Eric Stachura | Curriculum Vitae

estachur@kennesaw.edu • facultyweb.kennesaw.edu/estachur

Employment

Kennesaw State University — **Assistant Professor**
Kennesaw, GA — *August 2018-present*

Haverford College — **Visiting Assistant Professor**
Haverford, PA — *July 2016-June 2018*

Education

Temple University — **Philadelphia, PA**
Ph.D. in Mathematics — *July 2016*
Advisor: Cristian E. Gutiérrez

Temple University — **Philadelphia, PA**
Teaching in Higher Education Certificate — *May 2016*

Temple University — **Philadelphia, PA**
M.A. in Mathematics — *Jan. 2013*

University of Illinois — **Chicago, IL**
B.S. in Mathematics — *May 2011*
Cum Laude and with honors. Minor: Physics.

Universidad Autónoma de Madrid — **Madrid, Spain**
Semester Abroad — *Spring 2013*
Also conducted research at Instituto de Ciencias Matemáticas (ICMAT).

Eidgenössiche Technische Hochschule (ETH) — **Zürich, Switzerland**
Semester Abroad — *Spring 2010*
Studied mathematics and physics while conducting High Energy Physics research.

Funding

KSU Summer Research Fellowship, *2020*: KSU Office of Research, $10,000

KSU Seed Grant, *2019-2020*: Mathematical Analysis of Optical Phenomena in Exotic Materials, $9,128

American-Scandinavian Foundation Fellowship, *2019-2020*: Mathematical Analysis of Nonlinear Maxwell Equations on rough surfaces, $5,000

Awards

MAA Project NExT Fellow: 2019-2020

SIMIODE DeMarc Fellow: July 2019

SIMIODE MInDE Fellow: July 2018

Co-PI for Mellon Trico Faculty Forum Seed Grant "Philadelphia Theoretical Chemistry

Club": 2017-2018

Submitted Papers

1. D. R. Adhikari, T. M. Asfaw, and **E. Stachura**. *A topological degree theory for perturbed $A_G(S_+)$ operators and applications to nonlinear problems*.

2. D. R. Adhikari and **E. Stachura**. *A general p-curl system and duality mappings on Sobolev spaces for the Maxwell equations*.

3. C. Mayer and **E. Stachura**. *Traveling wave solutions for a cancer stem cell invasion model*.

Select Publications

1. **E. Stachura**. *Acoustic Wave propagation in Anisotropic Media with applications to Piezoelectric materials*. To appear in Applicable Analysis.

2. Á. Bényi, J. M. Martell, K. Moen, **E. Stachura**, and R. Torres. *Boundedness results for commutators with BMO functions via weighted estimates: a comprehensive approach*. Mathematische Annalen, 376 (1), 61–102, 2020.

3. **E. Stachura**. Boundary Value problems for the Bi-anisotropic Maxwell system in Lipschitz Domains, in *URSI International Symposium on Electromagnetic Theory (EMTS)*, 2019, 4 pp., doi: 10.23919/URSI-EMTS.2019.8931473.

4. C. E. Gutiérrez, L. Pallucchini, and **E. Stachura**. *General Refraction Problems with Phase Discontinuity on non flat Metasurfaces*. Journal of the Optical Society of America A, Vol. 34(7): 1160-1172, 2017.

5. **E. Stachura**. *Existence of weak solutions to Refraction Problems in Negative Refractive Index Materials*. Nonlinear Analysis, Vol. 157, 76-103, 2017.

6. **E. Stachura**. *The Time Dependent Maxwell System with Measurable Coefficients in Lipschitz Domains*. Journal of Mathematical Analysis and Applications, Vol. 452 (2), 941-956, 2017.

7. **E. Stachura**. *On Generalized Solutions to Some Problems in Electromagnetism and Geometric Optics*. Ph.D thesis, 2016.

8. I. Mitrea, K. Ott, and **E. Stachura**. *Spectral Properties of the Reflection Operator in Two Dimensions*. Contemporary Mathematics, Vol. 581, pp. 199-215, 2012.

Teaching Experience

Temple University

Precalculus: Fall 2013, Fall 2014, Fall 2015.

Mathematical Patterns: Summer 2014.

Integral Calculus: Summer 2015.

Haverford College

Calculus: Dynamics and Integration: Fall 2016.

Advanced Topics in Applied Mathematics–PDE: Fall 2016.

Linear Algebra: Spring 2017.

Multivariable Calculus: Spring 2017, Fall 2017, Spring 2018.

Ordinary Differential Equations: Spring 2018.

Kennesaw State University

Differential Calculus (Math 1190): Fall 2018, Spring 2019.

Ordinary Differential Equations (Math 2306): Fall 2019, Spring 2020.

Ordinary Differential Equations (Math 2306), Intro to Calculus of Variations (Math 4490): Fall 2020

Students Supervised

Kennesaw State University

Jessie Chen (2020-): Kennesaw State University, "Variational problems for the 2D Maxwell system"

Nick Hancock (2019-): Kennesaw State University, "Bound states and other properties of a new class of screened Coulomb potentials"

Haverford College

Caleb Mayer (2018): Haverford College, Senior Thesis "Exploring the dynamics of a Cancer Cell model".

