Isabel M. Vogt

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Employment

2021 –	Assistant Professor, Brown University
2020 – 2021	Assistant Professor, University of Washington in Seattle
2019 – 2020	National Science Foundation Postdoctoral Scholar, Stanford University

Education

2014 – 2019	Ph.D. Pure Mathematics, Massachusetts Institute of Technology Advisors: Bjorn Poonen and Joe Harris (Harvard University)
2010 – 2014	A.B. Mathematics and Chemistry and Physics, Harvard University, summa cum laude

Visiting Positions

2023	Research Member, MSRI, "Diophantine Geometry" semester
2019	Academic Guest, Institut Henri Poincaré, "Reinventing Rational Points" trimester
2018 – 2019	Exchange Scholar, Stanford University

Current and completed grants

2022 – 2025	NSF Standard Grant "Geometry and arithmetic of Brill–Noether loci and Brill–Noether curves" DMS-2200655, sole PI, $210K
2022 – 2025	NSF Conference Grant "Southwest Conference on Arithmetic Geometry" DMS-2200721, Senior Scientist, $448,399
2019 – 2023	NSF Mathematical Sciences Postdoctoral Research Fellowship DMS-1902743, sole PI, $150K
2017 – 2018	NSF Conference Grant for Graduate Workshop in Algebraic Geometry DMS-1821177, PI B. Poonen, $7600
2014 – 2019	NSF Graduate Research Fellowship

Selected awards

2020	AWM Dissertation Prize
2019	Maryam Mirzakhani Postdoctoral Fellowship at Stanford University
2018	MIT Graduate Student Appreciation Award
2017 – 2018	IAS WAM Charles and Lisa Simonyi Ambassadorship, (with R. Ramadas, $3K)
2015	George Lusztig PRIMES Mentorship Award
2015	MIT Graduate Women of Excellence Award
2014	Friends of Harvard Math Thesis Prize

2014 Robert Fletcher Rogers Prize, Harvard Math Table
2012 – 2014 Barry M. Goldwater Scholarship
2011 – 2014 Harvard Derek Bok Center Certificate of Distinction and Excellence in Teaching (4 times)

Preprints[1]

19. Computing nonsurjective primes associated to Galois representations of genus 2 curves (with Barinder Banwait, Armand Brumer, Hyun Jong Kim, Zev Klagsbrun, Jacob Mayle, and Padmavathi Srinivasan), preprint, arXiv:2301.02222
18. Quadratic enrichment of the logarithmic derivative of the zeta function (with Margaret Bilu, Wei Ho, Padmavathi Srinivasan, and Kirsten Wickelgren), preprint, arXiv:2210.03035
17. Subspace configurations and low degree points on curves (with Borys Kadets), submitted, arXiv:2208.01067
16. Stability of Tschirnhausen bundles (with Izzet Coskun and Eric Larson), submitted, arXiv:2207.07257
15. Curve classes on conic bundle threefolds and applications to rationality (with Sarah Frei, Lena Ji, Soumya Sankar, and Bianca Viray), submitted, arXiv:2207.07093
14. The normal bundle of a general canonical curve of genus at least 7 is semistable (with Izzet Coskun and Eric Larson), submitted, arXiv:2203.13211
13. Interpolation for Brill–Noether curves (with Eric Larson), submitted, arXiv:2201.09445
12. Global Brill–Noether theory over the Hurwitz space (with Eric Larson and Hannah Larson), submitted, arXiv:2008.10765

Refereed Publications[1]

11. A transcendental Brauer–Manin obstruction to weak approximation on a Calabi–Yau threefold (with S. Hashimoto, K. Honigs, and A. Lamarche), *Res. Number Theory* **8** (2022), no. 1, 23 pp., arXiv:2009.05862
10. Stability of normal bundles of space curves (with Izzet Coskun and Eric Larson), *Algebra Number Theory* **16** (2022), no. 4, 919-953, arXiv:2003.02964
9. Low degree points on curves (with Geoffrey Smith), *Int. Math. Res. Not.* (2022), no. 1, 422-445, arXiv:1906.02328
8. An enriched count of the bitangents to a smooth plane quartic curve (with Hannah Larson), *Res. Math. Sci.* **8** (2021), no. 2, 21 pp., arXiv:1909.05945
7. A local-global principle for isogenies of composite degree, *Proc. Lond. Math. Soc.*, (3) **121** (2020), no. 6, 1496-1530, arXiv:1801.05355
6. Interpolation for Brill–Noether curves in $\mathbb{P}^4$ (with Eric Larson), *Eur. J. Math.* **7** (2020), no. 1, 235-271 arXiv:1708.00028
5. Constants in Titchmarsh divisor problems for elliptic curves (with R. Bell, C. Blakestad, A.C. Cojocaru, A. Cowan, N. Jones, V. Matei, and G. Smith), *Res. Number Theory*, **6** (2020), no. 1, 24 pp., arXiv:1706.03422

