

Mona Merling

BASIC INFORMATION

University of Pennsylvania
Department of Mathematics
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Citizenship: Romania
Date of birth: 5 January 1986

RESEARCH INTERESTS

Algebraic topology. In particular, algebraic K-theory and equivariant stable homotopy theory.

ACADEMIC APPOINTMENTS

University of Pennsylvania, Philadelphia, PA

Assistant Professor, July 2018 - present

Johns Hopkins University, Baltimore, MD

J.J. Sylvester Assistant Professor, July 2014 - June 2018

EDUCATION

University of Chicago, Chicago, IL

Ph.D. in Mathematics, June 2014

Advisor: Peter May

M.S. in Mathematics, June 2010

Bard College, Annandale, NY

B.A. in Mathematics, May 2009

INVITED ACADEMIC VISITS

Mathematics Sciences Research Institute, Berkeley

Summer Stay, July 2020 (postponed due to COVID)

Isaac Newton Institute, Cambridge, UK

K-theory, Algebraic Cycles and Motivic Homotopy Theory Program Guest, June 2020 (cancelled due to COVID)

Max Planck Institute for Mathematics, Bonn, Germany

Research Guest, July-November 2018

Isaac Newton Institute, Cambridge, UK

Homotopy Harnessing Higher Structures Program Guest, July 2018 (2 weeks)

Hausdorff Institute for Mathematics, Bonn, Germany

Junior Trimester Program Guest, September-October 2016

University of Copenhagen, Denmark

Invited Visitor, August 2013 (2 weeks)

SCHOLARSHIP GRANTS AND AWARDS	Principal Investigator, NSF FRG grant DMS-2052988 “Collaborative Research: Trace Methods and Applications for Cut-and-Paste K -Theory”	2021-26
	Principal Investigator, NSF CAREER grant DMS-1943925 “Applications of equivariant homotopy theory to manifolds”	2020-25
	Principal Investigator, NSF grant DMS-1709461/1850644 “Groups, manifolds, and stable homotopy theory”	2017-20
	AMS-Simons Travel Grant	2015-17
	Distinguished Scientist Scholarship (full tuition scholarship), Bard College	2004-09
	M. Susan Richman Senior Project Award in Mathematics, Bard College	2009
	7 additional awards from Bard College for academic achievements in mathematics, scholarship, and community service	2007-09
CONFERENCE GRANTS	Principal Investigator, NSF grant DMS-2017119 “Mid-Atlantic Topology Conference”	2020-21
	School of Arts and Sciences Conference Grant, University of Pennsylvania	2020
	University Research Fund Conference Grant, University of Pennsylvania	2020
	Co-Principal Investigator, NSF grant DMS-1619569 “Mid-Atlantic Topology Symposium: New Directions”	2016
TEACHING AWARDS AND GRANTS	Departmental Good Teaching Award, University of Pennsylvania, math 123	2021
	Departmental Good Teaching Award, University of Pennsylvania, math 730	2020
	Departmental Good Teaching Award, University of Pennsylvania, math 410	2020
	Departmental Good Teaching Award, University of Pennsylvania, math 619	2019
	NV Grant, Center for Educational Resources, Johns Hopkins University <i>Grant for designing and implementing a narrative visual component for two mathematics classes in the form of video final presentations</i>	2016
	Lawrence and Josephine Graves Prize for Excellence in Undergraduate Teaching, University of Chicago	2013
VOLUMES EDITED	New directions in homotopy theory, (co-edited with N. Kitchloo, J. Morava, E. Riehl, W. S. Wilson), <i>Contemporary Mathematics</i> , Volume 707, (2018).	
PUBLICATIONS & PREPRINTS	Multiplicative equivariant K -theory and the Barratt-Priddy-Quillen theorem, (with B. Guillou, J.P. May and A. Osorno), arXiv:2001.05563, submitted.	
	The equivariant parametrized h -cobordism theorem, the non-manifold part, (with C. Malkiewich), arXiv:2001.05563, submitted.	
	Cut and paste invariants of manifolds via algebraic K -theory, (with R. Hoekzema, L.	

Murray, C. Rovi, J. Semikina), [arXiv:2001.00176](#), submitted.

