Benjy Firester

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Citizenship: USA, Israel, Portugal
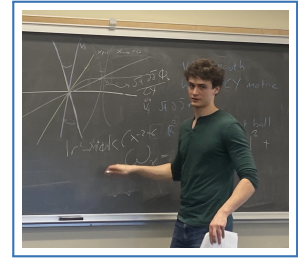
Education

2023– **Ph.D. in Mathematics**, *MIT*
Geometric Analysis & Complex Geometry

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

Research & Expository

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

[2] Benjy J. Firester. Complete Calabi-Yau metrics from smoothing Calabi-Yau complete intersections, 2022. *arXiv:math/2208.04279*.

[3] L. Becker, S. Elliott, B. Firester, S. Gonen Cohen, M. Pnueli, and V. Rom-Kedar. Impact Hamiltonian systems and polygonal billiards. *Proceedings of the MSRI 2018 Fall Semester on Hamiltonian Systems*, 2020. *arXiv:math/2001.03726*.

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 [1] 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 [1] 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**
For my work [2] see: goldwaterscholarship.gov/2022-goldwater-scholars...

2022 **Herchel-Smith Fellow**, *"A competitive and generous award" for Harvard research*
Research funding for [1] see: uraf.harvard.edu/.../herchel-smith-summer-fellowship

2022 **PRISE Fellow**, *Harvard summer research community for science*
Research funding for [1] 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

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

2023   **Harvard Math Table**
       Non-compact Calabi-Yau manifolds [2] see: sites.google.com/.../mathtable...

2023   **Stanford Special Geometry Seminar**
       Complete CY metrics from smoothing CY complete intersections see: mathematics.stanford.edu/...geometry-seminar-complete-calabi-yau-metrics...

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

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   **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*

Misc.

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: June 6, 2023