[1]The standard in mathematics is that authors are listed alphabetically and all authors are presumed to have made equal contributions.

4. Abelian varieties isogenous to a power of an elliptic curve over a Galois extension, *J. Théor. Nombres Bordeaux*, **31** (2019), no, 1, 205-213, `arXiv:1706.04963v1`
3. Elliptic fibrations on covers of the elliptic modular surface of level 5 (with F. Balastrieri, J. Desjardins, A. Garbagnati, C. Maistret, and C. Salgado.) *Women in Numbers Europe II: Contributions to Number Theory and Arithmetic Geometry*, Assoc. Women Math. Ser., vol. 11, Springer, 2018, 159-197, `arXiv:1705.03527v1`
2. Interpolation for Brill–Noether space curves. *Manuscripta Math.*, **156** (2018), no. 1-2, 137-147, `arXiv:1611.00081v2`
1. Powers in Lucas sequences via Galois representations. (with Jesse Silliman.) *Proc. Amer. Math. Soc.* **143** (2015), no. 3, 1027-1041, `arXiv:1307.5078v2`

Computer Programs

1. Binary Recurrence Sequences, Sage release 5.13

Expository articles

5. Maing accesible documents using LaTeX (with E. Larson.) *Notices Amer. Math. Soc.*, 70(1):68-71, 2023.
4. Practical suggestions for mathematical writing, (with R. Bell, B. Kadets, P. Srinivasan, and N. Triantafillou.) *Notices Amer. Math. Soc.*, 68(6):930-934, 2021.
3. A Guide to Organizing a Virtual Conference, (with J. Alper and D. Litt.) *Notices Amer. Math. Soc.*, 67(8):1135-1138, 2020.
2. How to organize a graduate workshop, (with R. Ramadas.) *Notices Amer. Math. Soc.*, 66(11):1823-1827, 2019.
1. Thinking positive: arithmetic geometry in characteristic p, (with R. Bell, J. Hartmann, V. Karemaker, and P. Srinivasan.) *Notices Amer. Math. Soc.*, 66(2):239-241, 2019.

Invited Lecture Series

2023 (*upcoming*) Geométrie Algébrique en Liberté XXX, University of Warwick (4 lectures)
2022 Combinatorial Methods in Algebraic Geometry, Cambridge University
Brill–Noether Theory via Degeneration (4 lectures)

Invited Conference Talks

2023 *(upcoming)* Arithmetic, Birational Geometry, and Moduli Spaces, Brown University
(upcoming) Connections Workshop: Diophantine Geometry, MSRI
2022 Palmetto Number Theory Series, University of South Carolina, *invited speaker*
Young Mathematicians Conference, Ohio State, *keynote speaker*
Number theory informed by computation, Park City Math Institute
Recent Advances in Classical Algebraic Geometry, ICM satellite conference (contributed talk)
Modern Breakthroughs in Diophantine Equations, Banff International Research Station
Workshop on Specialization Techniques, University of Illinois, Chicago
Explicit Methods for Modularity, online workshop

