

# Brandon Sweeting

Postdoctoral Researcher, Mathematics

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## Research Interests

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· Harmonic Analysis · Bellman Functions · Singular Integral Operators · Sharp Estimates · BMO  
· Dyadic Analysis · Best Constants · Weights · Factorization Theory · Extrapolation Theory

## Appointments

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Postdoctoral Researcher  
The University of Alabama

2021 – Present  
Tuscaloosa, AL

## Education

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PhD in Mathematics  
University of Cincinnati

2014 – 2021  
Cincinnati, OH

Dissertation Advisor: Leonid Slavin

Dissertation: *Novel Bellman Estimates for  $A_p$  Weights*

BA in Mathematics  
University of South Florida  
Summa Cum Laude

2011 – 2014  
Tampa, FL

## Publications

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1. Brandon Sweeting *A characterization of a weighted weak-type estimate for the maximal operator* [In Preparation]
2. David Cruz-Uribe, Brandon Sweeting, *Weighted weak-type inequalities for maximal operators and singular integrals*, Arxiv e-prints: arXiv:2311.00828 (2023) [Submitted]
3. Zoe Nieraeth, Cody B. Stockdale, Brandon Sweeting, *Quantitative weighted weak-type estimates for multilinear sparse operators* [In Preparation]
4. Cody B. Stockdale, Brandon Sweeting, *Weighted weak-type boundedness and compactness in Calderón-Zygmund theory* [In Preparation]
5. Leonid Slavin, Brandon Sweeting, *Sharp dyadic estimates via non-infinitesimal Bellman majorants* [In Preparation]
6. Leonid Slavin, Brandon Sweeting, *The John-Nirenberg Constant for  $BMO^p$ ,  $0 < p < 1$*  [In Preparation]

## Conference Talks

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AMS Sectional Meeting, University of Wisconsin-Milwaukee Special Session on Recent Developments in Harmonic Analysis <i>(Upcoming) Title to be Determined</i> Invited Talk, 20 Minutes	04/20/24
AMS Sectional Meeting, Florida State University Special Session on Geometric Measure Theory and Partial Differential Equations <i>(Upcoming) Title to be Determined</i> Invited Talk, 20 Minutes	03/23/24
Joint Mathematics Meetings, American Mathematical Society AMS Special Session on New Faces in Operator Theory and Function Theory <i>Multiplier Weak-Type Inequalities for Maximal Operators &amp; Singular Integrals</i> Invited Talk, 20 Minutes	01/06/24
Workshop in Analysis, Georgia Institute of Technology <i>Multiplier Weak-Type Inequalities for Maximal Operators &amp; Singular Integrals</i> Invited Talk, 20 Minutes	12/08/23
19th Prairie Analysis Seminar, Kansas State University <i>Multiplier Weak-Type Inequalities for Maximal Operators &amp; Singular Integrals</i> Contributed Talk, 20 Minutes	11/03/23
AMS Sectional Meeting, University of Cincinnati Special Session on Inequalities in Harmonic Analysis <i>Multiplier Weak-Type Inequalities for Maximal Operators &amp; Singular Integrals</i> Invited Talk, 20 Minutes	04/15/23
12th Ohio River Analysis Meeting, University of Cincinnati <i>Multiplier Weak-Type Inequalities for Maximal Operators &amp; Singular Integrals</i> Contributed Talk, 20 Minutes	03/18/23
39th Southeastern Analysis Meeting, Clemson University <i>Multiplier Weak-Type Inequalities for Maximal Operators &amp; Singular Integrals</i> Contributed Talk, 20 Minutes	03/10/23
AMS Sectional Meeting, American Mathematical Society Special Session on Harmonic Analysis and Spectral Theory <i>On the John-Nirenberg Constant of <math>BMO^p</math>, <math>0 &lt; p &lt; 1</math></i> Invited Talk, 20 Minutes (Virtual)	11/20/21
17th Prairie Analysis Seminar, Kansas State University <i>New Estimates for Dyadic Carleson Sequences</i> Contributed Talk, 20 Minutes (Virtual)	11/06/21
AMS Sectional Meeting, American Mathematical Society Special Session on Sharp Estimates in Harmonic Analysis, II <i>New Estimates for Dyadic Carleson Sequences</i> Invited Talk, 20 Minutes (Virtual)	04/17/21

