Robert (Hsiang) Chang

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Research Interests

Microlocal analysis, complex analysis, mathematical physics

Appointments

2025–	Assistant Professor	New College of Florida
2024–2025	Visiting Assistant Professor	Rhodes College
2022–2024	Visiting Assistant Professor	Reed College
2019–2022	Zelevinsky Research Instructor	Northeastern University

Education

June 2019	Ph.D. in Mathematics	Northwestern University
May 2013	B.A. in Mathematics	University of Pennsylvania

Papers and Preprints

8. Hamiltonian Grauert tubes for Schrödinger operators
   In preparation

7. (with A. Moll) Fractional Gaussian fields in geometric quantization and semi-classical analysis of coherent states
   In preparation

6. (with P. Zhou) Slepian-type theorem for Toeplitz operators
   In preparation

5. (with A. Rabinowitz) Szegő kernel asymptotics and concentration of Husimi distributions of eigenfunctions
   Submitted. arXiv:2202.14013

4. (with A. Rabinowitz) Scaling asymptotics for Bergman kernels on Grauert tubes
   J. Geom. Anal. **33** (2023), no. 2, paper no. 60. arXiv:2107.05105

3. (with S. Zelditch) Log-scale equidistribution of nodal sets in Grauert tubes
   J. Math Pures Appl. (9) **129** (2019), 213–241. arXiv:1803.03579

2. (with S. Zelditch) Log-scale equidistribution of zeros of quantum ergodic eigensections
   Ann. Henri Poincarè **19** (2018), no. 12, 3783–3814. arXiv:1708.02333

1. Quantum ergodicity of Wigner induced spherical harmonics
   J. Spectr. Theory **8** (2018), no. 2, 523–540. arXiv:1512.03138

Invited Talks

Oct 2024	*AMS Sectional Meeting*, University of California, Riverside
Nov 2023	*Mathematical Sciences Colloquium*, Lewis & Clark
Nov 2022	*Bergman Kernels in Microlocal Analysis and Mathematical Physics*, CIRM
June 2022	*Workshop on Complex Analysis and Geometry*, Universität Duisburg-Essen
Jan 2022	*Tsinghua–BIMSA Analysis & PDE Seminar* (Zoom)
Jan 2020	*Math Club Seminar*, Northeastern University
Sept 2019	*Analysis-Geometry Seminar*, Northeastern University
July 2018	*Around Quantum Chaos*, Banff International Research Station
Sept 2017	*AMS Sectional Meeting*, University of Central Florida
July 2017	*The Third Symposium on Scattering and Spectral Theory*, UFSC
Aug 2016	*Probabilistic Methods in Spectral Geometry and PDE*, CRM
May 2016	*Quantum Mechanics Meets Symplectic Topology Workshop*, Tel Aviv University

Teaching

At New College of Florida

Fall 2025	Math 2442: Probability I
	Math 2443: Probability II
	Math 4226: Analysis I

At Rhodes College

Spring 2025	Math 122: Integral Calculus
	Math 223: Multivariable Calculus
	Math 261: Linear Algebra
Fall 2024	Math 112: Differential Calculus
	Math 116: Calculus with Business Applications
	Math 251: Differential Equations

At Reed College

Spring 2024	Math 111: Calculus
	Math 311: Complex Analysis
Fall 2023	Math 321: Real Analysis
Spring 2023	Math 112: Intro to Analysis
	Math 411: Topics in Advanced Analysis (Microlocal Analysis)
Fall 2022	Math 111: Calculus
	Math 321: Real Analysis

At Northeastern University

Spring 2022	Math 2331: Linear Algebra
Fall 2021	Math 1342: Honors Calculus II for Sci/Engr
	Math 1342: Calculus II for Sci/Engr
Spring 2021	Math 5102: Analysis II (graduate level)
Fall 2020	Math 1342: Honors Calculus II for Sci/Engr
	Math 1342: Calculus II for Sci/Engr
Spring 2020	Math 5102: Analysis II (graduate level)
Fall 2019	Math 1341: Calculus I for Sci/Engr
	Math 1365: Intro to Math Reasoning

Mentorship and Outreach

2023–2024	Academic advisor for seven Reed College undergraduates.
2022–2024	Thesis advisor for Reed College undergraduate senior thesis.

> Student: Apollo Albright
> Thesis: Transmission of an Electron through a Saddle Potential

> Student: Adam Cohen
> Thesis: Heat Kernels, Dirac Operators, and the Atiyah–Singer Calculus on Twisty Stuff: The Local Index Theory of Dirac Operators

> Student: Elle (Yuheng) Wen
> Thesis: An Efficient Privacy-Preserving Satellites Collision Detection Method: Applying Private Set Intersection Using Garbled Circuit

> Student: Blaze Okonogi-Neth
> Thesis: An Introduction to Elliptic Curves, Modular Forms, and the Modularity Theorem

2021–2022	Mentor for Northeastern's math graduate student mentoring program.
2020–2023	Mentor for Bridge to Calculus, meeting Boston high school students twice a week for math enrichment, help with course work, college applications, etc. I wrote the BC Exam for Calculus Field Day 2021.

Service

- Math & Stats Community Building Committee at Rhodes (2024-2025)
- Organized the Graduate School Panel and Career Panel at Reed (2023)
- Academic advising for undergraduates (2023-2024)
- Wrote the Graduate Qualifying Examination in Analysis at Northeastern (2020, 2021)
- Referee for *Journal of Geometric Analysis*, *Bollettino dell'Unione Matematica Italiana*, *Mathematics Research Reports*