

# Marisa Gaetz – Curriculum Vitae

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## EDUCATION

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Massachusetts Institute of Technology	<i>Fall 2020 –</i>
Ph.D. Candidate in Mathematics, advised by David Vogan	GPA: 5.0/5.0
Massachusetts Institute of Technology	<i>2016 – 2020</i>
B.S. Mathematics and Minor in Philosophy	GPA: 4.9/5.0

## JOB EXPERIENCE

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Research Scientist Intern at Gates Foundation Institute for Disease Modeling ..... Winter 2024

## SELECTED AWARDS

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NSF Graduate Research Fellowship	2020 – 2025
Fannie & John Hertz Fellowship	2020 – 2025
MIT Mathematics Award for Service to the Math Community	2022
George Lusztig PRIMES Mentorship Award for Exceptional Mentor Service	2022
MIT Martin Luther King Jr. Leadership Award	2021
The Educational Justice Institute at MIT Teaching Award	2021
MIT Priscilla King Gray (PKG) Award for Public Service	2021
MIT ESG-PKG Public Service Fellowship	2020
Alice T. Schafer Mathematics Prize Honorable Mention	2020
MIT William L. Stewart Jr. Award	2020
MIT ESG Community Service Award	2019

## PUBLICATIONS AND PREPRINTS

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10. M. Gaetz. Dual pairs in  $PGL(n, \mathbb{C})$ , *Preprint* (2024). [arXiv:2410.09625](https://arxiv.org/abs/2410.09625)
9. M. Gaetz. An explicit classification of dual pairs in exceptional Lie algebras, *Preprint* (2024). [arXiv:2410.02030](https://arxiv.org/abs/2410.02030)
8. M. Gaetz and D. A. Vogan. Disconnected reductive groups, *J. Lie Theory* **34** (2024) 2, 469–480. [arXiv:2310.00170](https://arxiv.org/abs/2310.00170)
7. M. Gaetz. Dual pairs in complex classical groups and Lie algebras, *Preprint* (2024). [arXiv:1910.07592](https://arxiv.org/abs/1910.07592)
6. M. Nisser, M. Gaetz, A. Fishberg, R. Soicher, F. Faruqi, and J. Long. From prisons to programming: fostering self-efficacy via virtual web design curricula in prisons and jails, *Proceedings of the CHI Conference on Human Factors in Computing Systems* (2024). [arXiv:2404.15904](https://arxiv.org/abs/2404.15904)
5. M. Gaetz. Anti-power  $j$ -fixes of the Thue-Morse word, *Discrete Math. Theor. Comput. Sci.* **23** (2021) 1. [arXiv:1808.01528](https://arxiv.org/abs/1808.01528)
4. M. Gaetz and C. Ji. Enumeration and extensions of word-representants, *Discrete Appl. Math.* **284** (2020), 423–433. [arXiv:1909.00019](https://arxiv.org/abs/1909.00019)
3. B. Flanagan, M. Gaetz, M. Scheepers, and M. Shanks. Quantifying CDS sortability of permutations by strategic pile size, *Discrete Math. Algorithms Appl.* **12** (2020). [arXiv:1811.11937](https://arxiv.org/abs/1811.11937)
2. M. Gaetz, W. Hardt, and S. Sridhar. Support equalities among ribbon Schur functions, *Electron. J. Combin.* **26** (2019) 3, P3.52. [arXiv:1709.03011](https://arxiv.org/abs/1709.03011)
1. B. Benesh and M. Gaetz. A  $q$ -player impartial avoidance game for generating finite groups, *Internat. J. Game Theory* **47** (2018) 2, 451–461. [arXiv:1607.06420](https://arxiv.org/abs/1607.06420)

