

# Wenyu Lei

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## Education

Ph.D. in Mathematics, Texas A&M University, 2018.

Dissertation: Numerical approximation of partial differential equation involving fractional differential operators.

Available electronically from <https://oaktrust.library.tamu.edu/handle/1969.1/173688>.

Dissertation committee: Prof. Joseph E. Pasciak (chair), Prof. Andrea Bonito (co-chair), Prof. William Rundell & Prof. Vivek Sarin.

B.S. in Mathematics & Applied Mathematics, University of Science and Technology of China, 2012.

## Employment

Research Associate, SISSA, Italy, August 2018 – present.

## Research Interests

Numerical Analysis & Scientific Computing

Finite Element Methods

Immersed Boundary Methods

Fractional Diffusion

Variational Inequalities

## Publications

1. (with L. Heltai) A priori error estimates of finite element approximations of elliptic problems using a class of regularized forcing data, In preparation.
2. (with A. Bonito and A. Salgado) Finite element approximation of an obstacle problem for a class of integro-differential operators, to appear in *ESAIM: M2AN*.  
*ArXiv preprint* <https://arxiv.org/abs/1808.01576>.
3. (with A. Bonito and J. E. Pasciak) Numerical approximation of the integral fractional Laplacian. *Numer. Math. (online)*, doi: 10.1007/s00211-019-01025-x, 2019.
4. (with A. Bonito and J. E. Pasciak) On sinc quadrature approximations of fractional powers of regularly accretive operators. *J. Numer. Math. (online)*, doi: 10.1515/jnma-2017-0116, 2018.

5. (with A. Bonito and J. E. Pasciak) Numerical approximation of space-time fractional parabolic equations, *Comput. Methods Appl. Math.* 2017; 17(4): 679–705.
6. (with A. Bonito and J. E. Pasciak) The approximation of parabolic equations involving fractional powers of elliptic operators, *J. Comput. Appl. Math.* 2017, 315, 32–48.

## Grants & Awards

Research Fellowship, MDLab & SISSA, Italy, August 2018 – August 2019.

L.F. Guseman Prize in Mathematics, Texas A&M University, April 30, 2018.

Graduate Student Travel Grants to 2017 JMM, Atlanta, GA, January 3–6, 2017.

## Research Talks

ICIAM2019: International Congress on Industrial and Applied Mathematics, Valencia, Spain, July 15 – 19, 2019.

12th International Conference on Large-Scale Scientific Computations, Sozopol, Bulgaria, June 10 –14, 2019.

Analysis Junior Seminar, SISSA, Trieste, Italy, May 17, 2019.

WONAPDE2019: The Sixth Chilean Workshop on Numerical Analysis of Partial Differential Equations, Concepción, Chile, January 21–25, 2019.

Sixth deal.II Users and Developers Workshop, SISSA, Trieste, Italy, July 26, 2018 .

CAM Seminar, Department of Mathematics, University of Tennessee, Knoxville, September 27, 2017.

AMS Contributed Paper Session on Numerical Analysis and Computer Science, Joint Mathematics Meeting. Atlanta, GA, January 4, 2017.

Research Talk, School of Mathematical Sciences, University of Science and Technology of China, December 19, 2016.

Numerical Analysis Seminar, Department of Mathematics, University of Maryland, April 19, 2016.

Finite Element Circus: UMD 2016 Spring, Rutgers U 2017 Spring.

Finite Element Rodeo: TAMU 2016, U Houston 2017.

## Conferences and Workshops Attended

ICIAM2019: International Congress on Industrial and Applied Mathematics, Valencia, Spain, July 15 – 19, 2019.

12th International Conference on Large-Scale Scientific Computations, Sozopol, Bulgaria, June 10 –14, 2019.

WONAPDE2019: The Sixth Chilean Workshop on Numerical Analysis of Partial Differential Equations, Concepción, Chile, January 21–25.

Sixth deal.II Users and Developers Workshop, SISSA, Trieste, Italy, July 26, 2018.

MANNA: Modeling, Analysis and Numerics for Nonlocal Applications, Sandia National Laboratories, NM, Dec 11-15, 2017 (Poster Session).

Joint Mathematics Meeting. Atlanta, GA, January 3–6, 2017.

Geometric PDEs and their approximations. Texas A&M University, January 10–16, 2016.

Fifth deal.II Users and Developers Workshop. Texas A&M University, August 3–7, 2015.

Advanced numerical methods in the mathematical sciences. Texas A&M University, May 3–8, 2015.

Workshop on FDEs: inverse problems, modeling and numerical analysis. Texas A&M University, February 7–9, 2014.

Finite Element Circus: LSU 2013 Spring, UMD 2016 Spring, Rutgers U 2017 Spring.

Finite Element Circus: LSU 2013, UT Austin 2014, SMU 2015, TAMU 2016, U Houston 2017.

## Teaching Experience at Texas A&M University

Recitation - Math 437: Principles of Numerical Analysis, Fall 2017.

Instructor of record - Math 166: Topics in Contemporary Mathematics II, Fall 2016.

Recitation - Math 610d: Numerical Methods for Partial Differential Equations, Spring 2016.

Lab instructor - Workshop: Geometric PDEs and Their Approximations, Jan 10-16, 2016.

Recitation - Math 610: Numerical Methods for Partial Differential Equations, Fall, 2015.

Recitation - Math 417: Numerical Methods, Spring 2015.

Recitation - Math 151: Engineering Mathematics I, Fall 2014.

## Relevant Skills

Languages: English (fluent), Chinese (native).

Programming: C, C++ (deal.II Finite Element Library), MATLAB, Mathematica, R.