BEREN SANDERS

Curriculum vitae

CONTACT INFORMATION

Mathematics Department
University of California, Santa Cruz
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RESEARCH INTERESTS

Algebra and topology: triangulated categories, stable homotopy theory, algebraic geometry, modular representation theory, and noncommutative topology.

EMPLOYMENT

University of California, Santa Cruz
Mathematics Department
Assistant Professor
September 2018 – present

Swiss Federal Institute of Technology, Lausanne (EPFL)
Laboratory of Neuroscience & Topology
Postdoctoral Researcher
September 2017 – August 2018

University of Copenhagen
Department of Mathematical Sciences
Postdoctoral Researcher
September 2014 – August 2017

EDUCATION

University of California, Los Angeles
Ph.D. in Mathematics, June 2014
Advisor: Paul Balmer

University of New South Wales
B.S. in Computer Science / B.S. (Hons.) in Mathematics, April 2008
Awarded First Class Honours and the University Medal

PUBLICATIONS

1. B. Sanders. Higher comparison maps for the spectrum of a tensor triangulated category. *Adv. Math.*, 247:71–102, 2013
2. P. Balmer, I. Dell'Ambrogio, and B. Sanders. Restriction to finite-index subgroups as étale extensions in topology, KK–theory and geometry. *Algebr. Geom. Topol.*, 15(5):3025–3047, 2015
3. P. Balmer, I. Dell'Ambrogio, and B. Sanders. Grothendieck–Neeman duality and the Wirthmüller isomorphism. *Compos. Math.*, 152(8):1740–1776, 2016
4. P. Balmer and B. Sanders. The spectrum of the equivariant stable homotopy category of a finite group. *Invent. Math.*, 208(1):283–326, 2017
5. I. Dell'Ambrogio and B. Sanders. A note on triangulated monads and categories of module spectra. *C. R. Math. Acad. Sci. Paris*, 356(8):839–842, 2018
6. B. Sanders. The compactness locus of a geometric functor and the formal construction of the Adams isomorphism. *J. Topol.*, 12(2):287–327, 2019

GRANTS

2019 NSF Conference Grant for the 2019 Young Topologists Meeting. $30,000.

INVITED TALKS

2018 "The spectrum of the category of derived Mackey functors." Homological aspects of Commutative Algebra and Representation Theory, AMS Sectional Meeting at San Francisco State University, Oct. 28.

2018 "Quillen stratification for the Balmer spectrum with applications." Topology Seminar, University of Bonn, June 12.

2018 "The spectrum of the category of derived Mackey functors." Tensor Triangular Geometry and Equivariant Stable Homotopy Theory, University of Copenhagen, March 14.

2018 "Chromatic behaviour of the Tate construction and the spectrum of equivariant stable homotopy theory." Barcelona Topology Workshop, Centre de Recerca Matemàtica, Barcelona, February 2.

2017 "The Wirthmüller isomorphism and the compactness locus of a geometric functor." Algebraic Topology and Representation Theory, University of Lille, June 28.

2017 "Quillen stratification for tensor triangulated categories with applications to the Steenrod algebra." Topology Seminar, EPFL, June 19.

2017 "The compactness locus of a geometric functor and the generalized Wirthmüller isomorphism." Higher Invariants Seminar, University of Regensburg, May 9.

2017 "Quillen stratification for tensor triangulated categories with applications to the Steenrod algebra." Stratifications and Duality in Modular Representation Theory, Centre for Symmetry and Deformation, University of Copenhagen, March 27.

2016 "The Adams isomorphism as a generalized Wirthmüller isomorphism." Geometric and Topological Aspects of the Representation Theory of Finite Groups, Pacific Institute for the Mathematical Sciences, University of British Columbia, August 1.

2016 "The Adams isomorphism as a generalized Wirthmüller isomorphism." Triangulated Categories and Applications, Banff International Research Station, June 23.

2016 "Grothendieck-Neeman duality and the Wirthmüller isomorphism." Representation Theory Seminar, University of Bonn, June 10.

