Yulong Li
Curriculum Vitae

Address	Department of Mathematics, University of Dayton
	Science Center, Room 313, 300 College Park
	Dayton, Ohio 45469 - 2316, USA
Phone	+1-(775)-500-1227 (Mobile)
E-mail	liyulong0807101@gmail.com
GoogleScholar	https://scholar.google.com/citations?user=mpi1uhQAAAAJ&hl=en
ResearchGate	https://www.researchgate.net/profile/Yulong-Li-19/research

EMPLOYMENT

Assistant Professor (tenure-track)

University of Dayton, USA

Aug. 2023—present

Postdoctoral Scholar

University of Nevada Reno, USA

Aug. 2020–July 2023

Research Fellow

Singapore University of Technology and Design, Singapore

Jul. 2019–Aug.2020

EDUCATION

Ph.D. Mathematics

University of Wyoming, USA

Sep. 2015–May 2019

M.S. Mathematical Physics

Capital Normal University, Beijing, China

Sep. 2012–Jul. 2015

B.S. Mathematics and Applied Mathematics

Jilin Normal University, China

Sep. 2008–Jun. 2012

RESEARCH INTERESTS

- Non-local analysis: Fractional calculus, Fractional-order differential equations, Fractional Sobolev spaces, Fractional Laplacian, Singular integral equations,

Special functions

- Related numerical analysis, Random projections

PUBLICATIONS

The following links are valid when the PDF is opened with Adobe Acrobat, not Microsoft Edge.

Published:

1. **Y. Li*** and V. Ginting, On Dirichlet BVP of fractional diffusion advection reaction equation in bounded interval: structure of solution, integral equation and approximation, Journal of Computational and Applied Mathematics, 2023, 246, Paper No. 115097. doi: 10.1016/j.cam.2023.115097
   `https://doi-org.unr.idm.oclc.org/10.1016/j.cam.2023.115097`

2. **Y. Li***, On the regularity and simplicity of a class of fractional elliptic operators, Communications on Pure and Applied Analysis. 2023, 22(2): 459-479. doi: 10.3934/cpaa.2022158
   `https://www.aimsciences.org/article/doi/10.3934/cpaa.2022158`

3. E. Çelik, **Y. Li** and A. S. Telyakovskiy*, On the fractional Newton method with Caputo derivatives, Trudy Instituta Matematiki i Mekhaniki UrO RAN, **28**, no. 4 (2022), 273–276. DOI: 10.21538/0134-4889-2022-28-4-273-276
   `http://journal.imm.uran.ru/2022-v.28-4-pp.273-276`

4. **Y. Li***, A. S. Telyakovskiy and E. Çelik, Analysis of one-sided 1-D fractional diffusion operators, Communications on Pure and Applied Analysis, **21**, no. 5 (2022), 1673–1690. DOI: 10.3934/cpaa.2022039
   `https://www.aimsciences.org/article/doi/10.3934/cpaa.2022039`

5. **Y. Li***, Raising the regularity of generalized Abel equations in fractional Sobolev spaces with homogeneous boundary conditions, Journal of Integral Equations and Applications, **33**, no. 3 (2021), 327–348.
   DOI:10.1216/jie.2021.33.327. `https://projecteuclid.org/journals/jou rnal-of-integral-equations-and-applications/volume-33/issue-3/ Raising-the-regularity-of-generalized-Abel-equations-in-fracti onal-Sobolev/10.1216/jie.2021.33.327.short`

6. **Y. Li***, A note on generalized Abel equations with constant coefficients, Rocky Mountain Journal of Mathematics, **51**, no. 5 (2021), 1749–1760. DOI: 10.1216/rmj.2021.51.1749.
   `https://projecteuclid.org/journals/rocky-mountain-journal-of-m athematics/volume-51/issue-5/A-note-on-generalized-Abel-equati ons-with-constant-coefficients/10.1216/rmj.2021.51.1749.full`

7. **Y. Li***, On the decomposition of solutions: from fractional diffusion to fractional Laplacian, Fractional Calculus and Applied Analysis **24**, no. 5 (2021), 1571–1600, DOI: 10.1515/fca-2021-0066

```
https://www.degruyter.com/document/doi/10.1515/fca-2021-0066/h
tml
```

8. **Y. Li***, Integral representation bound of the true solution to the BVP of double-sided fractional diffusion advection reaction equation, Rendiconti del Circolo Matematico di Palermo (2), **71**, no. 1 (2022), 407-–428. DOI: 10.1007/s12215-021-00592-z
```
https://link.springer.com/article/10.1007/s12215-021-00592-z
```

9. **Y. Li**, J. Y. Li, Z. H. Kuang, and K. Kang*, Improving random projections with extra vectors to approximate inner products, IEEE Access **8** (2020), 78590–78607. DOI: 10.1109/ACCESS.2020.2990422
```
https://ieeexplore.ieee.org/document/9078748
```

