

SARAH STRIKWERDA

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CURRENT EMPLOYMENT

University of Pennsylvania, Philadelphia, PA *July 2023-Present*
Radenmacher Instructor and collaborating with Yoichiro Mori and Ryan Hynd

EDUCATION

North Carolina State University, Raleigh, NC *August 2018 - May 2023*
Ph.D. Candidate, under supervision of Lorena Bociu, GPA:4.00/4.00
Optimal Control of Fluid Flows through Deformable Porous Media
Masters of Science in Mathematics, GPA: 4.00/4.00 *August 2018 - May 2020*
Argonne National Laboratory, Lemont, IL *May 2021 - August 2021*
Givens Research Associate
Calvin College, Grand Rapids, MI *August 2014 - May 2018*
Bachelor of Science in Mathematics, GPA: 3.89/4.00
University of Ghana-Legon, Accra, Ghana *Spring 2016*

AWARDS, HONORS, AND CERTIFICATES

Franke-Norris-Griggs Award for Research, NCSU Math Department *2023*
Maltbie Award for Teaching, NCSU Math Department *2023*
GSA Teaching Award, NCSU Graduate School *2023*
Third Place Student Award, SIAM SEAS *2023*
Winner of AWM-SIAM Poster Session Competition, SIAM Annual Meeting *2021*
Recipient of a "Thank a Teacher" Letter, NCSU *2019*
Teaching and Communication Certificate (100 hours), NCSU *2018-2022*
Inclusive Teaching Certificate, NCSU *2021-2022*
Howard Hughes Medical Institute Scholarship for Research in Natural Sciences, *2014-2018*
Calvin College

RESEARCH INTERESTS

Analysis and control of partial differential equations, with applications to fluid flows through deformable, porous media.

PAPERS

1. Bociu, L., **Strikwerda, S.**, Poro-Visco-Elasticity in biomechanics - optimal control, *AWM: Research in the Mathematics of Materials Science, Springer*, (2022).
2. Bociu, L., **Strikwerda, S.**, Optimal control in poroelasticity. *Applicable Analysis*, 101(5), 1774–1796 (2022).
3. Jung, H., **Strikwerda, S.**, Park, J., & Newton, J. Preservice teachers' perspectives on their opportunities to learn about algebra. *Issues in the Undergraduate Mathematics Preparation of School Teachers*, (1), (2018).
4. Bociu, L., Manns, P., Severitt, M., **Strikwerda, S.** Input regularization for integer optimal control in BV with applications to control of poroelastic and poroviscoelastic systems. Submitted to *Journal of Nonsmooth Analysis and Optimization* (2022) arXiv:2210.09564.
5. Vogt, RH., **Strikwerda, S.** Solving bang-bang problems using the immersed interface method and integer programming. arXiv:2104.08649 [Preprint] (2021).
6. Bociu, L., Broussard M., Guidoboni G., and **Strikwerda, S.** Analysis of a Multi-Scale Interface Coupling between Deformable Porous Media and Lumped Hydraulic Circuits, [Preprint] (2023).

ENRICHMENT OPPORTUNITIES

Teaching Assistant at MSRI School on Recent Topics in Well Posedness *July 2022*
Mathematical Sciences Research Institute and National Center for Theoretical Sciences
Criticality and Stochasticity in Quasilinear Fluid Systems *May 2022*

American Institute of Mathematics Preparing the Professoriate Fellow Nationally Renowned Program at NCSU	<i>2021-2022</i>
Shanks Workshop on Mathematical Aspects of Fluid Dynamics Vanderbilt University	<i>February 2022</i>
Optimal Control, Optimal Transport, and Data Science Workshop Institute for Mathematics and its Applications, Minneapolis, MN	<i>November 2020</i>
Accessibility in the Classroom Workshop	<i>August 2020</i>
Summer School on Recent Advances in Fluid Dynamics University of Southern California, Los Angeles, CA	<i>Summer 2019</i>
Enhancing Diversity in Graduate Education (EDGE) Summer Session Texas Tech University, Lubbock, TX	<i>Summer 2018</i>
Research Experience for Undergraduates (REU) University of Michigan-Dearborn, Dearborn, MI Focus: Linear Fractional Transformations (LFTs)	<i>Summer 2017</i>
Research Experience for Undergraduates at Calvin College Calvin College, Grand Rapids, MI	<i>Summer 2016-Spring 2017</i>

