

Jack Burkart

Curriculum Vitae

Stony Brook University

✉ jack.burkart@stonybrook.edu

📄 <https://www.math.stonybrook.edu/~jburkart/>

Education

2015–Present **Stony Brook University, Stony Brook, NY**, Ph.D Mathematics.

Advisor: Prof. Chris Bishop.

Thesis: Transcendental Julia Sets with Fractional Packing Dimension

Expected Graduation: May 2021

2011–2015 **University of Notre Dame, South Bend, IN**, B.S. Mathematics.

Advisor: Prof. Nancy Stanton

Senior Thesis: Two Proofs of the Riemann Roch Formula

Graduation: May 2015. Magna Cum Laude

Research and Publications

I am interested in **complex analysis**, **dynamics**, and **analysis on metric spaces**.

2021 ***A Jordan Curve that Cannot be Crossed on a Set of Zero Length***, In preparation.

Available at <https://www.math.stonybrook.edu/~jburkart/Twisty.pdf>

2021 ***Interpolation of Power Mappings***, joint with Kirill Lazebnik, Submitted to International Mathematics Research Notices.

Available at <https://arxiv.org/pdf/2101.04219.pdf>

2019 ***Transcendental Julia Sets with Fractional Packing Dimension***, Submitted to Conformal Geometry and Dynamics.

Available at <https://www.math.stonybrook.edu/~jburkart/PDim.pdf>

2019 ***A Differential Harnack Inequality for the Newell-Whitehead-Segel Equation***, joint with Derek Booth, Xiadong Cao, Max Hallgren, Zachary Munro, Jason Snyder, and Tom Stone, Anal. Theory Appl., vol. 35 p. 192-204.

Work from Undergraduate REU project

Conference Talks

Mar. 2019 **Postgraduate Conference in Complex Dynamics**, 2019, London

Mar. 2019 **Topics in Complex Dynamics 2019**, Universitat de Barcelona.

Oct. 2017 **Topics in Complex Dynamics 2017**, Universitat de Barcelona.

Seminar Talks

Nov. 2020 **Quasiworld Seminar**, Zoom.

June 2020 University of Minnesota **Analysis and PDE Online Seminar**, Zoom.

Nov. 2019 University of Alabama Birmingham **Dynamics Seminar**, Birmingham, AL.

- Nov. 2019 Caltech **Analysis Seminar**, Los Angeles, CA.
 Oct. 2019 University Michigan **Special Student Dynamics Seminar.**, Ann Arbor, MI
 Oct. 2019 Stony Brook **Analysis Seminar**, Stony Brook, NY.

Teaching Experience

- Fall 2020 **Instructor** for MAT 130 - Trigonometry and Logarithms (Hybrid)
 Spring 2020 **TA** for MAT 203 - Calculus III (Online and In-Person)
 Summer 2019 **Instructor** for MAT 514 - Analysis for Teachers 2
 Spring 2019 **Grader** for MAT 536 - Basic Complex Analysis I (Graduate Course)
 Fall 2018 **Grader** for MAT 532 - Basic Real Analysis I (Graduate Course)
 Fall 2018 **TA** for MAT 320 - Real Analysis
 Fall 2016 **Grader** for MAT 342 - Applied Complex Analysis
 Fall 2016 **TA** for MAT 598 - Teaching Practicum
 Spring 2016 **TA** for MAT 132 - Calculus II
 Fall 2015 **TA** for MAT 126 - Calculus B

Service, Community, and Other Extracurricular Activities

- 2018-2019 **Graduate Representative** to the Stony Brook Graduate Committee
 2017-2019 **Founder and Organizer** of Analysis Student Seminar, Stony Brook
 2017, 2018 **Teacher** for the Math in Jeans high school math program
 2017-Present **Teacher** for Della Petra High School Applied Math Program, Stony Brook
 2017 **Organizer** for Graduate Student Seminar, Stony Brook Math Department
 2016-Present **Teacher** for Summer Math Camp, Stony Brook
 2016 -2017 **Senator** for Stony Brook Graduate Student Organization
 2014-2015 **President** of the Notre Dame Math Club

Awards and Honors

- 2019-2020 Stony Brook Math RTG Graduate Student Fellowship
 Mar. 2019 Jack W. Milnor Endowment for Graduate Studies Travel Grant
 2017-2018 Stony Brook Math RTG Graduate Student Fellowship
 May 2016 Stony Brook Chariman's Award for Excellence in Teaching
 May 2015 George Kolletis Award in Mathematics, University of Notre Dame

Other Conferences and Programs Attended

- Summer 2020-2021 AMS Math Research Communities: Analysis on Metric Spaces. Online due to COVID-19
 March 2020 Analysis, Dynamics, Geometry, and Probability. Simons Center for Geometry and Physics
 Spring 2020 Renormalization and Universality in Conformal Geometry, Dynamics, Random Processes and Field Theory. Simons Center for Geometry and Physics

August 2019 Modern Aspects of Complex Analysis and Its Applications. U. Washington, Seattle
June 2019 Analytic Low-Dimensional Dynamics. Fields Institute, Toronto
July 2018 Park City Math Institute Harmonic Analysis Summer School. Park City, Utah.