

Gopal Goel

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Education

Massachusetts Institute of Technology

Expected Graduation Spring 2025

Undergraduate majoring in Mathematics and Physics. GPA: 5.0/5.0

Selected Coursework.....

Relativistic Quantum Field Theory I and II (8.323/8.324), General Relativity (8.962), Statistical Mechanics I (8.333), Experimental Physics I (8.13), Differential Analysis I (18.155), Algebraic Topology I (18.905), Stochastic Calculus (18.676), Topics in Stochastic Processes (18.677), Graph Theory and Combinatorics (18.225)

Selected Awards

International Physics Olympiad (IPhO) Gold Medal, Team USA: 2018

International Math Olympiad (IMO) Silver Medal, Team USA: 2020

Putnam Honorable Mention: 2021, 2022

Regeneron Science Talent Search 4th place: 2021

USA Math Olympiad (USAMO) Winner: 2020, 2021

USA Physics Olympiad (USAPhO) Gold Medal: 2017, 2018, 2019, 2021

Publications

- Finite and half-infinite solenoids and the Aharonov-Bohm effect.
J. Franklin and G. Goel, *American Journal of Physics*, 2019, **87**, 862–867
- Discrete Derivative Asymptotics of the β -Hermite Eigenvalues.
G. Goel and A. Ahn, *Combinatorics, Probability and Computing*, 2019, **28**, 657–674. [arXiv:1809.06804](#).
- Critical groups of iterated cones.
G. Goel and D. Perkinson, *Linear Algebra and its Applications*, 2019, **567**, 138–142. [arXiv:1809.07379](#).
- A Quantized Analogue of the Markov–Krein Correspondence.
G. K. Goel and A. Yao, *International Mathematics Research Notices*, 2022. [arXiv:2011.10724](#).
- Counting weighted maximal chains in the circular Bruhat order.
G. Goel et al., *Journal of Combinatorial Theory, Series A*, 2023, **195**, 105709. [arXiv:2108.03504](#).

Ongoing Projects

- Approximating unobserved dynamics via neural networks.
Mentors: Prof. Jörn Dunkel and Alasdair Hastewell
- Effective Field Theory for Superfluids.
With Owen Dugan, Mentor: Prof. Hong Liu
- Sparse Majority Dynamics.
Mentors: Ashwin Sah and Mehtaab Sawhney

Last updated June 18, 2023