RESEARCH PRESENTATIONS

Invited Talks:

Temple University Analysis Seminar	<i>December 2023</i>
Hunter College Mathematics Colloquium	<i>November 2023</i>
Seminário de EDP e Matemática Aplicada	<i>November 2023</i>
Penn State Workshop Stability Analysis for PDEs across Multiscale Applications	<i>October 2023</i>
8th SIAM Central States Sectional Nonlinear Evolution Equations	<i>October 2023</i>
AWM Research Symposium Control, Optimization, and Analysis of PDEs	<i>September 2023</i>
SIAM Conference on Control and its Applications Systems and Control	<i>July 2023</i>
University of Arkansas Graduate Student Colloquium	<i>March 2023</i>
SIAM SEAS PDE Constrained Optimization and Applications	<i>March 2023</i>
University of Arizona Early Career Math Colloquium	<i>February 2023</i>
Princeton University Analysis of Fluids and Related Topics Seminar	<i>September 2022</i>
IFIP TC7 2022 Control and Optimization in PDEs Minisymposium	<i>July 2022</i>
AWM Research Symposium Systems and Control Minisymposium	<i>June 2022</i>
IFIP TC7 2021 Fluid Solid Interactions and Mixtures Minisymposium	<i>August 2021</i>
Joint Mathematics Meetings SIAM Minisymposium on Fluids in Living Systems	<i>January 2021</i>
Calvin College Colloquium	<i>September 2017</i>

Contributed Talks:

Joint Mathematics Meetings AMS special session on The EDGE Program	<i>January 2023</i>
SEARCDE Southeastern-Atlantic Regional Conference on Differential Equations	<i>November 2022</i>
Joint Mathematics Meetings AMS special session on The EDGE Program	<i>April 2022</i>
Triangle Area Graduate Mathematics Conference	<i>December 2020</i>
Summer Undergraduate Michigan Mathematics Research at GVSU	<i>July 2017</i>

Poster Presentations:

The 86th Midwest PDE Seminar Poster Session	<i>October 2022</i>
SIAM Annual Meeting AWM-SIAM Poster Session	<i>July 2021</i>
IMA Workshop on Optimal Control, Optimal Transport and Data Science	<i>November 2020</i>
Nebraska Conference for Undergraduate Women in Mathematics at UNL	<i>January 2018</i>
Joint Mathematics Meetings Undergraduate Poster Session	<i>January 2018</i>
Young Mathematicians Conference at Ohio State University	<i>August 2017</i>
West Michigan Regional Undergraduate Science Research Conference	<i>November 2016</i>
Science Division Summer Research Poster Fair at Calvin College	<i>October 2016</i>

SERVICE IN MATHEMATICS

Co-organizer of Analysis Seminar at the University of Pennsylvania	Fall 2023-Present
Organizer of Early Career Researchers in Mathematical Biology and DEs at AWM	September 2023
Mentor at EDGE Summer program	June 2023
Volunteer at The Eye: A Window to our Body (Virtual Event)	June 2023
Organizer of Girls in Applied Math, Modeling, and Analysis	May 2022 and May 2023
President of AMS Graduate Student Chapter at NCSU	August 2020-July 2021
Organizer of Nonlinear Analysis PhD Student's Work Group	August 2020-Present
Mentor for AMS at NCSU mentoring program for first year graduate students	August 2020-Present
Mentor for Undergraduates Union Graduates	September 2019-Present
Organizer of Triangle Area Graduate Mathematics Conference	December 2020
Volunteer at Math Booth at North Carolina Museum of Natural Sciences' BugFest	September 2019

TEACHING EXPERIENCE

Instructor of Advanced Calculus (Real Analysis)	Fall 2023
Teaching Assistant of First Year Graduate Seminar	Spring 2023
Instructor of Precalculus at NCSU	Fall 2022
Instructor of Foundations to Advanced Mathematics at NCSU	Spring 2022
Instructor of Calculus II at NCSU	Fall 2020
Instructor of Calculus III at NCSU	Fall 2019
Recitation Leader of Calculus I & III at NCSU	Fall 2018-Spring 2019
Teacher Aide at Wyoming Junior High School	Fall 2016
Teaching Assistant at New Horizons Special School in Accra, Ghana	Spring 2016

AFFILIATIONS

American Mathematical Society	Society for Industrial and Applied Mathematics
Association for Women in Mathematics	