

Kenneth Ascher

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Academic Positions

Fall 2021 - **Assistant Professor**, *UC Irvine*.

2020 - 2021 **Instructor**, *Princeton University*.

2018 - 2020 **Instructor & NSF Postdoctoral Fellow**, *Princeton University*.

Spring 2019 **Postdoc Research Member**, *MSRI*, Berkeley, CA.

2017-2018 **NSF Postdoctoral Fellow**, *Massachusetts Institute of Technology*.

Education

2017 **Ph.D. Mathematics**, *Brown University*, Advisor: Dan Abramovich.

2012 **B.S. Mathematics**, *Honors college @ Stony Brook University*, Advisor: Radu Laza.

Research Interests

Algebraic & Arithmetic Geometry – moduli of higher dimensional varieties, birational geometry, K-stability, logarithmic geometry, and applications to arithmetic

Publications and Preprints

1. Moduli of curves on a quadric surface and K3 surfaces (with Kristin DeVleming and Yuchen Liu). *Submitted*. <https://arxiv.org/abs/2006.06816>
2. Moduli of double covers and degree one del Pezzo surfaces (with Dori Bejleri). *Submitted*. <https://arxiv.org/abs/1910.05198>
3. Wall crossings for K-moduli spaces of plane curves (with Kristin DeVleming and Yuchen Liu). *Submitted*. <https://arxiv.org/abs/1909.04576>
4. Compact moduli of elliptic K3 surfaces (with Dori Bejleri). *Submitted*. <https://arxiv.org/abs/1902.10686>
5. The Erdős-Ulam problem, Lang's conjecture, and uniformity (with Lucas Braune and Amos Turchet). **Bulletin of the London Mathematical Society**, *to appear*. <https://arxiv.org/abs/1901.02616>
6. Hyperbolicity and uniformity of varieties of log general type (with Kristin DeVleming and Amos Turchet). **International Mathematics Research Notices**, *to appear*. <https://arxiv.org/abs/1807.05946>
7. Moduli of degree one del Pezzo surfaces (with Dori Bejleri). *Submitted*. <https://arxiv.org/abs/1802.00805>
8. Enumerating Hassett's wall and chamber decomposition of the moduli space of weighted stable curves (with Connor Dubé, Daniel Gershenson, Elaine Hou) **Experimental Mathematics**, Vol 29 (2020) 36-53.
9. Moduli of weighted stable elliptic surfaces and invariance of log plurigenera (with Dori Bejleri). *Submitted*. <https://arxiv.org/abs/1702.06107>

10. Moduli of fibered surface pairs from twisted stable maps (with Dori Bejleri). **Mathematische Annalen** Vol 374 (2019) 1007-1032.
11. Log canonical models of elliptic surfaces (with Dori Bejleri). **Advances in Mathematics** Vol 320 (2017) 210-243.
12. Bounding heights uniformly in families of hyperbolic varieties (with Ariyan Javanpeykar). **New York Journal of Mathematics** Volume 23 (2017) 1791-1808.
13. A generic slice of the moduli space of line arrangements (with Patricio Gallardo). **Algebra and Number Theory**, 12-4 (2018), 751–778.
14. A fibered power theorem for varieties of log general type (with Amos Turchet). **Algebra and Number Theory**, 10-7 (2016), 1581–1600.
15. Twisted derived equivalence and rational points on K3 surfaces (with K. Dasaratha, A. Perry, R. Zhou). **Brauer groups and obstruction problems: Moduli and arithmetic**.
16. Logarithmic stable toric varieties and their moduli (with Sam Molcho). **Algebraic Geometry** (3) 2016, 296-319.

Expository writing

1. Hyperbolicity of varieties of log general type (with Amos Turchet). **Arithmetic geometry of logarithmic pairs and hyperbolicity of moduli spaces**, CRM Short Courses, to appear.

