

Curriculum Vitae

Pamela E. Harris

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Education

- **University of Wisconsin-Milwaukee** Milwaukee, WI
PhD Mathematics 2008 - 2012
 - Thesis: Combinatorial problems related to Kostant's weight multiplicity formula
 - Adviser: Dr. Jeb Willenbring
- **University of Wisconsin-Milwaukee** Milwaukee, WI
MS Mathematics 2006 - 2008
- **Marquette University** Milwaukee, WI
BS Mathematics 2004 - 2005
- **Milwaukee Area Technical College** Milwaukee, WI
AA & AS 2001 - 2003

Employment

- **Williams College** Williamstown, MA
Assistant Professor, Department of Mathematics and Statistics July 2016-present
- **United States Military Academy** West Point, NY
Davies Research Fellow - award made by National Research Council July 2013- June 2016
- **United States Military Academy** West Point, NY
Teaching Postdoctoral Fellow, Department of Mathematics July 2012 - June 2016
- **Marquette University** Milwaukee, WI
Mitchem Fellow, Dept. of Mathematics, Statistics & Computer Science August 2011 - May 2012
- **Marquette University** Milwaukee, WI
Summer Math Instructor, Educational Opportunity Program Summer 2011, 2013
- **University of Wisconsin-Milwaukee** Milwaukee, WI
Graduate Teaching Assistant, Department of Mathematical Sciences September 2006 - May 2011

Grants & Other Funding

- National Security Agency (\$24,920) 2018-2019
Enhancing the Mathematical Sciences Component of the 2018 SACNAS National Conference,
Villanova University
PI: Alexander Diaz-Lopez, Co-PI: Pamela E. Harris and Luis Melara
- American Mathematical Society (\$3,300) February 2018
Travel grant for 2018 International Congress of Mathematicians

- Tensor-SUMMA Grant (\$5,851) 2018-2019
Lathisms: Latinxs and Hispanics in the Mathematical Sciences, Villanova University
PI: Alexander Diaz-Lopez, Co-PIs: Pamela E. Harris, Alicia Prieto-Langarica, Gabriel Sosa
- AWM-ADVANCE grant travel award (\$1,200) January 2018
- AMS Joint Mathematics Meetings Child Care Grant (\$250) January 2018
- National Science Foundation DMS-1743331 (\$49,991) 2017-2018
Enhancing the Mathematical Sciences Component of the 2017 SACNAS National Conference
PI: Pamela E. Harris, Co-PI: Alexander Diaz-Lopez, Antonia Franco, Dagan Karp, & Shannon Talbott
- Clay Mathematics Institute travel award (\$1,600) July 2017
- AWM-ADVANCE grant travel award (\$400) May 2017
- National Science Foundation DMS-1620202 (\$22,000) 2017-2019
FURST Collaboration Grant, Williams College
- Tensor-SUMMA Grant (\$6,000) 2017-2018
Minorities in Mathematics Speaker Series (MIMSS), Williams College
PI: Pamela E. Harris, Co-PIs: Marco V. Martinez and Alicia Prieto-Langarica
- AMS-MRC-NSF Mathematical Research Community Collaboration Grant (\$850) January 2017
- AMS Joint Mathematics Meetings Child Care Grant (\$250) January 2017
- National Science Foundation DMS-1643235 (\$49,945) 2016-2017
Enhancing the Mathematical Sciences Component of the 2016 SACNAS National Conference
PI: Pamela E. Harris, Co-PI: Antonia Franco, Dagan Karp, Candice Price, and Shannon Talbott
- National Security Agency (\$20,700) 2016-2017
SACNAS Scientific Symposia Sessions in Mathematics, Williams College
PI: Pamela E. Harris, Co-PI: Shannon Talbott
- Center for Undergraduate Research in Mathematics grant (\$18,500) 2016-2017
Combinatorial representation theory of Lie algebras, Williams College
- Williams College Office for Institutional Diversity and Equity travel award (\$6,867) October 2016
- Tensor-SUMMA Grant (\$6,000) 2016-2017
Minorities in Mathematics Speaker Series (MIMSS), North Central College
PI: Marco V. Martinez, Co-PIs: Pamela E. Harris and Alicia Prieto-Langarica
- AWM-NSF Travel Grant (\$2,885) July 2016
- AMS Joint Mathematics Meetings Child Care Grant (\$250) January 2016
- National Security Agency (\$15,000) 2015-2016
SACNAS Scientific Symposia Sessions in Mathematics, Moravian College
PI: Pamela E. Harris and Shannon Talbott
- United States Military Academy Faculty Development Research Fund (\$2,675) 2015-2016
Combinatorial approaches to computing weight multiplicities
- National Science Foundation DMS-1545136 (\$13,148) 2015-2016
SACNAS Scientific Symposia Sessions in Mathematics, Moravian College
PI: Shannon Talbott, Co-PI: Pamela E. Harris

