Arwen Ying Cai

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Education

University of California, Los Angeles October 2024 – present
Ph.D in Theoretical/Computational Chemistry

University of British Columbia September 2020 – May 2024
Bachelor of Science in Chemistry (Hon.) *GPA: 92.1%*

J.N. Burnett Secondary School September 2015 – June 2020
GPA: 96.3%

Research Experience

Alexandrova Group (UCLA) | *Ph.D Student* October 2024 – Present

- Studying redox-switchable polymerization catalysts using machine learning and quantum mechanical modelling

Nichols Group (UBC) | *Undergraduate Research Assistant + Thesis Student* May 2023 – May 2024

- Synthesized transition metal coordination complexes for electrochemical CO_2 reduction
  - Investigated the effects of adding redox-active metals to the secondary coordination sphere of metalloporphyrins
- Gained proficiency in electrochemical characterization methods such as cyclic voltametry and bulk electrolysis

Wang Group (UBC) | *Volunteer* Sep 2022 – April 2023

- Used Gaussian and Multiwfn software to conduct density functional theory calculations
- Designed aromatic rings containing bridging hydrogen bonds

Hudson Group (UBC) | *Undergraduate Research Assistant* May – August 2022

- Synthesized fluorescent organic electronic materials
- Characterized the photophysical properties of synthesized compounds
- Gained skills in air-free synthetic chemistry

Publications

Elgadi, S. A.; **Cai, A.Y.**; Hudson, Z. M. Thermally Activated Delayed Fluorescence and Mechanochromism in Napthalimide-Azatriangulenes. *J. Mater. Chem. C* **2023**, *11* (34), 11589–11596. https://doi.org/10.1039/D3TC02407E.

Conference Presentations and Attendance

- **Cai, Y.**; Teindl, K.; Nichols, E.M. Installing Redox-active metals in the Secondary Coordination Sphere of a Metalloporphyrin. Oral presentation given at: Canadian Chemistry Conference and Exhibition 2024, 6 June 2024, Winnipeg, Canada.
- **Cai, Y.**; Teindl, K.; Nichols, E.M. Installing Redox-active metals in the Secondary Coordination Sphere of a Metalloporphyrin. Oral presentation given at: Western Canadian Undergraduate Chemistry Conference 2024, 8 May 2024, Saskatoon, Canada.
- **Cai, Y.**; Teindl, K.; Nichols, E.M. Installing Redox-active metals in the Secondary Coordination Sphere of a Metalloporphyrin. Poster presentation given at: UBC Chemistry Undergraduate Research conference, 25 March 2024, Vancouver, Canada.
- **Cai, Y.**; Elgadi, S. A.; Hudson, Z. M. Thermally Activated Delayed Fluorescence and Mechanochromism in Napthalimide-Azatriangulenes. Poster presentation given at: UBC Chemistry Graduate Research Symposium, 23 September 2023, Vancouver, Canada.
- Stoodley, R.; **Cai, Y.** Developing the 'stretchy-pants' lab manual; one-size can fit all!. Oral presentation given at: Canadian Chemistry Conference and Exhibition 2023, 9 June 2023, Vancouver, Canada.
- **Cai, Y.**; Elgadi, S. A.; Hudson, Z. M. Thermally Activated Delayed Fluorescence and Mechanochromism in Napthalimide-Azatriangulenes. Poster presentation given at: Canadian Chemistry Conference and Exhibition 2023, 8 June 2023, Vancouver, Canada.

- **Cai, Y.**; Elgadi, S. A.; Hudson, Z. M. Thermally Activated Delayed Fluorescence and Mechanochromism in Napthalimide-Azatriangulenes. Poster presentation given at: UBC Multidisciplinary Undergraduate Research Conference, 18 March 2023, Vancouver, Canada.
- Attended The 24th International Symposium on the Photochemistry and Photophysics of Coordination Compounds, 24–29 July 2022, Vancouver, Canada.

Honors and Awards

Undergraduate Teaching Assistant Award | *UBC Chemistry* — May 2024

Best Poster Prize | *CURC 2024* — March 2024

Lefevre Medal and Prize in Honours Chemistry | *UBC Chemistry* — 2024

Trek Excellence Scholarship | *UBC* — 2022, 2023
- Awarded to domestic students in the top 5% in their undergraduate year, faculty, and school.

Undergraduate Summer Research Award | *NSERC* — 2022, 2023

Outstanding Posters Prize — Materials Division | *CCCE 2023* — June 2023

Agnes and Gilbert Hooley Scholarship | *UBC* — 2023
- Awarded to the top student in Year 3 and Year 4 in the Chemistry department.

Chemical Institute of Canada Student Award — 2023

Shirley Snelgrove and John Yule Scholarship | *UBC* — 2022

Michael and Mary Gerry Undergraduate Scholarship in Physical Chemistry | *UBC* — 2022

Frank Eastham Memorial Scholarship | *UBC* — 2022

Charles and Jane Banks Scholarship | *UBC* — 2021, 2022

Teaching Experience

Laboratory Teaching Assistant (UCLA) | *CHEM 14BL* — 2024, 2025
Introductory organic chemistry laboratory course; responsible for delivering pre-lab instructions, supervising experiments, grading studen submissions, and holding office hours.

Laboratory Teaching Assistant (UBC) | *CHEM 235* — 2022, 2023
Introductory organic chemistry laboratory course; responsible for supervising and evaluating students during experiments and grading written submissions

Resource Centre Teaching Assistant (UBC) | *CHEM 121,123* — 2021, 2022
First-year physical and organic chemistry courses; responsible for answering student questions during office hours and grading quizzes and exams

Other Experience

UBC Undergraduate Chemistry Society | *Co-President, Academic Coord., Outreach Coord.* — 2021-2024
- As co-president, liason between the society and outside organizations, handle all administrative tasks, and oversee and support all events organized by the society
- As academic coordinator, organized three in-person graduate school information sessions from top Canadian universities and distributed exam study materials
- As outreach coordinator, organized tours of research laboratories in the department