

Kelsey Wells

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Department of Mathematics
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Education

- **University of Nebraska-Lincoln** Lincoln, NE
PhD Student in Mathematics August 2013 - Current
 - Advisor: Dr. Petronela Radu
- **University of Nebraska-Lincoln** Lincoln, NE
MS Mathematics August 2013 - May 2015
- **Brigham Young University-Idaho** Rexburg, Idaho
BS in Applied Mathematics 2009 - 2013
 - Magna Cum Laude
 - GPA: 3.96/4.0

Research Experience

- Doctoral Thesis (Expected graduation May 2018)
 - Research in variational problems arising in state-based peridynamic models, and convergence methods in nonlocal models. In particular introduced a new nonlocal (peridynamic) Laplacian and investigate its properties.
- Mathematical Sciences Graduate Internship Program (Summer 2017)
 - Mentor: Dr. Pablo Seleson, Host site: Oak Ridge National Laboratory
 - Computational research in local and nonlocal coupled dynamic problems.
- REU in Algebra (2012)
 - Conducted research using various algebra techniques, specifically studying the growth of finitely generated algebras.
- Research Assistant in Mathematics Education, Mathematical Knowledge for Teaching (August 2015-May 2016)
 - Read papers in Math Education to familiarize with subject area and conducted research on the NebraskaMATH program, with a particular focus on the experiences of high school teachers and the instructors who teach the math courses.
- Conferences attended (attending):
 - Joint Math Meetings, San Diego, CA, January 2018
 - Modeling, Analysis and Numerics for Nonlocal Applications, December 2017
 - Nonlocal School on Fractional Equations, Iowa State University, August 2017
 - KUMUNU Conference on PDE, Dynamical Systems and Applications, UNL, April 2017

- February Fourier Talks, University of Maryland, February 2017
- Riviere-Fabes Symposium on Analysis and PDE, University of Minnesota April 2016
- Recent Developments in Continuum Mechanics and PDE's, UNL, April 2015
- Joint Math Meetings, San Diego, CA, January 2013
- Intermountain MAA Section meeting, 2013
- Weekly attendance at Continuum Mechanics, PDE, and student run PDE seminars at UNL

Publications

1. Radu, P., & **Wells, K.** (Submitted). A doubly nonlocal Laplace operator and its connection to the classical Laplacian.
2. Radu, P., & **Wells, K.** (In progress). Convergence analysis for state-based Laplacian in bounded and unbounded domains.
3. Lai Y., Smith W., Wakefield N., Miller E., St. Goar J., Groothius C., **Wells K.** (2017). Characterizing Mathematics Graduate Student Teaching Assistants' Opportunities to Learn from Teaching in Dewar J., Hus S., Pollatsek H. (Ed.), Mathematics Education, A Spectrum of Work in Mathematical Sciences Departments, Vol. 7 Springer.
4. Fredette, E., Kubala, D., Nelson, E., **Wells, K.**, & Ellingsen, H. (2015). Growth functions of finitely generated algebras. *Involve, a Journal of Mathematics*, 8(1), 71-74.

Research Interests

- Continuum Mechanics and Peridynamics
- Integro-Differential Equations
- Nonlocal Calculus
- Computational Mathematics
- Partial Differential Equations
- Mathematical Knowledge for Teaching

Work Experience

- **Graduate Teaching Assistant** Lincoln, NE
University of Nebraska-Lincoln *August 2013-Current*
 - Instructor of record for five courses: Mathematics Matters–for preservice elementary teachers; Precalculus; Precalculus and Trigonometry; Intermediate Algebra
 - Developed course materials for all Intermediate Algebra sections
 - TA for NebraskaMATH's Primarily Math: Geometry and Algebraic Thinking–for in-service elementary teachers
 - Recitation instructor for nine sections: Calculus I & II and Business Calculus