- Tensor-SUMMA Grant (\$6,000) 2015-2016
Minorities in Mathematics Speaker Series (MIMSS), Youngstown State University
PI: Alicia Prieto-Langarica, Co-PIs: Pamela E. Harris and Marco V. Martinez
- United States Military Academy Center for Diversity and Leadership in STEM (\$5,000) 2015-2016
Minorities in Mathematics Speaker Series
- United States Military Academy Faculty Development Research Fund (\$2,600) 2014-2015
- AMS Joint Mathematics Meetings Child Care Grant (\$250) January 2015
- AMS-MRC-NSF Mathematical Research Community Collaboration Grant (\$850) 2014-2015
- National Science Foundation DMS-1419383 (\$13,600) 2014-2015
SACNAS Scientific Symposia Sessions in Mathematics, Moravian College
PI: Shannon Talbott, Co-PIs: Pamela E. Harris, Candice Price.
- United States Military Academy Center for Diversity and Leadership in STEM (\$6,000) 2014-2015
Women of Color in the Mathematical Sciences Speaker Series
- AWM-NSF Travel Grant (\$1,000) April 2014
- Midwest WIMS 2014 Collaboration Funding (\$454) September 2014
- Midwest WIMS 2014 Collaboration Funding (\$290) December 2014
- United States Military Academy Army Research Office (\$4,516) 2013-2014
Collaborative Research Efforts to Enumerate the Support of Kostant's Weight Multiplicity Formula
- United States Military Academy Faculty Development Research Fund (\$1,200) 2013-2014
- National Security Agency (\$15,000) 2013-2014
Underrepresented Students in Topology and Algebra Research Symposium
PIs: Pamela E. Harris and Candice Price
- National Science Foundation DMS-1317928 (\$25,000) 2012-2013
Underrepresented Students in Topology and Algebra Research Symposium, Purdue University
PI: Edray Goins, Co-PIs: Alejandra Alvarado, Pamela E. Harris, Candice Price, Shannon Talbott
- United States Military Academy Center for Diversity and Leadership in STEM (\$4,000) 2012-2013
Women of Color in the Mathematical Sciences Speaker Series
- United States Military Academy Faculty Development Research Fund (\$1,608) 2012-2013
- AMS-Simons Travel Grant (\$4,000) 2012-2014

Honors

- Featured in book “The Rebel Women of Mathematics” by Talithia Williams. This book highlights a diverse range of 30 leading women mathematicians, past and present.
- American Institute of Mathematics, REUF SQuaRE, *Gaps in generalized Zeckendorf decompositions*, Summer 2015. PIs: Minerva Catral, Pari Ford, Pamela E. Harris, Steven J. Miller and Dawn Nelson.
- Mathematical Biosciences Institute (MBI) award at the NAM presentations by Recent Doctoral Recipients 2015 Joint Mathematics Meetings.
- *NAM Granville-Brown-Haynes Session of Presentations by Recent Doctoral Recipients in the Mathematical Sciences*, speaker award JMM 2015.

- *MAA T. Christine Stevens Project NEXt (New Experiences in Teaching) Fellow* 2012-2013.
- *Morris and Miriam Marden Award in Mathematics*, University of Wisconsin-Milwaukee 2012.
- *Arnold L. Mitchem Dissertation Fellow* at Marquette University, 2011-2012.
- *Advanced Opportunity Program Fellow*, University of Wisconsin-Milwaukee 2009-2012.
- *Hispanic Professionals of Greater Milwaukee (HPGM) scholarship* 2012.
- *Graduate Assistantship in Areas of National Need Fellow*, University of Wisconsin-Milwaukee 2006-2011.
- *Mark Lawrence Teply Award*, University of Wisconsin-Milwaukee received 2010 and 2011.
- *Ernst Schwandt Teaching Award*, University of Wisconsin-Milwaukee, 2009.

Research Publications¹

36. *On the genus of a quotient of a numerical semigroup*, with Ayomikun Adeniran, Steve Butler, Colin Defant, Yibo Gao, Cyrus Hettle, Qingzhong Liang, Hayan Nam, and Adam Volk. Submitted.
35. *Broadcast Domination of Triangular Matchstick Graphs and the Triangular Lattice*, with [Dalia Luque](#), [Nohemi Sepulveda](#), and [Claudia Reyes](#). Submitted.
34. *On lattice point weak b -visibility*, with [Allie Aird](#), [Alberto Alonso](#), [Samuel I. Cooper](#), [Patrick M. Crossley](#), [George Kuliner](#), [Robert J. Marino](#), [Eric S. Piato](#), and [Barbara J. Schweitzer](#). Submitted.
33. *Descent polynomials*, with Alexander Diaz-Lopez, Erik Insko, Mohamed Omar, and Bruce Sagan. Submitted.
32. *Counting peaks on graphs*, with Alexander Diaz-Lopez, [Lucas Everham](#), Erik Insko, [Vincent Marcantonio](#), and Mohamed Omar. Submitted.
31. *Block circulant graphs and the graphs of critical pairs of a crown*, with Rebecca Garcia, Bethany Kubik, Joseph Pedersen, and Shannon Talbott. Submitted.
30. *Phylogenetic trees*, with Hector Baños, Nathaniel Bushek, Ruth Davidson, Elizabeth Gross, Robert Krone, Colby Long, Allen Stewart, and Robert Walker. Submitted.
29. *The graph of critical pairs of a crown*, with Fidel Barrera-Cruz, Rebecca E. Garcia, Bethany Kubik, Heather Smith, Shannon Talbott, [Elizabeth Taylor](#), and William T. Trotter. Submitted.
28. *Kostant's Weight Multiplicity Formula and the Fibonacci and Lucas Numbers*, with [Kevin Chang](#) and Erik Insko. To appear in Journal of Combinatorics.
27. *A combinatorial model for computing volumes of flow polytopes*, with Carolina Benedetti, Rafael Gonzalez D'Leon, Christopher R. H. Hanusa, Apoorva Khare, Alejandro Morales and Martha Yip. To appear in Transactions of the AMS.
26. *Lattice point visibility on power functions*, with Mohamed Omar. To appear in Integers.
25. *Optimal (t, r) -broadcast domination on the infinite grid*, with [Benjamin F. Drews](#) and [Timothy W. Randolph](#). To appear in Discrete Applied Mathematics.
24. *Bin Decompositions*, with [Daniel Gotshall](#), Dawn Nelson, Maria Vega, and [Cameron Voigt](#). To appear in Involve, a Journal of Mathematics.

