Curriculum Vitae

Irakli Patchkoria

Personal Data:

First Name:	Irakli
Last Name:	Patchkoria
Place of Birth:	Tbilisi, Georgia
Date of Birth:	20.08.1987
Nationality:	Georgian
Affiliation:	Department of Mathematics, University of Aberdeen, Fraser Noble Building, Office 161, Aberdeen AB24 3UE, Scotland, UK
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Employment:

01/2019 – :	Lecturer at the Department of Mathematics of the University of Aberdeen
09/2016 – 12/2018:	Postdoctoral researcher at the Department of Mathematics of the University of Bonn, Germany (Funded by the German Research Foundation Schwerpunktprogramm 1786 "Homotopy Theory and Algebraic Geometry")
09/2013 – 08/2016:	Postdoctoral researcher at the Department of Mathematical Sciences of the University of Copenhagen, Denmark (within the Centre for Symmetry and Deformation)

Education:

10/2010 – 07/2013:	PhD studies at the Department of Mathematics of the University of Bonn Doctoral fellow of the German Research Foundation Graduiertenkolleg 1150 "Homotopy and Cohomology".
July 2013:	Graduation: Dr. rer. nat. Thesis Title: *Rigidity in equivariant stable homotopy theory*
10/2008 – 09/2010:	Studies in Mathematics at the University of Bonn Qualifying fellow of the German Research Foundation Graduiertenkolleg 1150 "Homotopy and Cohomology"
09/2004 – 08/2008:	Studies in Mathematics at the I. Javakhishvili Tbilisi state University (Georgia)
July 2008:	Graduation: Bachelor of Mathematics Bachelor thesis: *Cubical resolutions and derived functors*

Publications:

• *Witt vectors with coefficients and characteristic polynomials over non-commutative rings*, (with E. Dotto, A. Krause and T. Nikolaus), arXiv:2002.01538, to appear in Compositio Mathematica.
• *The spectrum of derived Mackey functors*, (with B. Sanders and C. Wimmer), arXiv:2008.02368, to appear in Transactions of the American Mathematical Society.
• *On the de Rham-Witt complex over perfectoid rings*, (with C. Davis), arXiv:2003.03911, to appear in International Mathematics Research Notices, https://doi.org/10.1093/imrn/rnab092.
• *Equivariant dimensions of groups with operators*, (with M. Grant and E. Meir), arXiv:1912.01692, to appear in Groups, Geometry, and Dynamics.
• *Proper equivariant stable homotopy theory*, (with D. Degrijse, M. Hausmann, W. Lück and S. Schwede), arXiv:1908.00779, to appear in Memoirs of the American Mathematical Society.
• *Witt Vectors, Polynomial Maps, and Real Topological Hochschild Homology*, (with E. Dotto and K. Moi), arXiv:1901.02195, to appear in Annales Scientifiques de l'École Normale Supérieure.
• *Real topological Hochschild homology*, (with E. Dotto, K. Moi, and S. Reeh), Journal of the European Mathematical Society **23** (2021), 63-152.
• *Rigidity and exotic models for v_1-local G-equivariant stable homotopy*, (with C. Roitzheim), Mathematische Zeitschrift **295** (2020), 839-875.
• *Comparing cyclotomic structures on different models for topological Hochschild homology*, (with E. Dotto, C. Malkiewich, S. Sagave and C. Woo), Journal of Topology **12** (2019), 1146-1173.
• *Stable finiteness properties of infinite discrete groups*, (with N. Bárcenas and D. Degrijse), Journal of Topology **10** (2017), 1169-1196.
• *On exotic equivalences and a theorem of Franke*, Bulletin of the London Mathematical Society, **49** (2017), 1085-1099.
• *The derived category of complex periodic K-theory localized at an odd prime*, Advances in Mathematics **309** (2017), 392-435.
• *Topological Hochschild homology and the cyclic bar construction in symmetric spectra*, (with S. Sagave), Proceedings of the American Mathematical Society **144** (2016), 4099-4106.
• *Rigidity in equivariant stable homotopy theory*, Algebraic & Geometric Topology **16** (2016), 2159-2227.
• *On the algebraic classification of module spectra*, Algebraic & Geometric Topology **12** (2012), 2329-2388.
• *Cubical approach to derived functors*, Homology, Homotopy and Applications, **14** (2012), No. 1, pp.133-158.

Preprints:

• *On the geometric fixed-points of real topological cyclic homology*, (with E. Dotto and K. Moi), arXiv:2106.04891 (submitted).