Equivariant infinite loop space theory. The space level story, (with J.P. May and A. Osorno), [arXiv:1704.03413](#), submitted.

Coassembly is a homotopy limit map, (with C. Malkiewich), *Annals of K-Theory* Volume 5 Issue 3 (2020), pages 373–394, [arXiv:1904.05858](#).

Symmetric monoidal G -categories and their strictification, (with B. Guillou, J.P. May and A. Osorno), *Quarterly Journal of Mathematics*, Volume 71, Issue 1 (2020), pages 207–246, [arXiv:1809.03017](#).

Equivariant A -theory, (with C. Malkiewich), *Documenta Mathematica*, 24 (2019), pages 815–85, [arXiv:1609.03429](#).

A symmetric monoidal and equivariant Segal machine, (with B. Guillou, J.P. May and A. Osorno), *Journal of Pure and Applied Algebra*, Volume 226 (6) (2019), pages 2425–2454, [arXiv:1711.09183](#).

Motivic homotopical Galois extensions, (with A. Beaudry, K. Hess, M. Kedziorek, and V. Stojanoska), *Topology and its Applications*, Volume 235 (2018), pages 290–338, [arXiv:1611.00382](#).

Equivariant algebraic K -theory of G -rings, *Mathematische Zeitschrift*, 285(3), (2017), pages 1205–1248, [arXiv:1505.07562](#).

Categorical models for equivariant classifying spaces, (with B. Guillou and J.P. May), *Algebraic and Geometric Topology*, 17-5 (2017), pages 2565–2602, [arXiv:1201.5178](#).

Unbased calculus for functors to chain complexes, (with M. Basterra, K. Bauer, A. Beaudry, R. Eldred, B. Johnson and S. Yeakel), *Contemporary Mathematics*, Vol. 641 (2015), pages 29–48, [arXiv:1409.1553v2](#).

Function fields with class number indivisible by a prime l , (with M. Daub, J. Lang, A. Pacelli, N. Pitiwan, M. Rosen), *Acta Arithmetica*, 150 (2011), pages 339–359, [arXiv:0906.3728](#).

Gassmann equivalent dessins, (with R. Perlis), *Communications in Algebra*, Vol. 38, Issue 6 (2010), pages 2129–2137.

CONFERENCE
PROCEEDINGS

G -manifolds and algebraic K -theory, *Oberwolfach reports*, Report No. 31, (2018), pages 37–40.

OTHER
PUBLICATIONS

Widening the Pipeline (with J. Hartmann), *Notices of the AMS (Early Career section)*, Volume 67, Number 11, (2020).

The User’s Guide Project: Giving Experiential Context to Research Papers, (with C. Malkiewich, D. White, L. Wolcott, and C. Yarnall), *Journal of Humanistic Mathematics*, Volume 5 Issue 2 (2015), pages 186–188.

GRADUATE
STUDENT
SUPERVISION

Thomas Brazelton, third year PhD student, University of Pennsylvania
(co-advised with Kirsten Wickelgren)

Elijah Gunther, third year PhD student, University of Pennsylvania

Andres Mejia, second year PhD student, University of Pennsylvania

Maxine Calle, first year PhD student, University of Pennsylvania

Saad Slaoui, masters thesis, University of Pennsylvania, spring 2019.

POSTDOC
MENTORSHIP

Maximilien Peroux, University of Pennsylvania

Ningchuan Zhang, University of Pennsylvania

TEACHING
EXPERIENCE

University of Pennsylvania, Instructor

Spring	2021	math 619 Algebraic Topology III (graduate)
Fall	2020	math 123 Community Math Teaching Project (ABCS class)
Spring	2020	math 730 Algebraic K -theory (graduate, Kan seminar style)
Fall	2019	math 410 Complex Analysis
Spring	2019	math 619 Algebraic Topology III (graduate)
Spring	2019	math 370 Abstract Algebra

Johns Hopkins University, Instructor

Spring	2018	math 106 Calculus I for biology
Fall	2017	math 727 Topics in Algebraic Topology (graduate)
Fall	2017	math 615 Algebraic Topology I (graduate)
Spring	2017	math 422 Representation Theory
Spring	2017	math 616 Algebraic Topology II (graduate)
Spring	2016	math 422 Representation Theory
Spring	2016	math 401 Advanced Algebra
Fall	2015	math 401 Advanced Algebra
Fall	2015	math 328 Non-Euclidean geometry (inquiry based learning style)
Spring	2015	math 107 Calculus II for biology
Fall	2014	math 328 Non-Euclidean geometry (inquiry based learning style)