¹Student coauthors are listed in purple.

23. *Dimensions of group-based phylogenetic mixtures*, with Hector Baños, Nathaniel Bushek, Ruth Davidson, Elizabeth Gross, Robert Krone, Colby Long, Allen Stewart, and Robert Walker. To appear in *Bulletin of Mathematical Biology*.
22. *The volume of the caracol polytope*, with Carolina Benedetti, Rafael Gonzalez D’Leon, Christopher R. H. Hanusa, Apoorva Khare, Alejandro Morales and Martha Yip. *Séminaire Lotharingien de Combinatoire XX (2018) Proceedings of the 30th Conference on Formal Power, Article #YY*, 12 pp. *Series and Algebraic Combinatorics (Hanover)*.
21. *Sequences of consecutive happy numbers in negative bases*, with Helen G. Grundman. *The Fibonacci Quarterly* Volume 56, Number 3, August 2018.
20. *Lattice patterns for the support of Kostant’s weight multiplicity formula on $\mathfrak{sl}_3(\mathbb{C})$* , with [Haley Lescinsky](#), [Grace Mabie](#). *Minnesota Journal of Undergraduate Mathematics*, [S.I.], v. 4, n. 1, June 2018.
19. *Lattice point visibility on generalized lines of sight*, with Edray Goins, Bethany Kubik, and Aba Mbirika. *The American Mathematical Monthly* (2018), 125:7, 593-601.
18. *The q -analog of Kostant’s partition function and the highest root of the simple Lie algebras*, with Erik Insko, and Mohamed Omar. *Australasian Journal of Combinatorics* Volume **71(1)** (2018) 68–91.
17. *A minimaj-preserving crystal on ordered multiset partitions*, with Georgia Benkart, Laura Colmenarejo, Rosa Orellana, Greta Panova, Anne Schilling, and Martha Yip. *Advances in Applied Mathematics* **95** (2018) 96–115.
16. *Computing weight q -multiplicities for the representations of the simple Lie algebras*, with Erik Insko, and [Anthony Simpson](#). *Applicable Algebra in Engineering, Communication and Computing*, 29(4), August 2018, Volume 29, Issue 4, pp 351-362.
15. *Computing weight multiplicities*. In: Wootton A., Peterson V., Lee C. (eds) *A Primer for Undergraduate Research. Foundations for Undergraduate Research in Mathematics*. Birkhäuser, Cham (2017) 193-222.
14. *New Behavior in Legal Decompositions Arising from Non-positive Linear Recurrences*, with Minerva Catral, Pari Ford, Steven J. Miller, Dawn Nelson, [Zhao Pan](#), and [Huanzhong Xu](#). *The Fibonacci Quarterly* 55 (2017), no. 3, 252–275.
13. *Weight q -multiplicities for representations of $\mathfrak{sp}_4(\mathbb{C})$* , with [Edward L. Lauber](#). *Journal of Siberian Federal University. Mathematics & Physics* 2017, 10(4), 494–502.
12. *A proof of the peak polynomial positivity conjecture*, with Alexander Diaz-Lopez, Erik Insko, and Mohamed Omar. *Séminaire Lotharingien de Combinatoire* 78B (2017) Article #6, 9 pp. *Proceedings of the 29th Conference on Formal Power Series and Algebraic Combinatorics (London)*.
11. *A proof of the peak polynomial positivity conjecture*, with Alexander Diaz-Lopez, Erik Insko, and Mohamed Omar. *Journal of Combinatorial Theory, Series A* 149 (2017) 21–29.
10. *A Note on Monovariants and Minimal Fibonacci Representations*, with Minerva Catral, Pari Ford, Steven Miller, and Dawn Nelson, Featured Article in the *Metro Math Newsletter*, Metropolitan New York Section of the Mathematical Association of America, April 2017.
9. *Peak Sets of Classical Coxeter Groups*, with [Alexander Diaz-Lopez](#), Erik Insko, and [Darleen Perez-Lavin](#). *Involve, a Journal of Mathematics*, 2017, vol. 10, no. 2, pp. 263–290.
8. *Individual Gap Measures from Generalized Zeckendorf Decompositions*, with [Robert Dorward](#), Pari Ford, [Eva Fourakis](#), Steven J. Miller, Eyvi Palsson, and [Hannah Paugh](#). *Uniform Distribution Theory* **12** (2017), no. 1, 27–36.

7. *A Generalization of Zeckendorf's Theorem via Circumscribed m -gons*, with Robert Dorward, Pari Ford, Eva Fourakis, Steven J. Miller, Eyvi Palsson, and Hannah Paugh. *Involve, a Journal of Mathematics*, 2017, vol. 10, no. 1, pp. 125–150.
6. *Legal Decompositions Arising from Non-positive Linear Recurrences*, with Minerva Catral, Pari Ford, Steven J. Miller, and Dawn Nelson. *The Fibonacci Quarterly* 54 (2016), no. 4, 348–365.
5. *The adjoint representation of a classical Lie algebra and the support of Kostant's weight multiplicity formula*, with Erik Insko, and Lauren Kelly Williams. *Journal of Combinatorics Volume 7* (2016) Number 1 pp. 75-116.
4. *Generalizing Zeckendorf's Theorem: The Kentucky Sequence*, with Minerva Catral, Pari Ford, Steven J. Miller, Dawn Nelson. *Fibonacci Quarterly* 52 (2014), no. 5, 68–90.
3. *Sums of squares of Littlewood-Richardson coefficients and $GL(n)$ -harmonic polynomials*, with Jeb F. Willenbring. *Symmetry: Representation Theory and its Applications*, Ed. Hunziker, Markus and Howe, Roger. Springer (2014).
2. *Combinatorial problems related to Kostant's weight multiplicity formula*. Ph.D. Thesis, Advisor: Jeb Willenbring. University of Wisconsin Milwaukee 2012.
1. *On the adjoint representation of \mathfrak{sl}_n and the Fibonacci numbers*. *C. R. Math. Acad. Sci. Paris* 349 (2011) pp. 935-937.

