

FILIP RINDLER – CURRICULUM VITAE

WORK ADDRESS	Mathematics Institute Zeeman Building University of Warwick Coventry CV4 7AL, UK	F.Rindler@warwick.ac.uk http://www.warwick.ac.uk/filiprindler Tel.: +44 (0)24 765 28328 Office: Zeeman Building B2.20
RESEARCH INTERESTS	Partial Differential Equations, Geometric Measure Theory, Harmonic Analysis, Calculus of Variations	
EMPLOYMENT	2018 –	Reader , <i>University of Warwick</i>
	2016 –	Turing Fellow , <i>Alan Turing Institute</i>
	2016 – 2018	Associate Professor , <i>University of Warwick</i>
	2013 – 2016	Zeeman Lecturer (Assistant Professor) , <i>University of Warwick</i>
	2011 – 2015	Drosier Research Fellow (on leave from 2013) <i>Gonville & Caius College, University of Cambridge</i>
EDUCATION	2016	Fellowship of the Higher Education Academy via <i>PCAPP</i> (University teaching qualification), <i>University of Warwick</i>
	2010	Visiting scholar (3 months) at the <i>Center for Nonlinear Analysis, Carnegie Mellon University, Pittsburgh, Pennsylvania, USA</i>
	2009 – 2011	DPhil (PhD) in Mathematics at <i>OxPDE, University of Oxford</i> Thesis title: <i>Lower Semicontinuity and Young Measures for Integral Functionals with Linear Growth</i> (with Prof. Jan Kristensen)
	2008	Research visitor (6 months) at the <i>Oxford Centre for Nonlinear PDE (OxPDE), University of Oxford</i> (and Magdalen College)
	2004 – 2008	Diplom in Mathematics with distinction (grade 1.0) <i>Technical University Berlin</i> Diploma Thesis: <i>Reverse approximation of rate-independent evolution processes</i> (with Prof. Alexander Mielke)

AWARDS & GRANTS (\geq £5k)	2018	LMS Whitehead Prize
	2018 – 2023	ERC Starting Grant “SINGULARITY” (PI, €1.5M)
	2018 – 2021	Lloyds Register Foundation grant in ATI/LRF DCE program (PI, ca. £300k)
	2016	Turing Fellow , <i>Alan Turing Institute</i>
	2015, 2017	Merit Award , <i>University of Warwick</i>
	2014 – 2017	EPSRC Research Fellowship (£262k)
	2014 – 2015	Royal Society International Exchange grant (£5k) with <i>PIMS, UBC, Vancouver, Canada</i>
	2011 – 2015	Drosier Research Fellowship (£165k) from <i>Gonville & Caius College, University of Cambridge</i>
	2009 – 2013	EPSRC DPhil scholarship (£70k) from <i>OxPDE</i>
	2006	Departmental Prize from the <i>Technical University Berlin</i> for the best “Vordiplom” (midway exam) in Computer Science
	2004 – 2009	Scholarship from the <i>German National Academic Foundation</i> (Studienstiftung des deutschen Volkes)
	1996 – 2004	Several prizes at Youth Science Competition (Jugend forscht) and from the German Physical Society (DPG)

Total funding to date: ca. £2.2M / €2.5M / \$3M

BOOK **Calculus of Variations**, Springer, Universitext, 2018.

PUBLICATIONS **Relaxation for partially coercive integral functionals with linear growth** (with G. Shaw), submitted, arXiv:1806.00343.

On the two-state problem for general differential operators (with G. De Philippis, L. Palmieri), *Nonlinear Anal.*, to appear, arXiv:1803.09302

On the structure of measures constrained by linear PDEs (with G. De Philippis, arXiv:1712.08897.

 * **Liftings, Young measures, and lower semicontinuity** (with G. Shaw), submitted, arXiv:1708.04165.

Lower semicontinuity and relaxation of linear-growth integral functionals under PDE constraints (with A. Arroyo-Rabasa, G. De Philippis), to appear in *Adv. Calc. Var.*, arXiv:1701.02230.

Regularity and approximation of strong solutions to rate-independent systems (with S. Schwarzacher, E. Süli), to appear in *Math. Models Methods Appl. Sci. (M³AS)*, arXiv:1702.01427.

On Cheeger’s conjecture (with G. De Philippis, A. Marchese), “Measure Theory in Non-Smooth Spaces” (Nicola Gigli, ed.), 2017, De Gruyter.

★ **Characterization of generalized Young measures generated by symmetric gradients** (with G. De Philippis), *Arch. Ration. Mech. Anal.* **224** (2017) 1087–1125.

★ **On the structure of \mathcal{A} -free measures and applications** (with G. De Philippis), *Ann. of Math.* **184** (2016), 1017–1039.