10. **Y. Li***, Symmetric decompositions of $f \in L^2(\mathbb{R})$ via fractional Riemann-Liouville operators, Progress in Fractional Differentiation and Applications, **6**, no. 2 (2020), 143–151.
```
http://www.naturalspublishing.com/files/published/bcxn833uj9g51
7.pdf
```

11. **Y. Li***, Characterizations of fractional Sobolev spaces from the perspective of Riemann-Liouville operators, Journal of Fractional Calculus and Applications, **11**, no. 2 (2020), 102–110. `http://math-frac.org/Journals/JFCA/Vol1`
```
1(2)_July_2020/Vol11(2)_Papers/9)%20%20Vol.%2011(2)%20July%202
020,%20pp.%20102-110..pdf
```

12. V. Ginting and **Y. Li***, On the fractional diffusion-advection-reaction equation in $\mathbb{R}$, Fractional Calculous and Applied Analysis, **22**, no. 4 (2019), 1039–1062. DOI: 10.1515/fca-2019-0055
```
https://www.degruyter.com/document/doi/10.1515/fca-2019-0055/h
tml
```

13. X.F. Gong et al. (including **Y. Li**), Laser interferometric gravitational wave detection in space and structure formation in the early universe (English translation), Chinese Astronomy and Astrophysics, **39**, no. 4 (2015), 411–446.
```
https://doi.org/10.1016/j.chinastron.2015.10.001
```

14. X.F. Gong et al. (including **Y. Li**), Laser interferometric gravitational wave detection in space and structure formation in the early universe (in Chinese), Progress in Astronomy, **33**, no. 1 (2015), 59–83.
```
http://www.cnki.com.cn/Article/CJFDTotal-TWJZ201501004.htm
```

Under review:

1. **Y. Li***, A. S. Telyakovskiy and E. Çelik, Analysis of a class of completely non-local elliptic diffusion operators, (Submitted, 2022)
```
https://www.researchgate.net/publication/361539749_Analysis_o
f_a_class_of_completely_non-local_elliptic_diffusion_operators
```

2. Q. Deng and **Y. Li***, Spectral analysis of a family of nonsymmetric fractional elliptic operators (Submitted, 2023)
```
https://arxiv.org/pdf/2212.11664.pdf
```

HONOR

Nomination for the Outstanding Postdoc Award   `Spring 2022`
University of Nevada Reno, USA

Nomination for the Outstanding Dissertation Award   `Apr. 2020`
University of Wyoming, USA

UW Science Initiative Scholarship   `Spring 2018`
University of Wyoming, USA

Graduate Initiative Fund   `2013–2014`
Capital Normal University, Beijing, China

INTERNATIONAL CONFERENCE TALKS

1. Theoretical and Applied Aspects for Nonlocal Models, Banff International Research Station, Alberta, Canada, July 17–22, 2022.
   (Poster) title: 1-D fractional diffusion advection reaction equation: equivalent models, structure of the solution and novel numerical scheme

2. Joint Mathematics Meetings (Virtual), Seattle, USA, April. 6–9, 2022.
   Title: On the regularity and simplicity of a class of fractional elliptic operators.

3. The 1st International Conference in Mathematical Sciences and Fractional Calculus (Virtual), Egypt, Feb. 16–18, 2021.
   Title: On the structure of solutions of double-sided fractional diffusion advection reaction equations.

4. The 7th ICDM Workshop on High Dimensional Data Mining, in conjunction with the IEEE International Conference on Data Mining, 2019, Beijing, China, Nov. 8–11, 2019.
   Title: Improving random projections with extra vectors: maximum likelihood estimation & control variates. (collaborate work with Dr. Keegan Kang)

5. 2019 SIAM Front Range Student Conference, University of Colorado, Denver, USA, Mar. 2, 2019.
   Title: Investigation on solutions of fractional diffusion-advection-reaction equations with variable coefficients.

6. ICERM-Fractional PDEs: Theory, Algorithms and Applications, Brown University, Providence, USA, Jun. 18– 22, 2018.
   (Poster) title: On fractional Sturm-Liouville differential equations.

7. NSF-CBMS Conference: Harmonic Analysis: Smooth and Non-Smooth, Iowa State University, Ames, USA, Jun. 4–8, 2018.
   Title: On a characterization of elements of $L^2(\mathbb{R})$ via Riemann-Liouville operators.

8. Colorado Nonlinear Days, University of Colorado, Colorado Springs, USA, Nov. 11–12, 2017.
   (Poster) title: Fractional Riemann-Liouville operators and fractional derivative spaces.

SEMINAR TALKS

1. Department of Mathematics, Continuum Mechanics Seminar, University of Nebraska-Lincoln, Nov. 3, 2022
   Title: Recent results on 1-D double-sided fractional diffusion equation and related open questions

2. Department of Mathematics and Statistics, University of Wyoming, Feb. 26, 2021.
   Title: From fractional diffusion to fractional Laplacian.

