

Elena Kim

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Education

Massachusetts Institute of Technology <i>PhD candidate, advised by Semyon Dyatlov</i>	2021 – Present Cambridge, MA, USA
Pomona College <i>Bachelor of Arts in Mathematics</i>	2017–2021 Claremont, CA, USA

Research Interests

Quantum chaos, microlocal analysis, dynamical systems

Publications

- *Bounds on Eigenfunctions of Quantum Cat Maps*, with Robert Koirala; *Physica Scripta* (2023); [arXiv:2302.08608](#)
- *The strongly Leibniz property and the Gromov–Hausdorff propinquity*, with Konrad Aguilar, Stephan Ramon Garcia, Frederic Latremoliere; *Journal of Mathematical Analysis and Applications* (2023); [arXiv:2301.05692](#)
- *Spectral Analysis of the Kohn Laplacian on Lens Spaces*, with Colin Fan, Ian Shors, Zoe Plzak, Samuel Sottile, and Yunus E. Zeytuncu; *The Journal of Geometric Analysis* (2023); [arXiv:2206.14250](#)
- *A Tauberian Approach to an Analog of Weyl’s law for the Kohn Laplacian on Compact Heisenberg Manifolds*, with Colin Fan and Yunus E. Zeytuncu; *Complex Analysis and its Synergies* (2022); [arXiv:2107.07419](#)
- *Frobenius-Rieffel norms on finite-dimensional C^* -algebras*, with Konrad Aguilar and Stephan Ramon Garcia, *Operators and Matrices* (2022); [arXiv:2112.13164](#)
- *Constructions of Generalized MSTD Sets in Higher Dimensions*, with Steven J. Miller, *Journal of Number Theory* (2021); [arXiv:2009.02758](#)
- *Sobolev and Schatten estimates for the complex Green operator on spheres*, with W. Jacob Ogden, Tommie Reerink and Yunus E. Zeytuncu, *New York Journal of Mathematics* (2020); [arXiv:1910.09674](#)

Research Talks

Seminar: Scattering Resonances, General Relativity and Hyperbolic Dynamics <i>Oberwolfach</i>	November 2023
AMS New England Graduate Student Conference <i>Brown University</i>	April 2024

Other Experience

Tutor at Boston Pre-Release Center <i>Weekly tutoring sessions in prealgebra at local correctional facility</i>	February 2023 – Present
Pure Math Graduate Student Seminar organizer	September 2022 – May 2023
Academic mentor for $\sqrt{\text{mathroots}}$ <i>Led problem solving sessions at an MIT summer program for high school students from underrepresented backgrounds</i>	Summer 2022
Mentor for Directed Reading Program <i>Advised pairs of undergraduate students through textbook readings</i>	January 2022, 2023, 2024

Awards

NSF Graduate Research Fellowship	2021-2026
Ida M. Green Fellowship <i>Internal MIT fellowship granted to a handful female first-year graduate students across all departments</i>	2021 – 2022
Alice T. Schafer Mathematics Prize <i>Top undergraduate prize awarded by the AWM</i>	2021