

# Marisa Gaetz – Curriculum Vitae

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## EDUCATION

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

## JOB EXPERIENCE

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

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

10. M. Gaetz. Dual pairs in  $PGL(n, \mathbb{C})$ , *Preprint* (2024). [arXiv:2410.09625](#)
9. M. Gaetz. An explicit classification of dual pairs in exceptional Lie algebras, *Preprint* (2024). [arXiv:2410.02030](#)
8. M. Gaetz and D. A. Vogan. Disconnected reductive groups, *J. Lie Theory* **34** (2024) 2, 469–480. [arXiv:2310.00170](#)
7. M. Gaetz. Dual pairs in complex classical groups and Lie algebras, *Preprint* (2024). [arXiv: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](#)
5. M. Gaetz. Anti-power  $j$ -fixes of the Thue-Morse word, *Discrete Math. Theor. Comput. Sci.* **23** (2021) 1. [arXiv:1808.01528](#)
4. M. Gaetz and C. Ji. Enumeration and extensions of word-representants, *Discrete Appl. Math.* **284** (2020), 423–433. [arXiv: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](#)
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](#)
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](#)

## PRESENTATIONS

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

## 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, <i>Brave Behind Bars, Inc.</i></b>	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, <i>PRIMES Circle</i>, MIT Department of Mathematics</b>	2021 –
· Co-coordinate a free after-school math enrichment program for high schoolers from underrepresented backgrounds.	
<b>Committee Head, <i>Computer Education</i>, The Educational Justice Institute at MIT</b>	2020 –
<b>Committee Member, <i>Diversity and Community Building</i>, MIT Dept. of Mathematics</b>	2018 –
<b>Organizer, <i>Pure Math Graduate Student Seminar</i>, MIT Department of Mathematics</b>	2021 – 2022
<b>Co-Founder and President, <i>Prison Education Initiative</i>, MIT</b>	2018 – 2021
<b>Organizer, <i>Summer of HOPE</i> ethics program for court-involved youths</b>	2019 – 2020
<b>Organizer and Head Counselor, <i>Discover Mathematics</i> program for first years</b>	2017 – 2020

## MENTORING AND TEACHING

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<b>Teaching Assistant, <i>Linear Algebra (18.06)</i>, MIT</b>	Fall 2024
<b>Teaching Assistant, <i>Web Design I</i>, <i>Brave Behind Bars, Inc.</i></b>	2021 – 2024
· TA-ed a remote web design course for incarcerated people through my nonprofit.	
<b>Reading Course Mentor, <i>Directed Reading Program</i>, MIT Dept. of Mathematics</b>	Winter 2021
· Mentored two undergraduates studying quantum mechanics and representation theory.	
<b>Reading Course Mentor, <i>PRIMES Circle</i>, MIT Department of Mathematics</b>	2018 – 2020
· Mentored high schoolers from underrepresented backgrounds studying game theory.	
<b>Teaching Assistant, <i>Philosophy Courses</i>, The Educational Justice Institute at MIT</b>	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, <i>Algebra of Surfaces</i>, MIT Freshman Advising Seminar</b>	Fall 2018
<b>Teaching Assistant, <i>Physics I</i>, The Educational Justice Institute at MIT</b>	Spring 2017