Pedagogy Publications

3. *Contagious: A Network Science Approach to Defending Your Digital World*, with Bethany Kubik, Alicia Prieto-Langarica, and Debra Mimbs. Command, Control, and Interoperability Center for Advanced Data Analysis (CICCADA) a Department of Homeland Security Center of Excellence, Module for Undergraduate Students, 2015. (This includes the student and faculty version.)
2. *Success Indicators in the USMA Advanced Core Mathematics Program*, with James Starling, Jarrod Shingleton, and Christopher Thoma. *Proceedings of the 2015 Joint Statistical Meetings, CDAS*, 2014, pp. 4055-4066.
1. *Strengthening Communication Skills through Cadet Created Homework Videos*, *Mathematica Militaris*, Volume 21, Issue 2, Spring 2013, pp. 3-18.

Writing Contributions to the Profession

12. *The Harrasment is Real*, story submission to the book "The struggle is real." Accepted for publication.
11. *2018 Lathisms: Latinxs and Hispanics in the Mathematical Sciences* with Alexander Diaz-Lopez, Alicia Prieto Langarica, Gabriel Sosa. September 2018, *Notices of the American Mathematical Society*, Volume 65, Number 8.
10. *Partitions from Mars, Part 2*, with Alex Pankhurst, Cielo Perez and Aesha Siddiqui. *Girls' Angle Bulletin*, February/March 2018 Volume 11 Number 3 p. 7-10.
9. *Partitions from Mars, Part 1*, with Alex Pankhurst, Cielo Perez and Aesha Siddiqui. *Girls' Angle Bulletin*, December 2017/January 2018 Volume 11 Number 2 p. 7-11.

8. *Advising Underrepresented Minorities in Mathematics Research*, with Cynthia Flores, Alicia Prieto Langarica, and Shelby Wilson. To appear as a passage in book for faculty on how to successfully mentor undergraduate students in research authored by Michael Dorff, Allison Henrich, and Lara Pudwell.
7. *Mathematics and Motherhood*, with Carrie Diaz Eaton, Becky Hall, and Emille Davie Lawrence. The National Association of Mathematicians Newsletter Volume XLVIII, Number 2, Summer 2017.
6. *Searching for a sense of belonging*, with Alicia Prieto-Langarica. Stories from the Front of the Room: How Higher Education Faculty of Color Overcome and Thrive in the Academy, Rowman & Littlefield 2017.
5. *Actively Embracing Mentoring*, e-Mentoring Network in the Mathematical Sciences - connecting students and mentors. AMS blogs. January 26, 2017.
4. *Exploring Undergraduate Research with Diverse Mathematicians at MAA MathFest* with Alicia Prieto Langarica. The National Association of Mathematicians Newsletter Volume XLVII, Number 3, Fall 2016.
3. *Lathisms: Latinos and Hispanics in the Mathematical Sciences*, with Alexander Diaz-Lopez, Alicia Prieto Langarica, Gabriel Sosa. October 2016 issue of The Notices of the AMS.
2. *New year, same goal: more research*, e-Mentoring Network in the Mathematical Sciences - connecting students and mentors. AMS blogs. March 1, 2016.
1. *Building a Research Army*, e-Mentoring Network in the Mathematical Sciences - connecting students and mentors. AMS blogs. October 15, 2015.

Teaching

Williams College

Department of Mathematics and Statistics

- Research seminar courses (graduate level content):
 - Representation Theory (Fall 2016) - Fully developed this new course for the department and supervised two TAs.
- Upper level courses:
 - Combinatorics (Fall 2017) - Fully developed this new course for the department and supervised one TA. [Course research resulted in publications #9 and #10.](#)
 - Undergraduate Research Topics in Representation Theory (Fall 2016) - Fully developed this new course for the department. [Course research resulted in publications #13, #16, #20, and #33.](#)
 - Undergraduate Research Topics in Graph Theory (Fall 2017) - Fully developed this new course for the department. [Course research resulted in publication #25 and #35.](#)
- Core courses:
 - Linear Algebra (Spring 2017, Spring 2018) - Supervised five TAs.