10th Ohio River Analysis Meeting, University of Kentucky <i>The John-Nirenberg Constant of <math>BMO^p</math>, <math>0 &lt; p &lt; 1</math></i> Contributed Talk, 20 Minutes (Virtual)	03/20/21
37th Southeastern Analysis Meeting, University of Florida <i>New Estimates for Dyadic Carleson Sequences</i> Contributed Talk, 20 Minutes (Virtual)	03/13/21

## Seminar Talks

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Analysis Seminar, University of Alabama <i>Multiplier Weak-Type Inequalities for Maximal Operators &amp; Singular Integrals</i>	10/04/23
Analysis Seminar, Washington University in St. Louis <i>Multiplier Weak-Type Inequalities for Maximal Operators &amp; Singular Integrals</i>	09/18/23
Analysis Seminar, University of Alabama <i>Mixed Weak-Type Estimates for Classical Operators</i>	09/21/22
Analysis Seminar, Clemson University <i>On the John-Nirenberg Constant of <math>BMO^p</math>, <math>0 &lt; p &lt; 1</math></i>	09/24/21
Analysis Seminar, University of Alabama <i>Novel Bellman Estimates for <math>A_p</math> Weights</i>	01/29/21

## Conferences and Workshops Attended

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Extremal Problems in Harmonic Analysis ICERM at Brown University	11/28/22 - 12/02/22
Workshop on Harmonic Analysis and Related Topics Centre de Recerca Matemàtica	07/13/22 - 07/17/22
11th International Conference on Harmonic Analysis & PDE Universidad Autónoma de Madrid	07/06/22 - 07/10/22
CBMS 2020 Conference Florida State University	06/23/22 - 06/27/22

## Teaching Experience

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### The University of Alabama

· Discrete Mathematics	Spring 2024
· Discrete Mathematics	Fall 2023
· Introduction to Complex Variables	Spring 2023
· Applied Differential Equations I	Fall 2022
· Introduction to Linear Algebra	Spring 2022

- Discrete Mathematics Fall 2021

### **University of Cincinnati**

- Introduction to Mathematical Reasoning Summer 2021
- Introduction to Mathematical Reasoning Spring 2021
- Foundations of Quantitative Reasoning Fall 2020
- Mathematics of Social Choice Summer 2020
- Mathematics of Management Science Spring 2020
- Mathematics of Social Choice Fall 2019
- Mathematics of Social Choice Summer 2019
- Mathematics of Management Science Spring 2019
- Mathematics of Social Choice Fall 2018
- Mathematics of Management Science Spring 2018
- Applied Calculus I Fall 2017
- Mathematics of Social Choice Spring 2017
- Mathematics of Management Science Fall 2016
- Applied Calculus II Summer 2016

### **University of Cincinnati (TA)**

- Calculus II, 3 sections Spring 2016
- Calculus I, 2 sections Fall 2015
- Calculus I, 3 sections Spring 2015
- Calculus II, 3 sections Fall 2014

## **Honors and Awards**

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- Maita Levine Award for Outstanding GA Spring 2020
- Albert C. Yates Fellow 2014 – 2021
- King O'Neal Scholar Spring 2014

## **Graduate Coursework**

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- Real Analysis · Complex Analysis · Functional Analysis · Linear Algebra · Topology · Probability
- Ordinary Differential Equations · Partial Differential Equations · Stochastic Differential Equations
- Geometric Function Theory · Geometric Analysis · Harmonic Analysis · Numerical Analysis

## Relevant Skills

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- *Languages:* English, French
- *Programming Languages:* Python, Java, Swift, Mathematica
- *Programming Libraries/APIs:* TensorFlow, Keras, Scikit-Learn, PyCUDA, Scipy, Numpy

## Professional Activities

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- Communications Committee: *UA Black Faculty and Staff Association*
- Journal Referee: *Collectanea Mathematica*

## Professional Affiliations

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| · Black Faculty and Staff Association (UA)     | 2023 – present |
| · The American Mathematical Society (AMS)      | 2014 – present |
| · Pi Mu Epsilon, Florida Epsilon Chapter (USF) | 2013 – present |