

Benjy Firester

✉ benjyfir@mit.edu
🌐 benjyjf.com



Education

- 2023– **Ph.D. in Mathematics**, *MIT*, Levinson fellow
Geometric Analysis & Complex Geometry advised by [Toby Colding](#) and [Tristan Collins](#)
- 2023 **A.B. & A.M. in Mathematics**, *Harvard University*, *Summa Cum Laude*
Honors thesis advised by [Curt McMullen](#)

Research & Expository

- [1] Benjy Firester and Raphael Tsiamis. Cohomogeneity two Ricci solitons with sub-Euclidean volume. *arxiv.org/abs/2408.13982*, 2024.
- [2] Benjy J. Firester. Mostow rigidity and hyperbolic 3-manifolds, 2023. benjyjf.com/thesis.pdf.
- [3] Benjy J. Firester. Complete Calabi–Yau metrics from smoothing Calabi–Yau complete intersections. *Geometriae Dedicata*, 218(2):46, Feb 2024.
- [4] L. Becker, S. Elliott, B. Firester, S. Gonen Cohen, Michal Pnueli, and Vered Rom-Kedar. *Impact Hamiltonian systems and polygonal billiards*, page 29–66. Mathematical Sciences Research Institute Publications. Cambridge University Press, 2024.

Awards

- 2023 **Mumford Prize**, “*Most promising senior concentrator in mathematics*”
math.harvard.edu/undergraduate-prizes-and-awards-2022-2023
- 2023 **Friends Prize**, *Top two theses present to The Friends of the Harvard Math Department*
Presented senior thesis [2] see: math.harvard.edu/event/special-lecture... and interviewed in the [2023 Harvard Math Newsletter](#)
- 2023 **Hoopes Prize**, \$5,000
Awarded for my senior thesis [2] see: prizes.fas.harvard.edu/.../2022-2023_hoopes...
- 2022 **Phi Beta Kappa**, *Member of Senior 48*
National academic honor society see: thecrimson.com/article/2022/11/15/harvard-pbk-senior-48
- 2022 **Goldwater Scholar**, \$7,500
For my work [3] see: goldwaterscholarship.gov/2022-goldwater-scholars...
- 2022 **Herchel-Smith Fellow**, “*A competitive and generous award*” for Harvard research
Research funding for [2] see: uraf.harvard.edu/.../herchel-smith-summer-fellowship
- 2022 **PRISE Fellow**, *Harvard summer research community for science*
Research funding for [2] see: uraf.harvard.edu/uraf-opportunities/prise
- 2022 **John Harvard Scholar**, *Harvard College Scholar (2019)*
[Dean’s list](#)

- 2018 **Winner of Regeneron Science Talent Search, \$250,000**
Formerly Westinghouse/Intel STS see: societyforscience.org/...regeneron-science-talent-search-2018
- 2017 **Davidson Fellow, \$25,000**
Scientific scholarship winner from the Davidson Institute see: davidsongifted.org/.../2017-fellows

Presentations

- 1/16/2025 **Geometric and Topology seminar, Hebrew University**
Presented Cohomogeneity two Ricci solitons with sub-Euclidean volume [1] see: mathematics.huji.ac.il...firester...cohomogeneity-two-ricci-solitons...
- 1/14/2025 **PDE and Applied Mathematics Seminar, Technion University**
Presented Cohomogeneity two Ricci solitons with sub-Euclidean volume [1]
- 7/8/2024 **Seminario de geometría, University of Granada**
Presented Cohomogeneity two Ricci solitons with sub-Euclidean volume [1] see: wpd.ugr.es/.../collapsing-cohomogeneity-two-ricci-solitons/
- 7/8/2024 **Seminario de geometría, University of Granada**
Presented Cohomogeneity two Ricci solitons with sub-Euclidean volume [1] see: wpd.ugr.es/.../collapsing-cohomogeneity-two-ricci-solitons/
- 4/1/2023 **Harvard Special Lecture for Friends Prize Recipient, Harvard University**
Presented senior thesis [2] see: math.harvard.edu/event/special-lecture...
- 3/29/2023 **Harvard Math Table, Harvard University**
Non-compact Calabi-Yau manifolds [3] see: sites.google.com/.../mathtable...
- 2/23/2023 **Stanford Special Geometry Seminar, Stanford University**
Complete CY metrics from smoothing CY complete intersections
see: mathematics.stanford.edu/...geometry-seminar-complete-calabi-yau-metrics...
- 1/5/2023 **Joint Mathematics Meeting, AMS Contributed Papers in Geometry**
Complete CY metrics from smoothing CY complete intersections
see: meetings.ams.org/math/jmm2023/meetingapp.cgi/Paper/19585
- 11/18/2022 **RTG Partial Differential Equations on Manifolds, Undergraduate Analysis and PDE Seminar, with T. C. Collins**
Complete CY metrics from smoothing CY complete intersections
see: tarheels.live/waves/activities/undergraduate-online-seminar-fall-2022

