact to efficient water retention calculation'.

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### Additional Skills and Achievements

- PC Knowledge Linux (Ubuntu, Fedora, Mint, Red Hat), Windows 2000/XP/Vista/Seven, Microsoft Office.
- Programming Proficient in C, C++, L<sup>A</sup>T<sub>E</sub>X, sTeX, Matlab, Maple, Standard ML, Gerris, good working knowledge in Fortran, Java, HTML, Python, Prolog, Mathematica, IDL, FEniCS, Pascal.
- Awards Recipient of the 2015 Doris Chen Merit Award;  
 Winner of the 2015 British Applied Mathematics Colloquium (BAMC) Poster Competition;  
 Winner of TakeAIM 2014, project ranked among the best 5 out of more than 65 entries;  
 Finalist of the 2014 Irish Laboratory Awards - Collaboration Achievement Award;  
 Winner of the 2014 British Applied Mathematics Colloquium (BAMC) Poster Competition;  
 Winner of the 2014 3<sup>rd</sup> SIAM National Student Chapter Conference Poster Competition;  
 Finalist of the 2014 Set for Britain competition for early-career research scientists;  
 Overall Winner of the 2013 Imperial College London Dept. of Mathematics Poster Competition;  
 Finalist Winner of the 2011 Mathematical Contest in Modeling, project ranked among the best 29 out of 2775 international teams;  
 Member of the Jacobs University President's List for the academic years 2008-2009 and 2010-2011 (awarded for having a GPA higher than 1.5 on a 1.0 to 5.0 scale, app. 93% or more).

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### Selected Workshops and Training

- 12/2020 **KTN and HetSys CDT Virtual Study Group with Industry**, *University of Warwick*, United Kingdom.
- 02/2020 **Innovative Mathematics for a Modern Industrial Strategy**, *Isaac Newton Institute*, United Kingdom.
- 11/2017 **Mathematics of Sea Ice Phenomena**, *Isaac Newton Institute*, United Kingdom.  
 • Invited visit to the Ice-structure Interaction workshop and associated collaborative events.
- 2012-2014 **London Taught Course Center**, *London Mathematical Society*, United Kingdom.  
 • Attended several research-level courses as part of the LTCC training programme, most notably Free Surface Flows, Internal Fluid Dynamics, Models, Multiple Deck Theory, Turbulent Flows.
- 07/2012 **A First Course on Level Set Methods**, *Univ. of Cambridge*, United Kingdom.
- 06/2012 **FEniCS Training Workshop**, *Imperial College London*, United Kingdom.