Jian-Qing Qi

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RESEARCH INTERESTS

Physical Organic Chemistry, Photochemistry, Radical Chemistry.

EDUCATION

Tsinghua University, Department of Chemistry Aug. 2022 – Now

PhD Student

- **Adviser:** Lei Jiao

Tsinghua University, Department of Chemistry Sept. 2018 – July. 2022

Bachelor of Science **(Graduate with Honors)**

RECENT RESEARCH

Direct Observation of All Open-Shell Intermediates in a Photocatalytic Cycle March 2024

J. Am. Chem. Soc. **2024**, *146* (11), 7140–7145.

Advisor: Prof. Lei Jiao and Prof. Xingwei Guo

- Successfully achieved direct observation of all radical intermediates in a photocatalytic cycle, clearly characterizing their interconversion processes.
- Marking the first-time chemists can clearly observe all radical intermediates and their transformation processes in a complex reaction
- Providing a new perspective for understanding photocatalytic reaction mechanisms.

Overestimated Halogen Atom Transfer Reactivity of α-Aminoalkyl Radicals August 2024

J. Am. Chem. Soc. **2024**, *146* (37), 25860–25869.

Advisor: Prof. Lei Jiao and Prof. Xingwei Guo.

- In-depth study of the reactivity of amine alkyl radicals in halogen atom transfer reactions, and established a systematic reactivity scale
- Challenges the conventional understanding of amine alkyl radical reactivity and demonstrates the tremendous potential of U-PSD TREPR in unveiling radical kinetics.

Characterization and Monitoring of Transient Enamine Radical April 2024

CCS Chemistry **2024**, *6* (10), 2420–2426.

Advisor: Prof. Lei Jiao, Prof. Xingwei Guo and Prof. Sanzhong Luo.

- Successfully observed enamine radical intermediates, crucial in organocatalysis, for the first time.
- Revealed the structure-activity relationship of enamine radical intermediates in radical addition reactions and measured the pKa values of these transient radical intermediates.

HONORS & AWARDS

- April 2024. **Outstanding Presenter Award** at 5th Beijing-Tianjin Organic Chemistry Graduate Student Academic Seminar.
- August 2024. **Selected Oral** at the Excellent Doctoral Student Forum of the National High-Level Talent Training Center for Chemistry.

SELECTED PUBLICATION

(1) Suo, W. [#]; **Qi, J.-Q**. [#]; Liu, J.; Sun, S.; Jiao, L.*; Guo, X.* Overestimated Halogen Atom Transfer Reactivity of α-Aminoalkyl Radicals. *J. Am. Chem. Soc.* **2024**, *146* (37), 25860–25869.

(2) **Qi, J.-Q.** [#]; Suo, W. [#]; Liu, J.; Sun, S.; Jiao, L.*; Guo, X.* Direct Observation of All Open-Shell Intermediates in a Photocatalytic Cycle. *J. Am. Chem. Soc.* **2024**, *146* (11), 7140–7145.

(3) Zhang, S. [#]; Cheng, L. [#]; **Qi, J.-Q.** [#]; Jia, Z.; Zhang, L.; Jiao, L.*; Guo, X.*; Luo, S.* Characterization and Monitoring of Transient Enamine Radical Intermediates in Photoredox/Chiral Primary Amine Synergistic Catalytic Cycle. *CCS Chemistry* **2024**, *6* (10), 2420–2426.

(4) Zhang, S.; Zhou, S.; **Qi, J.**; Jiao, L.; Guo, X. Time-Resolved Electron Paramagnetic Resonance Spectrometer Based on Ultrawide Single-Sideband Phase-Sensitive Detection. *Rev. Sci. Instrum.* **2023**, *94* (8), 084101.

(5) **Qi, J.-Q.**; Jiao, L. DFT Study on the Mechanism of 4,4′-Bipyridine-Catalyzed Nitrobenzene Reduction by Diboron(4) Compounds. *J. Org. Chem.* **2020**, *85* (21), 13877–13885.