

THOMAS POWELL
Curriculum Vitae (April 2018)

PERSONAL INFORMATION

Full Name Thomas Rhidian John Powell
Date of Birth 11 November 1986
Place of Birth Haverfordwest, Wales, United Kingdom
Nationality British
Email powell@mathematik.tu-darmstadt.de
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ACADEMIC POSITIONS

Oct 2016 - **Postdoctoral Researcher**
Department of Mathematics
Technische Universität Darmstadt

Oct 2014 - Sep 2016 **Postdoctoral Researcher**
Institute of Computer Science
University of Innsbruck

Oct 2013 - Sep 2014 **CARMIN Postdoctoral Research Fellow**
Insitut des Hautes Etudes Scientifiques
(with a three month combined visit at Institut Henri Poincare)

EDUCATION

Oct 2009 - Aug 2013 **PhD in Theoretical Computer Science**
Queen Mary University of London
Supervised by Dr Paulo Oliva and Professor Edmund Robinson

Oct 2008 - Jun 2009 **MMath/Certificate of Advanced Study in Mathematics**
University of Cambridge

Oct 2005 - Jun 2008 **BA in Mathematics**
University of Cambridge

ARTICLES

Preprints

- *A proof theoretic study of abstract termination principles*
arXiv:1706.03577, 2017.

Publications in Journals or Conference Proceedings

- *A functional interpretation with state*
To appear in Proceedings of Logic in Computer Science (LICS 2018).
- *Spector bar recursion over finite partial functions*
with Paulo Oliva. Annals of Pure and Applied Logic 168(5):887-921, 2017.
- *Gödel's functional interpretation and the concept of learning*
Proceedings of Logic in Computer Science (LICS 2016), IEEE Computer Society, 136-145, 2016.

- *Parametrised bar recursion: A unifying framework for realizability interpretations of classical dependent choice*
To appear in Journal of Logic and Computation, published online August 2015.
- *On the computational content of termination proofs*
with Georg Moser. Proceedings of Computability in Europe (CiE 2015), LNCS 9136:276-285, 2015.
- *A constructive interpretation of Ramsey's theorem via the product of selection functions*
with Paulo Oliva. Mathematical Structures in Computer Science 25(8):1755-1778, 2015.
- *The equivalence of bar recursion and open recursion*
Annals of Pure and Applied Logic 165(11):1727-1754, 2014.
- *Applying Gödel's Dialectica interpretation to obtain a constructive proof of Higman's lemma*
Proceedings of Classical Logic and Computation (CL&C'12), EPTCS 97:49-62, 2012.
- *On Spector's bar recursion*
with Paulo Oliva. Mathematical Logic Quarterly, 58(4-5):356-365, 2012.
- *System T and the product of selection functions*
with Martín Escardó and Paulo Oliva. Proceedings of Computer Science Logic (CSL'11), LIPIcs 12:233-247, 2011.

Book Chapters

- *Well quasi-orders and the functional interpretation*
Chapter in 'Well Quasi-Orders in Computation, Logic, Language and Reasoning', P. Schuster, M. Seisenberger, A. Weiermann (eds.), Trends in Logic, Springer (upcoming).
- *A game-theoretic computational interpretation of proofs in classical analysis*
with Paulo Oliva. Chapter in 'Gentzen's Centenary: The Quest for Consistency', R. Kahle, M. Rathjen (eds.), Springer, ISBN 978-3-319-10102-6, 2015.

PhD Thesis

- *On Bar Recursive Interpretations of Analysis*
Queen Mary University of London, pp. xii+174, August 2013.

TALKS AND INVITATIONS

Selected Talks at Seminars and Conferences

- Oberwolfach Workshop on Mathematical Logic: Proof Theory, Constructive Mathematics, MFO, Oberwolfach (invited speaker), Germany, 5-11 November 2017.
- Minisymposium on Applied Proof Theory and the Computational Content of Mathematics Joint ÖMG and DMV Congress, Salzburg, Austria, 14 September, 2017
- Humboldt-Kolleg: Proof Theory as Mathesis Universalis (invited speaker), Villa Vigoni, Como, Italy, 24-27 July 2017.
- Logic Research Seminar, LMU Munich, Germany, 12 July 2017.
- Logic Research Seminar, University of Bern, Switzerland, 27 October 2016.
- Logic, Complexity and Automation, Obergurgl, Austria, 5-9 September 2016.
- Logic in Computer Science (LICS 2016), New York City, USA, 5-8 July 2016.
- Classical Logic and Computation (CL&C 2016), Porto, Portugal, 23 June 2016.
- Mathematics for Computation, Niederaltaich, Germany, 8-13 May 2016.

