

Curriculum Vitae

Education

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

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

Awards and honors

Fellow of the American Mathematical Society, Class of 2019

Editorships

- 2016 - Geometry & Topology
2006 - 2012 Mathematische Zeitschrift
2003 - 2016 Documenta Mathematica

Selected invited presentations

- 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)
04/2011 Conference 'The Kervaire invariant and stable homotopy theory',
ICMS Edinburgh, Scotland
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 - 2025 DFG Cluster of Excellence 'Hausdorff Center for Mathematics', Bonn
Principal Investigator, Member of Board of Directors,
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 Symposion, 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] **Proper equivariant stable homotopy theory**
with D. Degrijse, M. Hausmann, W. Lück and I. Patchkoria,
to appear in *Memoirs of the American Mathematical Society*, v+142 pp.
- [2] **Splittings of global Mackey functors and regularity of equivariant Euler classes**
Proceedings of the London Mathematical Society 125 (2022), 258–276
- [3] **Global stable splittings of Stiefel manifolds**
Documenta Mathematica 27 (2022), 789–845
- [4] **Global algebraic K-theory**
Journal of Topology 15 (2022), 1325–1454
- [5] **Homotopy invariance of convolution products**
with S. Sagave, *International Mathematics Research Notices* (2021), no. 8, 6246–6292
- [6] **Categories and orbispaces**
Mathematische Zeitschrift 294 (2020), 71–107
- [7] **Orbispaces, orthogonal spaces, and the universal compact Lie group**
Algebraic & Geometric Topology 19 (2019), 3171–3215
- [8] **Global homotopy theory**
New Mathematical Monographs 34. Cambridge University Press, 2018. xvi+828 pp.
- [9] **Equivariant properties of symmetric products**
Journal of the American Mathematical Society 30 (2017), 673–711

Publications (continued)

- [10] **The n -order of algebraic triangulated categories**
Journal of Topology 6 (2013), 857–867
- [11] **The p -order of topological triangulated categories**
Journal of Topology 6 (2013), 868–914
- [12] **Algebraic versus topological triangulated categories**
in: *Triangulated categories*, 389–407, London Mathematical Society Lecture Notes 375 (2010)
- [13] **On the homotopy groups of symmetric spectra**
Geometry & Topology 12 (2008), 1313–1344
- [14] **The stable homotopy category is rigid**
Annals of Mathematics 166 (2007), 837–863
- [15] **Triangulated categories without models**
with F. Muro and N. Strickland, *Inventiones Mathematicae* 170 (2007), 231–241
- [16] **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
- [17] **Morita theory in abelian, derived and stable model categories**
in: *Structured Ring Spectra*, 33–86, London Mathematical Society Lecture Notes 315 (2004)
- [18] **Formal groups and stable homotopy of commutative rings**
Geometry & Topology 8 (2004), 335–412
- [19] **Realizability of modules over Tate cohomology**
with D. Benson and H. Krause, *Transactions of the Amer. Math. Soc.* 356 (2004), 3621–3668
- [20] **Stable model categories are categories of modules**
with B. Shipley, *Topology* 42 (2003), 103–153
- [21] **Equivalences of monoidal model categories**
with B. Shipley, *Algebraic & Geometric Topology* 3 (2003), 287–334
- [22] **A uniqueness theorem for stable homotopy theory**
with B. Shipley, *Mathematische Zeitschrift* 239 (2002), 803–828
- [23] **The stable homotopy category has a unique model at the prime 2**
Advances in Mathematics 164 (2001), 24–40
- [24] **Stable homotopy of algebraic theories**
Topology 40 (2001), 1–41
- [25] **S -modules and symmetric spectra**
Mathematische Annalen 319 (2001), 517–532
- [26] **Model categories of diagram spectra**
with M. Mandell, J. P. May and B. Shipley, *Proc. of the London Math. Soc.* 82 (2001), 441–512
- [27] **Simplicial structures on model categories and functors**
with C. Rezk and B. Shipley, *American Journal of Mathematics* 123 (2001), 551–575
- [28] **Algebras and modules in monoidal model categories**
with B. Shipley, *Proceedings of the London Mathematical Society* 80 (2000), 491–511
- [29] **Stable homotopical algebra and Γ -spaces**
Mathematical Proceedings of the Cambridge Philosophical Society 126 (1999), 329–356
- [30] **An exact sequence interpretation of the Lie bracket in Hochschild cohomology**
Journal für die reine und angewandte Mathematik 498 (1998), 153–172
- [31] **Spectra in model categories and applications to the algebraic cotangent complex**
Journal of Pure and Applied Algebra 120 (1997), 77–104