George Brooks

Curriculum Vitae

LeConte 401
1523 Greene St
Columbia, SC 29225
📱 *+1 (989) 295 7770*
✉ *ghbrooks@email.sc.edu*

Research Interests

Extremal and probabilistic combinatorics, spectral graph theory, and Ricci curvature of graphs with applications to data science.

Education

2020–Present	**Ph.D. Mathematics**, *University of South Carolina*, Columbia, SC Advisor: Linyuan Lu
2012–2018	**B.S. Mathematics**, *Saginaw Valley State University*, University Center, MI Minor in Chemistry

Academic Employment

2020–Present	**Graduate Instructional/Teaching Assistant** Department of Mathematics, University of South Carolina, Columbia, SC
2018–2020	**Adjunct Instructor & Tutoring Center** Science & Math Division, Northwestern Michigan College, Traverse City, MI

Teaching Experience

University of South Carolina

2021–Present	**Instructor of Record**, *Department of Mathematics* ○ MATH 115: Precalculus Mathematics (Fall 2023) ○ MATH 174: Discrete Mathematics for Computer Science (Spring 2023) ○ MATH 174: Discrete Mathematics for Computer Science (Fall 2022) ○ MATH 344L/544L: Applied Linear Algebra Laboratory (Spring 2022) ○ MATH 115: Precalculus Mathematics (Fall 2021) ○ MATH 122: Calculus for BA and Social Sciences (Summer 2021)
2020–Present	**Teaching Assistant**, *Department of Mathematics* ○ MATH 142: Calculus II - Honors (Fall 2023) ○ MATH 141: Calculus I - Honors (Fall 2021) ○ MATH 142: Calculus II (Spring 2021) ○ MATH 141: Calculus I (Fall 2020)

Northwestern Michigan College

2019–2020	**Adjunct Instructor**, *Science & Math Division* ○ MTH 111: Intermediate Algebra (Spring 2020) ○ MTH 08: Pre-Algebra (Spring 2020) ○ MTH 08: Pre-Algebra (Fall 2019)

Workshops

May 2023   **AMS Mathematical Research Communities**
Beaver Hollow Conference Center, Java Center, NY

2022– Present   **Summer School on Mathematical Foundations of Data Science**
Department of Mathematics, University of South Carolina, Columbia, SC

Preprints

3. G. Brooks and W. Linz, **Hypergraph Turán problems in ℓ_2-norm, the Kleitman-West problem and Erdős-Ko-Rado**. *arXiv:2310.09379* (2024)

2. G. Brooks, M. Gu, J. Hyatt, W. Linz, and L. Lu, **On the Maximum Second Eigenvalue of Outerplanar Graphs**. *arXiv:2309.08548* (2023)

Publications

1. G. Brooks, G. Johns, and C. St. Clair, **Induced Closed Modular Colorings of Graphs**. *Proceedings of Midstates Conference for Undergraduate Research in Computer Science and Mathematics.* (2017)

Invited Talks

Feb 2024   **Discrete Mathematics Seminar**
Outerplanar Graphs with Positive Lin-Lu-Yau Curvature
University of South Carolina, Columbia, SC

Jan 2024   **AMS Special Session on Ricci Curvatures of Graph and Applications to Data Science**
Outerplanar Graphs with Positive Lin-Lu-Yau Curvature
Joint Mathematics Meeting, San Francisco, CA

Nov 2023   **Graduate Colloquium**
On the Maximum Second Eigenvalue of Outerplanar Graphs
University of South Carolina, Columbia, SC

Mar 2023   **Graduate Mini-Conference in Discrete Mathematics**
Introduction to Flag Algebras
University of South Carolina, Columbia, SC

Oct 2022   **Graduate Colloquium**
Introduction to Flag Algebras
University of South Carolina, Columbia, SC

Service

University of South Carolina

2024– Present   **Math Learning Center Coordinator**
Facilitating LMS integration for MAP and Gateway testing

2023– Present   **Graduate Student Instructor Peer Mentor Program**
Mentoring graduate student instructors of record

2022– Present   **REU Coordinator**
Organization, teaching, and research during summer REU

2022–2023	**Discrete Reading Seminar**
	Organized reading seminar in spectral graph theory
2021–2022	**Graduate Advisory Council - Student Representative**
	Represented graduate students in departmental matters

Volunteer Work

2023–2024	Leaphart Elementary Math Outreach
2023–2024	UofSC Annual High School Math Contest - Activity Organizer
Nov 2021	South Carolina Council of Teachers of Mathematics Conference
Oct 2021	Oktoberbest 2021: A Symposium on Teaching