Wei Ho

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EMPLOYMENT

Institute for Advanced Study, Princeton, NJ   2022–present
  Director of Women$^+$ and Mathematics Program & Visiting Professor

Princeton University, Princeton, NJ   2022–present
  Research Scholar & Lecturer with the Rank of Professor

University of Michigan, Ann Arbor, MI   2014–present
  Professor   2024–present
  Associate Professor   2019–2024
  Assistant Professor   2014–2019

Columbia University, New York, NY   2010–2014
  Joseph Fels Ritt Assistant Professor

Princeton University, Princeton, NJ   2012–2013
  Visiting Fellow (NSF Postdoctoral Fellow)

Harvard University, Cambridge, MA   2009–2010
  NSF Postdoctoral Fellow

EDUCATION

Princeton University
Ph.D. in Mathematics, 2009.
Dissertation under the supervision of Manjul Bhargava: *Orbit Parametrizations of Curves.*

Cambridge University
Certificate of Advanced Study in Mathematics (Part III of the Tripos), with *distinction*, 2004.

Harvard University
A.M. in Mathematics and A.B. in Mathematics, *summa cum laude*, 2003.

AWARDS AND GRANTS

Fellow of the American Mathematical Society, 2023
University of Michigan Margaret and Herman Sokol Faculty Award, 2021-23
NSF CAREER Grant DMS-1844763, 2019–24 (PI)
NSF Grant DMS-1701437, 2017–21 (PI)
Sloan Research Fellowship, 2017–21
NSF Grant DMS-1406066, 2014–17 (PI)
National Security Agency Young Investigator's Grant, 2013-14 (PI)
NSF Mathematical Sciences Postdoctoral Research Fellowship
National Defense Science and Engineering Graduate (NDSEG) Fellowship
NSF Graduate Fellowship
Centennial Fellowship, Princeton University
Herman Peries Prize, Emmanuel College, Cambridge University
Association for Women in Mathematics Alice T. Schafer Prize runner-up, 2003
Harvard Herchel Smith Fellowship in Science (for study at Cambridge University)
Gold medal at the 31st International Chemistry Olympiad, 1999

TEMPORARY VISITING POSITIONS

Simons Laufer Mathematical Sciences Institute, Berkeley, CA	Spring 2023
Institute for Advanced Study, Princeton, NJ	Spring 2020
Mathematical Sciences Research Institute, Berkeley, CA	Spring 2019
Columbia University, New York, NY	Fall 2018
Max Planck Institute for Mathematics, Bonn, Germany	June 2017
Center for Communications Research (IDA-CCR-P), Princeton, NJ	intermittent

PUBLICATIONS

"Quadratic enrichment of the logarithmic derivative of the zeta function," with M. Bilu, P. Srinivasan, I. Vogt, and K. Wickelgren, to appear in *Trans. AMS Ser. B.*

"Splitting Brauer classes using the universal Albanese," with M. Lieblich, *Enseign. Math.* **67** (2021), 209–224.

"Everywhere local solubility for hypersurfaces in products of projective spaces," with T. Fisher and J. Park, *Res. Number Theory* **7** (2021), no. 6.

"Galois closures of non-commutative rings and an application to Hermitian representations," with M. Satriano, *Int. Math. Res. Not. IMRN* **2020** (2020), no. 21, 7944–7974.

"Odd degree number fields with odd class number," with A. Shankar and I. Varma, *Duke Math. J.* **167** (2018), no. 5, 995–1047.

"Orbit parametrizations for K3 surfaces," with M. Bhargava and A. Kumar, *Forum Math. Sigma* **4** (2016), e18 (86 pages).

"Coregular spaces and genus one curves," with M. Bhargava, *Camb. J. Math.* **4** (2016), no. 1, 1–119.

"Databases of elliptic curves ordered by height and distributions of ranks and Selmer groups," with J. Balakrishnan, N. Kaplan, S. Spicer, W. Stein, and J. Weigandt, *LMS J. Comput. Math.* **19** (2016), issue A, 351–370.

"Zeta functions of a class of Artin-Schreier curves with many automorphisms," with I. Bouw, B. Malmskog, R. Scheidler, P. Srinivasan, and C. Vincent, *Directions in Number Theory: Proceedings of the 2014 WIN3 Workshop*, Springer, 2016, 87–124.

"How many rational points does a random curve have?" *Bull. Amer. Math. Soc.* **51** (2014), no. 1, 27–52.

"How many rational points does a random curve have?" *AMS Current Events Bulletin*, Joint Mathematics Meetings, 2013.