2016 "Reconciling the reconstruction theorems of Bondal-Orlov and Balmer." Triangulated Catgories and Geometry, University of Bielefeld, March 2.
2015 "The spectrum of the equivariant stable homotopy category." Topology Seminar, University of Lille, October 2.
2015 "Grothendieck-Neeman duality and the Wirthmüller isomorphism." Opening perspectives in Algebra, Representations, and Topology, Centre de Recerca Matemàtica, Barcelona, May 27.
2015 "The spectrum of the equivariant stable homotopy category." Cohomology of Finite Groups: Interactions and Applications, Oberwolfach Research Institute for Mathematics, May 7.
2014 "Restriction to a subgroup as an étale localization." Algebraic Topology Seminar, University of Chicago, February 18.

TEACHING EXPERIENCE

As lecturer:

University of California, Santa Cruz - Mathematics Department

Advanced Linear Algebra (Spring 2019)
Vector Calculus (Winter 2019)
Graduate Algebra I (Fall 2019)

Swiss Federal Institute of Technology, Lausanne (EPFL) - Institute of Mathematics

Triangulated Categories: What, Where, Why? (Semester 2, 2017/18)

University of Copenhagen - Department of Mathematical Sciences

Homological Algebra (Winter 2016, Winter 2015)

As teaching assistant:

Swiss Federal Institute of Technology, Lausanne (EPFL) - Institute of Mathematics

Metric and Topological Spaces (Semester 1, 2017/18)

University of Copenhagen - Department of Mathematical Sciences

Homological Algebra (Winter 2014)

University of California, Los Angeles - Department of Mathematics

Graduate Algebra (Winter 2013, Fall 2012)
History of Mathematics (Winter 2012, Winter 2011, Winter 2009)
Complex Analysis for Applications (Fall 2010, Spring 2010)
Calculus of Several Variables (Spring 2011, Winter 2010, Spring 2009)
Integration and Infinite Series (Fall 2011)
Precalculus (Fall 2011, Fall 2009)

University of New South Wales - School of Computer Science and Engineering
Algorithms and Programming Techniques (March–June 2007)
Professional Issues and Ethics in Computer Science (August–November 2006)
Data Organisation (March–June 2006)

SUPERVISION

2018 Undergraduate reading course: Introduction to Stable Homotopy Theory.
2017 Undergraduate reading course: Algebraic K-theory.
2017 Masters thesis: Localization and support in triangulated categories.
2016 Masters thesis: Derivators and stable derivators.
2016 Undergraduate reading course: Sheaves and Verdier duality.

PROFESSIONAL ACTIVITY

2018–present Co-organizer of the 2019 Young Topologists Meeting.
2018–present Organizer of the Algebra & Number Theory Seminar at UCSC.
2017–present Reviewer: *Mathematical Reviews (MathSciNet)*.
2014–present Referee: *Advances in Mathematics*, *Algebra & Number Theory*, *Algebraic & Geometric Topology*, *Applied Categorical Structures*, *Archiv der Mathematik*, *Bulletin of the London Mathematical Society*, *Compositio Mathematica*, *Journal of Algebra*, *Journal of Pure and Applied Algebra*, *Selecta Mathematica*.
2017–2018 Organizer of the Topology Seminar at EPFL.
2010 Representative of the Math and Physical Sciences Council on the UCLA Graduate Writing Center Oversight Committee.

FELLOWSHIPS AND AWARDS

2015 Oberwolfach Leibniz Graduate Student (OWLG) Grant
2013 Dissertation Year Fellowship, UCLA
2010 Chancellor's Prize, UCLA
2009 Chancellor's Prize, UCLA
2007 University Medal in Pure Mathematics, UNSW
2007 World Finalist, ACM International Collegiate Programming Contest
2006 Second Place, ACM South Pacific Regional Programming Contest
2005 The Canon Information Systems Research Prize, UNSW
2004 The Mathews Scholarship, UNSW

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