- Proof, Computation, Complexity (PCC 2016), LMU Munich, Germany, 5-6 May 2016.
- Dagstuhl Seminar on Well Quasi-Orders in Computer Science (invited speaker), Schloss Dagstuhl, Germany, 17-22 January 2016.
- Workshop on Efficient and Natural Proof Systems, University of Bath, UK, 14-16 December 2015.
- Mathematical Logic Seminar, Ludwig-Maximilians-Universität, Germany, 4 November 2015.
- Continuity, Computability, Constructivity: From Logic to Algorithms (invited speaker). Kochel, Germany, 14-18 September 2015.
- Computability in Europe 2015. Bucharest, Romania, 29 June - 3 July 2015.
- Workshop on Hilbert's Epsilon and Tau in Logic, Informatics and Linguistics, University of Montpellier. France, 10-12 June 2015.
- Theory Seminar, Swansea University, UK, 4 December 2014.
- Second Workshop on the Two Faces of Complexity (invited speaker), Vienna Summer of Logic, Austria, 12 July 2014.
- Séminaire de Mathématiques, Institut des Hautes Études Scientifiques, France, 14 January 2014.
- PLUME Seminar, Laboratoire de l'Informatique du Parallélisme, ENS Lyon, France, 8 January 2014.
- Theory Seminar, Swansea University, UK, 17 December 2013.
- Semantics Seminar, PPS lab, Université Paris Diderot, France, 12 November 2013.
- Fourth International Workshop on Classical Logic and Computation (CL&C'12). University of Warwick, UK, 8 July 2012.
- Theoretical Computer Science Seminar. University of Birmingham, UK, 3 July 2012.
- Computer Science Logic 2011. Bergen, Norway, 12-15 September 2011.

Invitations to major international workshops

- Oberwolfach Workshop on Mathematical Logic: Proof Theory, Constructive Mathematics. MFO, Oberwolfach, Germany, 5-11 November 2017.
- Dagstuhl Seminar on Well Quasi-Orders in Computer Science, Schloss Dagstuhl, Germany, 17-22 January 2016.
- Oberwolfach Workshop on Mathematical Logic: Proof Theory, Constructive Mathematics. MFO, Oberwolfach, Germany, 16-22 November 2014.

ACADEMIC SERVICE

Organisation

- *Minisymposium on Applied Proof Theory and the Computational Content of Mathematics (co-organised with Sam Sanders)*, part of the joint annual conference of the Austrian Mathematical Society (ÖMG) and German Mathematical Society (DMV), Salzburg, September 11-15 2017.
- *Workshop on Logic, Complexity and Automation (co-organised with Georg Moser)*, part of Computational Logic in the Alps 2016, Obergurgl, 5-9 September 2016.

Reviewing

I have reviewed papers for the following journals and conferences: Annals of Pure and Applied Logic, Archive for Mathematical Logic, CSR, LICS, Logic Journal of the IGPL, RTA, TYPES, Theoretical Computer Science.

ACADEMIC PRIZES AND GRANTS

- Scholarship, Gonville and Caius College, Cambridge, 2006.
- Senior Scholarship, Gonville and Caius College, Cambridge, 2007.
- EPSRC Doctoral Training Grant (full PhD funding for 3.5 years), 2009.
- One of two postdoctoral fellowships of the CARMIN programme, 2013.

SUPERVISION AND TEACHING

Undergraduate tutorials (Queen Mary University of London)

- Introduction to Algebra (1st year)
- Introduction to Probability (1st year)
- Geometry I (1st year)
- Probability Models (2nd year)
- Convergence and Continuity (2nd year)
- Number Theory (3rd year)

Teaching assistant (TU Darmstadt)

- Analysis (1st year)
- Linear Algebra (1st year)
- Automaten, formale Sprachen und Entscheidbarkeit (1st year)

Supervision.

- Philipp Wirtenberger. *Analysing the Complexity of Monotone Prolog*. Bachelor project, University of Innsbruck (co-supervised with Georg Moser), November 2016.

LANGUAGES

English (native), German (fluent), Welsh (fluent), French (basic)