"Genus one curves and Brauer-Severi varieties," with A. J. de Jong, *Math. Res. Lett.* **19** (2012), no. 06, 1357–1359.

"Moduli of products of stable varieties," with B. Bhatt, Z. Patakfalvi, and C. Schnell, *Compos. Math.* **149** (2013), no. 12, 2036–2070.

"The m-step, same-step, and any-step competition graphs," *Discrete Appl. Math.* **152** (2005), no. 1-3, 159–175.

"A time-of-flight mass spectrometric analysis of fluence dependencies in SnO_2 ablation: Implications for pulsed laser deposited tin oxide thin films" with H. Fan and S. A. Reid, *Int. J. Mass Spectrometry* **230** (2003), 11–17.

"Pulsed laser ablation of Sn and SnO_2 target: Neutral composition, energetics, and wavelength dependence," with F. Lamelas and S. A. Reid, *J. Phys. Chem. B* **104** (2000), no. 22, 5324–5330.

PREPRINTS

"The second moment of the number of integral points on elliptic curves is bounded," with L. Alpoge, preprint.

"On average sizes of Selmer groups and ranks in families of elliptic curves having marked points," with M. Bhargava, preprint.

EDITED BOOKS

A. Bucur, W. Ho, R. Scheidler (Eds.). *Research Directions in Number Theory—Women in Numbers V.* Springer, Cham, 2024, Association for Women in Mathematics Series.

P. Belmans, A. J. de Jong, and W. Ho (Eds.). *SPEC: Stacks Project Expository Collection.* Cambridge University Press, 2022, London Mathematical Society Lecture Note Series, number 480.

INVITED TALKS

Colloquia: Bonn, Brandeis-Harvard-MIT-Northeastern, Chicago, Colorado, Cornell($\times$2), Dalhousie, Michigan, Minnesota, Penn State, Rutgers($\times$2), Rutgers Newark, Temple, UCLA, UC Santa Cruz, UIC, Utah, Washington/PIMS, Yale

Regional: AGNES, AMS Special Sessions($\times$5), Bay Area Algebraic Number Theory and Arithmetic Geometry Day, BC-MIT NT, Chicago NT Day, FRAGMENT, JHU-UMD Algebra and NT Day, Palmetto Number Theory Series, Quebec-Vermont NT, Southern California AG Seminar, Southern California NT Day, UConn NT Day, WAGS

Seminars in algebraic geometry, number theory, representation theory, and related areas:
BC($\times$2), Brown, BU, Caltech, Chalmers/Gothenburg, Chicago($\times$2), Columbia-CUNY-NYU, Cornell, CUNY, Duke($\times$2), Fields Institute, Five College, Georgia, Georgia Tech, Harvard ($\times$2), Harvard-MIT, IAS/Princeton, Johns Hopkins($\times$2), Leiden, Max Planck, Maryland, Michigan($\times$2), Michigan State, Minnesota, MIT, Northeastern, Northwestern, Penn State, Princeton, Rice, Stanford($\times$4), Stony Brook, SUNY Buffalo, Texas($\times$2), TIFR, UC Berkeley, UC Davis, UC Irvine, UCLA, UCSD, UNC-Duke, Utah($\times$2), Valley Geometry, Washington($\times$2), Wisconsin($\times$2)

Online-only seminars: VaNTAGe, Number Theory Web Seminar

Conference talks:

Statistics of class groups and number fields (ETH Zürich)	Jun 2025
Canadian Number Theory Association XVI (Toronto)	Jun 2024
Arithmetic, Algebra, and Algorithms (ICMS, Edinburgh)	Apr 2023
Simons Collaboration on Arithmetic Geometry, Number Theory, and Computation (NYC)	Jan 2023
Arithmetic Geometry, Cryptography, and Coding Theory (CIRM, Luminy)	Jun 2021
Topics in Rational and Integral Points (Basel)	Sep 2019
Arithmetic and Algebraic Geometry (Michigan)	Aug 2019
Rational Points 2019 (Schney)	Jul 2019
Recent Progress in Moduli Theory (MSRI)	May 2019
Arithmetic and L-functions (Besançon)	Nov 2018
Open questions in number theory and cryptography (UC Irvine)	Sep 2018
Rational and integral points via analytic and geometric methods (BIRS Oaxaca)	May 2018
Arithmetic of algebraic curves (UW-Madison)	Apr 2018
Arithmetic of Hyperelliptic Curves (Trieste)	Sep 2017
Geometric Methods in Number Theory and Representation Theory (Northwestern)	May 2017

