

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	Nonlinear Partial Differential Equations, Geometric Measure Theory, Calculus of Variations, Harmonic Analysis	
EMPLOYMENT	2018 –	Reader , <i>University of Warwick</i>
	2016 – 2018	Associate Professor , <i>University of Warwick</i>
	2013 – 2016	Zeeman Lecturer (Assistant Professor) , <i>University of Warwick</i>
	2011 – 2013	Drosier Research Fellow (JRF) , <i>Gonville & Caius College, University of Cambridge</i>
EDUCATION	2016	Fellowship of the Higher Education Academy (Master’s-level University teaching qualification), <i>University of Warwick</i>
	2009 – 2011	DPhil (PhD) in Mathematics , <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)
	2004 – 2008	Diplom in Mathematics with distinction (grade 1.0), <i>TU Berlin</i> Diploma Thesis: <i>Reverse approximation of rate-independent evolution processes</i> (with Prof. Alexander Mielke)
	2004	Abitur , <i>Sophie–Charlotte Oberschule Berlin</i>
AWARDS & GRANTS	2018	LMS Whitehead Prize
	2018 – 2023	ERC Starting Grant “SINGULARITY” (PI, €1.5M, £1.2M)
	2018 – 2021	Lloyds Register Foundation grant in ATI/LRF DCE program (PI, ca. £300k)
	2016 –	Turing Fellow (20% of salary), <i>Alan Turing Institute</i>
	2015/17/18	Merit Award (3x) , <i>University of Warwick</i>
	2015	LMS Conference Grant
	2014 – 2017	EPSRC Research Fellowship (£262k)

- 2014 – 2015 **Royal Society International Exchange grant** (£5k) with *PIMS, UBC, Vancouver, Canada*
- 2011 – 2015 **Drosier Research Fellowship** (£165k) from *Gonville & Caius College, University of Cambridge*
- 2010 **Travel grant** (£4k) from the *Center for Nonlinear Analysis, Carnegie Mellon University, OxPDE, and Worcester College*
- 2009 – 2013 **EPSRC DPhil scholarship** (£70k) from *OxPDE*
- 2008 **Visitor grant** (£3k) from *OxPDE*
- 2006 **Departmental Prize** from the *Technical University Berlin* for the best “Vordiplom” (midway exam) in Computer Science
- 2004 – 2009 **Scholarship** from the *German National Academic Foundation* (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, 444 pages.

- PUBLICATIONS
- *Relaxation for partially coercive integral functionals with linear growth* (with G. Shaw), submitted, arXiv:1806.00343.
 - ★ *Dimensional estimates and rectifiability for measures satisfying linear PDE constraints* (with A. Arroyo-Rabasa, G. De Philippis, J. Hirsch), to appear in *Geom. Funct. Anal.*, arXiv:1811.01847
 - ★ *Liftings, Young measures, and lower semicontinuity* (with G. Shaw), to appear in *Arch. Ration. Mech. Anal.*, 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.
 - *On the two-state problem for general differential operators* (with G. De Philippis, L. Palmieri), *Nonlinear Anal.* 177 (2018), 387–396
 - *On the structure of measures constrained by linear PDEs* (with G. De Philippis), *Proc. ICM 2018*.
 - *Regularity and approximation of strong solutions to rate-independent systems* (with S. Schwarzacher, E. Süli), *Math. Models Methods Appl. Sci. (M³AS)* 27 (2017), 2511–2556.
 - *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.

- *Reverse Approximation of Rate-Independent Evolution Processes*, Diploma thesis (Diplomarbeit), Technical University Berlin, 2008.

- *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.

Five selected publications since 2014 for the REF 2021 are marked with a “★”.

SELECTED INVITED TALKS	Sep 2019	Hausdorff school on “Modeling and analysis of evolutionary problems in materials science”, University of Bonn, Germany
	Sep 2019	Keynote talk at DEA 2019, Krakow, Poland
	Jul 2019	Oberwolfach workshop on “Partial Differential Equations”, Germany
	Jul 2019	ICIAM 2019, Valencia, Spain
	Mar 2019	Cardiff University, UK
	Feb 2019	University of Birmingham, UK
	Feb 2019	Colloquium at University of Warwick, UK
	Oct 2018	Conference on “PDEs and Geometric Measure Theory”, FIM, ETH Zurich, Switzerland
	Jul 2018	12th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Taipei, Taiwan
	Jul 2018	International Workshop on Critical Phenomena, NCTU, Hsinchu, Taiwan
	Jul 2018	Conference on “Calculus of Variations and Geometric Measure Theory”, University of Sussex, UK
	May 2018	BIRS workshop on “Topics in the Calculus of Variations: Recent Advances and New Trends”, Banff, Canada
	May 2018	Workshop on Regularity Theory in Telč, Czech Republic
	May 2018	Solid mechanics working group, Warwick, UK
	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, & 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

70+ talks in total

TEACHING

Lecture course “Complex Analysis” (3rd-year UG, Warwick, 2018)
Lecture course “Calculus of Variations” (4th-year UG, Warwick, 2015, 2017, 2019)
Lecture course “Analysis of Linear PDEs” (4th-year, 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) • *Robert Johnson* (Warwick, 2019)
- *Billy Sumners* (Warwick, 2019)

SERVICE &
ADMINISTRATION**Conference organization**

- Mini-symposium on “*Concentration phenomena under PDE-constraints*”, within DEA 2019, 16–20 September, Krakow, Poland.
- “*Recent Advances in PDEs and the Calculus of Variations*” (with G. De Philippis), 4-day research conference, 3–6 July 2017, Venice, Italy, funded by EPSRC, MIUR SIR.
- “*Variational Methods for Stationary and Evolutionary Problems*”, 1-day workshop, 12 May 2015, Warwick, UK, funded by LMS, EPSRC, Warwick.

Journal referee (50+ papers) for

- *Adv. Math.* • *Anal. Appl.* • *Adv. Calc. Var.* • *Arch. Ration. Mech. Anal.*
- *Banach Center Publ.* • *Contin. Mech. Thermodyn.* • *Discrete Contin. Dyn. Syst. Ser. S*
- *ESAIM Control Optim. Calc. Var.* • *IMA J. Numer. Anal.* • *Indiana Math. J.*
- *J. Differential Equations* • *J. Lond. Math. Soc.* • *J. Funct. Anal.* • *J. Nonlinear Sci.*
- *Nonlinear Anal. – Series A* • *Proc. Lond. Math. Soc.*
- *Proc. Roy. Soc. Edinburgh Sect. A* • *Rev. Mat. Iberoam.* • *SIAM J. Math. Anal.*
- *SIAM Review* • *Results Math.* • *ZAA J. Anal. Appl.*

Grant referee for EPSRC, Swiss National Science Foundation (SNF)

Organizer of departmental “Geometric Measure Theory, PDE Theory, and Calculus of Variations” seminar, Warwick

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

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

PhD examinations at Warwick, Oxford, Augsburg

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

Hiring panel for the selection of several Research Fellows

Admissions talk to prospective students