

# Jingni Xiao

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## *Research Interests*

Inverse problems, partial differential equations, scattering and inverse scattering, non-scattering phenomena, and nonlocal operators.

## Employment

Hill Assistant Professor, Rutgers University - New Brunswick, 2018 – present.

Mentors: Professor Fioralba Cakoni and Professor Michael Vogelius

Partially supported by NSF Grant DMS-12-11330 (PI: Michael Vogelius), Sep 2020 – Jun 2021

## Education

Ph.D. in Mathematics, Hong Kong Baptist University, Hong Kong SAR, China 2018.  
Advisor: Professor Hongyu Liu.

– Yakun Scholarship for Mainland Postgraduate Students, 2016–2017.

M.S. in Mathematics, Central South University, China, 2015.  
Advisor: Professor Siqing Gan.

B.S. in Mathematics, Central South University, China, 2012.  
Thesis Advisor: Professor Siqing Gan.

– Exchange student at Shan Dong University, China, 2010–2011.

## Publications

### *Preprint/Submitted/Accepted*

1. Michael S. Vogelius and Jingni Xiao. A link between scatterer geometry and finiteness of nonscattering wavenumbers for incident Herglotz waves. 2022. In preparation
2. Jingni Xiao. A new type of CGO solutions and its applications in corner scattering. 2022. Inverse Problems, to appear, arXiv:2111.01857

## Published

1. Michael Vogelius and Jingni Xiao. Finiteness results concerning nonscattering wave numbers for incident plane and Herglotz waves. *SIAM Journal on Mathematical Analysis*, 53(5):5436–5464, 2021
2. Fioralba Cakoni and Jingni Xiao. On corner scattering for operators of divergence form and applications to inverse scattering. *Communications in Partial Differential Equations*, 46(3):413–441, 2021
3. Emilia Blåsten, Hongyu Liu, and Jingni Xiao. On an electromagnetic problem in a corner and its applications. *Analysis & PDEs*, 14(7):2207–2224, 2021
4. Fioralba Cakoni, Shixu Meng, and Jingni Xiao. A note on transmission eigenvalues in electromagnetic scattering theory. *Inverse Problems & Imaging*, 15(5):999–1014, 2021
5. Hongyu Liu, Luca Rondi, and Jingni Xiao. Mosco convergence for  $H(\text{curl})$  spaces, higher integrability for Maxwell's equations, and stability in direct and inverse EM scattering problems. *Journal of the European Mathematical Society (JEMS)*, 21(10):2945–2993, 2019
6. Junjiang Lai, Hongyu Liu, Jingni Xiao, and Yifeng Xu. The decoupling of elastic waves from a weak formulation perspective. *East Asian Journal on Applied Mathematics*, 9(2):241–251, 2019
7. Tuhin Ghosh, Yi-Hsuan Lin, and Jingni Xiao. The Calderón problem for variable coefficients nonlocal elliptic operators. *Communications in Partial Differential Equations*, 42(12):1923–1961, 2017
8. Hongyu Liu and Jingni Xiao. Decoupling elastic waves and its applications. *Journal of Differential Equations*, 263(8):4442–4480, 2017
9. Hongyu Liu and Jingni Xiao. On electromagnetic scattering from a penetrable corner. *SIAM Journal on Mathematical Analysis*, 49(6):5207–5241, 2017
10. Hongyu Liu, Michele Petrini, Luca Rondi, and Jingni Xiao. Stable determination of sound-hard polyhedral scatterers by a minimal number of scattering measurements. *Journal of Differential Equations*, 262(3):1631–1670, 2017

## Grants

- AMS-Simons Travel Grant (\$4,000), 2019

# Other Research Experience

## *Visiting Positions*

- Visitor, CMAP, Ecole Polytechnique, France, Jun – Jul 2019.  
Host: Professor Housseem Hadar
- Visitor, Department of Mathematics, University of Washington, USA, Apr – Aug 2017.  
Host: Professor Gunther Uhlmann
- Research Assistant, Hong Kong Baptist University Institute of Research, China, Oct 2014 – Aug 2015.  
Host: Professor Hongyu Liu
- Visitor, Department of Mathematics, Southern University of Science and Technology, China, Mar – Apr 2014 and Jun – Jul 2013.  
Host: Professor Jingzhi Li