Elliptic Curves, Torsors, and L-functions (UVA)	Mar 2017
Fields Medal Symposium (Fields Institute)	Nov 2016
Clay Research Workshop: Recent Developments on Elliptic Curves (Oxford)	Sep 2016
Algorithmic Number Theory Symposium XII (Kaiserslautern)	Aug 2016
Arithmetic statistics and the Cohen–Lenstra heuristics (Warwick)	Jun 2016
Explicit Methods in Number Theory (Oberwolfach)	Jul 2015
Counting Arithmetic Objects (CRM, Montreal)	Nov 2014
Counting Arithmetic Objects (CRM Summer School, Montreal)	Jul 2014
Women in Numbers 3 (Banff)	Apr 2014
Rational Points 2013 (Schloss Thurnau)	Jul 2013
Atkin Memorial Workshop (UIC)	May 2013
AMS Current Events Bulletin, Joint Mathematics Meetings (San Diego)	Jan 2013
Arithmetic of Abelian Varieties in Families (CIB, Lausanne)	Nov 2012
Selmer Groups, Descent and Rank Distributions (Warwick)	Sep 2012
Explicit Methods in Number Theory (Oberwolfach)	Jul 2011
The Cohen-Lenstra Heuristics for Class Groups (AIM)	Jun 2011
Workshop on Arithmetic Statistics (MSRI)	Apr 2011
International Congress of Chinese Mathematicians (Beijing)	Dec 2010
Higher Degree Forms (Gainesville)	May 2009

Mini-courses:

Building Relationships for an Inclusive and Diverse Group of Emerging Students (Utah)	Jul 2021
Workshop on Arithmetic Topology (PIMS)	Jun 2019
Women and Mathematics program (IAS)	May 2015

Selected expository talks: IAS Math Conversations, Princeton What's Happening in Fine Hall, Princeton Noetherian Ring, UM Departmental Award Ceremony, UM Faculty Spotlight, UM Recruitment Symposium, UM Women in Mathematics, UM RTG Seminar on Number Theory, UM Arithmetic Geometry Learning Seminar($\times 5$), Columbia Undergrad Math Society, MIT STAGE, Princeton Graduate Student Seminar and student seminars ($\times$many), IAS Women and Mathematics

Teaching

Numbers, Equations, and Proofs (undergraduate)	Princeton: Fall 2022, Fall 2024
Elliptic Curves (graduate)	Michigan: Fall 2021
Distributions of Arithmetic Invariants (graduate topics)	Michigan: Winter 2020
Arithmetic Statistics (graduate topics)	Columbia: Fall 2018
Arithmetic of Surfaces (graduate topics)	Michigan: Winter 2018
Analytic Number Theory (graduate)	Michigan: Fall 2017
Linear Algebra (undergraduate/graduate)	Michigan: Winter 2016, Winter 2017, Fall 2020
Algebraic Geometry (graduate)	Michigan: Fall 2015, Fall 2016
Coding Theory (graduate)	Michigan: Winter 2015, Winter 2022
Commutative Algebra (graduate)	Michigan: Fall 2014
Number Theory and Cryptography (undergraduate)	Columbia: Spring 2014
Algebraic Curves (advanced undergraduate)	Columbia: Spring 2014
Linear Algebra (undergraduate)	Columbia: Fall 2013
Representations of Finite Groups (advanced undergraduate)	Columbia: Fall 2011
Calculus I	Columbia: Fall 2010, Fall 2011

Organizational Activities

Women in Algebraic Combinatorics, IAS, June 2025 (liaison).

Collaborative Workshop in Algebraic Geometry, IAS, June 2024 (liaison).

Stacks Project Workshop, Ann Arbor, August 2023.

100 Years of Noetherian Rings, IAS, June 2023.

Women$^+$ And Mathematics Program, IAS, Director, 2022–.

Minerva Research Program, IAS, 2022–.

Arithmetic statistics, CIRM, May 2023 (Scientific Committee).

Degeneracy of algebraic points, MSRI, April 2023.

Special Semester on Diophantine Geometry, MSRI, Spring 2023.

Spring Opportunities Workshop, IAS, January 2023.

MAGNTS: Midwest Arithmetic Geometry and Number Theory Series, Oct 2019/Aug 2021/Oct 2022/Oct 2023/etc.

Women in Numbers 5 (virtual), Summer/Fall 2020.

SPONGE: Stacks Project ONline Geometry Event (virtual), August 2020.

MAGIC (Michigan - Arithmetic Geometry Initiative - Columbia) Online Seminars, 2020.

MANTIS: Michigan Algebra and Number Theory Intercity Symposium, September 2019.

Stacks Project Workshop, Ann Arbor, July–August 2017.

