

David Harry Richman

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| CONTACT INFORMATION | <i>E-mail:</i> hrichman@umich.edu <i>Website:</i> harryrichman.info | <i>Address:</i> East Hall 5080 530 Church Street Ann Arbor, MI 48109 |
| RESEARCH INTERESTS | Tropical geometry, curves and Jacobians, graph theory, combinatorics, number theory | |
| EDUCATION | University of Michigan , Ann Arbor, MI Ph.D. in Mathematics Thesis: Weierstrass points and torsion points on tropical curves Advisor: David Speyer Independent University of Moscow , Moscow, Russia Math in Moscow Study Abroad Program Massachusetts Institute of Technology , Cambridge, MA S.B. in Mathematics with Computer Science Phi Beta Kappa Society, Xi Chapter | |
| RESEARCH PAPERS | “The poset of almost-divisors,” with Jeffrey C. Lagarias, in preparation “The tropical Manin–Mumford conjecture,” in preparation “The distribution of Weierstrass points on a tropical curve,” arXiv:1809.07920, submitted “Dilated floor functions with nonnegative commutators II: Negative dilations,” with Jeffrey C. Lagarias, accepted to <i>Acta Arithmetica</i> “Dilated floor functions with nonnegative commutators I: Positive and mixed sign dilations,” with Jeffrey C. Lagarias <i>Acta Arithmetica</i> 187 (2019) no. 3, 271–299. “Dilated floor functions that commute,” with Jeffrey C. Lagarias and Takumi Murayama <i>Amer. Math. Monthly</i> 123 (2016) no. 10, 1033–1038. | |
| HONORS AND AWARDS | AMS-Simons Travel Grant (\$5,000) Rackham Predoctoral Fellowship (\$32,640) AMS Graduate Student Travel Grant Rackham Conference Travel Grant Rackham Conference Travel Grant Prasad Family Fellowship Rackham Conference Travel Grant AARMS award for best student poster, CMS Meeting Mathematics Department Graduate Fellowship, University of Michigan AMS Math in Moscow Scholarship (\$8000) | |
| TEACHING EXPERIENCE | University of Michigan , Ann Arbor, MI, USA <i>Primary Instructor</i> Math 116, Calculus II (Primary Instructor) | |
| | | 2020 - 2022 2019 - 2020 Fall 2019 July 2019 July 2017 2017 June 2016 Summer 2016 2015 Fall 2013 |
| | | Winter 2015, Winter 2016, |

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| | Math 115, Calculus I (Primary Instructor) | Winter 2018, Winter 2019 Fall 2014 |
| | <i>Teaching Assistant</i> | |
| | Math 215, Multivariable calculus (TA) | Fall 2016 |
| | Math 216, Differential equations (TA) | Fall 2015 |
| | <i>Undergraduate Research Mentor</i> | |
| | Laboratory of Geometry: Origami on a Hexagonal Lattice | Winter 2019 |
| INVITED TALKS | Weierstrass points on tropical curves | |
| | Algebra and Number Theory Seminar, University of Kentucky | November 2019 |
| | Algebra and Algebraic Geometry Seminar, University of Washington | October 2019 |
| | SIAM Applied Algebraic Geometry, Bern Switzerland | July 2019 |
| | (poster) FPSAC, Ljubljana Slovenia | July 2019 |
| | Analysis and Geometry Seminar, Central Michigan University | February 2019 |
| | Algebraic Geometry Seminar, Brown University | November 2018 |
| | Combinatorics Seminar, University of Michigan | November 2018 |
| | Algebraic Geometry Seminar, The Ohio State University | October 2018 |
| | Algebra Seminar, Georgia Tech | October 2018 |
| | (poster) AGNES Fall Meeting, Brown University | September 2018 |
| | Dilated floor functions and their commutators | |
| | AMS Fall Sectional Meeting, Madison WI | September 2019 |
| | Department of Mathematics Colloquium, University of Findlay | December 2018 |
| | INTEGERS Conference 2018, Augusta GA | October 2018 |
| | (poster) MAA MathFest, Chicago IL | July 2017 |
| | (poster) CMS Summer Meeting, University of Alberta | June 2016 |
| | Looking for a “local” Gauss–Lucas theorem | |
| | MAA MathFest, Chicago IL | July 2017 |
| EXPOSITORY TALKS | University of Findlay Colloquium (undergraduate audience) | |
| | Dilated floor functions | December 2018 |
| | Michigan Math Club (undergraduate audience) | |
| | The square tile problem | November 2018 |
| | Descartes’ rule of signs and beyond | September 2017 |
| | Great Talks for a General Audience , MAA MathFest Chicago | |
| | Descartes’ rule of signs and beyond | July 2017 |
| | Michigan Graduate Student Seminars | |
| | What is the Jacobian of a curve? | October 2019 |
| | Bidding games and random-turn games | March 2019 |
| | Electrifying random trees II: edge correlation | October 2018 |
| | Introduction to p -adic geometry | October 2018 |
| | A brief tour of outer space | October 2018 |
| | Equidistribution of tropical Weierstrass points | September 2018 |
| | Tropical Grassmannians and friends | February 2018 |
| | Exponentially many perfect matchings | October 2017 |
| | Weierstrass subgroup of the Jacobian | February 2017 |
| | The p -adic icosahedron | February 2017 |

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| Matching polynomials and double covers | January 2017 |
| What is a tropical curve? | October 2016 |
| Tate curves and Berkovich space | March 2016 |
| Partition identities, generating functions, and physics | February 2016 |
| What is a Néron model? | January 2016 |
| Riemann–Roch on graphs | November 2015 |
| Combinatorics of stable curves | November 2015 |
| How to prove the Riemann hypothesis | September 2015 |
| Rationality of motivic zeta functions | April 2015 |

Michigan Summer Mini-courses for graduate students

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| Stratifying moduli spaces of curves by Weierstrass semigroups | Summer 2020 |
| Combinatorial Hodge theory | Summer 2019 |
| Tropical methods in Brill–Noether theory (5 lectures) | Summer 2018 |
| Moduli space of tropical curves (4 lectures) | Summer 2017 |
| Algebraic groups (5 lectures) | Summer 2016 |
| Hodge theory for matroids (3 lectures) | Summer 2016 |

WORKSHOPS AND
CONFERENCES
ATTENDED

GATTACA Conference, Georgia Tech, March 2019
 Arithmetic of Algebraic Curves, University of Wisconsin, April 2018
 Tropical geometry, logarithmic geometry, and curve counting, Stockholm University, Summer 2017
 Tropical geometry, mirror symmetry, and GKZ A-determinant philosophy,
 KIAS (Seoul Korea), Winter 2017
 Combinatorial Algebraic Geometry, Fields Institute, Summer 2016
 Explicit Methods for Abelian Varieties, PIMS, University of Calgary, Summer 2016
 Gaps between Primes and Analytic Number Theory, MSRI, Summer 2015
 Arithmetic and Higher-Dimensional Varieties, University of Arizona, March 2015

SERVICE

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| Referee for: Journal of Integer Sequences | |
| Research Mentor, Laboratory of Geometry at Michigan (LoG(M)) | Spring 2019 |
| Co-organizer, Student Combinatorics Seminar, University of Michigan | 2018 - 2019 |
| Organizer, Junior Colloquium, University of Michigan | Summer 2017 |
| Co-Hall Chair, East Campus Dormitory, MIT | Fall 2010 - Spring 2011 |

SKILLS

- Computer: Python, Mathematica, \LaTeX , Sage, MATLAB
- Language: English (native), Chinese (proficient), Russian (beginner)