Alex Pieloch – Curriculum Vitae

Citizenship

United States of America

Contact Information

Mailing Address: Massachusetts Institute of Technology
Department of Mathematics
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Cambridge, MA 02139

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Employment

Massachusetts Institute of Technology — Cambridge, MA
NSF Postdoctoral Fellow and Instructor of Mathematics — July 2022 - Present

Geometric Data Analytics — Durham, NC
Intern - research and data analytics — October 2014-June 2016

Education

Columbia University — New York, NY
Ph.D in Mathematics — August 2017-May 2022
M.Phil in Mathematics — August 2017-May 2021
M.A. in Mathematics — August 2017-February 2019
GPA: 4.00
Advisor: Mohammed Abouzaid

Duke University — Durham, NC
B.S. in Mathematics — August 2013-May 2017
GPA: 4.00, Honors, Summa cum laude

Honors and Awards

MIT Mathematics Charles and Holly Housman Teaching Award (May 2024)

NSF Postdoctoral Research Fellowship (June 2023-Present)

Columbia Mathematics Graduate Student Teaching Award (May 2021)

Columbia University Peter and Catherine Klein Fellowship (August 2018)

NSF Graduate Research Fellowship (August 2017 - May 2022)

Duke Mathematics Julia Dale Award for overall excellence (May 2017)

Phi Beta Kappa (May 2016)

Publications

Alex Pieloch. Fundamental groups of rationally connected symplectic manifolds. https://arxiv.org/abs/2212.07882, December 2022

Alex Pieloch. Sections and unirulings of families over $\mathbb{P}^1$. *Geom. Funct. Anal*, 10(1):198–218, 2016

Alex Pieloch. On the topology of moduli spaces of real algebraic curves. http://arxiv.org/abs/1801.06210, January 2018

Abraham Smith, Paul Bendich, John Harer, Alex Pieloch, and Jay Hineman. Supervised learning of labeled pointcloud differences via cover-tree entropy reduction. https://arxiv.org/abs/1702.07959, February 2017

Paul Bendich, J. S. Marron, Ezra Miller, Alex Pieloch, and Sean Skwerer. Persistent homology analysis of brain artery trees. *Ann. Appl. Stat.*, 10(1):198–218, 2016

Invited Talks

Rutgers Symplectic Summer School 2024, Rutgers University, August 22, 2024

MIT Symplectic Seminar, MIT, April 11, 2024

Low-Dimensional Topology, Gauge Theory, and Symplectic Geometry Seminar, Stony Brook University and SCGP, April 4, 2024

Symplectic Geometry Seminar, Stanford University, February 26, 2024

Harvard-MIT Algebraic Geometry Seminar, MIT, October 10, 2023

3CinG Workshop: Symplectic versus algebraic geometry, University of Warwick May 31, 2022

Topology and Geometry Seminar, Hebrew University of Jerusalem, April 12, 2022

USC Topology Seminar, University of Southern California, April 4th, 2022

Boston Informal Symplectic Seminar, Massachusetts Institute of Technology, February 4, 2022

Low-Dimensional Topology, Gauge Theory, and Symplectic Geometry Seminar, Stony Brook University and SCGP, January 31, 2022

Symplectic Geometry Seminar, Princeton University and IAS, December 6, 2021

Symplectic Zoominar, CRM-Montréal, Princeton/IAS, Tel Aviv, and Paris, November 5, 2021

Western hemisphere virtual symplectic seminar, October 15, 2021

Symplectic Geometry Seminar, Stanford University, October 4, 2021

Geometry Seminar, Duke University, April 10, 2017

Data Seminar, Duke University, September 4, 2014

Organizer

MIT Mathematics Directed Reading Program
Chief organizer — Winter 2023-2024
Organizational committee member — Winter 2022-2023

Gromov-Witten theory and virtual fundamental cycles
Organizer of reading seminar at Columbia University — Spring 2022

Symplectic Topology Reading Seminar
Organizer of reading seminar at Columbia University — Fall 2018

Outreach

MIT Directed Reading Program mentor — Winter 2023-2024

MIT PRIMES mentor — 2023

MIT Directed Reading Program mentor — Winter 2022-2023

Columbia University Science Honors Program instructor — 2019-2021

Teaching

Differential Equations - Recitation
MIT — Spring 2024

Introduction to Topology
MIT — Fall 2023

Topology
Columbia University – Science Honors Program — Fall 2021

Multivariable Calculus
Columbia University — Summer 2021

Topology
Columbia University – Science Honors Program — Spring 2021

Topology
Columbia University – Science Honors Program — Fall 2020

College Algebra
Columbia University — Fall 2020

Topology
Columbia University – Science Honors Program — Spring 2020

Topic in Topology