Xuenan Li

Department of Mathematics
Courant Institute of Mathematical Sciences
New York University
251 Mercer Street, N.Y. 10012
U.S.A.

Phone: 734-834-8037

email: xl2643@nyu.edu

Research Interests

Calculus of Variations and Partial Differential Equations

Academic Position

2023-   Term Assistant Professor in Applied Mathematics and Research Scientist
COLUMBIA UNIVERSITY

Education

2018- 2023   Graduate Student / Ph.D. Candidate
COURANT INSTITUTE OF MATHEMATICAL SCIENCES, NEW YORK UNIVERSITY, NY, USA
Advisor: Robert V. Kohn

2015-2018   B.S. in Mathematics and Data Science (double major)
UNIVERSITY OF MICHIGAN, ANN ARBOR, MI, USA

2013-2015   B.S. in Mathematics
SICHUAN UNIVERSITY, CHENGDU, CHINA

Research Publications & Preprints

Submitted & in preparation:

Li, Xuenan and Kohn, Robert V. (2022), *Some results on the Guest-Hutchinson modes and periodic mechanisms of the Kagome lattice metamaterial,* accepted in Journal of the Mechanics and Physics of Solids, [arXiv:2210.00382](https://arxiv.org/abs/2210.00382).

Li, Xuenan and Kohn, Robert V. (2023) *The existence of effective energy of general lattice metamaterials,* in preparation.

Li, Xuenan and Kohn, Robert V. (2023) *The macroscopic behavior of the Kagome lattice metamaterial,* in preparation.

Teaching & Grading

Fall 2022
Teaching Assitant
MATH-UA.0262-007 Ordinary Differential Equations
Courant Institute, New York University

Spring 2022
Teaching Assitant
MATH-UA.0140-007: Linear Algebra
Courant Institute, New York University

Fall 2021
Teaching Assistant
MATH-UA.0263-002: Partial Differential Equations
Courant Institute, New York University

Spring 2021
Teaching Assitant
MATH-UA.0121-017: Calculus I
Courant Institute, New York University

Fall 2016
Grader
MATH-GA.2500-001: Graduate Partial Differential Equations
Courant Institute, New York University

Conferences & Seminar Talks

8/2023
The macroscopic behavior of the Kagome lattice metamaterial, 10th International Congress on Industrial and Applied Mathematics (ICIAM 2023), Tokyo, August 20-25, 2023.

1/2023
The Kagome Lattice as a Mechanism-based Metamaterial, Applied Math Colloquium, Columbia University, New York, January 9, 2023.

10/2022
Some results on the Guest-Hutchinson modes and periodic mechanisms of the Kagome lattice metamaterial (poster), Simons Collaboration on Extreme Wave Phenomena Based on Symmetries Annual Meeting, Flatiron Institute, New York, October 20–21, 2022.

10/2022
The macroscopic energy of the Kagome lattice metamaterials, UpState NY Soft Matter Symposium, Rochester Institute of Technology, October 11, 2022.

7/2022
Kagome lattice as a mechanical metamaterial, SIAM Annual Meeting (AN22), Pittsburgh, July 11-15, 2022.

6/2022
The Kagome lattice as a mechanical metamaterial (poster), UMass Summer School on Soft Solids and Complex Fluids, University of Massachusetts Amherst, June 5–9, 2022.

3/2022   *Some results on Guest-Hutchinson modes and periodic mechanisms of the Kagome lattice as a meta-material*, Modeling Simulation Group meeting, Courant Institute, New York, March 3, 2022.

10/2021   *A mathematical perspective on Guest-Hutchinson modes* (poster), Simons Collaboration on Extreme Wave Phenomena Based on Symmetries Annual Meeting, Flatiron Institute, New York, October 21–22, 2021.

10/2021   *The Kagome lattice as a mechanical metamaterial*, Analysis and Applied Mathematics Seminar, University of Illinois Chicago, Chicago, October 11, 2021.

Honors & Awards

2023   SIAM Student Travel Award, 10th International Congress on Industrial and Applied Mathematics (ICIAM 2023)

2022   Sandra Bleistein Prize, New York University

2022   SIAM Student Travel Award, SIAM Annual Meeting (AN22)

2018–2023   New York University MacCracken Graduate Scholarship, New York University

2018   Wilfred Kaplan Award in Applied Mathematics, University of Michigan

2018   Outstanding Graduating Senior Award, University of Michigan

2017–2018   James B. Angell Scholar, University of Michigan

2017   Evelyn O. Bychinsky Awards, University of Michigan

2017   Sumner B.Myers Award in Analysis, University of Michigan
This is awarded to the undergraduate student who is most excellent in the study of analysis.

2015   Chinese National Scholarship
This scholarship is given to the top 3 students within each department in Chinese universities to honor their distinguished achievements.

Academic Services

04/2017–
08/2017   REU at University of Michigan, Department of Mathematics, Ann Arbor, MI:
Advisors: Charles Doering and David Goluskin

2016–2018   Tutor in Mathlab:
Tutored students with math problems varying from calculus classes to high level math courses including probability and combinatorics.

2016–2018 Tutor of Math 217 Linear Algebra:
Proofread students' proofs and tutored students to improve their understanding of the course material.

09/2017 Michigan Math Circle:
Held lectures and discussions about mathematics for high school and middle school students.

Programing Skills

C++ • C • Matlab • Python