

Ayush Khaitan

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Research Interests

Automated reasoning and machine learning, combinatorics, conformal and CR geometry, and Ricci flow.

Employment

Rutgers University, New Brunswick

Hill Assistant Professor

2023–Present

Education

Penn State University

Ph.D., Mathematics

University Park, PA

2017–2023

Birla Institute of Technology and Science

B.E., Mechanical Engineering

Pilani, India

2011–2015

SJI International

International Baccalaureate, Keppel Magus scholar from India

Singapore

2008–2010

Publications

2022: The weighted ambient metric with [Jeffrey S. Case](#), SIGMA **18** (2022), 086, 21 pages.
[Journal Link](#)

2022: GJMS operators of smooth metric measure spaces (submitted). [arXiv link](#)

2022: Weighted renormalized volume coefficients(submitted). [arXiv link](#)

2023: Ambient metric for manifolds with density and the Ricci flow (Under revision at Advances in Mathematics)

[arXiv link](#).

2024: Computing renormalized curvature integrals on Poincaré-Einstein manifolds with [Jeffrey Case](#), [Yueh-Ju Lin](#), [Aaron Tyrell](#) and [Wei Yuan](#) (submitted). [arXiv link](#).

Research activities

Co-organizer: JMM Panel on the use of AI tools to aid Mathematics research. [Panel website](#). Joint Mathematics Meetings, 2025 in Seattle

Co-organizer: LLMs in Mathematics research group, Rutgers University. [Research group website](#). 2023–Present

Co-organizer: Complex geometry and Harmonic analysis seminar, Rutgers University. [Seminar](#)

[website](#). 2024–Present

Co-organizer: Special session on recent developments in geometric analysis, AMS Eastern Sectional Meeting 2024, Howard University, Washington D.C. [Meeting website](#). April, 2024

Organizer: LLMs in Mathematics seminar, Rutgers University. 2024–Present

Teaching

Calculus I: Penn State University, Multiple semesters

Calculus II: Penn State University, Multiple semesters

Linear Algebra: Penn State University, One semester

Plane trigonometry: Penn State University, One semester

Linear algebra: Rutgers University, one semester

History of Mathematics: Rutgers University, one semester

Calculus for engineers: Rutgers University, one semester

Invited Talks

2022: Geometry, Topology and Dynamical Systems seminar, University of Texas at Dallas

2022: Geometry Luncheon seminar, Penn State University

2023: Geometric Analysis Seminar, Rutgers University

2023: Nonlinear Analysis Seminar, Rutgers University

2023: Geometry, Topology and Dynamical Systems seminar, University of Texas at Dallas

2023: Geometry/Topology seminar, Stony Brook University

2024: Colloquium, Rutgers University, Newark

2025: Geometry and Topology seminar, University of Washington, St Louis

2025: Special session on geometric analysis and PDEs, AMS Eastern Sectional Meeting, 2025, Hartford, CT

Awards

2008: Keppel Magus Scholarship (\$40,000), IB Diploma in Singapore, one scholar from Calcutta, India

2009: Bronze medal, Singapore Math Olympiad

2017: Distinguished Graduate Fellowship, Penn State University, given to 10 incoming graduate students across all departments

2022: Pritchard Dissertation Fellowship, Penn State University, given to 2 graduating PhD students in the Mathematics department