Benjy Firester

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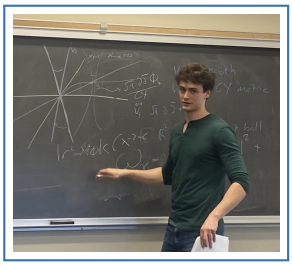

Education

2023– **Ph.D. in Mathematics**, *MIT*, Levinson fellow, Mathworks fellow 2023-2025
Geometric Analysis & Complex Geometry advised by Toby Colding and Tristan Collins
Levinson Fellowship 2024, Mathworks Fellowship 2023-2025

2023 **A.B. & A.M. in Mathematics**, *Harvard University*, *Summa Cum Laude*
Honors thesis advised by Curt McMullen

Research & Expository

[1] Tristan C. Collins and Benjy Firester. On a general class of free bounday Monge-Ampère equations. *arXiv:2508.05551*, 2025.

[2] Benjy Firester, Raphael Tsiamis, and Yipeng Wang. Uniqueness of cylindrical tangent cones $C_{p,q} \times \mathbb{R}$. *arXiv:2507.22373*, 2025.

[3] Benjy Firester and Raphael Tsiamis. Cohomogeneity two Ricci solitons with sub-Euclidean volume. *arxiv.org/abs/2408.13982, Submitted*, 2024.

[4] Benjy Firester. Mostow rigidity and hyperbolic 3-manifolds, 2023. benjyjf.com/thesis.pdf.

[5] Benjy Firester. Complete Calabi–Yau metrics from smoothing Calabi–Yau complete intersections. *Geometriae Dedicata*, 218(2):46, Feb 2024.

[6] 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 [4] 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 [4] 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 [5] see: goldwaterscholarship.gov/2022-goldwater-scholars...

2022 **Herchel-Smith Fellow**, *"A competitive and generous award" for Harvard research*
Research funding for [4] see: uraf.harvard.edu/.../herchel-smith-summer-fellowship

2022 **PRISE Fellow**, *Harvard summer research community for science*
Research funding for [4] 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

6/11/2025 **Workshop on Topics in Differential Geometry**, *Brown University*
Presented On a general class of free boundary Monge-Ampère equations [1] see: brown.edu/christine-breiner-brown/workshop-2025

5/02/2025 **Pure math graduate student seminar (PUMAGRASS)**, *MIT*
Presented On a general class of free boundary Monge-Ampère equations [1] see: https://math.mit.edu/pumagrass/

4/22/2025 **Geometric Analysis Seminar**, *Rutgers University*
Presented On a general class of free boundary Monge-Ampère equations [1] see: math.rutgers.edu/.../free-boundary-monge-ampere-and-optimal-transport-equations

4/19/2025 **AMS New England Grad Student Conference (PDE)**, *Brown University*
Presented On a general class of free boundary Monge-Ampère equations [1] see: sites.google.com/brown.edu/amsgradconference/talks

1/22/2025 **Calculus of Variations and PDE's in Geometric Analysis**, *Sapienza Università di Roma*
Poster presentation of Cohomogeneity two Ricci solitons with sub-Euclidean volume [3] see: sites.google.com/uniroma1.it/cvga2025

1/16/2025 **Geometry and Topology Seminar**, *Hebrew University*
Presented Cohomogeneity two Ricci solitons with sub-Euclidean volume [3] 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 [3]

7/8/2024 **Seminario de geometría**, *University of Granada*
Presented Cohomogeneity two Ricci solitons with sub-Euclidean volume [3] 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 [3] see: wpd.ugr.es/.../collapsing-cohomogeneity-two-ricci-solitons/

4/1/2023 **Harvard Special Lecture for Friends Prize Recipient**, *Harvard University*
Presented senior thesis [4] see: math.harvard.edu/event/special-lecture...

3/29/2023 **Harvard Math Table**, *Harvard University*
Non-compact Calabi-Yau manifolds [5] 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

2025 **UROP mentor**, *MIT Math department*
Graduate mentor for prestigious Undergraduate Research Opportunity urop.mit.edu/

2023-2024 **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/benjy-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

Last updated: August 8, 2025