

Gabriel Angelini-Knoll

Curriculum Vitae

Department of Mathematics, Applied Mathematics, and Statistics
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Education

Wayne State University: Ph.D. in Mathematics, summa cum laude, 2017. Advisor: Andrew Salch.

Wayne State University: M.A. in Mathematics, summa cum laude, 2013.

Kalamazoo College: B.A. in Mathematics, B.A. in Psychology, cum laude, 2011.

Employment

Case Western Reserve University, Assistant Professor, 2025 - current

Université Paris 13, Postdoctoral Fellow, 2022 - 2025

Freie Universität Berlin, Postdoctoral Researcher, 2019 - 2022.

Michigan State University, Postdoctoral Researcher, 2017 - 2019.

Research Visits

MPIM Bonn, Visiting Researcher, 2024 - 2025

Isaac Newton Institute, Equivariant homotopy theory in context, March 9-22, 2025

MIT, Secondment, March 4-10, 2024

University of Oslo, Secondment, June 19- 25, 2023

Research interests

Homotopy theory, algebraic K-theory, and arithmetic geometry

Grants and Awards

AIM SQuaRE grant, Deformations of equivariant homotopy theory, 2023.

COFUND MathInGreaterParis Research Fellowship. 2023.

Rumble Fellowship, Wayne State University, 2016.

Publications

ACCEPTED

Gabriel Angelini-Knoll and J. D. Quigley. A homological approach to chromatic complexity of algebraic K-theory. Accepted for publication in *J. Pure Appl. Algebra*. [arXiv:1908.09164](#).

PUBLISHED

Gabriel Angelini-Knoll, Christian Ausoni, Dominic Culver, Eva Höning, and John Rognes. Algebraic K-theory of elliptic cohomology. *Geom. Top.* **29** (2025) no. 2, 619–686.

Gabriel Angelini-Knoll, Dominic Leon Culver, and Eva Höning. Topological Hochschild homology of truncated Brown-Peterson spectra I. *Algebr. Geom. Topol.* **24** (2024) no. 5, 2509–2536.

Gabriel Angelini-Knoll. Complex orientations and TP of complete discrete valuation rings. *Homol. Homotopy Appl.* **24** (2023) no. 1, 319 – 330.

Gabriel Angelini-Knoll. Detecting β elements in iterated algebraic K-theory of finite fields. *Trans. Amer. Math. Soc.* 376 (2023), pp. 2657–2692.

Gabriel Angelini-Knoll. On topological Hochschild homology of the $K(1)$ -local sphere. *J. Topol.* (2021) 14: 258–290.

Gabriel Angelini-Knoll and J. D. Quigley. The Segal Conjecture for topological Hochschild homology of Ravenel spectra. *J. Homotopy Relat. Struct.* (2021) 16: 41–60.

Gabriel Angelini-Knoll and Andrew Salch. A May-type spectral sequence for higher topological Hochschild homology. *Algebr. Geom. Topol.* (2018) **18** no. 5, 2593–2660.

SUBMITTED

Gabriel Angelini-Knoll, Christian Ausoni, and John Rognes. Algebraic K-theory of real topological K-theory. Under revision for *Compos. Math.* [arXiv:2309.11463](#).

Gabriel Angelini-Knoll, Teena Gerhardt, and Michael A. Hill. Real topological Hochschild homology via the norm and Real Witt vectors. Under revision for *Adv. Math.* [arXiv:2111.06970](#).

Gabriel Angelini-Knoll and Andrew Salch. Commuting unbounded homotopy limits with Morava K-theory. Under revision for *Math. Z.* [arXiv:2003.03510](#).

Gabriel Angelini-Knoll, Hana Jia Kong, and J. D. Quigley. Real syntomic cohomology. Submitted. [arXiv:2505.24734](#).

Gabriel Angelini-Knoll, Jeremy Hahn, and Dylan Wilson. Syntomic cohomology of Morava K-theory. Submitted. [arXiv:2410.07048](#).

Gabriel Angelini-Knoll, Mona Merling, and Maximilien Péroux. Topological ΔG -homology of rings with twisted G -action. Submitted. [arXiv:2409.18187](https://arxiv.org/abs/2409.18187).

Gabriel Angelini-Knoll, Mark Behrens, Eva Belmont, and Hana Jia Kong. A deformation of Borel equivariant homotopy. Submitted. [arXiv:2308.01873](https://arxiv.org/abs/2308.01873).

Talks

INVITED CONFERENCE TALKS

International Workshop on Algebraic Topology, Zhejiang University in Hangzhou, China, 2025.

Real THH in Venice, Venice Warwick campus, 2024.

Topologie. Oberwolfach, 2024.

Topology Intercity Seminar. Nijmegen, 2024.

Homotopy Theory in Trondheim. NTNU, 2023.

Nouveau séminaire ALPE, Université Montpellier, 2023.

Université Paris 13, Après-midi de Topologie Algébrique, 2022.

AIM Workshop on Equivariant Techniques in Stable Homotopy theory, San Jose, California, 2021.

Equivariant Stable Homotopy Theory and p-adic Hodge Theory, BIRS, 2020.

AMS Sectional, University of Hawaii at Manoa, 2019.

AMS Sectional, Ohio State University, 2018.

AMS Sectional: Bloomington, Indiana, 2017.

Midwest Topology Conference, Wayne State University, 2017.

INVITED SEMINAR TALKS

University of Copenhagen, Algebra/Topology Seminar, 2025.

Wupertal University, Topology Seminar, 2024.

Oberseminar. Max Planck Institute of Mathematics Bonn, 2024.

University of Bonn, Topology Seminar, 2024.

Massachusetts Institute of Technology, Topology Seminar, 2024.

University of Milan, Arithmetic geometry seminar, 2023.

