

Joseph S. Barrera, Ph.D.

Contact Information

Department of Mathematics & Computer Science
Converse University
580 E Main St
Spartanburg, SC 29302
(864) 596-9128
joseph [dot] barrera [at] converse [dot] edu
sites.google.com/view/josebarrera

Education

- Ph.D., [Mathematics](#), [University of Wisconsin-Milwaukee](#), Milwaukee, WI, May 2017
 - Adviser: [Hans Volkmer](#), Ph.D.
 - Thesis title: Asymptotic Expansion of the L^2 -norm of a Solution of the Strongly Damped Wave Equation
- M.S., Mathematics, University of Wisconsin-Milwaukee, Milwaukee, WI, May 2013
- B.S., *summa cum laude*, [Mathematics](#), [Ball State University](#), Muncie, IN, May 2011

Positions Held

Converse University

- Associate Professor of Mathematics, Fall 2023–present
 - Chair, Department of Mathematics & Computer Science, January 2024–present
- Assistant Professor of Mathematics, Fall 2018–Spring 2023
- Visiting Assistant Professor of Mathematics, Fall 2017–Spring 2018

University of Wisconsin-Milwaukee

- Graduate Teaching Assistant, Fall 2011–Spring 2017

Research

Interests

Mathematics education, inquiry-based learning, real analysis, asymptotic analysis, differential equations, Fourier analysis

Publications

- J. Barrera, *On the asymptotics of some strongly damped beam equations with structural damping*, Communications on Pure and Applied Analysis, 2022, 21(11): 3961–3983, DOI: [10.3934/cpaa.2022130](https://doi.org/10.3934/cpaa.2022130)
- J. Barrera, H. Volkmer, *Asymptotic expansion of the L^2 -norm of a solution of the strongly damped wave equation in space dimension 1 and 2*, Asymptotic Analysis, vol. 121, no. 3–4, pp. 367–399, 2021, DOI: [10.3233/ASY-201606](https://doi.org/10.3233/ASY-201606)
- J. Barrera, H. Volkmer, *Asymptotic expansion of the L^2 -norm of a solution of the strongly damped wave equation*, J. Differential Equations, vol. 267, issue 2, 2019, 902–937, DOI: <https://doi.org/10.1016/j.jde.2019.01.028>

Presentations

Contributed or special sessions

- J. Barrera, L. Roberson, M. Henriksen, M. Wentworth. “A Brief Introduction to the World of Inquiry-based Learning.” Contributed talk at MAA MathFest, Tampa, FL, August 2–5, 2023.
- J. Barrera. “Project-based Programming in a Mathematics Course.” Contributed talk at MAA MathFest, Tampa, FL, August 2–5, 2023.
- J. Barrera. “Project-based Programming in a Mathematics Course.” Contributed talk at MAA Southeastern Section Meeting hosted by Coastal Carolina University, Conway, SC, March 9–11, 2023.
- J. Barrera. “On the Asymptotics of Some Strongly Damped Beam Equations with Structural Damping.” Contributed talk at MAA Southeastern Section Meeting hosted by Berry College, Rome, GA, March 10–12, 2022.
- J. Barrera. “Fractal Visualization for Undergraduates: A Project-based Approach to Generating Fractal Images in Python.” Contributed talk at MAA MathFest, virtual, August 4–7, 2021.
 - Talk meant to be given with a student in Spring 2020, but was canceled due to COVID-19

Poster sessions

- J. Barrera. Preliminary results on the asymptotic expansion of all derivatives of a solution of the strongly damped wave equation. Poster presented at MAA MathFest, Indianapolis, IN, August 7–10, 2024.
- J. Barrera. On the asymptotics of some strongly damped beam equations with structural damping. Poster presented at MAA MathFest, Philadelphia, PA, August 3–6, 2022.
- J. Barrera, H. Volkmer. Asymptotic expansion of the L^2 -norm of a solution of the strongly damped wave equation. Poster presented at MAA MathFest, Cincinnati, OH, July 31–August 3, 2019.