Orientation-preserving Young measures (with K. Koumatos, E. Wiedemann), *Q. J. Math.* **67** (2016), 439–466.

Piecewise affine approximations for functions of bounded variation (with J. Kristensen), *Numer. Math.* **132** (2016), 329–346.

★ **Differential inclusions and Young measures involving prescribed Jacobians** (with K. Koumatos, E. Wiedemann), *SIAM J. Math. Anal.* **47** (2015), 1169–1195.

Strictly continuous extension of functionals with linear growth to the space BV (with G. Shaw), *Q. J. Math.* **66** (2015), 953–978.

Thin-film limits of functionals on \mathcal{A} -free vector fields (with C. Kreisbeck), *Indiana Univ. Math. J.* **64** (2015), 1383–1423.

★ **Directional oscillations, concentrations, and compensated compactness via microlocal compactness forms**, *Arch. Ration. Mech. Anal.* **215** (2015), 1–63.

Differential inclusions and Young measures involving prescribed Jacobians, *Proc. Appl. Math. Mech.* **14** (2014), 1049–1052.

A local proof for the characterization of Young measures generated by sequences in BV, *J. Funct. Anal.* **266** (2014), 6335–6371.

Lower semicontinuity and Young measures in the space BD of functions of bounded deformation, *Oberwolfach Rep.* 36/2012 (2012), 2247–2249.

Lower semicontinuity and Young measures in BV without Alberti’s Rank-One Theorem, *Adv. Calc. Var.* **5** (2012), 127–159.

Lower semicontinuity for integral functionals in the space of functions of bounded deformation via rigidity and Young measures, *Arch. Ration. Mech. Anal.* **202** (2011), 63–113.

Lower Semicontinuity and Young Measures for Integral Functionals with Linear Growth, DPhil thesis, University of Oxford, 2011.

Characterization of generalized gradient Young measures generated by sequences in $W^{1,1}$ and BV (with J. Kristensen), *Arch. Ration. Mech. Anal.* **197** (2010), 539–598.

Relaxation of signed integral functionals in BV (with J. Kristensen), *Calc. Var. Partial Differential Equations* **37** (2010), 29–62.

Approximation of rate-independent optimal control problems, *SIAM J. Numer. Anal.* **47** (2009), 3884–3909.

Reverse approximation of energetic solutions to rate-independent processes (with A. Mielke), NoDEA Nonlinear Differential Equations Appl. **16** (2009), 17–40.

Optimal control for nonconvex rate-independent evolution processes, SIAM J. Control Optim. **47** (2008), 2773–2794.

On the Proper Interference Protection in Wireless Multi-hop Networks (with M. Kubisch, E. Carlson, and D. Hollos), Proceedings of the IEEE Wireless Communications and Networking Conference (WCNC) 2007, Hong Kong, IEEE, Piscataway, March 2007, 452–457.

Current selection of five publications for REF 2020/2021 are marked with “”.*

SELECTED
INVITED TALKS

- Sep 2019 Conference on “Dynamics, Equations and Applications”, Krakow, Poland
- Oct 2018 Conference on “PDEs and Geometric Measure Theory”, FIM, ETH Zurich, Switzerland
- Sep 2018 Workshop ALEX2018 (Alex Mielke’s 60th birthday conference), Berlin, Germany
- Jul 2018 12th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Teipei, Taiwan
- Jul 2018 International Workshop on Critical Phenomena, NCTU, Hsinchu, Taiwan
- Jul 2018 Conference on “Calculus of Variations and Geometric Measure Theory”, Sussex, UK
- May 2018 Workshop on Regularity Theory in Telč, Czech Republic
- May 2018 BIRS workshop on “Topics in the Calculus of Variations: Recent Advances and New Trends”, Banff, Canada
- Mar 2018 Oxbridge PDE Conference, Cambridge, UK
- Feb 2018 RWTH Aachen, Germany
- Oct 2017 University of Bonn, Germany
- Sep 2017 University of Sussex, UK
- Jul 2017 Workshop on “Geometric measure theory”, Warwick, UK
- Apr 2017 University of Basel
- Dec 2016 Geometric PDEs workshop, Warwick, UK
- Oct 2016 Workshop on GMT, Shape Optimisation and Free Boundaries, SISSA, Trieste, Italy
- Jul 2016 11th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Orlando, USA
- Jun 2016 IST Austria
- May 2016 University of Bath, UK

