

Curriculum Vitae

Positions

- 2003 – Professor (C4), University of Bonn
- 2002 – 2003 Head of Junior Research Group, SFB 478, University of Münster
- 1998 – 2001 Wissenschaftlicher Assistent, Bielefeld University
- 1997 – 1998 Postdoctoral Fellow, Massachusetts Institute of Technology

Education

- 2001 Habilitation in Mathematics, Bielefeld University
- 1996 PhD in Mathematics (Dr. math.), Bielefeld University
- 1994 Diplom in Mathematics, Bielefeld University

Awards and honors

- Fellow of the American Mathematical Society, Class of 2019

Editorships

- 2024 – Journal of Topology
- 2016 – Geometry & Topology
- 2006 – 2012 Mathematische Zeitschrift
- 2003 – 2016 Documenta Mathematica

Selected invited presentations

- 07/2024 9th European Congress of Mathematics, Seville, Invited speaker
- 09/2022 Summer School ‘Spectral methods in algebra, geometry, and topology’, Hausdorff Research Institute, Bonn, Germany (lecture series, 3 talks)
- 02/2020 ‘Global homotopy theory’, IIT Bombay, India (lecture series, 5 talks)
- 06/2019 IRTATCA Follow-up Conference, Barcelona, Spain
- 12/2018 Conference ‘Floer homology and homotopy theory’, UCLA, Los Angeles, USA
- 11/2018 Conference ‘Combinatorial Categories in Algebra and Topology’, Osnabrück, Germany
- 09/2018 33rd British Topology Meeting, Milton Keynes, England
- 06/2018 Homotopy Theory Summer, Berlin, Germany (lecture series, 3 talks)
- 04/2018 Masterclass ‘Rigidity and algebraic models in stable homotopy theory’ Copenhagen, Denmark (lecture series, 5 talks)
- 05/2017 Conference ‘Triangulated categories and geometry’, Bielefeld, Germany
- 03/2016 27th Nordic Congress of Mathematicians, Stockholm, Sweden
- 12/2015 Scottish Topology Meeting, Glasgow, Scotland
- 09/2014 Conference ‘Stable Homotopy Theory: structured ring spectra and their invariants’, Manchester, England
- 08/2013 Masterclass ‘Topics in equivariant stable homotopy theory’ Copenhagen, Denmark (lecture series, 5 talks)
- 06/2011 Summer School ‘Algebra, Topology and Fjords’, Sophus Lie Conference Center, Nordfjordeid, Norway (lecture series, 3 talks)
- 10/2010 Summer School ‘Equivariant Stable Homotopy Theory’ Barcelona, Spain (lecture series, 2 talks)
- 03/2008 European Mathematical Society – Joint Mathematical Weekend, Copenhagen, Plenary talk
- 06/2007 Joint International Meeting UMI – DMV, Perugia, Plenary talk

Collaborative research projects

- 2006 – 2032 DFG Cluster of Excellence ‘Hausdorff Center for Mathematics’, Bonn
Principal Investigator, Member of Board of Directors (2017-2025),
Director of Graduate Studies (2013–17), Vice-Speaker (2017–19),
Interim Speaker (2022/23)
- 2014 – 2022 DFG Priority Program SPP 1786 ‘Homotopy Theory and Algebraic Geometry’
Initiator, Member of the Steering Committee, Principal Investigator
- 2005 – 2014 DFG Research Training Group GRK 1150 ‘Homotopy and Cohomology’, PI

Organization of scientific events

- 2018 Semester program ‘Homotopy Harnessing Higher Structures’
Isaac Newton Institute, Cambridge, England
- 2015 Trimester program ‘Homotopy theory, manifolds, and
field theories’, Hausdorff Research Institute for Mathematics, Bonn, Germany
- 2015 ‘Conference on Topology and Geometry, Bonn’, Germany
- 2015 Conference ‘Advances in Homotopy Theory’, Strasbourg, France
- 2007, 11, 15 Workshop ‘Homotopy theory’,
Mathematisches Forschungsinstitut Oberwolfach, Germany
- 2004, 07, 10, 13 NRW Topology Meetings, Bonn, Germany
- 2007 Abel Symposium, Oslo, Norway
- 2007 Summer School ‘Stable homotopy theory:
classical calculations and modern structures’, Strasbourg, France
- 2005 Workshop ‘Stable and algebraic homotopy’,
Schloß Ringberg, Germany
- 2004 Workshop ‘Structured Ring Spectra’,
Max Planck Institute for Mathematics, Bonn, Germany
- 2003 Workshop ‘Topological modular forms’, Münster, Germany
- 1999 Workshop ‘Stable Homotopy Theory
and Algebraic K-theory’, Bielefeld, Germany