3. Department of Mathematics, Jilin Normal University, China, Jan. 2, 2019.
   Title: On the structure of solutions of fractional-order diffusion advection reaction equations.

4. Department of Mathematics and Statistics, University of Wyoming, Oct. 26, 2018.
   Title: The sufficient and necessary condition for smoothness of solutions of one dimensional fractional diffusion equations.

5. Department of Mathematics and Statistics, University of Wyoming, Sep. 24, 2018.
   Title: An equivalent definition of fractional Sobolev spaces $H^s(\mathbb{R}), s \geq 0$ from the point of view of R-L derivatives.

6. Department of Mathematics and Statistics, University of Wyoming, Oct. 23, 2017.
   Title: On the fractional Riemann-Liouville integral and differential operators and equivalent fractional derivative spaces.

OTHER CONFERENCES AND TALKS

- Nonlocal School on Fractional Equations (NSFE) 2022 Conference
  Iowa State University, June 9-11, 2022.

- The 4th Mathematics and Interdisciplinary Frontier Innovation Forum (virtual), Capital Normal University, Beijing, China, Jan. 15–16, 2022
  Title: Hello! Nonlocal analysis

- 7th Silk Road International Symposium for Distinguished Young Scholars (virtual), Xi'an Jiaotong University, China, Dec. 8–9, 2021
  Title: Hello! Fractional Calculus

- 6th Donghua Shangshi Forum for International Young Scholars, Donghua University, Shanghai, China, July, 12-14,2021
  Title: From fractional calculus to fractional Laplacian.

- 2019 RMMC Summer School: Inverse Problems In Imaging
  University of Wyoming, June 3–8, 2019.

- 24th West Coast Operator Algebra Seminar
  University of Wyoming, October 15–16, 2016

- The Eleventh International Conference on Matrix Theory and Applications
  Linyi University, June 13–16, 2014

TEACHING

Instructor:
MATH-168-03/10 Anly Geom & Calc I `Fall 2023`
University of Dayton, US
MATH-129 Calc for Business `Fall 2023`
University of Dayton, US
MATH-285 Differential Equations & Modeling Applications `Spring 2023`
University of Nevada Reno, US
MATH-291 Numerical Computational Methods for Electrical Engineering `Spring 2023`
University of Nevada Reno, US
MATH-285 Ordinary Differential Equations (Online course) `Fall 2022`
University of Nevada Reno, US
MATH-283 Calculus III `Fall 2022`
University of Nevada Reno, US
MATH-285 Differential Equations & Modeling Applications `Spring 2022`
University of Nevada Reno, US
MATH-283 Calculus III `Fall 2021`
University of Nevada Reno, US
MATH-285 Differential Equations & Modeling Applications `Spring 2021`
University of Nevada Reno, US
MATH-283 Calculus III `Fall 2020`
University of Nevada Reno, US
MATH-2310 Applied Differential Equations I `Spring 2019`
University of Wyoming, US
MATH-1450 Algebra and Trigonometry `Fall 2018`
University of Wyoming, US
MATH-2310 Applied Differential Equations I `Summer 2018`
University of Wyoming, US
MATH-2210 Discussion: Calculus III `Fall 2017`
University of Wyoming, US
MATH-2205 Calculus II `Summer 2017`
University of Wyoming, US
MATH-2205 Discussion: Calculus II `Spring 2017`
University of Wyoming, US

MATH-2205 Discussion: Calculus II Fall 2016
University of Wyoming, US
MATH-1405 Trigonometry Summer 2016
University of Wyoming, US
Advanced Linear Algebra Fall 2014
Kede College of Capital Normal University, Beijing, China

Teaching Assistant:

Linear Algebra and Linear Programing Trimester 1, 2020

Singapore University of Technology and Design, Singapore
MATH-2250 Elementary Linear Algebra Spring 2016
University of Wyoming, US
MATH-1400 College Algebra Fall 2015
University of Wyoming, US

Linear Algebra Sep. 2013–Jul. 2014

Capital Normal University, Beijing, China

Math Tutor:

Mathematics Assistant Center Sep. 2015– May 2019

University of Wyoming, US

Private Math Tutor Sep. 2012–Jul. 2015

Capital Normal University, Beijing, China

Private Math Tutor Sep. 2008–Jul. 2012

Jilin Normal University, China

ACTIVITIES AND SERVICES

- President of Chinese Students & Scholars Association, University of Wyoming Oct. 2015-Oct. 2016.

- Reviewer for Mathematical Reviews (MathSciNet), and for other mathematical journals.

PROFESSIONAL AND HONORARY SOCIETIES

- Tau Sigma National Honor Society

SOFTWARE SKILLS

(basic) Python, Latex, (basic) Matlab, (basic) Mathematica.