Université Paris 13, Algebraic Topology Seminar, 2022.

Electronic Computational Homotopy Theory Seminar, 2022.

University of California, San Diego, Topology Seminar, 2022.

University of Pennsylvania, Geometry and Topology Seminar, 2021.

University of Warwick, Topology Seminar, 2021.

Wupertal University, Topology Seminar, 2020.

École polytechnique fédérale de Lausanne, Topology Seminar, 2020.

Massachusetts Institute of Technology, Topology Seminar, 2020.

Freie Universität Berlin, Topology Seminar, 2019.

University of California Los Angeles, Algebraic Topology Seminar, 2019.

University of Illinois Urbana-Champaign, Topology Seminar, 2019.

Northwestern University, Topology Seminar, 2019.

Electronic Computational Homotopy Theory Seminar, 2019.

University of Kentucky, Topology Seminar, 2017.
Johns Hopkins University, Topology Seminar, 2017.
University of Chicago, Topology Seminar, 2017.
University of Notre Dame, Topology Seminar, 2016.
Michigan State University, Topology Seminar, 2016.
Indiana University, Topology Seminar, 2016.
University of Illinois Urbana-Champaign, Topology Seminar, 2016.
Ohio State University, K-theory Seminar, 2016.

Teaching

PRIMARY INSTRUCTOR

Case Western Reserve University

MTH 308: Introduction to Abstract Algebra. Fall 2025.

Freie Universität Berlin

Topology I. Summer 2022.

Cyclic homology. Winter 2021/22.

Symmetries. Summer 2021.

Algebraic K-theory. Winter 2020/21.

Equivariant stable homotopy theory. Winter 2020/21.

Cohomology of Groups. Summer 2020.

Simplicial Methods. Winter 2019/20.

MICHIGAN STATE UNIVERSITY

Algebraic Topology II. Winter 2019.

Calculus I. Fall 2018.

Abstract Algebra I and Number Theory. Winter 2018.

Survey of Calculus I. Fall 2017.

WAYNE STATE UNIVERSITY

Intermediate Algebra with Trigonometry. Winter 2014, Winter 2015, and Fall 2015.

Elementary Statistics. Summer 2013.

Elementary Functions. Fall 2012, Winter 2013, and Fall 2013.

Math in Today's World: Quantitative literacy. Summer 2012 and Summer 2013.

SECONDARY INSTRUCTOR

Freie Universität Berlin

Higher Algebra II: ∞ -operads. With H. Reich. Winter 2021/22.

Higher algebra I: ∞ -categories. With H. Reich. Summer 2021.

Topology III: Homotopy. With H. Reich. Summer 2020.
Topology II: Homology. With H. Reich. Winter 2019/20.

LOCAL RESEARCH SEMINAR ORGANIZATION

The Chromatic Nullstellensatz. Université Paris 13. Winter 2022/23.
Hermitian K-theory. Freie Universität Berlin. Winter 2021/22, Summer 2022.
Higher symmetry. Freie Universität Berlin. Winter 2020/21.
K-theory of pullbacks. Freie Universität Berlin. Winter 2020/21.
Chromatic homotopy. Freie Universität Berlin. Summer 2020.
Algebraic K-theory. Michigan State University. Winter 2018.

Service to the department

TEACHING LEADERSHIP

Math in Today's World: Quantitative reasoning. Course coordinator. Wayne State University, 2013.
Michigan State University, Teaching mentor for graduate teaching assistants, 2018.
Wayne State University, Teaching mentor for graduate teaching assistants, 2013 and 2015.

MASTERS THESIS ADVISOR

Jingyuan Zhu (with G. Horel), Title: Equivariant ∞ -Category and Real Topological Hochschild Homology, Université Paris Saclay, 2024.
Lucas Piessevaux, Title: Deformations of stable homotopy, Freie Universität Berlin, 2022.
Ferry Saavedra (with H. Reich), Title: On generalized Tate cohomology, Freie Universität Berlin, 2022.
Daniel Krupa (with H. Reich), Title: ∞ -categories and K-theory. Freie Universität Berlin, 2021.

BACHELORS THESIS ADVISOR

Sebastian Schneider, Title: Algebra via Lawverre theories, Freie Universität Berlin, 2022.
Vittorio Di Fraia (with H. Reich), Title: Variation on the Little Cubes Operads and Involution Algebra Objects. Freie Universität Berlin, 2021.

UNDERGRADUATE RESEARCH PROJECT LEADER

SURIEM, nationwide REU for early career undergraduates, Michigan State University, 2019.
Mathematics Exchange Program (with T. Gerhardt), International REU, Michigan State University, 2019.

BROADER IMPACTS

Affiliated faculty member of Association for Women in Mathematics, Michigan State University
Contributed to "Girls Day" event for 5th–8th graders to learn about STEM fields, Freie Universität Berlin
Keeping the Doors Open: tutoring and mentorship program for 7th–8th grade students, Kalamazoo College

Service to the mathematical community

CONFERENCE ORGANIZATION

Midwest Topology Conference, CWRU, 2025.

Real algebraic K-theory and traces, Paris - Aubervillier, 2024.

Mini-Symposium: Advances in K-Theory, Symmetry, and Periodicity, DMV Berlin, 2022.

AMS Special Session: Homotopy theory, UW Madison, 2019.

Midwest Topology Conference, MSU, 2019.

REFeree

Referee for *Ann. K-Theory*, *Birkhäuser*, *Int. Math. Res. Not.*, *J. Eur. Math. Soc.*, *J. Pure Appl. Algebra*, *J. Topol.*, *Math. Z.*, *Proc. R. Soc. Edinb*, *Tbil. Math. J.*, and *Trans. Am. Math. Soc.*.

Reviewer for *MathSciNet*, *zbMATH*.