Publications

- [1] **Representation-graded Bredon homology of elementary abelian 2-groups**
with M. Hausmann, *Algebraic & Geometric Topology* 25 (2025), 4321–4340
- [2] **Chern classes in equivariant bordism**
Forum of Mathematics, Sigma, 12 (2024), e7, 1–11
- [3] **Proper equivariant stable homotopy theory**
with D. Degrijse, M. Hausmann, W. Lück and I. Patchkoria,
Memoirs of the American Mathematical Society 288 (2023), no. 1432, vi+142 pp.
- [4] **Splittings of global Mackey functors and regularity of equivariant Euler classes**
Proceedings of the London Mathematical Society 125 (2022), 258–276
- [5] **Global stable splittings of Stiefel manifolds**
Documenta Mathematica 27 (2022), 789–845
- [6] **Global algebraic K-theory**
Journal of Topology 15 (2022), 1325–1454
- [7] **Homotopy invariance of convolution products**
with S. Sagave, *International Mathematics Research Notices* (2021), no. 8, 6246–6292
- [8] **Categories and orbispaces**
Mathematische Zeitschrift 294 (2020), 71–107

Publications (continued)

- [9] **Orbispace, orthogonal spaces, and the universal compact Lie group**
Algebraic & Geometric Topology 19 (2019), 3171–3215
- [10] **Global homotopy theory**
New Mathematical Monographs 34. Cambridge University Press, 2018. xvi+828 pp.
- [11] **Equivariant properties of symmetric products**
Journal of the American Mathematical Society 30 (2017), 673–711
- [12] **The n -order of algebraic triangulated categories**
Journal of Topology 6 (2013), 857–867
- [13] **The p -order of topological triangulated categories**
Journal of Topology 6 (2013), 868–914
- [14] **On the homotopy groups of symmetric spectra**
Geometry & Topology 12 (2008), 1313–1344
- [15] **The stable homotopy category is rigid**
Annals of Mathematics 166 (2007), 837–863
- [16] **Triangulated categories without models**
with F. Muro and N. Strickland, *Inventiones Mathematicae* 170 (2007), 231–241
- [17] **Formal groups and stable homotopy of commutative rings**
Geometry & Topology 8 (2004), 335–412
- [18] **Realizability of modules over Tate cohomology**
with D. Benson and H. Krause, *Transactions of the Amer. Math. Soc.* 356 (2004), 3621–3668
- [19] **Stable model categories are categories of modules**
with B. Shipley, *Topology* 42 (2003), 103–153
- [20] **Equivalences of monoidal model categories**
with B. Shipley, *Algebraic & Geometric Topology* 3 (2003), 287–334
- [21] **A uniqueness theorem for stable homotopy theory**
with B. Shipley, *Mathematische Zeitschrift* 239 (2002), 803–828
- [22] **The stable homotopy category has a unique model at the prime 2**
Advances in Mathematics 164 (2001), 24–40
- [23] **Stable homotopy of algebraic theories**
Topology 40 (2001), 1–41
- [24] **S -modules and symmetric spectra**
Mathematische Annalen 319 (2001), 517–532
- [25] **Model categories of diagram spectra**
with M. Mandell, J. P. May and B. Shipley, *Proc. of the London Math. Soc.* 82 (2001), 441–512
- [26] **Simplicial structures on model categories and functors**
with C. Rezk and B. Shipley, *American Journal of Mathematics* 123 (2001), 551–575
- [27] **Algebras and modules in monoidal model categories**
with B. Shipley, *Proceedings of the London Mathematical Society* 80 (2000), 491–511
- [28] **Stable homotopical algebra and Γ -spaces**
Mathematical Proceedings of the Cambridge Philosophical Society 126 (1999), 329–356
- [29] **An exact sequence interpretation of the Lie bracket in Hochschild cohomology**
Journal für die reine und angewandte Mathematik 498 (1998), 153–172
- [30] **Spectra in model categories and applications to the algebraic cotangent complex**
Journal of Pure and Applied Algebra 120 (1997), 77–104

Publications (continued)

Expository articles

- [i] **Universal symmetries: Global equivariant homotopy theory**
to appear in the proceedings of the 9th ECM, Seville
- [ii] **Algebraic versus topological triangulated categories**
in: *Triangulated categories*, 389–407, London Mathematical Society Lecture Notes 375 (2010)
- [iii] **Introduction to realizability of modules over Tate cohomology**
with D. Benson and H. Krause
in: *Representations of algebras and related topics*, Fields Institute Comm. 45 (2005), 81–97
- [iv] **Morita theory in abelian, derived and stable model categories**
in: *Structured Ring Spectra*, 33–86, London Mathematical Society Lecture Notes 315 (2004)

Preprints submitted for publication

- [a] **Character theory and Euler characteristic for orbispaces and infinite groups**
with W. Lück and I. Patchkoria, 50 pp., [arXiv:2410.14510](https://arxiv.org/abs/2410.14510)
- [b] **The universal property of bordism of commuting involutions**
with M. Hausmann, 50 pp., [arXiv:2406.00404](https://arxiv.org/abs/2406.00404)