Jack Burkart

Curriculum Vitae

Stony Brook University
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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**.

2020 ***A Jordan Curve that Cannot be Crossed on a Set of Zero Length***, Submitted to Transactions of the American Mathematical Society.
Available at https://www.math.stonybrook.edu/~jburkart/Twisty.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.