Rational Points 2022, Franken-Akademie Schloss Schney, Germany
AMS Special Session on Moduli in Algebraic and Tropical Geometry
2021 Geometry via Arithmetic, Banff International Research Station
Mathematical Congress of the Americas, special session on moduli spaces
Curves over finite fields: past, present and future, Benasque, Spain
Degeneracy loci and applications, Ohio State University
Rational points and Galois representations, University of Pittsburgh
JMM, AMS special session on Galois cohomology in arithmetic geometry
2020 Monodromy and Galois groups in enumerative geometry, ICERM
ANTS-XIV, University of Auckland, *plenary talk*
(*cancelled*) CNTA XVI, Fields Institute Toronto
(*cancelled*) Texas Algebraic Geometry Symposium (TAGS), Rice University
Arithmetic Geometry Online in Zoom, Everyone (AGONIZE)
(*cancelled*) Shanks workshop on "Real enumeratrive geometry and beyond", Vanderbilt
JMM, Denver, AMS special session on arithmetic Galois actions
JMM, Denver, AMS special session on rational points on algebraic varieties
JMM, Denver, AMS special session on singularities and characteristic classes
2019 Stability, moduli spaces and applications, U. Illinois – Chicago
Western Algebraic Geometry Symposium (WAGS), University of Utah
Modular forms, arithmetic and women in mathematics, Emory University
New Facets, Facets of Algebraic Geometry, University of Michigan
Rational points on irrational varieties, Institute Henri Poincaré
Arithmetic of low-dimensional abelian varieties, ICERM
Barrett Lectures at University of Tennessee at Knoxville
AMS Sectional Meeting, U. Hawaii, special session on arithmetic geometry
Hawai'i Number Theory Conference, session on arithmetic geometry
Arithmetic and Geometry of Surfaces, U. Wisconsin – Madison
JMM, Baltimore, AMS special session on arithmetic statistics
2018 Explicit methods in number theory, Oberwolfach
Biannual algebraic and tropical meetings of Brown and Yale
AMS Sectional Meeting, Northeastern, special session on geometry of moduli spaces
2017 AMS Sectional Meeting, U. Central Florida, special session on algebraic curves
Brown University, AMS graduate student conference in algebra and number theory

Colloquia

2022 Distinguished Colloquium Series of the Turkish Mathematical Society
Center for Communications Research – Princeton
Virgina Tech
Rutgers University
ICERM, Brown University
University of Michigan
2020 Brown University
2019 UW Seattle
2018 University of Illinois at Chicago

Invited Seminar Talks

2022 Tufts University, Algebra, Geometry, and Number Theory seminar
Princeton University, Algebraic geometry seminar
University of Virginia, Number theory seminar
Stony Brook University, Algebraic geometry seminar
Valley Geometry Seminar, UMass Amherst
University of Maryland, Algebra and number theory seminar
Harvard/MIT, Algebraic geometry seminar
University of Utah, Algebraic geometry seminar
University of Illinois, Chicago, Algebraic geometry seminar

2021 Simon Fraser, Number Theory and Algebraic Geometry seminar online
UC Santa Barbara, Geometry and Arithmetic seminar online

2020 Warwick, Algebraic geometry seminar online
Front Range Algebraic Geometry and Number Theory seminar
National algebraic geometry seminar of Mexico, online
Zoom Algebraic Geometry Seminar
Northwestern, UIC, Chicago, Online algebraic geometry seminar
UC San Diego, Online algebraic geometry seminar
UC Davis, Algebraic geometry seminar

2019 University of Georgia, Number theory seminar
University of Michigan, Number theory seminar
Stanford University, Number theory seminar
Duke University, Algebraic geometry seminar
Stanford University, Algebraic geometry seminar
University of Oregon, Algebra seminar
Brown University, Algebraic geometry seminar
UC San Diego, Number theory seminar
UC Irvine, Number theory seminar
UCLA, Number theory seminar
Pennsylvania State University, Number theory seminar

2018 Georgia Tech, Algebra seminar
Rice University, Algebraic geometry and number theory seminar
Rutgers University, Algebra seminar
NYU Courant Institute, Algebraic geometry seminar
University of Pennsylvania, Algebra seminar
UW Seattle, Number theory seminar
UC Berkeley, Arithmetic geometry seminar
SF State, Geometry and topology seminar
UC Davis, Algebraic geometry seminar
Stanford University, Algebraic geometry seminar

2017 SUNY Stony Brook, Algebraic geometry seminar
Georgia Tech, Algebra seminar
University of Chicago, Algebraic geometry seminar
Boston University, Number theory seminar
Yale University, SUMRY colloquium

