Robert Burklund

Contact Information
Department of Mathematical Sciences
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EDUCATION

Massachusetts Institute of Technology
Ph.D. Mathematics, May 2022

Massachusetts Institute of Technology
B.S. Mathematics, June 2017

EMPLOYMENT

University of Copenhagen
NSF Postdoc, July 2022 –

Publications

On the K-theory of regular coconnective rings,
with Ishan Levy.
To appear in Selecta Math. (N.S.).

Adams-type maps are not stable under composition.
with Ishan Levy and Piotr Pstragowski.
Proc. Amer. Math. Soc. Ser. B, vol. 9 (2022), 373-376

On the boundaries of highly connected, almost closed manifolds.
with Jeremy Hahn and Andrew Senger.
To appear in Acta Math.

An extension in the Adams spectral sequence in dimension 54 (2021).
Bull. Lond. Math. Soc., vol. 53, 404–407.

The trace of the local $\mathbb{A}^1$-degree (2021),
with Thomas Brazelton, Stephen McKean, Michael Montoro and Morgan Opie.
Homology, Homotopy and Appl., vol. 23 No. 1, 243–255.

Preprints

The chromatic nullstellensatz,
with Tomer Schlank and Allen Yuan, arXiv:2207.09929.

Multiplicative structures on Moore spectra,
arXiv:2203.14787.

How big are the stable homotopy groups of spheres?,

with an appendix joint with Andrew Senger, arXiv:2203.00670.

Galois reconstruction of Artin–Tate $\mathbb{R}$-motivic spectra,
with Jeremy Hahn and Andrew Senger, arXiv:2010.10325.

Inertia groups in the metastable range,
with Jeremy Hahn and Andrew Senger, arXiv:2010.09869.

On the high-dimensional geography problem,
with Andrew Senger, arXiv:2007.05127.

Invited Talks

The Chromatic Nullstellensatz,
Chromatic homotopy, K-theory and functors. (January 2023)
Nilpotence and periodicity revisited,
Muenster topology seminar. (November 2022)
Nilpotence and periodicity revisited,
Stockholm university topology seminar. (November 2022)
The Balmer spectrum of cellular C-motivic spectra,
Spectral methods in equivariant mathematics. (October 2022)
The Chromatic Nullstellensatz,
Copenhagen algebra/topology seminar. (September 2022)
Multiplicative structures on Moore spectra,
eCHT research seminar. (August 2022)
The Chromatic Nullstellensatz,
Motivic Geometry Conference. (August 2022)
Classification of manifolds and the Adams spectral sequence,
Melbourne topology seminar. (April 2022)
Motivic stable stems over a field,
Copenhagen algebra/topology seminar. (November 2021)
A Classification of metastable manifolds,
MIT geometry and topology seminar. (October 2021)
Motivic stable stems over a field,
Chicagoland topology seminar. (October 2021)
Motivic stable stems over a field,
UCLA topology seminar. (October 2021)
How big are the stable homotopy groups of spheres?,
Rochester topology seminar. (February 2021)
Classification of manifolds and the Adams spectral sequence,
UCSD topology seminar. (February 2021)

Seminars organized

Babytop: *Deforming homotopy theory and synthetic spectra* (Fall 2021)
Babytop: *Bloch–Kato* (Spring 2021)
Babytop: *Deformation theory* (Spring 2020)

Conferences and Workshops Attended

Chromatic homotopy, K-theory and Functors,
CIRM, Luminy, France. (January 2023)

Workshop: Spectral methods in equivariant mathematics,
Hausdorff center for mathematics, Bonn, Germany. (October 2022)

Motivic Geometry Conference,
University of Oslo, Oslo, Norway. (August 2022)

Joint International Meeting of the AMS and the CMS,
Fudan University, Shanghai, China. (June 2018)

International Workshop on Algebraic Topology,
Southern University of Science and Technology, Shenzhen, China. (June 2018)

Service

MIT SPUR and UROP+: Mentored eight undergraduate students on research projects (2017–2021).
RSI and MIT PRIMES: Mentored four high school students on research projects (2017–2020).

Teaching Experience

18.821: Project lab, TA. (Fall 2021)
18.100P: Real Analysis, Recitation leader. (Spring 2021)
18.03: Differential equations, Recitation leader. (Fall 2020)
18.03: Differential equations, Recitation leader. (Spring 2020)
18.785: Number theory I, Grader. (Fall 2019)
18.100P: Real Analysis, Grader. (Spring 2019)
18.901: Topology, Grader. (Fall 2018)