

Zhenhao Li

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Research interests

Mathematical physics, microlocal analysis, dynamical systems, PDEs, spectral theory

Education

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| Massachusetts Institute of Technology, Ph.D. student | 2021-present |
| Yale University, dual B.S./M.S. in Mathematics | 2017-2021 |

Research Papers

7. *2D internal waves in an ergodic setting*, preprint; [arXiv:2301.12365](https://arxiv.org/abs/2301.12365)
6. *Weyl laws for open quantum maps*, to appear in Journal of Spectral Theory; [arXiv:2202.10591](https://arxiv.org/abs/2202.10591)
5. *Uniqueness of excited states to $-\Delta u + u - u^3 = 0$ in three dimensions*, with Alex Cohen and Wilhelm Schlag, to appear in Analysis & PDEs; [arXiv:2101.08356](https://arxiv.org/abs/2101.08356)
4. *Dynamic transitions of the Swift-Hohenberg equation with third-order dispersion*, Discrete and Continuous Dynamical Systems-B, **26**(2021), 6069-6090; [arXiv:2007.15722](https://arxiv.org/abs/2007.15722)
3. *Certain hyperbolic regular polygonal tiles are isoperimetric*, with Jack Hirsch, Jackson Petty, and Christopher Xue, Geometriae Dedicata, **214**(2021), 65–77; [arXiv:1910.12966](https://arxiv.org/abs/1910.12966)
2. *The Optimal Double Bubble for Density r^p* , with Jack Hirsch, Jackson Petty, and Christopher Xue, Rose-Hulman Undergraduate Mathematics Journal, **22**(2021); [arXiv:1908.10766](https://arxiv.org/abs/1908.10766)
1. *Optimal monohedral tilings of hyperbolic surfaces*, with Leonardo Di Giosia, Jahangir Habib, Jack Hirsch, Lea Kenigsberg, Dylanger Pittman, Jackson Petty, Christopher Xue, Weitao Zhu, preprint; [arXiv:1911.04476](https://arxiv.org/abs/1911.04476)

Talks

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| Conference ‘MATH 15’, Weyl laws for open quantum maps | 2022 |
| Tsinghua microlocal analysis seminar, Weyl laws for open quantum maps | 2022 |
| Indiana REU conference, Dynamic transitions of the Swift-Hohenberg equation with third-order dispersion | 2021 |
| Joint Math Meetings, Certain hyperbolic regular polygonal tiles are isoperimetric | 2019 |
| Young Mathematicians Conference, The Optimal Double Bubble for Density r^p | 2019 |

Teaching

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| 18.155 (Differential Analysis I, MIT), teaching assistant | Fall 2022 |
| 18.100A (Real Analysis, MIT), teaching assistant | Fall 2022 |
| RSI mentor for two projects, see abstracts | Summer 2022 |
| MIT directed reading program on dynamical systems | Winter 2022 |
| MATH305 (Real Analysis, Yale), grader | Spring 2021 |
| MATH310 (Complex Analysis, Yale), grader | Fall 2020 |
| MATH270 (Set Theory, Yale), grader | Spring 2020 |
| MATH300 (Topics in Analysis, Yale), grader | Fall 2019 |

Awards

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| NSF GRFP Honorable Mention | 2021 |
| George Beckwith prize in astronomy or mathematics (Yale) | 2021 |