## *Invited Talks*

- Special Session on Mathematical Methods for Inverse Problems, The AMS Spring Central Sectional Meeting, *Purdue University, USA*, Mar 26–27, 2022.
- 2021 Minjiang Workshop on Applied and Computational Mathematics, *Minjiang University, China*, Dec 25–26, 2021.
- Special Section on Recent Advances in Inverse Problems for PDEs, The AMS Fall Western Virtual Sectional Meeting, Oct 23–24, 2021.
- Inverse Problems Seminar, *UC Irvine, USA*, Oct 21, 2021.
- Invited talk, *Northeast Normal University, China*, Dec 2, 2020.
- Applied and Computational Math Seminar, *Rutgers University, USA*, Nov 8, 2019.
- Spectral and Scattering Theory Seminar, *Purdue University, USA*, Oct 14, 2019.
- Inverse Problems and Analysis Seminar, *University of Delaware, USA*, Sep 17, 2019.
- The 10th Applied Inverse Problems Conference, *Grenoble, France*, Jul 8–12, 2019.
- Invited talk, *Ecole Polytechnique, France*, Jun 19, 2019
- Three invited lectures, *Central South University, China*, Jun 3–4, 2019.
- IAS Workshop on Inverse Problems, Imaging and PDEs, *HKUST, Hong Kong SAR*, May 20–24, 2019.
- Young Scholars Workshop on Inverse Problems, Imaging and PDEs, *Shenzhen, China*, Jan 13–14, 2018.

- The 9th Applied Inverse Problems Conference, *Hangzhou, China*, May 29 – Jun 2, 2017.
- Inverse Problems Seminar, *University of Washington, USA*, May 3, 2017.
- Young Scholars Workshop on Inverse Problems, Imaging and PDEs, *Shenzhen, China*, Mar 25–27, 2017.
- IAS Workshop on Inverse Problems, Imaging and PDEs, *HKUST, Hong Kong SAR*, Dec 5–9, 2016.
- The 2nd East Asia Section of IPIA-Young Scholars Symposium, *Taiwan*, Nov 5–6, 2016.
- Seminar of IAS Program on Inverse Problems, Imaging and Partial Differential Equations, *HKUST, Hong Kong SAR*, Oct 12, 2016.

### *Referee for Journals*

- SIAM Journal on Mathematical Analysis
- Transactions of the American Mathematical Society
- Research in the Mathematical Sciences
- Inverse Problems and Imaging
- Electronic Research Archive

## Teaching Experience

### *Rutgers University*

Spring 2022	Math 421:	<i>Advanced Calculus for Engineering</i>
Fall 2021	Math 421:	<i>Advanced Calculus for Engineering</i>
	Math 423:	<i>Elementary Partial Differential Equations</i>
Spring 2021	Math 423:	<i>Elementary Partial Differential Equations</i>
Fall 2020	Math 250:	<i>Introductory Linear Algebra</i>
Spring 2020	Math 250:	<i>Introductory Linear Algebra</i>
	Math 421:	<i>Advanced Calculus for Engineering</i>
Fall 2018	Math 350:	<i>Linear Algebra</i>
Spring 2019	Math 244:	<i>Differential Equations</i>
Fall 2018	Math 244:	<i>Differential Equations</i>

*Hong Kong Baptist University* (Teaching Assistant)

Jan - May 2018      Math 3605: *Numerical Methods II*  
Sep - Dec 2017      Math 2205: *Multivariate Calculus*  
Jan - Mar 2017      Math 1005: *Calculus*  
Sep - Dec 2016      Math 3206: *Numerical Methods*  
Jan - May 2016      Math 2215: *Mathematical Analysis*  
Sep - Dec 2015      Math 3206: *Numerical Methods*  
*Central South University*      (Teaching Assistant)  
Feb - Jun 2013      *Mathematical Analysis*  
Sep 2012 - Jan 2013      *Linear Algebra*

Last updated: January 2022