Willie Rush Lim

Education

2019 – Present **PhD Candidate in Mathematics, Stony Brook University, NY**
- Research Interest: Holomorphic dynamics, renormalization theory
- Advisor: Dzmitry Dudko

2015 – 2019 **MSci. Mathematics, Imperial College London, UK**
- First class honors
- Dissertation: "*Quadratic-Like Renormalisation in Holomorphic Dynamics*"
- Advisor: Davoud Cheraghi

Papers

2023 A priori bounds and degeneration of Herman rings of bounded type rotation number. arXiv:2302.07794

2023 Rigidity of bounded type rotational dynamics for rational maps (in preparation)

2023 Renormalization of critical quasicircle maps I: rigidity and universality (in preparation)

Teaching Experience

2022 Fall Course Lecturer, MAT125 Calculus A

2022 Summer Course Instructor, MAT203 Calculus III

2021 Summer Course Instructor, MAT203 Calculus III

2020 Summer Course Instructor, MAT342 Applied Complex Analysis

2019 – present Teaching Assistant (as a grader and recitation leader)
MAT131 Calculus I, MAT132 Calculus II, MAT211 Intro. to Linear Algebra, MAT341 Applied Real Analysis, MAT351 Dynamics and Chaos, MAT536 Complex Analysis I

Honors and Awards

2019 IBM Prize for Excellence in Pure Mathematics

2019 Prize for Excellence in Support of Teaching, Imperial College London

2017 G-Research Prize

2015 – 2019 Dean's List, Imperial College London

2015 – 2019 President's Undergraduate Scholarship, Imperial College London

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Conferences and Workshops

2022	**December**	Complex Dynamics in the Tropics – IMPA Participated in a poster session: pdf
2022	**August**	On Geometric Complexity of Julia Sets IV – Banach Center, IMPAN Gave a talk titled "*A Priori Bounds and Degeneration of Herman Rings*": video
2022	**May**	Adventurous Berkeley Complex Dynamics – MSRI Participated in a poster session: pdf
2021	**September**	On Geometric Complexity of Julia Sets III (online) – Banach Center, IMPAN
2021	**September**	Advancing Bridges in Complex Dynamics (online) – CIRM
2021	**March**	Many Faces of Renormalisation (online) – Simons Center
2020	**March**	Analysis, Dynamics, Geometry and Probability – Simons Center

Other Talks

2023	**February**	"*How to find the roots of any degree 2023 polynomials*" – Graduate Student Seminar (GSS)
2022	**March**	"*Intro. to Kahler Geometry*" – Student Differential Geometry Seminar (SDGS)
2021	**December**	"(*Dynamics of) Quadratic Polynomials*" – GSS
2021	**May**	"*Information Inequalities*" – Analysis Student Seminar (ASS)
2021	**March**	"*What Is... An Orbifold?*" – GSS
2021	**March**	"*Brunn-Minkowski and Concentration of Measures*" – ASS
2020	**October**	"*Subharmonic Functions and Convexity*" – ASS
2020	**February**	"*Subharmonic and Plurisubharmonic Functions*" – SDGS
2019	**December**	"*Renormalization of Unimodal Maps and Feigenbaum Universality*" – Renormalization Student Seminar
2019	**October**	"*Brushing the Hairs of Transcendental Entire Functions*" – GSS
2019	**February**	"*Quasiconformal Deformations and Sullivan's No Wandering Domains*" – IMA's Tomorrow's Mathematicians Today, University of Greenwich
2018	**March**	"*A Conjecture on Quasiconformal Maps*" – Undergraduate Colloquium, Imperial College London

Outreach and Service

2022	**Fall**	Co-organiser of ENYGMMa (Empowering New York Gender Minority Mathematicians) – Stony Brook University
2022	**Spring**	Directed Reading Program (Fractal Geometry) – Stony Brook University
2021	**Spring**	Directed Reading Program (The Symmetries of Things) – Stony Brook University
2020 – 2021		Co-organiser of the Graduate Student Seminar – Stony Brook University

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