Service

External

- Peer-reviewer
 - For *Mathematische Nachrichten* since 2023: 1 paper
 - For *Differential and Integral Equations* since 2023: 1 paper
- [Inquiry-based Learning \(IBL\) SIGMAA](#) Leadership Committee, chair, January 2023–present
 - Moderator of IBL SIGMAA Speak Series talks, January 2022–present
 - Chair-elect, January 2022–January 2023
- Wofford’s Institutional Animal Care and Use Committee ([IACUC](#)), August 2021–February 2024
- [South Carolina Junior Academy of Sciences \(SCJAS\)](#) judge, April 2021
 - Non-mentored Computer Science & Physics: 6 presentations
- [Girls Who Code](#) facilitator, Fall 2020

Professional Development

Teaching Development

- [Project NExT](#) (New Experiences in Teaching) fellow (Peach ’18 dot), 2018-2019
- [Academy of Inquiry Based Learning’s](#) IBL Workshop, Torrance, CA, July 2018
 - Awarded \$500 National Science Foundation travel grant to attend

Affiliation

- [IBL SIGMAA](#), 2021–present
- [Southeastern Section COMMIT](#), 2021–present
- [Association for Women in Mathematics \(AWM\)](#), 2019–present
- [Mathematical Association of America \(MAA\)](#), 2018–present

Other

- [SafeZone Project](#) workshop, University of Wisconsin-Milwaukee, Spring 2017

Conferences Attended

- MAA MathFest, Indianapolis, IN, August 2024
 - Co-organized and moderated the *Contribute paper session on inquiry-based learning*, sponsored by the IBL SIGMAA, of which I was the chair
 - Attended the Project NExT networking session to promote the IBL SIGMAA
 - Co-organized the IBL SIGMAA Business Meeting
- MAA MathFest, Tampa, FL, August 2023
 - Moderated the *Contributed paper session on inquiry-based learning*, sponsored by the IBL SIGMAA, of which I was the chair
 - Attended the Project NExT networking session to promote the IBL SIGMAA
 - Organized the informal IBL SIGMAA reception
- MAA Southeastern Section Meeting, March 2023
- MAA MathFest, Philadelphia, PA, August 2022
 - Moderated the *Contributed paper session on inquiry-based learning*, sponsored by the IBL SIGMAA, of which I was the chair-elect
 - Attended the Project NExT networking session to promote the IBL SIGMAA
- Joint Mathematics Meetings, virtual, April 2022
 - Moderated the *AMS special session on on inquiry-based teaching and learning*
- MAA Southeastern Section Meeting, March 2022
- [Nebraska Conference for Undergraduate Women in Mathematics](#) (NCUWM), January 2022
- MAA MathFest, virtual, August 2021
- MAA Southeastern Section Meeting, virtual, March 2021
 - Co-organized *Special session on inquiry-based learning in online and socially distanced classrooms*
- MAA MathFest (as Project NExT fellow), Cincinnati, OH, August 2019
- [Joint Mathematics Meetings](#) (as Project NExT fellow), Baltimore, MD, January 2019
- MAA [MathFest](#) (as Project NExT fellow), Denver, CO, August 2018
- MAA [Southeastern Section](#) Meeting, Clemson University, Clemson, SC, March 2018
- Carolina Math Seminar and MAA State Dinner, Benedict College, Columbia, SC, November 2017
- A Celebration of Mathematics at UWM: 50 Years as a Doctoral Research Department, UW-Milwaukee, Milwaukee, WI, October 2016

Awards and Honors

- Recipient of the Kathyne Amelia Brown Award that recognizes “faculty members who have excelled in the classroom”
 - J. Barrera. “Newland.” Invited talk at Converse University’s Opening Convocation, Spartanburg, SC, September 22, 2023.