

Mona Merling

BASIC INFORMATION	University of Pennsylvania Department of Mathematics 209 South 33rd Street Philadelphia, PA 19104-6395	<i>Email:</i> mmerling@upenn.edu <i>Webpage:</i> math.upenn.edu/~mmerling <i>Citizenship:</i> Romania <i>Date of birth:</i> 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	
ACADEMIC VISITS	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)	
GRANTS AND AWARDS	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	Departmental Good Teaching Award, University of Pennsylvania, math 410	2020
	Departmental Good Teaching Award, University of Pennsylvania, math 619	2019
	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	The equivariant parametrized h -cobordism theorem, the non-manifold part, (with C. Malkiewich), arXiv:2001.05563 .	
	Cut and paste invariants of manifolds via algebraic K-theory, (with R. Hoekzema, L. Murray, C. Rovi, J. Semikina), arXiv:2001.00176 , submitted.	
	Coassembly is a homotopy limit map, (with C. Malkiewich), arXiv:1904.05858 , to appear in <i>Annals of K-theory</i> .	
	Equivariant infinite loop space theory. The space level story, (with J.P. May and A. Osorno), arXiv:1704.03413 , submitted.	
	Symmetric monoidal G -categories and their strictification, (with B. Guillou, J.P. May and A. Osorno), <i>Quarterly Journal of Mathematics</i> , Volume 71, Issue 1 (2020), pages 207–246, arXiv:1809.03017	
	Equivariant A -theory, (with C. Malkiewich), <i>Documenta Mathematica</i> , 24 (2019), pages 815–85, arXiv:1609.03429 .	
	A symmetric monoidal and equivariant Segal machine, (with B. Guillou, J.P. May and A. Osorno), <i>Journal of Pure and Applied Algebra</i> , Volume 226 (6) (2019), pages 2425–2454, arXiv:1711.09183 .	
	Motivic homotopical Galois extensions, (with A. Beaudry, K. Hess, M. Kedziorek, and V. Stojanoska), <i>Topology and its Applications</i> , Volume 235 (2018), pages 290–338, arXiv:1611.00382 .	
	Categorical models for equivariant classifying spaces, (with B. Guillou and J.P. May), <i>Algebraic and Geometric Topology</i> , 17-5 (2017), pages 2565–2602, arXiv:1201.5178 .	

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

Unbased calculus for functors to chain complexes, (with M. Bastera, 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

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

Elijah Gunther, second year PhD student, University of Pennsylvania

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

Jingye Yang, second year PhD student, University of Pennsylvania
(co-advised with Herman Gluck)

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

TEACHING
EXPERIENCE

University of Pennsylvania, Instructor

Fall	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

TALKS

Conference and Colloquium Talks

New perspectives on K - and L -theory, Münster, September 2020

International Workshop on Algebraic Topology, Beijing International Center for Mathematical Research, Peking University, August 2020

Follow-up Workshop to JTP “Topology,” Hausdorff Institute for Mathematics, Bonn, August 2020

(∞, n) -categories, factorization homology, and algebraic K-theory, MSRI, Berkeley, March 2019

Equivariant stable homotopy theory and p -adic Hodge theory, Banff International Research Station, Canada, March 2019

Colloquium, Bryn Mawr, November, 2019

Mid-Atlantic Topology Conference, University of Virginia, Charlottesville, October 2019

International Workshop on Algebraic Topology, Shanghai Center for Mathematical Sciences, Fudan University, August 2019

Four manifolds: Confluence of high and low dimensions, Fields Institute, Toronto, July 2019

Graduate Student Conference in Algebra, Geometry, and Topology (Keynote speaker), Temple University, June 2019

Cornell Topology Festival, Ithaca, May 2019

AMS Sectional Meeting, Special Session on Equivariant Homotopy and Trace Methods, University of Hawaii, March 2019

Equivariant and Motivic Homotopy Conference (Homotopy Harnessing Higher Struc-

tures Program), Isaac Newton Institute, Cambridge, August 2018

Topologie, Oberwolfach, July 2018

Equivariant Homotopy Theory and K-theory, FU Berlin, June 2018

AMS Sectional Meeting, Special Session on Homotopy Theory, Vanderbilt University, Nashville, April 2018

Tetrahedral Geometry and Topology Seminar, Lancaster, April 2018

AMS Sectional Meeting, Special Session on Homotopy Theory, Ohio State University, Columbus, March 2108

Midwest Topology Seminar, Northwestern, Evanston, March 2018

Colloquium, Florida State University, December 2017

Colloquium, University of Pennsylvania, December 2017

Colloquium, Notre Dame University, December 2017

Colloquium, University of Melbourne, November 2017

Lloyd Roeling Conference, University of Louisiana, Lafayette, November 2017

AMS Sectional Meeting, Special Session on Algebraic Topology, Buffalo, September 2017

Cascade Topology Conference, University of British Columbia, Vancouver, May 2017

Colloquium, Reed, Portland, November 2016

Operations in Highly Structured Homology Theories, Banff, Canada, May 2016

Equivariant Derived Algebraic Geometry, Banff, Canada, February 2016

Faculty talk at Undergraduate Conference on Geometry and Topology, University of Texas, Austin, February 2016

Trace Methods Summer School, Regensburg, August 2015

Equivariant and Motivic Homotopy Theory, Reed, Portland, May 2015

AMW Workshop at AMS Joint Meetings, San Antonio, January 2015

Young Topologists Meeting, Copenhagen, June 2014 (contributed talk)

MSRI Connections for Women Workshop, MSRI, Berkeley, January 2014

AMS Joint Meetings, Special Session on Homotopy Theory, Baltimore, January 2014

AMS Special Session on Homotopy Theory and Algebraic K-theory, Riverside, November 2013

Graduate Student Topology Conference, Notre Dame, April 2013 (contributed talk)

AMS Joint meetings, Washington DC, January 2009 (contributed talk)

AMS Joint meetings, San Diego, January 2008 (contributed talk)

AMS Joint meetings, New Orleans, January 2007 (contributed talk)

Seminar Talks

Temple Topology Seminar, September 2019

Michigan State University Topology Seminar, April 2019

Princeton Topology Seminar, March 2019

MIT Topology Seminar, March 2019

University of Pennsylvania Topology Seminar, February 2019

Johns Hopkins Topology Seminar, February 2019

University of Münster Topology Seminar, November 2018

University of Wuppertal Topology Seminar, November 2018

École Polytechnique Federale de Lausanne Topology Seminar, October 2018

University of Bochum Topology Seminar, October 2018

University of Copenhagen Topology Seminar, September 2018

University of Regensburg Topology Seminar, July 2018

Penn State Altoona Topology Seminar, October 2017

Notre Dame Topology Seminar, March 2017

Maryland University Topology Seminar, January 2017

Wayne State Topology Seminar, November 2016

Rochester Topology Seminar, October 2016

Hausdorff Institute for Mathematics Seminar, Bonn, September 2016

University of Virginia Topology Seminar, October 2015

UIUC Topology Seminar, May 2015

UCSD Number Theory/Topology Seminar, March 2015

Johns Hopkins Topology Seminar, March 2015

MIT Topology Seminar, December 2014

Penn State Altoona Topology Seminar, May 2014

Northwestern Topology Seminar, December 2013

UIUC Topology Seminar, February 2013

SERVICE

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

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

Speaker in the University of Chicago REU, (2 talks on *Social choice and topology*), July 2016

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
*Yearlong monthly seminar offered by the Center for Teaching and Learning, University
of Pennsylvania*

LANGUAGES

English, Spanish, German (Abitur 2005), French (proficient in reading), and Romanian
(native language).