AWM Symposium Special Session on Number Theory, April 2015.

AMS Mathematics Research Communities Workshop on Arithmetic Statistics, Snowbird, June 2012.

Editorial Boards

Publications Mathématiques de Besançon, 2020–.

Research in Number Theory, 2021–.

International Mathematics Research Notices (IMRN), 2023–.

Departmental Mentoring

Graduate students: Jiayu Jason Liang (Michigan PhD 2022), Gary Hu (Michigan MS 2023).

Postdocs: Stephanie Chan, Peter Koymans, Jef Laga, Yuan Liu, Jennifer Park, Nick Rome, Artane Siad, Myungjun Yu.

Undergraduates (junior papers / senior theses): Zander Hill (Princeton 2024).

Number theory and representation theory "professional skills" workshop (2021), organizer.

Dissertation committee member for Xia Jie (Columbia 2014), Ari Shnidman (Michigan 2015), Brandon Carter (Michigan 2018), Patricia Klein (Michigan 2018), Andrew O'Desky (Michigan 2020), Nina Zubrilina (Princeton 2024).

Reading courses with graduate students.

General / qualifying exam committee member.

Graduate student mentoring, e.g., reading courses, advising panels, research statement sessions.

Departmental Service

Organizer of IAS Emmy Noether Lecture Series, 2022–.

Co-organizer of IAS Members' Colloquium, 2022–2023, 2024–.

Co-organizer of IAS Postdoctoral Short Talks, 2022–.

PU Junior Hiring Committee, 2022–23.

UM Personnel (senior hiring) Committee, 2019–2022.

UM Number Theory Area Leader, 2019–2022.

UM Diversity, Equity, and Inclusion Recruiting, 2019–2022.

UM Climate Committee, 2017–19.

UM Executive Committee, 2016–18.

Co-organizer of UM Colloquium, 2021–2022.

Co-organizer of UM Group, Lie, and Number Theory seminar, 2014–2022.

Co-organizer of UM Arithmetic Geometry Learning Seminar, 2014–2022 (some terms).

UM Graduate admissions committee, 2015–16.

Co-advisor of UM Undergraduate Math Club, 2014–15.

Faculty advisor for joint graduate/undergraduate women-in-math activities at Michigan (IAS WAM Graduate Ambassadorship), 2017–18.

UM Honors Committee, 2015–16, 2019–2020.

UM REU committee, 2014–16.

Princeton Departmental Graduate Student Committee, 2005–09.

Departmental representative to the Princeton Graduate Student Government, 2005–06.

Other Teaching and Mentoring Activities

University of Michigan Math Circle Instructor, Fall 2016.

Lecturer at "Counting Arithmetic Objects" summer school, CRM, Montreal, Jun 2014.

Mentor at "Algebraic Geometry: New connections for recent PhDs", Seattle, Aug 2014.

Problem session leader at Arizona Winter School, Tucson, Mar 2014.

2012 International Chemistry Olympiad, Organizing Committee.

Boston Math Circle Instructor for a semester-long class with 7- to 10-year-olds, Spring 2010.

Girls' Angle Mentor, 2009-10.

Graduate school / career advice panels (Harvard Math Table, Nov 2009; Michigan AWM-WIM, Feb 2018; GROW Conference, Oct 2018; MSRI Connections for Women, Jan 2019; MAGNTS, Oct 2019).

Graduate Fellow and Resident Graduate Student in Butler College, Princeton University, 2006-09. Advised undergraduates on course selection and organized lecture series to foster interest in mathematics and other sciences.

Co-organizer of Women-in-Science seminars and panels for the Women in Mathematics Program at the Institute for Advanced Study, 2006-08. Committee member for the affiliated 2009 Summer Workshop in Mathematics for High School Students.

Teaching assistant for advanced course at the Women and Mathematics program at IAS, May 2007.

Lecturer in mini-course at Lorentz Center Stieltjes Onderwijsweek on Rings of Low Rank, Jun 2006.

U.S. National Chemistry Olympiad Peer Mentor, 2005.

Women-in-Math chair of the Harvard University Undergraduate Math Club, 2002-03. Established a graduate/undergraduate student mentoring program.

Other Service

AMS Morgan Prize Committee, 2019–2022 (chair 2019-2020).

Women in Numbers Steering Committee, 2020–.

University of Michigan LSA Teaching Academy Alumni Panel, 2019.

External qualifying exam committee member.

NSF grant review panels, 2015, 2019, 2020.

Current Events Bulletin Committee, 2014.

Referee/quick opinion for numerous math journals and conference proceedings.