

March 2023

Department of Mathematics  
Brown University  
Kassar House  
151 Thayer Street  
Providence, Rhode Island 02912

<https://abackus.crd.co/>  
aidan\_backus@brown.edu

## Academic Positions

Borwn University, Graduate Student, 2020–2025.

## Education

Ph.D. Mathematics, Brown University, expected 2025.

Thesis advisor: Georgios Daskalopolous

B.A. Mathematics, with high honors, UC Berkeley, 2020.

Thesis title: “The Breit-Wigner series and the distribution of resonances”

Thesis advisor: Maciej Zworski

## Research Interests

Geometric analysis, partial differential equations, harmonic analysis

## Preprints

1. Backus, A., Leng, J., and Tao, Z. (2023) The fractal uncertainty principle via Dolgopyat’s method in higher dimensions.
2. Backus, A. (2020) The Breit-Wigner series for noncompactly supported potentials on the line.
3. Backus, A., Connick, P., and Lin, J. (2019) An algorithm for computing root multiplicities in Kac-Moody algebras.

## Papers in preparation

4. Backus, A. Regularity of sets of least perimeter in Riemannian manifolds.
5. Backus, A. Minimal laminations and level sets of 1-harmonic functions.

## Grants and Funding

Backus, A. NSF Graduate Research Fellowship Program. 2022–2025. National Science Foundation. \$111,000.

## Honors & Awards

Dorothea Plumpke Roberts Prize for Exceptional Scholarship in Mathematics, 2020.

## Conference Presentations

**2023** Topics in Differential Geometry (Brown University).

**2022** AMS New England Graduate Student Conference (Brown University).

## Service to Profession

Conference Organization

2023 AMS New England Graduate Student Conference, Brown University, April 15, 2023.

2022 AMS New England Graduate Student Conference, Brown University, April 27–29, 2022.

Brown University, Department of Mathematics

Secretary-Treasurer, AMS Graduate Student Chapter (2021–present)

UC Berkeley, Department of Mathematics

Curator, Mathematics Undergraduate Student Association (2017–2020)

## Teaching

### Brown University

Calculus I TA: Fall 2021, teaching assistant for Charles Daly.

Calculus II TA: Spring 2022, teaching assistant for Dan Katz.

Set Theory summer program for high schoolers: Summer 2022

Directed Reading Program mentor: Fall 2021

### UC Berkeley

Complex Analysis TA: Fall 2019, teaching assistant for Michael Klass.

## Miscellaneous

*Programming Languages:* Python, Rust, MATLAB, L<sup>A</sup>T<sub>E</sub>X.