Curriculum Vitae – Marisa Gaetz

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EDUCATION

Massachusetts Institute of Technology *Fall 2020 –*
Ph.D. Candidate in Mathematics, advised by David Vogan GPA: 5.0/5.0

Massachusetts Institute of Technology *2016 – 2020*
B.S. Mathematics and Minor in Philosophy GPA: 4.9/5.0

St. John's Preparatory School (Collegeville, MN) *2012 – 2016*
High School Diploma and International Baccalaureate Diploma GPA: 4.0/4.0

RESEARCH INTERESTS

Representation theory, Lie theory, and complexity theory.

HONORS AND AWARDS

MIT Mathematics Award for Service to the Math Community 2022
George Lusztig PRIMES Mentorship for Exceptional Mentor Service 2022
MLK Jr. Leadership Award 2021
Priscilla King Gray Award for Public Service 2021
The Educational Justice Institute at MIT (TEJI) Teaching Award 2021
ESG-PKG Public Service Fellowship 2020
NSF Graduate Research Fellowship 2020
Fannie & John Hertz Fellowship 2020
Alice T. Schafer Mathematics Prize Honorable Mention 2020
MIT William L. Stewart, Jr. Award 2020
MIT ESG Community Service Award 2019
Outstanding Poster Award for the MAA Undergraduate Poster Session at JMM 2017
National Merit Scholarship Award 2016

RESEARCH PAPERS

Published Papers

· M. Gaetz. Anti-power j-fixes of the Thue-Morse word, *Discrete Math. Theor. Comput. Sci.* **23** (2021) 1. arXiv:1808.01528

· M. Gaetz and C. Ji. Enumeration and extensions of word-representants, *Discrete Appl. Math.* **284** (2020), 423–433. arXiv:1909.00019.

· B. Flanagan, M. Gaetz, M. Scheepers, and M. Shanks. Quantifying CDS sortability of permutations by strategic pile size, *Discrete Math. Algorithms Appl.* **12** (2020) 1. arXiv:1811.11937

· M. Gaetz, W. Hardt, and S. Sridhar. Support equalities among ribbon Schur functions, *Electron. J. Combin.* **26** (2019) 3, P3.52. arXiv:1709.03011

· 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

Submitted/In Progress Papers

· M. Gaetz. Dual pairs in complex reductive groups. arXiv:1910.07592.

RESEARCH PRESENTATIONS

AMSI-MSRI Winter School: New Directions in Representation Theory 2022
Dual Pairs in Complex Reductive Groups

JMM Contributed Paper Session 2019 & 2020
Dual Pairs in Complex Reductive Groups (2020)
Anti-Power j-Fixes of the Thue-Morse Word (2019)

Haynes Miller's *Algebra of Surfaces* Advising Seminar 2018
Support Equalities Among Ribbon Schur Functions

Undergraduate Mathematics Symposium at UIC 2018
Anti-Power j-Fixes of the Thue-Morse Word

Young Mathematicians Conference at OSU 2018
Anti-Power j-Fixes of the Thue-Morse Word
Poster: *Support Equalities Among Ribbon Schur Functions*

JMM Undergraduate Poster Session 2017 & 2018
Poster: *Support Equalities Among Ribbon Schur Functions* (2018)
Poster: *Quantifying CDS Sortability of Permutations Using Strategic Piles* (2017)

University of Minnesota Twin Cities REU Final Symposium 2017
Support Equalities Among Ribbon Schur Functions

Idaho Conference of Undergraduate Research 2016
Poster: *Quantifying CDS Sortability of Permutations Using Strategic Piles*

ORGANIZING AND COMMUNITY INVOLVEMENT

Coordinator of MIT's PRIMES Circle mathematics program for high school students ..... 2021 –
Co-Founder and Co-Director of Brave Behind Bars (computer education for incarcerated people) ..... 2021 –
Head of The Educational Justice Institute's Computer Education Committee ..... 2020 –
Member of MIT Math Dept.'s Diversity and Community Building Committee ..... 2018 –
Organizer of MIT's Pure Math Graduate Student Seminar (PuMaGraSS) ..... 2021 – 2022
Co-Founder and President of the MIT Prison Education Initiative ..... 2018 – 2021
Organizer of the Summer of HOPE ethics program for court-involved youths ..... 2019 – 2020
Staff Member & Social Media Manager of MIT Undergraduate Math Association ..... 2017 – 2020
Organizer and Head Counselor for MIT's *Discover Mathematics* program for first years ..... 2017 – 2020
Organizer of MIT Student Colloquium for Undergraduates in Mathematics ..... 2017 – 2019

PROGRAMS AND LEARNING

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

MENTORING AND TEACHING

Graduate Resident Advisor (GRA) 2020 –

· GRA for MIT's Sigma Alpha Epsilon fraternity.

Brave Behind Bars Instructor 2021 & 2022

· Helped teach an introductory computer science course for incarcerated people through Brave Behind Bars (an organization I co-founded and co-direct).

MIT Directed Reading Program (DRP) Mentor Jan. 2021

· Led a month-long reading group on quantum theory and representations for MIT students.

PRIMES Circle Mentor 2018 – 2020

· Led reading groups on game theory for high schoolers from underrepresented backgrounds.

Teaching Assistant & Discussion Facilitator for Philosophy Courses 2018 – 2021

· *ES.9112 Philosophy of Love*, remote with Maine Dept. of Corrections (Spring 2021).
· *ES.9114 Nonviolence as a Way of Life*, remote with Maine Dept. of Corrections (Fall 2020).
· *ES.9114 Nonviolence as a Way of Life* at Suffolk County House of Correction (Spring 2019).
· *ES.9114 Nonviolence as a Way of Life* at Boston Pre-Release Center (Fall 2018).

Associate Advisor for Freshman Advising Seminar Fall 2018

· Helped lead Prof. Haynes Miller's *Algebra of Surfaces* Freshman Advising Seminar.

Teaching Assistant for Physics Course Spring 2017

· Assisted a college-level physics course at Mass. Correctional Institution – Norfolk.

LANGUAGES

· **Programming/Markup**: LaTeX, Python, HTML, CSS, JavaScript