Chaoan Li

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Education

- **Texas A&M University (TA&MU)** — Texas, United States
  Ph. D. Student - Data Science — *Aug. 2024 – Now*
- **Beijing Normal University (BNU)** — Beijing, People's Republic of China
  M. S. - Pure Mathematics; GPA: 3.5/4 — *Sep. 2021 – Jul. 2024*
- **University of Science and Technology Beijing (USTB)** — Beijing, People's Republic of China
  B. S. - Mathematics and Applied Mathematics; GPA: 3.94/4; — *Sep. 2017 – Jul. 2021*
- **University of Science and Technology Beijing (USTB)** — Beijing, People's Republic of China
  Second Major - Financial Engineering; GPA: 3.69/4; — *Sep. 2018 – Jul. 2021*

Publications

- **C. Li**, X. Yan and D. Yang, **Anisotropic ball Campanato-type function spaces and their applications**, Anal. Math. Phys. 13 (2023), Paper No. 50, 71 pp.
- **C. Li**, X. Yan and D. Yang, **Fourier transform of anisotropic Hardy spaces associated with ball quasi-Banach function spaces and its applications to Hardy–Littlewood inequalities**, Acta Math. Appl. Sin. Engl. Ser, (2024), https://doi.org/10.1007/s10255-024-1124-5.

Awards

- 2nd Prize Academic Innovation Award, Beijing Normal University (CNY 5,000) 2023
- 1st Prize Academic Scholarship, Beijing Normal University (CNY 12,000) 2023
- 2nd Prize Academic Scholarship, Beijing Normal University (CNY 10,000) 2022
- 1st Prize Freshman Scholarship, Beijing Normal University (CNY 10,000) 2021
- People's 1st Class Scholarship, University of Science and Technology Beijing, (CNY 3,000) 2018 - 2020

Honors

- Outstanding TA for Undergraduate Courses, Beijing Normal University 2022
- Excellent Campers of Summer Camp, Nankai University 2021
- Excellent Campers of Summer Camp, Wuhan University 2021
- Excellent Campers of Summer Camp, Beijing Normal University 2021
- Outstanding Graduates, University of Science and Technology Beijing 2021
- 2nd Prize of Undergraduate Mathematical Contest in Modeling, Beijing 2020
- 3rd Prize of Chinese Mathematics Competitions, People's Republic of China 2018

Research Experiences

- **Non-Smooth Atomic Decomposition of Anisotropic Triebel–Lizorkin spaces**
  Advisor: Dachun Yang, Yoshihiro Sawano — *April. 2023 – 2024*
  - **Non-smooth atomic decomposition**: Establish a non-smooth atomic decomposition of anisotropic Triebel–Lizorkin Spaces.
  - **Applications**: As a special case, establish a non-smooth atomic decomposition of anisotropic BMO spaces. Also presented the boundedness of Marcinkiewicz integral operators as an application.
- **Anisotropic Hardy Spaces Associated with Ball Quasi-Banach Function Spaces (BQFS)**
  Advisor: Dachun Yang — *Jan. 2022 – Oct. 2023*
  - **Duality**: Introduce the anisotropic ball Campanato-type function spaces and give the dual space of anisotropic Hardy space associated with BQFS.

- **Littlewood–Paley function characterizations**: Establish the anisotropic Lusin area function, the anisotropic Littlewood–Paley g-function, and the anisotropic Littlewood–Paley g_λ^*-function characterizations.
- **Fourier transform**: Prove that the Fourier transform of functions coincides with a continuous function in the sense of tempered distributions.
- **Hardy–Littlewood inequalities**: Show that the Hardy–Littlewood inequality holds true for the anisotropic Hardy space associated with BQFS.

- **Boundedness of Singular Integral Operators with Rough Kernels on Triebel–Lizorkin Space**
  Advisor: Yanping Chen *Sept. 2020 – Jun. 2021*
  - **Boundedness of Parabolic Singular Integral Operators**: Establish the boundedness on the Triebel–Lizorkin Space of the parabolic singular integral operators with kernels in Block Space.

- **Tracking Scan of Text Mining and Machine Learning**
  Advisor: Zhixiong Zhang *Sept. 2019 – Sept. 2020*
  - **The Undergraduate Student Innovation Practice Program of the Chinese Academy of Sciences**: Track and scan the latest AI achievements from institutions such as MIT, Google, and Microsoft.

Conference

- **2023 Harmonic Analysis and Its Applications (Beijing)** Beijing, People's Republic of China
  Participant *Oct. 2023*
- **2023 Beijing Harmonic Analysis and Its Application** Beijing, People's Republic of China
  Assist in Organizing & Participant *Aug. 2023*
- **2023 International Congress of Basic Science** Beijing, People's Republic of China
  Participant *Jul. 2023*

TA Experience

- **Mathematical Analysis III** BNU
  Organize Q & A and exercise classes for over 110 students. *Sep. 2023 – Dec. 2023*
- **Mathematical Analysis II** BNU
  Organize Q & A and exercise classes for over 100 students. *Mar. 2023 – Jul. 2023*
- **Functional Analysis** BNU
  Organize Q & A and exercise classes for over 140 students. *Sep. 2022 – Dec. 2022*
- **Selected Topics in Harmonic Analysis (Outstanding TA in 2022)** BNU
  Organize Q & A and exercise classes for over 100 students. *Mar. 2022 – Jul. 2022*

Relevant Coursework

- Data Science
- Computer Experiment
- Fourier Analysis
- Machine Learning

Skills

- **Programming:** Proficient in Matlab, R, Python and LaTeX. Familiar with C# and SQL.
- **Languages:** English (IELTS - 6.5, GRE - 317+3.5); Chinese (Native speaker).