Claire Sargent (2018): Haverford College, Senior Thesis "A Mathematical Model for Diffusion of Innovations".

Caroline Steliotes (2018): Haverford College, Senior Thesis "Nonuniqueness for Calderon's Inverse Problem".

Amy Zamora (2018): Haverford College, Senior Thesis "A generalized PDE model for motor induced microtubule organization".

Andrew Hunter (2017): Haverford College, Senior Thesis "The Daubechies Wavelet".

Amanda Glavin (2017): Haverford College, Senior Thesis "Generalized Bass Diffusion Model for Discrete Data".

Professional Activities

Reviewer: *Analysis Mathematica, Communications in Applied Analysis*

Reviewer: *Mathematical Reviews, MAA Reviews, ZentralblattMath*

Co-organizer: MAA Special Session in Implementing Group Work: Demonstrations of Best Practices Joint Mathematics Meetings, Jan. 2020

Faculty Advisor: KSU Chapter of Pi Mu Epsilon

Faculty Advisor: KSU Student Chapter of Mathematical Association of America

Workshop leader: Philadelphia Area Math Teacher's Circle, March 2018

Organizer: Workshop *Philadelphia Area Density Functional Theory Day*, September 2017

Workshop Organizer: Philadelphia Science Festival, 2017,2018

Special Program Grant Reviewer: Optical Society of America, 2017

Advisor: Haverford College Mathematics Modeling Contest, 2016-2018

Student Travel Grant reviewer: Optical Society of America, 2016

Creator/organizer: Graduate Student Analysis Seminar, Temple University, 2014-2016

Organizer: Workshop: *Hands on Geometric Optics*, STEM Scholars Program at the Franklin Institute, 2014-2017

Co-organizer: AMS Special Session in Harmonic Analysis, Partial Differential Equations, and Geometric Measure Theory, Joint Mathematics Meetings, 2013

Invited Talks

Temple University Analysis Seminar — **Philadelphia, PA**
, cancelled due to COVID-19 — *20 March 2020*

University of Utah Applied Math Seminar — **Salt Lake City, UT**
2 March 2020

University of West Georgia Applied Math Seminar — **Carrollton, GA**
6 November 2019

Winthrop University Colloquium — **Rock Hill, SC**
3 April 2019

Kennesaw State University Analysis & Applied Math Seminar — **Marietta, GA**
7 September 2018

West Chester University Applied Math Seminar — **West Chester, PA**
8 November 2017

Hunter College of CUNY Department of Physics and Astronomy — **New York, NY**
5 May 2017

Drexel University PDE/Applied Math Seminar — **Philadelphia, PA**
23 February 2017

Center for the Computational Design of Functional Layered Materials — **Philadelphia, PA**
9 December 2016

Temple University Analysis Seminar — **Philadelphia, PA**
14 November 2016

Bryn Mawr-Haverford Mathematics Colloquium — **Bryn Mawr, PA**
3 October 2016

Center for the Computational Design of Functional Layered Materials — **Philadelphia, PA**
20 May 2016

Conference Talks

69th Midwest PDE Seminar — **University of Illinois at Chicago, IL**, *April 2012*

9th International Conference on Harmonic Analysis and PDEs — **El Escorial, Spain**, *June 2012*

Harmonic Analysis, PDEs, and Geometry workshop — **ICMAT, Spain**, *May 2013*

Fall Southeastern Sectional Meeting of the AMS — **University of Louisville, KY**, *Oct. 2013*

SIAM Analysis and PDEs — **Scottsdale, AZ**, *Dec. 2015*

15^{th} New Mexico Analysis Seminar — **University of New Mexico, NM**, *Feb. 2016*

The 6^{th} Ohio River Analysis Meeting — **University of Kentucky, KY**, *March 2016*

SIAM Materials Science — **Philadelphia, PA**, *May 2016*

SEARCDE 2016 — **FGCU, FL**, *Nov. 2016*

The 7^{th} Ohio River Analysis Meeting — **University of Cincinnati, OH**, *March 2017*

AMS Spring Eastern Sectional Meeting — **Hunter College, NY**, *May 2017*

Great Lakes Mathematical Physics Meeting — **MSU, MI**, *June 2017*

SIAM Industrial and Applied Geometry — **Pittsburgh, PA**, *July 2017*

Joint Mathematics Meetings — **San Diego, CA**, *January 2018*

SEARCDE 2018 — **University of North Georgia, GA**, *Oct. 2018*

Joint Mathematics Meetings — **Baltimore, MD**, *January 2019*

Materials Research Society Spring Meeting — **Phoenix, AZ**, *April 2019*

URSI International Symposium on Electromagnetic Theory — **San Diego, CA**, *May 2019*

Lund University Electrical and Information Technology Department — **Lund, Sweden**, *18 June 2019*

SIAM Southeastern Sectional Meeting — **Knoxville, TN**, *Sept. 2019*

John Salerno Memorial Symposium at KSU — **Kennesaw, GA**, *Oct. 2019*

SIAM Analysis and PDEs — **La Quinta, CA**, *Dec. 2019*

Joint Mathematics Meetings — **Denver, CO**, *January 2020*

Professional Memberships

American Mathematical Society
Mathematical Association of America
Society for Industrial and Applied Mathematics