United States Military Academy

Department of Mathematical Sciences

- Upper level courses:
 - Linear Algebra - Course director (Fall 2015)
- Core courses:
 - Probability and Statistics (Fall 2013 and 2015)
 - Multivariable Calculus (Fall 2012)
 - Vector Calculus and Differential Equations - Course director (Spring 2013)
 - Mathematical Modeling and Introduction to Differential Equations (Spring 2015)

Marquette University

Mathematics, Statistics and Computer Science Department

- Undergrad/Graduate course:
 - Theory of Numbers (Spring 2012)
- Educational Opportunity Program – introductory level courses:
 - Functions and Graphs (Summer 2011)
 - College Mathematics (Summer 2013)
 - Pre-Calculus (Summer 2011, 2013)
 - Calculus (Summer 2013)
 - Probability and Statistics (Summer 2011, 2013)

University of Wisconsin Milwaukee

Mathematical Sciences Department

- Core courses:
 - Intermediate Algebra (Fall 2008)
 - Calculus and Analytic Geometry I (Fall 2009)
 - Calculus and Analytic Geometry II (Fall 2010)
- Assisted with introductory level courses:
 - Algebraic Structures for Elementary Education Majors-Topics for K-8 Teachers (Spring 2007)
 - Survey in Analytic Calculus (Fall 2007)

Student Research

- **Williams College**
 - *Undergraduate Researchers Supervised*
 - Benjamin Drew and Tim Randolph (Class of 2018)
Optimal (t, r) -Broadcast Domination Numbers Of the Infinite Grid
 - Teresa Yu (Class of 2019) and Benjamin Young (Class of 2018)
Zero-Forcing Games and Multi-Color Forcing on Graphs
 - Dalia Luque, Claudia Reyes, and Nohemi Sepulveda (Class of 2018)
Broadcast Domination of Triangular Matchstick Graphs
 - Aesha Siddiqui (Class of 2019)
An Exploration of Magic and Antimagic Graphs
 - Gabriel Ngwe (Class of 2017), Cielo Perez and Aesha Siddiqui (Class of 2019)
On a closed formula for Kostant's partition function for $\mathfrak{sl}_4(\mathbb{C})$

- Dalia Luque and Claudia Reyes (Class of 2018)
Kostant's partition function and a connection to juggling sequences
- Edward Lauber (Class of 2018)
Weight q -multiplicities for representations $\mathfrak{sp}_4(\mathbb{C})$
- Haley Lescinsky (Class of 2018) and Grace Mabie (Class of 2019)
Lattice patterns for the support of Kostant's weight multiplicity formula on $\mathfrak{sl}_3(\mathbb{C})$
- Kevin Chang (Class of 2019)
The Fibonacci and Lucas numbers and the support of Kostant's weight multiplicity formula
- David Ariyibi, Katherine Blake, and Anthony Simpson (Class of 2019), Marina Pavlichich and Lexi Rager (Class 2019) Coadvised with Alicia Prieto Langarica at Youngstown State University
Recommender systems and data analytics for undergraduate course selection
- Anthony Simpson (Class of 2019)
Computing Weight q -multiplicities for the Exceptional Lie algebras

- **United States Military Academy**

- *Undergraduate Theses Supervised*

- CDT Cameron Voigt, Honors Thesis, graduated May 2017
Generalizing Zeckendorf's Theorem Via Bin Sequences
 - CDT David Townliand , Honors Thesis, graduated May 2015
Zeckendorf Decompositions and the Regular Triangular Tiling of the Plane
 - CDT Margaret Churchill, Honors Thesis, graduated May 2015
Divisibility Rules: Base -10
 - CDT Hannah Paugh, Honors Thesis, graduated May 2015
On a Generalization of Zeckendorf's Theorem Using Circumscribed m -gons
 - CDT Victoria Markow, Honors Thesis, graduated May 2014
Redefining Patrol Areas
 - CDT Bayle Boggs, Applied Mathematics Thesis, graduated May 2014
A Study of Non-Euclidean Geometry

- *External honors thesis examination committee member*

- Brett Harder, Moravian College, April 2016
 - Juergen Kritschgau, Bates College, April 2016

Talks & Presentations

Plenary Addresses

- MAA Invited Address, Joint Mathematics Meetings, January 2019
Title TBA
- University of Wisconsin-Eau Claire, Sonya Kovalesky Day March 2017
Coloring maps: the story of a traveling mathematician

- Florida Gulf Coast University, Advancing Student Participation in Research Experiences (ASPiRE) Conference February 2017
Research Experiences with Undergraduates
- Smith College, WiMiN (Women in Math in New England) Conference September 2016
Permutations, peaks, polynomials, and a positivity conjecture

Invited Talks

- Latinx in the Mathematical Sciences Conference, Institute for Pure and Applied Mathematics, March 2018
Invisible lattice points
- United States Naval Academy, Mathematics Colloquium, February 2018
Invisible lattice points
- Wake Forest University, Special Colloquium, February 2018
Computing weight multiplicities
- SUNY Geneseo, Math Research Lecture, January 2018
Invisible lattice points
- SUNY Geneseo, Public Lecture, January 2018
The Lonely Reality of an Academic DREAMER
- Marquette University, Mathematics Statistics and Computer Science, Special Colloquium, January 2018
Invisible lattice points
- Colby College Mathematics Colloquium, January 2018
Partition functions and their generalizations
- JMM San Diego, California, January 2018
 - AWM Special Session “Noncommutative Algebra and Representation Theory”
Computing weight multiplicities
 - AMS Special Session “Open and Accessible Problems for Undergraduate Research”
Kostant’s Partition Function
 - AMS Special Session “A Showcase of Number Theory at Liberal Arts Colleges”
Lattice point visibility on generalized lines of sight
- Youngstown State University, December 2017
Invisible lattice points
- Wake Forest University, October 2017
Permutations, peaks, polynomials, and a positivity conjecture
- SACNAS National Conference Salt Lake City, Utah, October 2017
 - Scientific Symposia “Women Do Math”
Lattice point visibility on generalized lines of sight
 - Scientific Symposia “Latinxs Count!”
Representation theory and counting partitions
- Brigham Young University Focus on Math Speaker Series, October 2017
Invisible lattice points