- Math Resource Center Worker
- **Mathematical Sciences Graduate Internship** Oak Ridge, TN
Oak Ridge National Laboratory Summer 2017
 - Mentor: Dr. Pablo Seleson
 - Performed computational research in coupled (nonlocal) peridynamic and (local) classical elasticity models
 - Programming done in MATLAB
- **Institute for Advanced Composite Material Innovation Internship** West Lafayette, IN
Purdue University Summer 2016
 - Mentor: Dr. Byron Pipes
 - Design, Modeling and Simulation
- **Research Assistant** Lincoln, NE
University of Nebraska-Lincoln August 2015-May 2016
 - Mathematical Knowledge for Teaching
 - Mentor: Yvonne Lai
- **REU in Algebra, Undergraduate Researcher** Potsdam, NY
SUNY Potsdam-Clarkson Summer 2012
 - Growth functions of finitely generated algebras
 - Advisor: Harold W. Ellingsen, Jr.
- **Math Tutor/TA** Rexburg, ID
Brigham Young University-Idaho August 2010-April 2013
 - Tutored in the Math Lab and provided private tutoring
 - TA for Calculus and Modern Algebra

Presentations

1. Joint Math Meetings, San Diego, CA: (Upcoming) “Properties and convergence of state-based Laplacians.” AMS Contributed Paper Session on Partial Differential Equations and Applications, Saturday January 13.
2. Modeling, Analysis and Numerics for Nonlocal Applications, Santa Fe, NM: (Upcoming, Poster Presentation) “Analysis and Simulation of Coupled Local and Nonlocal Models in Dynamic Problems.” December 2017.
3. Continuum Mechanics Seminar: “Analysis and Simulation of Coupled Local and Nonlocal Models in Dynamic Problems.” September 2017.
4. Summer Student, Postgraduate and Faculty Poster Session, Oak Ridge National Laboratory: (Poster Presentation) “Analysis and Simulation of Coupled Local and Nonlocal Models in Dynamic Problems.” August 2017.
5. KUMUNU Conference on PDE, Dynamical Systems and Applications: (Poster Presentation) “A state-based Laplacian and its connections with other nonlocal and local counterparts.” April 2017.
6. Continuum Mechanics Seminar: “Convergence Results in Bond-Based Peridynamics.” March 2017.
7. Women in Science Conference, UNL. Nebraska High School females, “Getting SLURPed - on the spread of a disease.” February 2017.

8. February Fourier Talks: (Poster Presentation) "A state-based Laplacian and its connections with other nonlocal and local counterparts." February 2017.
9. Continuum Mechanics Seminar: "An Introduction to state based non-local models, and some preliminary convergence results." November 2016.
10. Students in PDE's Reading seminar: "Space Camp: L^∞ and beyond." October 2016.
11. Women in Science Conference, UNL. Nebraska High School females, "Getting SLURPed - on the spread of a disease." February 2016.
12. Nebraska Association of Teachers of Mathematics Conference, Greater Nebraska Math Teachers' Circle, Kearney, Nebraska: (Joint presentation with Alicia Davis and Daniel Schaben) "Power to the Triangle." September 2015.
13. Mathematical Literature Seminar, UNL : "Dispersal data and the spread of invading organisms." Summer 2014.
14. Joint Mathematics Meetings: (Poster Presentation) "Growth functions of finitely generated algebras." January 2013 - MAA Outstanding Presentation Award.

Academic Honors and Awards

- Received MAA Outstanding Presentation Award for poster presentation at the 2013 JMM.
- Awarded half tuition academic scholarship at BYU-Idaho as incoming freshman, 2009-2010.
- Earned full tuition academic scholarship at BYU-Idaho: 2010-2011, 2011-2012, 2012-2013.
- Invited speaker at undergraduate graduation, 2013.

Service and Leadership

- Served as the principal representative on the UNL Graduate Student Assembly (GSA) for the Math department, August 2016-May 2017.
- Served on the Quality of Life Committee under the GSA, August 2016-May 2017.
- UNL Math Day Volunteer 2013-2018.
- Volunteer at the UNL's Women in Science Conference for High School Students 2016, 2017
- Participated in a two semester Professional Development seminar, 2014-2015.
- Spoke at undergraduate graduation convocation, 2013.
- Gave a presentation to high school Juniors and Seniors interested in STEM fields at BYU-Idaho, 2013.
- Served as President (2012) and then First Counselor of women's church organization, regularly participating in community service, 2012-2016.

Programming and Computer Skills

Programming Languages: MATLAB

Typesetting Language: \LaTeX

Software: Microsoft Office Package, including Excel and Word