Teaching

- Spring 2023 **Harvard Math 123, Course Assistant**, taught by [Curt McMullen](#)
Rings, Fields, Galois theory
- Fall 2022 **Harvard Math 101, Course Assistant**, taught by [Curt McMullen](#)
Sets, Groups, and Knots
- Spring 2022 **Harvard Math 123, Course Assistant**, taught by [Mark Kisin](#)
Rings, Fields, Galois theory
- Fall 2021 **Harvard Math 114, Course Assistant**, taught by [Dennis Gaitsgory](#)
Measure, Integration, Banach spaces, Duality, and Fourier analysis
- Spring 2020 **Harvard Math 55b, Course Assistant**, taught by [Joe Harris](#)
Topology and Real/Complex analysis
- Fall 2019 **Harvard Math 55a, Course Assistant**, taught by [Joe Harris](#)
Group theory, Linear algebra, Representation theory

Languages

- Hebrew **Advanced**
Citation in Modern Hebrew from Harvard
- Spanish **Proficient**

Service

- 2023– **PRIMES mentor**, *MIT Math department*
Graduate mentor for prestigious high school mathematics research program see: <https://math.mit.edu/research/highschool/primes/program/>
- 2024– **Referee**
Acta Mathematica
- 2023– **GUMMI mentor**, *MIT Math department*
Graduate mentor for MIT mathematics undergraduates interested in graduate school see: <https://math.mit.edu/gummi/>
- 2023– **Non-resident tutor**, *Winthrop House*
Advisor for undergraduates specializing in STEM and pre-career related disciplines winthrop.harvard.edu/people/benjoy-firester
- 2023 **Math community undergraduate mentor for GIIM**, *Harvard GIIM*
Gender Inclusivity In Mathematics see: harvardgiim.org
- 2019–2022 **Volunteer at JF&CS**
Volunteered helping Holocaust survivors at the [Jewish Family and Children's Service](#)

Affiliations

- 2023– **MIT Mathematics Department**, *PhD Student*
Geometric Analysis & Complex Geometry
- 2018–2023 **Harvard Mathematics Department**, *Bachelors (Summa Cum Laude) and Masters, Course Assistant*
Advised by Curt McMullen, Joe Harris, Cliff Taubes, Peter Kronheimer
- 2019–2023 **The Harvard Advocate**, *Technology editor 2019–2020*
theharvardadvocate.com/
- 2019–2023 **The Harvard Political Review**, *Technology board member*
harvardpolitics.com/
- 2019–2022 **MIT Mathematics Department**, *Research with Tristan Collins*
Funded by [HCRP](#)
- 2020 **D. E. Shaw**, *Systematic Equities*
Quantitative research intern
- 2019 **Microsoft**, *Excel Alpha Team*
Software engineering intern
- 2018 **Weizmann Institute**, *Advised by Vered Rom-Kedar*
International Summer Science Institute research program ([ISSI](#))
- 2012–2018 **Hunter College High School**
- 2017 **Rockefeller University**, *Krueger Group*
Summer Science Research Program ([SSRP](#))

2015–2016 **The Agricultural Research Organization (Volcani)**, *Research advised by Lior Blank and Dani Shtienberg*

Other Scientific Papers and Presentations

- 2020 **The MIT Undergraduate Journal of Economics**, *with Andrew Komo*
[Resource allocation with externalities](#) second best paper award
- 2020 **Journal of Biomedical Optics**, *Gareau et al.*
[Deep learning-level melanoma detection by interpretable machine learning and imaging biomarker cues](#)
- 2018 **Plant Pathology**, *with Dani Shtienberg & Lior Blank*
[Modelling the spatiotemporal dynamics of Phytophthora infestans at a regional scale](#)
doi:10.1111/ppa.12860
- 2018 **The Concord Review**, *Volume 28, No. 3*, Emerson Prize
Mail-Order
- 2017 **Euroblight**, *International conference*
Presentation by Lior Blank on our paper in Plant Pathology see: [Euroblight programme](#)