Gopal Goel

gopal.krishna.goel@gmail.com • gopalkgoel.github.io

Education

Massachusetts Institute of Technology **Expected Graduation Winter 2024**

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), Theory of Solids I (8.511), 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), Quantum Information Science (18.436), Foundations of Computer Security (6.1600), Operating System Engineering (6.1810), Reinforcement Learning: Foundations And Methods (6.7920), Distributed Systems (6.5840)

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, 2023

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

- Effective Field Theory for Superfluids.
  With Owen Dugan, Mentor: Prof. Hong Liu
- Sparse Majority Dynamics.
  Mentors: Ashwin Sah and Mehtaab Sawhney

Last updated March 18, 2024