2016 University of Illinois, Chicago, Algebraic geometry seminar
University of Illinois, Chicago, Number theory seminar

Teaching

Brown University, Professor

Fall 2022 Math 1530: Abstract Algebra (current enrollment: 52)

Fall 2021 Math 540: Honors Linear Algebra (enrollment: 45, overall evaluation score 4.84/5)

University of Washington, Professor

Winter 2021 Math 308: Matrix Algebra with Applications (overall evaluation score 4.7/5)

Advising and mentoring at Brown University

Independent studies supervised

Fall 2022 Semir Mujevic (representation theory of finite groups), Jessica Bennett and Jonah Mendel (heights in diophantine geometry)

Dissertation Committees

2022 Tangli Ge

Department Service at Brown University

2021 – First and second year advisor
2021-2022: 5 first year advisees, 2022-2023: 6 first year advisees and 5 second year advisees

2021 – Algebraic Geometry seminar organizer (with D. Abramovich, B. Hassett, and E. Larson)

2021 – Ad hoc committee on Undergraduate Concentrator Advising

Service to the Profession

Conference Organizer

2023 AGNES Summer School on Intersection Theory on Moduli Spaces
Co-organizers: Dan Abramovich, Melody Chan, Eric Larson

2022 Preliminary Arizona Winter School "Heights and Model Theory"
Co-organizers: Renee Bell and Hang Xue

2022 AGNES Summer School on Higher Dimensional Moduli
Co-organizers: Dan Abramovich, Melody Chan, Brendan Hassett, Eric Larson

2022 JMM AWM Workshop for Women in Algebraic Geometry
Co-organizer: Julie Rana

2021 Western Algebraic Geometry Symposium (online)
Co-organizers: Juliette Bruce and Kristin DeVleming

2020 Women in Algebraic Geometry Research Collaboration Conference, ICERM
Co-organizers: Melody Chan, Antonella Grassi, Rohini Ramadas, and Julie Rana

2020 Western Algebraic Geometry Online (WAGON)
Co-organizers: Jarod Alper and Daniel Litt

2019 AMS MRC: "Explicit Methods in Arithmetic Geometry in Characteristic p",
Co-organizers: Renee Bell, Julia Hartmann, Valentijn Karemaker, and Padma Srinivasan

2018 Grad Workshop in Algebraic Geometry for Women and Mathematicians of Minority Genders,
Co-organizer: Rohini Ramadas

Project Group Leader

2020 Project leader, Women in Algebraic Geometry at ICERM (with B. Viray)

2020 Project leader, Workshop on arithmetic geometry, number theory and computation, ICERM (with P. Srinivasan)

2020 Problem session leader, Arizona Winter School
Geometry and arithmetic of low genus curves

2018 Problem session teaching assistant, Graduate Workshop in Algebraic Geometry

Reviewer

2021 NSF Panel Member

2015 – Peer review for: International Journal of Number Theory, Proceedings of the AMS, Advances in Math, Research in Number Theory, Indagationes Mathematicae, Advances in Geometry

Professional Service

2021 – 2023 Association for Women in Mathematics, JMM Meeting committee member

Professional Memberships

American Mathematical Society, Association for Women in Mathematics

Outreach and Service to the Community

2022 Guest speaker, Brown University Undergraduate Colloquium

2021 Guest speaker, University of Michigan Undergraduate Math Club

2018 – 2019 Mentor, Stanford Women in Math Mentoring Program

2014 – 2017 Panelist, Harvard Undergraduate Math Table "Graduate school panel"

2011 – 2017 Mentor, Girls' Angle, see `girlsangle.org`

2016 Guest speaker, MIT Science and Engineering Program for Teachers,
Mathematical Games

2016 Institute-wide public lecture at MIT Centennial Open House,
Prime numbers, modular arithmetic, and public key cryptography

2016 Guest speaker, Harvard Undergraduate Math Table
Parameter spaces for triangles

2015 Representative for MIT PRIMES, NSF STEM Forum, Washington DC

2015 Guest speaker, MIT MathROOTS,
Parameter spaces for triangles

2015 Guest speaker, MIT Science and Engineering Program for Teachers,
MIT PRIMES Circle: high school math enrichment at MIT

2012 – 2014 Mentor, MIT PRIMES Circle