University of Chicago, Instructor

Winter	2014	math 176 Geometry IBL (co-taught with John Boller)
Spring	2013	math 112 Studies in mathematics
Winter	2013	math 153 Calculus III
Fall	2012	math 152 Calculus II
Spring	2012	math 112 Studies in mathematics
Winter	2012	math 106 Precalculus II
Fall	2011	math 105 Precalculus I

University of Chicago, College Fellow

Spring	2011	math 256 Basic Algebra III (mentor: Liang Xiao)
Winter	2011	math 255 Basic Algebra II (mentor: Rina Anno)
Fall	2010	math 254 Basic Algebra I (mentor: David Constantine)

Bard College, mathematics tutor

SERVICE

Faculty mentor, Penn Graduate Community-Engaged Research Mentorship Program, Netter Center, University of Pennsylvania, Summer 2021

Co-organizer (with Jonathan Block), Summer Bridge Workshop in Algebraic Topology, University of Pennsylvania, Summer 2021

Prison Teaching Initiative, volunteer teacher for math class, spring 2021 (remote)

Co-organizer (with Herman Gluck and Davi Maximo), Geometry-Topology Seminar, University of Pennsylvania, Spring 2019-present

Co-organizer (with Herman Gluck), Summer Bridge Workshop in Algebraic Topology, University of Pennsylvania, Summer 2020

Co-organizer (with Jonathan Block, Rob Ghrist, Ben Knudsen, and Tony Pantev), Mid-Atlantic Topology Conference, April 2019

Co-organizer (with Andrew Blumberg, Anna Marie Bohmann, Akhil Mathew, Emily Riehl, and Dylan Wilson), Midwest Topology Seminar/ May Day 2019, University of Chicago, October 2019

Co-organizer (with Julia Hartmann), Workshop on Math Advice and Networking at the University of Pennsylvania (WOMAN UP), September 2019

Team Leader (with C. Rovi) for the Women in Topology III Workshop (proposed a research project and collaborated on a resulting publication with our group), 2019-20

NSF panelist, Topology Panel, twice

Co-organizer (with Thomas Brazelton), Directed Reading Program, PILOT University of Pennsylvania chapter, fall 2019

Organizer, Directed Reading Program, PILOT Johns Hopkins chapter, 2017-2018

Future Scholars Program (wrote yearly exam and selected the Baltimore high schoolers for math classes at JHU), Johns Hopkins, 2016&2017

Volunteer, John Rurah Middle School Math Lab, Baltimore, Spring 2017

Co-organizer (with Nitu Kitchloo, Jack Morava, Emily Riehl, and Steve Wilson), Second Mid-Atlantic Topology Conference, Johns Hopkins, March 2016

Organizer, Johns Hopkins Algebraic Topology Seminar, Johns Hopkins, 2015-2018

Co-organizer (with Carl McTague), Johns Hopkins Algebraic Topology Seminar, Johns Hopkins, 2014-2015

Author and co-editor in *The User's Guide Project: Giving Experiential Context to Research Papers*

Committee member and mentor for the Directed Reading Program, University of Chicago, 2012-2014

Co-organizer (with Evangelia Gazaki, Chris Skalit, and Preston Wake), Algebraic K-

theory Student Seminar, University of Chicago, spring 2013

PROFESSIONAL DEVELOPMENT	Inclusive Teaching Seminar, member fall 2019 and spring 2020 <i>Yearlong monthly seminar offered by the Center for Teaching and Learning, University of Pennsylvania</i>	
DEPARTMENT SERVICE	Graduate Admissions Committee Prize Committee Prize Committee, Chair	2018-19, 2019-20, 2020-21 2018-19 2019-20, 2020-21
SERVICE TO THE UNIVERSITY	House Fellow, Harrison House	August 2020-present
LANGUAGES	English, Spanish, German (Abitur 2005), French (proficient in reading), and Romanian (native language).	