Myungsin Cho

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Appointments

Columbia University
Ritt Assistant Professor *August 2025 — Current*

Education

Indiana University, Bloomington
Ph.D. in Mathematics; Advisor: Michael Mandell *July 2025*

Seoul National University
M.S. in Mathematics; Advisor: Otto van Koert *August 2018*

Korea Aerospace University
B.S. in Engineering (with 2 publications in engineering journals) *August 2015*

Research Interest

My research focuses on stable homotopy theory and its interactions with other fields, particularly algebraic K-theory, number theory, equivariant algebra and combinatorics.

Publication

K-theoretic Tate-Poitou duality at prime 2, *Advances in Mathematics*, 477 (2025), Paper No. 110370, 26 pp.

Algebraic extension of Tambara functors. (in preparation)

Kobayashi hyperbolicity on analytic stacks with G. Cho. (in preparation)

Homological trace methods for real topological Hochschild homology with T. Gerhardt, L. Keenan, J. Moreno, J.D. Quigley. (in preparation)

Realizability of compatible pairs with D. Chan, D. Mehrle, P. Sanchez Ocal, A. Osorno, B. Szczesny, and P. Verdugo. (in preparation)

Awards and Honors

Outstanding Thesis Award, Indiana University *2025*
AMS graduate student travel award, AMS *2025*
College of Arts and Sciences Dissertation Research Fellowship, Indiana University *2024-2025*
Glenn Schober Award, Indiana University *2023*
Robert E. Weber Memorial Award, Indiana University *2019*
James P. Williams Memorial Award, Indiana University *2019*
College of Arts and Sciences Fellowship, Indiana University *2019*
Anna L. Homquest Fellowship, Indiana University *2019*
Lecture and Research Scholarship, Seoul National University *2016*
Silver Awards in 33rd University Student Contest of Mathematics, Korean Mathematical Society *2014*

Talk

Invited Talk

Indiana University, Algebra seminar *April 2025*

AMS 2025 Spring Central Sectional Meeting
Special Session on Homotopy theory and algebraic K-theory *March 2025*

Columbia University, Topology seminar *October 2024*

University of Virginia, Topology seminar *October 2024*

Indiana University, Topology seminar *September 2024*

Ohio State University, Homotopy seminar *September 2024*

FRG Virtual seminar *January 2024*

Contributed Talk

MathFest 2024, Contributed session: Advances in algebraic topology, Indianapolis *August 2024*

BUGCAT Conference, Binghamton University *November 2023*

Scissors Congruence, Algebraic K-Theory, and Trace Methods, Indiana University *June 2023*

Student Seminar in Indiana University

Equivariant stable homotopy theory *Fall 2023*
Spectra and stable homotopy theory *May 2023*
On the Quillen-Lichtenbaum conjecture *April 2021*
Lower K-theories *Janunary 2021*
Galois descent of algebraic K-theory of Witt vectors of finite length *December 2020*
On the cyclotomic trace for finite $W(k)$-algebras *February 2020*
Topological cyclic homology and cyclotomic trace *October 2019*

Student Seminar in Seoul National University

Rational Homotopy Theory *May 2019*
Higher Category Theory *January 2018*
Homotopy and Cohomology *August 2017*
Introduction to Homotopy Theory *January 2017*
Towards Morse Homology *August 2016*
Introduction to Differential Topology *Febuary 2016*
A Brief Introduction to Simplicial Homology *August 2015*

Mini-course

Homotopy theory and homological algebra, Enjoying Math (youtube channel) *Winter 2022*

Teaching/Mentoring Experience

Indiana University Bloomington

Teaching
M311 Calculus 3 *Spring 2024*
M311 Calculus 3 *Fall 2023*
M211 Calculus 1 (Primary instructor) *Fall 2022*
M311 Calculus 3 *Spring 2022*
M106 Mathematics of decision and beauty *Spring 2021*
M106 Mathematics of decision and beauty *Fall 2020*
M106 Mathematics of decision and beauty *Summer 2020*
M212 Calculus 2 *Fall 2019*
M311 Calculus 3 *Fall 2019*

Mentoring Directed Reading Program (slides available on website)

· Project title: Exponential law in vector spaces - glimpse to adjoint isomorphism theorem *Fall 2023*
Book: *An introduction to homological algebra* by J. Rotman
· Project title: Simplicial homotopy theory *Spring 2023*
Book: *Simplicial homotopy theory* by P. Goerss and R. Jardine
· Project title: A Ring Structure on Vector Bundles *Fall 2022*
Book: *Algebraic Topology from a Homotopical Viewpoint* by M. Aguilar, S. Gitler and C. Prieto

Seoul National University

Teaching
033.002 Calculus 2 *Spring 2018*
033.001 Calculus 1 *Summer 2017*
033.001 Calculus 1 *Spring 2017*
033.002 Calculus 2 *Fall 2016*
033.001 Calculus 1 *Spring 2016*
033.002 Calculus 2 *Fall 2015*

Undergraduate tutoring program
· Introduction to Analysis 1 *Fall 2016*

Korea Aerospace University

Undergraduate tutoring program
· Linear algebra *Fall 2014*

Service and Organizational Activities

Seminar Organization

Topology Seminar, Indiana University *2024 - 2025*
GSTGC 2025, Indiana University *April 2025*
Reading seminar on equivariant stable homotopy theory, Indiana University *Fall 2023*
Reading seminar on stable homotopy theory, Indiana University *May 2023*
Graduate student homotopy theory seminar, Indiana University *Fall 2021*
Graduate student homotopy theory seminar,, Indiana University *Spring 2021*
Mathemaniac, (graduate student biannual seminar), Seoul National University *2015 - 2018*

Reference

Michael Mandell, Indiana University Bloomington, mmandell@iu.edu
Ayelet Lindenstrauss, Indiana University Bloomington, alindens@iu.edu
Andrew Blumberg, Columbia University, andrew.blumberg@columbia.edu
Vladimir Eiderman, Indiana University Bloomington, veiderma@iu.edu (teaching)
Ji-Ping Sha, Indiana University Bloomington, jsha@iu.edu (teaching)