

Simon Michaël Schulz

PERSONAL DETAILS

<i>DoB</i>	10th August 1992
<i>Citizenship</i>	French, British
<i>Address</i>	Scuola Normale Superiore, P.zza dei Cavalieri, 3, 56126 Pisa, Italy
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EMPLOYMENT

Junior Visiting Position <i>Centro di Ricerca Matematica Ennio De Giorgi, Scuola Normale Superiore</i>	2023-
Van Vleck Assistant Professor <i>Department of Mathematics, University of Wisconsin-Madison</i>	2021-2023
Postdoctoral Research Associate <i>Faculty of Mathematics, University of Cambridge</i> <u>Supervisor:</u> Dr Maria Bruna	2019-2021

EDUCATION

DPhil. Mathematics <i>University of Oxford</i> <u>Supervisor:</u> Prof. Gui-Qiang Chen <u>Thesis:</u> Compensated compactness methods in the study of compressible fluid flow <u>Examiners:</u> Prof. Endre Süli and Prof. Denis Serre <i>Funded by EPSRC Centre for Doctoral Training in Partial Differential Equations</i>	2015-2019
MASt. Mathematics (Part III) <i>University of Cambridge</i> Specializing in Analysis & Partial Differential Equations <i>Funded by St John's College Benefactors' Scholarship</i>	2014-2015
MEng. Information Engineering <i>University of Cambridge</i> Specializing in Control & Signal Processing	2013-2014
BA. Hons <i>University of Cambridge</i> Mixed cursus in mathematics and engineering.	2010-2013

PUBLICATIONS

11. **Global existence and weak continuity for the Carrollian fluid equations in one dimension**, with *M. Petropoulos* and *G. Tawjanskas*, in preparation.

10. **Regularity and trend to equilibrium for a non-local advection-diffusion model of active particles**, with *L. Alasio and J. Guerand*, in preparation.
9. **The Morawetz problem for supersonic flow with cavitation**, with *G.-Q. Chen and T.P. Giron*, preprint.
8. **Well-posedness and stationary states for a crowded active Brownian system with size-exclusion**, with *M. Burger*, submitted, arXiv:2309.17326.
7. **Well-posedness of an integro-differential model for active Brownian particles**, with *M. Bruna, M. Burger, and A. Esposito*, SIAM J. Math. Anal. **54** (2022) 5662–5697.
6. **Phase separation in systems of interacting active Brownian particles**, with *M. Bruna, M. Burger, and A. Esposito*, SIAM J. Appl. Math. **82** (2022) 1635–1660.
5. **Existence and regularity for a system of porous medium equations with nonlocal drift and small cross-diffusion**, with *L. Alasio, M. Bruna, and S. Fagioli*, Nonlinear Analysis **223** (2022) 113064.
4. **On Liouville-type theorems for the 2D stationary MHD equations**, with *N. De Nitti and F. Hounkpe*, Nonlinearity **35** (2022) 870–888.
3. **Inviscid limit of the compressible Navier–Stokes equations for asymptotically isothermal gases**, with *M.R.I. Schrecker*, J. Differential Equations **269** (2020) 8640–8685 [Corrigendum in **287** (2021) 78–87].
2. **Vanishing viscosity limit of the compressible Navier–Stokes equations with general pressure law**, with *M.R.I. Schrecker*, SIAM J. Math. Anal. **51** (2019) 2168–2205.
1. **Liouville type theorem for the stationary equations of magneto-hydrodynamics**, Acta Math. Sci. **39** (2018) 491–497.

SEMINAR RESPONSIBILITIES

3. Co-organizer of the Geometric Analysis and PDE Seminar (University of Cambridge, LT 2020).
2. Organizer of the Nonlinear PDE Seminar (University of Oxford, 2018-2019).
1. Co-organizer of the OxPDE Student Seminar (University of Oxford, 2017-2018).

TALKS

11. Séminaire EDP de l’Institut Camille Jordan, Université Lyon I (July 2023, Lyon, France).
10. Workshop on Nonlinear PDEs: Analysis and Applications, University of Pittsburgh (April 2023, Pittsburgh, PA, USA).
9. John’s Hopkins University Analysis & PDE Seminar (February 2022, Baltimore, MD, USA).
8. UW-Madison PDE Seminar (September 2021, Madison, WI, USA).

7. Purdue PDE Seminar (online, May 2021, Lafayette, IN, USA).
6. Joint ICL/UCL Pure Analysis and PDEs Seminar (online, March 2021 London, UK).
5. Geometric inequalities & recent topics in nonlinear PDEs (February 2021, Online).
4. PDE Lunchtime Seminar (January 2020, Oxford, UK).
3. EMS School in Applied Mathematics, Mathematical Aspects of Fluid Flows (May 2019, Kácov, Czech Republic).
2. Joint CDT Conference, Analysis and PDE (April 2018, Oxford, UK).
1. Chinese Academy of Sciences, PDE Seminar (September 2017, Beijing, China).

GRADUATE SUPERVISION

2. (2021) Thomas Gamet, *École Normale Supérieure de Lyon Stage M1 Mathématiques*: “Unicité des solutions à valeur dans les mesures”.
1. (2021) Oscar de Wit, *Cambridge Part III Mathematics Essay*: “The Aubin–Lions Lemma and applications to evolution equations”.

TEACHING EXPERIENCE

Instructor 2021-present

Department of Mathematics, University of Wisconsin-Madison

- 114 Algebra & Trigonometry (Spring 2023),
- 421 The Theory of Single Variable Calculus (Fall 2021/22),
- 521 Analysis I (Spring 2022).

Course supervisor 2019-2021

Faculty of Mathematics, University of Cambridge

- Part II Analysis of Functions (LT 2020/21),
- Part II Probability and Measure Theory (MT 2020),
- Part IB Analysis and Topology (MT 2020).

Class tutor 2018-2019

Mathematical Institute, University of Oxford

- B4.3 Distribution theory and Fourier analysis (MT 2018),
- C4.4 Hyperbolic equations (HT 2019),
- CDT Introduction to PDEs (MT 2018).

Teaching assistant 2016-2017

Mathematical Institute, University of Oxford

- B4.1 Banach spaces (MT 2016),
- B8.1 Martingales through measure theory (MT 2016),
- CDT Hyperbolic PDEs (TT 2017).

College tutor 2016-2018

Magdalen College, The Queen's College, St Edmund Hall College (Oxford)

- A4 Lebesgue integration (HT 2018),
- A10 Fluid dynamics and waves (HT 2017/18).

REFERENCES

- Dr Maria Bruna, `bruna@maths.cam.ac.uk`
- Prof. Gui-Qiang Chen, `Gui-Qiang.Chen@maths.ox.ac.uk`
- Prof. Mikhail Feldman, `feldman@math.wisc.edu`
- Prof. Denis Serre, `denis.serre@ens-lyon.fr`
- Prof. Endre Süli, `suli@maths.ox.ac.uk`