Conferences and workshops organized

June / July 2014:	Young Topologists Meeting 2014, University of Copenhagen, Denmark
November 2016:	Hermitian K-theory and Trace Methods, Hausdorff Research Institute for Mathematics, Bonn, Germany
April 2018:	29. NRW Topology Meeting, University of Bonn, Germany
September 2020:	22. Scottish Topology Seminar, online
April 2021:	British Mathematical Colloquium Topology Section, online

Grants and funding:

2019-2022:	German Research Foundation SPP 1786 Postdoctoral funding "New computations in (real) topological Hochschild and cyclic homology and in proper equivariant stable homotopy theory" (did not use because left Germany for the position in Aberdeen)
2017-2019:	Shota Rustaveli Georgian National Science Foundation grant Ref. 217-614, "On homotopy invariants related to cobordisms, K-theory and loop space cohomology"
2013-2015:	Shota Rustaveli Georgian National Science Foundation grant DI/27/5-103/12, "Homological and categorical methods in topology, algebra and theory of stacks"

Teaching:

Aberdeen:	• Differential Equations (Spring term 2021) • Combinatorics (Spring term 2021) • Metric and Topological Spaces (Winter term 2020) • Exercises Probability (Winter term 2020) • Combinatorics (Spring term 2020) • Metric and Topological Spaces (Winter term 2019) • Combinatorics (Spring term 2019)
Copenhagen:	• Exercises in Formal groups and cohomology theories (Topics in Topology II) (Block 3, 2016) • Stable homotopy theory (Topics in Topology) (Block 2, 2015/16) • Exercises Categories & Topology (Block 1, 2015) • K-theory (Block 4, 2015)

	• Exercises Categories & Topology (Block 1, 2014) • K-theory (Block 4, 2014) • Exercises Categories & Topology (Block 1, 2013)
Bonn:	• Topology II (Summer term 2018) • GRK 1150 graduate student seminar: Unstable homotopy theory (Summer term 2012) • Reading course on spectral sequences (Summer term 2011) • Exercises Algebraic Topology I (Winter term 2010/2011) • Exercises Topology II (Summer term 2010) • Exercises Topology I (Winter term 2009/2010)

Supervision:

PhD Student:	Julius Frank (Aberdeen, expected 2024)
Aberdeen:	2 Undergraduate theses
Tbilisi:	1 Bachelor thesis
Copenhagen:	2 Master theses, 2 Master projects
Bonn:	4 Bachelor theses, 2 Master theses

Selected talks and lecture series:

July 2021 :	*Derived Mackey functors* Homotopy theory and group theory (online), CRM Barcelona, Spain
June 2021:	*Classification of module spectra and Franke's algebraicity conjecture* TopFlavours 2021 (online), Warwick, UK
February 2021:	*Classification of module spectra and Franke's algebraicity conjecture* Opening workshop of the CRM Intensive Research Program on Higher Homotopical Structures (online), CRM Barcelona, Spain
July 2019:	*On polynomial maps and Witt vectors* Geometry and quantum theory, Den Dolder, Netherlands
June 2019:	*On Witt vectors with coefficients* Conference: SYM 10 years, University of Copenhagen, Denmark
June 2019:	*On Witt vectors with coefficients* Topology workshop LIGAT CRM RP 2019, UA Barcelona, Spain

April 2019:	*Quadratic forms and real trace invariants* Scottish Topology Seminar, University of Glasgow, UK
April 2019:	*The derived category of complex periodic K-theory localized at an odd prime* Workshop on derivators, University of Regensburg, Germany
30.11.2018:	*Polynomial maps, Witt vectors and Real THH* 30th NRW Topology Meeting, University of Münster, Germany
April 2018:	*On equivariant rigidity* Masterclass on rigidity and algebraic models in stable homotopy theory, University of Copenhagen, Denmark
October 2017:	*Lecture series on equivariant homotopy theory* Workshop on motivic and equivariant homotopy theory, University of Osnabrück, Germany
27.08.2015:	*Geometric meaning of the virtual cohomological dimension of a group* Nordic Topology Meeting, KTH/University of Stockholm, Sweden
09.03.2015:	*Proper equivariant stable homotopy and virtual cohomological dimension* Homotopy theory conference, Mathematisches Forschungsinstitut Oberwolfach, Germany
21.11.2014:	*What is the geometric meaning of the virtual cohomological dimension of a group?* 22th NRW Topology Meeting, University of Bonn, Germany
19.04.2013:	*Rigidity in equivariant stable homotopy theory* 19th NRW Topology Meeting, University of Osnabrück, Germany
June 2011:	*Mini course on Model categories* Algebra, Topology and Fjords, Summer School, Nordfjordeid, Norway

Language Skills:

Georgian (native language), English (fluent), German (fluent), Russian (fluent), Danish (basic).