Howard Beck

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Education

Northwestern University, Evanston, IL — expected May 2030

Mathematics PhD student

Massachusetts Institute of Technology, Cambridge, MA — May 2025

Bachelor of Science in Pure Mathematics
Humanities Concentration in Philosophy
GPA: 4.8/5.0
Relevant coursework: Graduate Topology Seminar (Kan Seminar), Algebraic Topology I and II, Motivic Homotopy Theory (at Harvard)

BASIS Tucson North, Tucson, AZ — May 2021

High school diploma with High Honors
GPA: 3.99/4.0 (unweighted), 4.76/4.0 (weighted)

Research Interests

Chromatic homotopy theory
Equivariant homotopy theory
Algebraic K-theory

Expository Talks

Selick on Odd p-torsion in $\pi_*(S^3)$ — May 9th, 2025
MIT Kan Seminar

Adams on the J-homomorphism — March 31th, 2025
MIT Kan Seminar

Chromatic Blueshift and Redshift in Stable Homotopy Theory — March 5th, 2025
MIT/Harvard Zygotop Seminar

Borel on the mod 2 Cohomology of Homogeneous Spaces — February 7th, 2025
MIT Kan Seminar

The Quillen-Lichtenbaum Conjectures — January 31st, 2025
MIT Directed Reading Program Symposium, with Atticus Wang and Mohit Hulse

The Slice, Reduction, and Gap Theorems of HHR — December 3rd, 2024
MIT/Harvard Babytop Seminar

Curve Shortening Flow — February 3rd, 2023
MIT Directed Reading Program Symposium, with Jackson Flowers

Positions

Visiting Student — June 23 - August 22, 2025
Max-Planck-Institut für Mathematik, through MIT MISTI-Germany — Bonn, Germany

Undergraduate Assistant for 18.02/Multivariable Calculus — Spring 2024
MIT Department of Mathematics, taught by David Jerison — Cambridge, MA

Mentor for 18.100A/Real Analysis — Spring 2023
MIT Undergraduate Mathematics Association, one-on-one mentor for a student in the class — Cambridge, MA

Service

Algebraic Topology II Reading Group — Fall 2024
Co-organizer, with Professor Haynes Miller — Cambridge, MA

- Advertised reading group and collected interest
- Created online space and communication listserv for the group

Service (continued)

Playing Games with Infinity — Spring 2022

Teacher, Educational Studies Program, MIT — Cambridge, MA
Through High School Studies Program

- Taught high schoolers about ordinals and cardinals with Isabel McGuigan and Katherine Taylor

Languages

Human: English (native), Spanish (also native), French (conversational)
Computer: LaTeX, Python, MATLAB, Java, JavaScript, Lua, HTML