Apr 2016 University of Regensburg, Germany

Apr 2016 Augsburg–Munich Analysis Seminar, Germany

Mar 2016 Heriot-Watt University, UK

Mar 2016 OxPDE, University of Oxford, UK

Feb 2016 Imperial College, UK

Feb 2016 Colloquium at University of Reading, UK

Jan 2016 University of Warwick, UK

Oct 2015 Short course at CCA, University of Cambridge, UK

Oct 2015 OxPDE, University of Oxford, UK

Sep 2015 Gran Sasso Science Institute, L'Aquila, Italy

Aug 2015 Main lecture course at CMC Mini-School at Korean Institute for Advanced Study, Seoul, South Korea

Jun 2015 Charles University Prague, Czech Republic

Sep 2014 Plenary talk at Symposium on Trends in Application of Mathematics to Mechanics (STAMM), Poitiers, France

Apr 2014 University of British Columbia & PIMS, Vancouver, Canada

Mar 2014 Workshop on Relaxation, homogenization and dimensional reduction in hyperelasticity, Université Paris-Nord, France

Mar 2014 University of Regensburg, Germany

Mar 2014 Invited minisymposium talk at GAMM 2014, Erlangen, Germany

Feb 2014 Workshop “Recent Advances in Nonlinear PDE and Calculus of Variations”, University of Reading, UK

Jan 2014 Ludwig–Maximilian University Munich, Germany

Jan 2014 Lectures at 6th SW PDE Winter School, University of Oxford, UK

Jan 2014 Technical University of Dresden, Germany

Dec 2013 RWTH Aachen University, Germany

Nov 2013 BMS Intensive Course on Evolution Equations, Berlin, Germany

Apr 2013 Max Planck Institute for Gravitational Physics, Potsdam, Germany

Jan 2013 University of Sussex, UK

Nov 2012 OxPDE, University of Oxford, UK

Oct 2012 Weierstraß Institute (WIAS), Berlin, Germany

Oct 2012 University of Warwick, UK

Sep 2012 University of Zurich, Switzerland

Jul 2012 Oberwolfach workshop on the “Calculus of Variations”, Germany

Mar 2012 Universidade Nova de Lisboa, Lisbon, Portugal

Nov 2011 University of Cambridge, UK
 Mar 2011 Hausdorff Center for Mathematics, University of Bonn, Germany
 Mar 2011 OxpDE, University of Oxford, UK
 Dec 2010 Weierstraß Institute (WIAS), Berlin, Germany
 Dec 2010 University of Essen, Germany
 Dec 2010 University of Bielefeld, Germany
 Oct 2010 CNA, Carnegie Mellon University, Pittsburgh, USA
 Sep 2010 BIRS workshop on “Rate-independent systems: Modeling, Analysis, & and Computations”, Banff, Canada
 Sep 2008 OxpDE, University of Oxford, UK
 Oct 2007 Autumn School “Analysis of Multiphase Problems”, Prague, Czech Republic
 Jul 2006 Technical University Berlin, Germany

60+ talks in total

TEACHING

Lecture course “Complex Analysis” (3rd-year UG, Warwick, 2018)

Lecture course “Calculus of Variations” (4th-year UG, Warwick, 2015 & 2017)

Graduate course “Analysis of Linear PDEs” (PhD-level, Warwick, 2013)

Projects for 3rd-year and PhD students in Calculus of Variations, PDEs (Cambridge & Warwick)

Personal Director of Studies in the CCA (Cambridge)

Tutorials / exercise classes / personal tutor for undergraduate students

Examining and assessing for PhD/MSc theses, undergraduate essays, assessor for Mathematics for Natural Scientists exam (Cambridge)

RESEARCH SUPERVISION

Postdocs:

- *David K. E. Green* (2018–2021)
- *Adolfo Arroyo-Rabasa* (2018–2021)
- *Bogdan Raita* (2018–2021)

PhD students:

- *Giles W. Shaw* (Cambridge, 2016)
- *Kamil Kosiba* (Warwick, expected 2019)
- *Anna Skorobogatova* (Warwick, expected 2022)

Master students:

- *Florian Wechsung* (Warwick & Bonn, 2015) • *Hamza Alawiye* (Warwick, 2016)
- *Kamil Kosiba* (Warwick, 2016) • *Vedika Agarwal* (Warwick, 2017)
- *Jack Thomas* (Warwick, 2017) • *Billy Sumners* (Warwick, 2019)

SERVICE

Workshop organization

- “*Recent Advances in PDEs and the Calculus of Variations*”, 4-day research workshop, 3–6 July 2017, with G. De Philippis, funded by EPSRC, MIUR SIR.
- “*Variational Methods for Stationary and Evolutionary Problems*”, 1-day workshop, 12 May 2015, funded by LMS, EPSRC, Warwick.

Co-organizer of departmental “Geometric Analysis and PDEs” seminar, Cambridge

Member of Athena SWAN departmental committee at Warwick (2013–2016)

Outreach talk “Bilton Lecture” (Mar 2017) at Bilton Grange Preparatory School, UK.