CHAOAN LI

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Education

- **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. (Revised), arXiv: 2306.05840.

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 – Present*
  - **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

- Real Analysis
- Functional Analysis
- Fourier Analysis
- Function Spaces

Skills

- **Programming:** Proficient in Matlab and LaTeX. Familiar with R, C# and Python.

- **Languages:** English (IELTS - 6.5, GRE - 317+3.5); Chinese (Native speaker).