- Colby College Runnals Dinner for Women in Mathematics, October 2017
From Undocumented Student to Mathematics Professor
- Colby College Mathematics Colloquium, October 2017
Invisible lattice points
- AMS Sectional Meeting SUNY Buffalo, Buffalo, NY, September 2017
Special Session “Polynomials in enumerative, algebraic, and geometric combinatorics”
The q -analog of Kostant’s partition function and the highest root of the simple Lie algebras
- XXII Coloquio Latinoamericano de Algebra Quito, Ecuador, August 2017
Special Session on Algebraic Combinatorics
The q -analog of Kostant’s partition function and the highest root of the simple Lie algebras
- Union College BEAM program, July 2017
Invisible Lattice Points
- California State University Fresno, June 2017
Kostant’s partition function
- Iowa State University, Mathematicians of Color Alliance (MOCA), Research Seminar, March 2017
A proof of the peak polynomial positivity conjecture
- University of Kentucky, March 2017
 - Combinatorics Research Seminar
A proof of the peak polynomial positivity conjecture
 - Student Math Club
A hands on exploration of Zeckendorf’s theorem and its generalizations
 - Association for Women in Mathematics Mentoring Talk
- Providence College, Mathematics Colloquium, March 2017
Permutations, peaks, polynomials, and a positivity conjecture
- University of Wisconsin-Eau Claire Research Symposium, March 2017
Peaks on graphs
- York University, Applied Algebra Seminar, January 2017
A proof of the peak polynomial positivity conjecture
- XXI Coloquio Latinoamericano de Algebra, Buenos Aires, Argentina, July 2016
Special Session on Algebraic Combinatorics
A proof of the peak polynomial positivity conjecture
- JMM 2017, Atlanta, GA, January 2017
 - AMS Special Session “Lie Groups, Discretization, and Gelfand Pairs”
The q -analog of Kostant’s partition function and the highest root of the simple Lie algebras
 - AMS Special Session “RE(UF)search on Graphs and Matrices”
Peak sets of graphs
- Union College Mathematics Colloquium, September 2016
A generalization of Zeckendorf’s theorem
- San Francisco State University, Distinguished Women in Math Lecture, November 2016
Permutations, peaks, polynomials, and a positivity conjecture

- Youngstown State University, Association for Women in Mathematics Speaker Series, March 2016
Two for one: representation theory and analytic number theory
- Smith College, Center for Women in Mathematics, February 2016
On a generalization of Zeckendorf's Theorem via circumscribed m -gons
- Amherst College, Mathematics Colloquium, December 2015
On a generalization of Zeckendorf's Theorem via circumscribed m -gons
- United States Naval Academy, Mathematics Colloquium, April 2015
A Game of Crowns
- California State University Channel Islands, Si Se Puede Event, April 2015
A Game of Crowns
- Purdue University, Number Theory Seminar, December 2014
Generalizing Zeckendorf's Theorem: The Kentucky Sequence
- AMS Sectional Meeting Greensboro, North Carolina, November 2014
Special Session "Exceptional Groups in Physics, Algebra and Geometry"
On the exceptional Lie algebras and their exponents
- Youngstown State University, Youngstown, OH, September 2014
My journey to a PhD and the study of representation theory of Lie algebras
- The University of Akron, OH, September 2014
My journey to a PhD and the study of representation theory of Lie algebras
- Seminario Interuniversitario de Investigacion de Ciencias Matematicas, Puerto Rico, March 2014
Computational Complexities associated with Kostant's weight multiplicity formula
- Williams College, Mathematics Colloquium, January 2014
Representation Theory of Lie Algebras and a Connection to Tilings
- Army Research Lab, Adelphi, MD, January 2014
Representation Theory of Lie Algebras and Kostant's Weight Multiplicity Formula
- University of Wisconsin-Milwaukee Colloquium, April 2013
Teaching in the Trenches - A year as a professor at West Point
- Florida Gulf Coast University, Mathematics Colloquium, February 2014
Proofs by contradiction
- Carleton College, Northfield, MN, Mathematics Colloquium, January 2012
Proofs by contradiction
- SACNAS National Conference, Seattle, WA, October 2012
Scientific Symposia "Problems in Number Theory"
Kostant's weight multiplicity formula and the Fibonacci numbers
- National Security Agency, Mathematics Seminar, Fort Meade, MD, August 2012
Seattle, WA, October 2012
- Purdue University, Indiana, ADVANCE PRiME: Purdue Research in Mathematics Experience, June 2012
 - Keynote – *Promoting scientific research*
 - Research talk – *It's no lie: I study representations of Lie algebras*
 - Professional development interview

- United States Military Academy, West Point, NY, Mathematics Presentation, February 2012
The fundamental theorem of calculus
- Birmingham-Southern College, Birmingham, AL, Mathematics Presentation, February 2012
Properties of our number system
- Mount Mary College, Milwaukee, WI, Mathematics Presentation, February 2012
Lines and their equations
- Bridgewater State University, Bridgewater, MA, Mathematics Presentation, January 2012
The area under and between curves
- Eureka College, Eureka, IL, Mathematics Presentation, December 2011
Power series

