

Patrick Lei

📍 Chestnut Hill, MA ✉ patrick.lei@bc.edu 🔗 plei99.github.io

Positions Held

Boston College, Visiting Assistant Professor Chestnut Hill, MA
July 2025 – present

Education

Ph.D. Columbia University, Mathematics New York, NY
Advisor: Chiu-chu Melissa Liu Sept 2020 – May 2025

B.S. University of Massachusetts Amherst, Mathematics, Computer Science Amherst, MA
Advisor: Paul Hacking Sept 2017 – May 2020

Publications and Preprints

Higher genus Gromov-Witten theory of one-parameter Calabi-Yau threefolds II: Feynman rule and anomaly equations Dec 2024
Patrick Lei
arxiv.org/abs/2412.06527

Higher-genus Gromov-Witten theory of one-parameter Calabi-Yau threefolds I: Polynomiality Sept 2024
Patrick Lei
arxiv.org/abs/2409.11659

MSP theory for smooth Calabi-Yau threefolds in weighted \mathbb{P}^4 Sept 2024
Patrick Lei
arxiv.org/abs/2409.11660

Invited Talks

Algebraic Geometry Seminar University of Maryland
Sept 2025

Mathematics-String Theory Seminar Kavli IPMU
June 2025

AMS Central Sectional Meeting University of Kansas
Special session on enumerative geometry of moduli spaces in algebraic geometry Mar 2025

Algebraic Geometry Seminar Columbia University
Jan 2025

Program "Recent developments in higher genus curve counting" Simons Center for Geometry and Physics
Gave two lectures on the Givental formalism and one lecture on Mixed-Spin-P fields Jan 2025 – Jan 2025

Online Geometry and Physics Seminar IASM, Zhejiang University
Dec 2024

Enumerative Geometry Seminar Columbia University
Oct 2024

Algebraic Geometry Seminar University of Illinois Urbana-Champaign
Sept 2024

Seminars Organized

| | |
|---|------------------------------------|
| Learning seminar on computations in enumerative geometry | Columbia University Spring 2025 |
| Learning seminar on enumerative invariants and birational transformations | Columbia University Spring 2024 |
| Learning seminar on geometric representation theory | Columbia University Spring 2022 |
| Learning seminar on category \mathcal{O} | Columbia University Fall 2021 |
| Learning seminar on intersection theory | Columbia University Spring 2021 |
| Learning seminar on geometric invariant theory | Columbia University Fall 2020 |

Teaching

| | |
|---|------------------------------------|
| Linear Algebra | Boston College Fall 2025 |
| Linear Algebra | Columbia University Summer 2024 |
| Undergraduate seminar on quantum information theory | Columbia University Spring 2024 |
| Undergraduate seminar on toric varieties | Columbia University Fall 2023 |
| Calculus II | Columbia University Spring 2023 |