Grants / Visiting Positions

2020-2023 NSF grant DMS-2001408

7/20 - 8/20 International Visitor Program at the University of Sydney Mathematical Research Institute.
Note: Postponed due to COVID-19

2017-2020 NSF Postdoctoral Fellowship

Conference Talks

2019

1. Fall 2019 Algebraic Geometry Northeastern Series (AGNES) @ Boston College
2. Topics on Nevanlinna Theory and Complex Hyperbolicities @ Shanghai Center for Mathematical Sciences at Fudan University [China]
3. Discrete groups and moduli @ Nagoya University [Japan]
4. Diophantine Approximation and Value Distribution Theory @ UQAM [Montreal, Canada]
5. Arithmetic geometry and its connections (AMS sectional) @ University of Hawaii

2018

5. Special session on algebraic geometry (AMS sectional) @ Portland State Univ.
6. Workshop on algebraic surfaces and related topics @ Xiamen University [China]

2016

7. Moduli of Curves workshop @ CIMAT [Guanajuato, Mexico]

2015

- 8. Workshop on Higher Dimensional Algebraic Geometry @ IMPA [Brazil]

Invited Lecture Series / Minicourses

- 2018 Geometry & arithmetic of orbifolds @ UQAM [Montreal, Canada] (Dec. 2018) – Minicourse on hyperbolicity and birational geometry of log pairs

Seminar Talks

2020

- UIC Algebraic Geometry Seminar (Feb)

2019

- Northwestern Algebraic Geometry Seminar (April)

2018

- Princeton Algebraic Geometry Seminar (September)
- UCLA Algebra Seminar (June)
- UCSB Algebraic Geometry Seminar (June)
- Stony Brook Algebraic Geometry Seminar (April)

2017

- University of Massachusetts (Amherst) Algebraic Geometry Seminar (Nov.)
- UCSD Algebraic Geometry Seminar (Nov.)
- University of Washington (Seattle) Algebra Seminar (Oct.)
- Washington University (St. Louis) Algebraic Geometry Seminar (Sep.)
- Princeton University Algebraic Geometry Seminar (Feb.)
- Yale Algebraic Geometry Seminar (Jan.)
- Brown Algebraic Geometry Seminar (Jan.)

2016

- New York University Algebraic Geometry Seminar (Nov.)
- Harvard/MIT Algebraic Geometry Seminar (Nov.)
- Yale Number Theory Seminar (Nov.)
- University of Washington (Seattle) Algebra Seminar (Oct.)
- EPFL (Lausanne) Algebraic Geometry Seminar (Sep.)

2015

- University of Georgia Algebraic Geometry Seminar (Oct.)
- Brown University Algebraic Geometry Seminar (Oct.)
- Chalmers University (Sweden) Algebraic Geometry Seminar (Mar.)

Colloquium Talks

1. UC Irvine (Jan 2020)
2. Rice University (Dec 2019)

Mentoring

Summer 2017 SUMRY (Summer Research for Yale Undergraduates) Mentor – Mentored 3 Yale Undergraduates on an algebraic geometry research project. (resulted in a published paper in **Exper. Math.**) One student now in the math Ph.D. program at UC Berkeley

Outreach Activities

Summer 2018, 2019 Special lecturer for the SIMUW program at the University of Washington (high school summer math program)

2014-2017 Brown Math CoOp (discuss, prepare, and deliver presentations on mathematics and their applications for K-12 students in the Boston & Providence area).

Teaching

Fall 2019 Linear Algebra, Princeton University (Course Head & Instructor)

Fall 2018 Linear Algebra, Princeton University (Instructor)

Fall 2016 Calculus I, Brown University (Instructor)

Fall 2015 Linear Algebra, Brown University (Instructor)

Fall 2014 Calculus II, Brown University (Instructor)

Fall 2013 Calculus II, Brown University (TA)

Fall 2011 Proficiency Algebra, Stony Brook University (Instructor)

Fall 2010 Proficiency Algebra, Stony Brook University (Instructor)

Fall 2009 Precalculus, Stony Brook University (TA)

Conference Organization

Fall 2018 Organizer of Workshop in algebraic geometry @ Princeton

2016-2018 Co-organizer BATMOBYLE conference (Brown & Yale Tropical Geometry)

2014-2016 Cofounder and Organizer of (5) AMS Grad Student Conferences @ Brown University

Service

2013-2016 Cofounder and officer of AMS Graduate Student Chapter @ Brown University

2013-2016 Sheridan Center Certificates I & IV, (Certified Brown University Teaching Consultant)

Awards

2019 Stony Brook University Honors College Commencement Speaker & Alumni Recognition Award

2017 Joukowsky Outstanding Dissertation Prize (Given to 1 PhD graduate in the physical sciences)

2017 Outstanding Teaching Award – Brown Department of Mathematics

Last updated: July 13, 2020