Additional Talks and Presentations

- Williams College, Faculty Research Seminar, December 2017
Lattice Point Visibility of Generalized Lines of Sight
- Formal Power Series and Algebraic Combinatorics (FPSAC), London, England, July 2017
A proof of the peak polynomial positivity conjecture
- Williams College, Faculty Research Seminar, April 2017
Kostant's partition function
- University of Wisconsin Milwaukee 50th Anniversary Celebration, Algebra Session, October 2016
A proof of the peak polynomial positivity conjecture
- Seminario Interuniversitario de Investigación en Ciencias Matemáticas, University of Puerto Rico Humacao, March 2016
The q -analog of Kostant's partition function and the highest root of the simple Lie algebras
- United States Military Academy, Math Theory Seminar, March 2016
The q -analog of Kostant's partition function and the highest root of the simple Lie algebras
- JMM Seattle, WA, January 2016
AWM Workshop: Special Session on Algebraic Combinatorics, II
Peak Sets of Classical Coxeter Groups
- United States Military Academy, Mathematics Seminar, 12/2015
On a generalization of Zeckendorf's Theorem via circumscribed m -gons
- United States Military Academy, Topology and Algebra Research Seminar, 4/2015
On a generalization of Zeckendorf's Theorem via circumscribed m -gons
- JMM San Antonio, Texas, January 2015
NAM Granville-Brown-Haynes Session of Presentations by Recent Doctoral Recipients
The adjoint representation and the support of Kostant's weight multiplicity formula
- University of Wisconsin-Milwaukee, Mathematics Colloquium, February 2014
The adjoint representation and the support of Kostant's weight multiplicity formula
- AMS Sectional Meeting Greensboro, North Carolina, November 2014
Special Session on Difference Equations and Applications
Generalizing Zeckendorf's Theorem: The Kentucky Sequence
- ARL/USMA Technical Symposium, Aberdeen, MD, October 2014
Generalizing Zeckendorf's Theorem: The Kentucky Sequence

- Midwest Women in Mathematics Symposium, Notre Dame University, South Bend, IN, April 2014
Computational Complexities associated with Kostant's weight multiplicity formula
- United States Military Academy, Center for Faculty Development, February 2014
Success Indicators in the USMA Advanced Core Mathematics Program
- SACNAS National Conference, Los Angeles, California October 2014
Speaker in "Young Latinas in Math and Computer Science"
Representation Theory of Lie Algebras and a Connection to Tilings
- United States Military Academy, Topology and Algebra Research Seminar, January 2014
Representation Theory of Lie Algebras and a Connection to Tilings
- JMM Baltimore, MD, January 2014
Strengthening Communication Skills through Cadet Created Homework Videos
- MAA NJ Sectional Meeting, Rutgers University October 2013
Strengthening Communication Skills through Cadet Created Homework Videos
- United States Military Academy, Topology and Algebra Research Seminar, October 2013
Partition functions and some open problems
- United States Military Academy, Center for Faculty Development Talk, May 2013
Proofs by contradiction
- University of Iowa, Underrepresented Students in Topology and Algebra Symposium, April 2012
On the adjoint representation of \mathfrak{sl}_n and the Fibonacci numbers
- JMM Boston, MA, January 2012
AMS Special Session "Trends in Representation Theory"
On the adjoint representation of \mathfrak{sl}_n and the Fibonacci numbers
- University of Maryland, Infinite Possibilities Conference, March 2012
Kostant's weight multiplicity formula and Lie algebras of rank 2
- University of Wisconsin-Milwaukee, Algebra Seminar, November 2011
Representations of classical Lie algebras whose highest weight is the sum of the simple roots
- Marquette University, Milwaukee, WI, Pure Mathematics seminar, October 2011
Finite-dimensional Lie algebras
- University of Wisconsin-Milwaukee, Algebra Seminar, September 2011
On the adjoint representation of \mathfrak{sl}_n and the Fibonacci numbers
- University of Wisconsin-Milwaukee, Algebra Seminar, September 2010
Some computations with alternating sum formulas
- University of Wisconsin-Milwaukee, Algebra Seminar, May 2010
Integral Weyl alternation sets of simple Lie algebras of rank 2,

Service

- *Reviewer* for Electronic Journal of Combinatorics, Journal of Combinatorial Theory, Series A, Mathematics and Computer Education Journal, Involve.
- Member of the Executive Committee of the Association for Women in Mathematics (AWM).
- Williams College, Committee Work

- Faculty Compensation Committee (2018-2019)
- Divisional Research Funding Committee (2017-2018)
- Committee on Diversity and Community (2017-2018)
- Founder of Lathisms.org a website whose mission is to provide an accessible platform that features prominently the extent of the research and mentoring contributions of Latin@s and Hispanics in different areas of the Mathematical Sciences.
- *Committee Member*
 - MAA Subcommittee on Research By Undergraduates, January 1, 2017- January 31, 2020.
- *Editor* of the AMS e-Mentoring Network.
- *Webmaster* of an MAA website containing resources for Minority Faculty and Students. Joint project with Alicia Prieto-Langarica and Marco V. Martinez. Website link [here](#).
- *Organizer*
 - *An Amicable Combination of Algebra and Number Theory*, AMS Special Session at JMM 2017.
 - *Orientation to Undergraduate Research in STEM (OUR-STEM)*, Youngstown State University, August 2016. Co-organized with Alicia Prieto-Langarica.
 - *Undergraduate Research Projects in the Mathematical Sciences*, MAA MathFest Invited Paper Session, August 2016. Co-organized with Alicia Prieto-Langarica.
 - *WINART collaboration panel organizer and speaker*, BIRS at Banff, Canada, March 30, 2016. Co-organized with Van Nguyen.
 - *Minorities in Mathematics Speaker Series*, United States Military Academy, 2015-2016. Co-organizers: Sam Ivy, Ivan Dungan, and Maria Vega.
 - *2015 Infinite Possibilities Conference*, Research and Registration Committee member and conference organizer.
 - *Women of Color in the Mathematical Sciences*, United States Military Academy, 2014-2015.
 - SACNAS Scientific Symposia
 - * *Latin@s Count!*, 2017 National Conference. Organizers: Carolina Benedetti and Pamela E. Harris.
 - * *Women in Math*, 2017 National Conference. Organizers: Pamela E. Harris, Shannon Talbott.
 - * *Abstract Algebra Research Topics for Undergraduates*, 2016 National Conference. Organizers: Pamela E. Harris, Shannon Talbott.
 - * *Algebra: Much More Than Arithmetic!*, 2016 National Conference. Organizers: Pamela E. Harris, Shannon Talbott.
 - * *Abstract Algebra Research Topics for Undergraduates*, 2015 National Conference. Organizers: Pamela E. Harris, Shannon Talbott.
 - * *Algebra: Much More Than Arithmetic!*, 2015 National Conference. Organizers: Pamela E. Harris, Shannon Talbott.
 - * *Abstract Algebra Research Topics for Undergraduates*, 2014 National Conference. Organizers: Pamela E. Harris, Shannon Talbott, Candice Price.