## PRESENTATIONS

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<b>AMSI-MSRI Winter School</b> <i>Dual Pairs in Complex Reductive Groups</i>	June 2022
<b>JMM Contributed Paper Session</b> <i>Dual Pairs in Complex Reductive Groups</i>	Jan. 2020
<b>JMM Contributed Paper Session</b> <i>Anti-Power <math>j</math>-Fixes of the Thue-Morse Word</i>	Jan. 2019
<b>Haynes Miller's <i>Algebra of Surfaces</i> Freshman Advising Seminar</b> <i>Support Equalities Among Ribbon Schur Functions</i>	Dec. 2018
<b>Undergraduate Mathematics Symposium at UIC</b> <i>Anti-Power <math>j</math>-Fixes of the Thue-Morse Word</i>	Nov. 2018
<b>Young Mathematicians Conference at OSU</b> <i>Anti-Power <math>j</math>-Fixes of the Thue-Morse Word</i>	Aug. 2018
<b>Young Mathematicians Conference at OSU</b> Poster: <i>Support Equalities Among Ribbon Schur Functions</i>	Aug. 2018
<b>JMM Undergraduate Poster Session</b> Poster: <i>Support Equalities Among Ribbon Schur Functions</i>	Jan. 2018
<b>University of Minnesota Twin Cities REU Final Symposium</b> <i>Support Equalities Among Ribbon Schur Functions</i>	Aug. 2017
<b>JMM Undergraduate Poster Session</b> Poster: <i>Quantifying CDS Sortability of Permutations Using Strategic Piles</i>	Jan. 2017
<b>Idaho Conference of Undergraduate Research</b> Poster: <i>Quantifying CDS Sortability of Permutations Using Strategic Piles</i>	July 2016
<b>Boise State University REU Final Symposium</b> <i>Quantifying CDS Sortability of Permutations Using Strategic Piles</i>	July 2016
<b>Boise State University REU Interdisciplinary Seminar</b> <i>Quantifying CDS Sortability of Permutations Using Strategic Piles</i>	July 2016

## PROGRAM PARTICIPATION

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AMSI-MSRI Winter School: <i>New Directions in Representation Theory</i> .....	Summer 2022
MIT Undergraduate Research Opportunities Program: <i>Representation Theory</i> .....	2019 – 2020
MIT Directed Reading Program (DRP): <i>Representations of Lie Algebras</i> .....	Winter 2019
University of Minnesota Duluth REU: <i>Combinatorics on Words</i> .....	Summer 2018
University of Minnesota Twin Cities REU: <i>Algebraic Combinatorics</i> .....	Summer 2017
MIT Undergraduate Research Opportunities Program: <i>Geometry of Surfaces</i> .....	Spring 2017
Boise State University REU: <i>Enumerative Combinatorics</i> .....	Summer 2016

## ORGANIZING AND COMMITTEE INVOLVEMENT

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<b>Co-Founder and Co-Director</b> , <a href="#">Brave Behind Bars, Inc.</a>	2021 –
· Co-founded and co-direct a 501(c)(3) nonprofit that provides year-long college-accredited STEM education for incarcerated people.	
<b>Co-Coordinator</b> , <a href="#">PRIMES Circle</a> , MIT Department of Mathematics	2021 –
· Co-coordinate a free after-school math enrichment program for high schoolers from underrepresented backgrounds.	
<b>Committee Head</b> , <i>Computer Education</i> , <a href="#">The Educational Justice Institute at MIT</a>	2020 –
<b>Committee Member</b> , <i>Diversity and Community Building</i> , MIT Dept. of Mathematics	2018 –
<b>Organizer</b> , <i>Pure Math Graduate Student Seminar</i> , MIT Department of Mathematics	2021 – 2022
<b>Co-Founder and President</b> , <a href="#">Prison Education Initiative</a> , MIT	2018 – 2021
<b>Organizer</b> , <i>Summer of HOPE</i> ethics program for court-involved youths	2019 – 2020
<b>Organizer and Head Counselor</b> , <i>Discover Mathematics</i> program for first years	2017 – 2020

## MENTORING AND TEACHING

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<b>Teaching Assistant</b> , <i>Linear Algebra (18.06)</i> , MIT	Fall 2024
<b>Teaching Assistant</b> , <i>Web Design I</i> , <a href="#">Brave Behind Bars, Inc.</a>	2021 – 2024
· TA-ed a remote web design course for incarcerated people through my nonprofit.	
<b>Reading Course Mentor</b> , <i>Directed Reading Program</i> , MIT Dept. of Mathematics	Winter 2021
· Mentored two undergraduates studying quantum mechanics and representation theory.	
<b>Reading Course Mentor</b> , <a href="#">PRIMES Circle</a> , MIT Department of Mathematics	2018 – 2020
· Mentored high schoolers from underrepresented backgrounds studying game theory.	
<b>Teaching Assistant</b> , <i>Philosophy Courses</i> , <a href="#">The Educational Justice Institute at MIT</a>	2018 – 2021
· <i>ES.9112 Philosophy of Love</i> , Maine Department of Corrections (Spring 2021).	
· <i>ES.9114 Nonviolence as a Way of Life</i> , Maine Department of Corrections (Fall 2020).	
· <i>ES.9114 Nonviolence as a Way of Life</i> , South Bay House of Correction (Spring 2019).	
· <i>ES.9114 Nonviolence as a Way of Life</i> , Boston Pre-Release Center (Fall 2018).	
<b>Associate Advisor</b> , <i>Algebra of Surfaces</i> , MIT Freshman Advising Seminar	Fall 2018
<b>Teaching Assistant</b> , <i>Physics I</i> , <a href="#">The Educational Justice Institute at MIT</a>	Spring 2017