- * *Algebra: Much More Than Arithmetic!*, 2014 National Conference.
Organizers: Pamela E. Harris, Shannon Talbott, Candice Price.
- * *Young Latinas in Math and Computer Science*, 2014 National Conference.
Organizers: Pamela E. Harris and Alicia Prieto-Langarica.
- * *Current Contributions by Women Mathematicians*, 2013 National Conference.
Organizers: Pamela E. Harris and Shannon Talbott.
- SACNAS Professional Development Session
 - * *Academia Needs You! Considering and Preparing for Positions in Academic Leadership*, 2017 National Conference.
Organizers: Pamela E. Harris and Cindy Wyels.
 - * *Si Se Puede: A Woman's Guide to Earning Tenure*, 2016 National Conference.
Organizers: Pamela E. Harris and Alicia Prieto-Langarica.
 - * *Creating a More Inclusive and Diverse Environment in Academia*, 2016 National Conference. Organizers: Pamela E. Harris, Bethany Kubik.
 - * *Creating a More Inclusive and Diverse Environment in Academia*, 2015 National Conference. Organizers: Pamela E. Harris, Bethany Kubik.
- *2014 Women and Mathematics Research Seminar*, co-organized with Natasha Blitvić, Institute for Advanced Study, Princeton, NJ.
- Conference, *Underrepresented Students in Topology and Algebra Research Symposium*, 2013 and 2014. Organizers: Candice Price, Erik Insko, Syvillia Averett, Shannon Talbott, Garrett Jones, Jeannine Abiva and Pamela E. Harris.
- *Speaker Series*
 - * *Women of Color in the Mathematical Sciences*, USMA, 2014-2015.
 - * *Women of Color in the Mathematical Sciences*, USMA, 2012-2013.
- *Panel sessions*
 - * *Collaboration panel*, at the Women in Noncommutative Algebra and Representation Theory workshop, in Banff Canada, March 2016. Organizers: Pamela E. Harris, Van Nguyen.
 - * *Service Writing*, Project NExT MathFest 2013. Organizers: Ellen Goldstein, Pamela E. Harris, Tiffany Kolba and Jun-Koo Park.
 - * *Mathematics for Social Justice*, Project NExT JMM 2013. Organizers: Sam Coskey, Abra Brisbin, Pamela E. Harris and Branden Stone.
- *Curriculum meetings*, between Marquette's MSCS Department and Educational Opportunity Program to update the mathematics curriculum for the summer program.
- *Fourth Year Math Award Coordinator*, United States Military Academy, May 2013.
- Workshop Leader
 - Modern Math Workshops, *Harshad Numbers and Sage Programming*. Co-organized with Alejandra Alvarado and Helen Grudman, Baltimore, MD, October 2015.
 - Math Day Celebration, West Point NY, April 2014.
 - STEM Workshop, Greenwich, CT, September 2013.

- STEM Workshop, Democracy Academy, Harlem, NY, February 2013.
- *Chair/Moderator*, AMS Session on Undergraduate Research in Combinatorics at JMM 2013.
- *Math Competitions Coordinator*. Faculty advisor for MCM/ICM (Feb 2013) - Team received Honorable Mention, Putnam (Dec 2012), Cumberland Valley Math competition (Sep 2013) - Team finished in 3rd place.
- *Judge*
 - Mathematics poster session, SACNAS 2015, Baltimore, MD.
 - Mathematics poster session, SACNAS 2014, Los Angeles, CA.
 - 2015 Richard Tapia Celebration of Diversity in Computing Conference Reviewer of Scholarship Applications, September 2014.
 - Undergraduate poster session, JMM 2014, Baltimore, MD.
 - SACNAS Travel Scholarships, SACNAS 2013.
 - Mathematics poster session, SACNAS 2013, San Antonio, TX.
 - Undergraduate student talks, MathFest 2012, Madison, WI.
- *Mentoring activities*
 - Conversations with a Scientist SACNAS 2015, Baltimore, MD.
 - New Student Orientation Presentation Speaker, SACNAS 2014, Los Angeles, CA.
 - Conversations with a Scientist SACNAS 2014, Los Angeles, CA.

Memberships

American Mathematical Society (AMS)

Association for Women in Mathematics (AWM)

National Association of Mathematicians (NAM)

Mathematical Association of America (MAA)

Lifetime Member of the Society for the Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS)