

James Ho

Curriculum Vitae (updated as of 9/06/2023)

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Education

Northwestern University

Starting Fall 2023

Ph.D. Candidate in Chemical Engineering

- **Research Advisors:** Starting in Fall 2023
- **Areas of Interest:** Nanotechnology, Materials Science, Thermodynamics, Transport Phenomena, Sustainability and Heterogeneous Catalysis

Oregon State University

Fall 2019 - Spring 2023

Honors B.S in Chemical Engineering; *magna cum laude*

- **Research Advisors:** Mas Subramanian, Kyriakos Stylianou, David Cann
- **Thesis Title:** *Reticular Synthesis of Homochiral Metal-Organic Frameworks for Enhanced Enantioselective Separation of Racemic Drugs*

Research Experience

Oregon State University

- **Subramanian Research Group** Winter 2021 - Summer 2023
Department of Chemistry
 - Solid-state synthesis and characterization of non-stoichiometric solid solutions and double perovskites to better understand thermoelectric structure-property relationships (second author publication in progress)
- **Materials Discovery Lab** Spring 2021 - Summer 2023
Department of Chemistry
 - Reticular synthesis of homochiral metal-organic frameworks (MOFs) for enantioselective separation of racemic drug (thesis);
 - Asymmetric catalysis using homochiral isorecticular metal-peptide MOFs
 - Value-added CO₂ cycloaddition onto epoxides using ruthenium-MOF catalyst (publication);
- **Electroceramics Research Group** Fall 2021 - Spring 2022
Mechanical, Industrial and Manufacturing Engineering (MIME)
 - Collaborated with an international company to synthesize a new thermoresistant ceramic capacitor within cellphones

Publications and Writings

- **James Ho**, Makenzie T. Nord, Jared P. Stafford, and Kyriakos C. Stylianou
Ruthenium-based Metal-Organic Framework Catalyst for CO₂ Fixation onto Epoxides;
Published to Catalysis Science & Technology: October 17th, 2022;
<https://doi.org/10.1039/D2CY01170K>
- **James Ho**, Ankit Yadav, Andrzej Gladysiak, Andrew P. Carpenter, Adrian Henle, Joe Baio, Kyriakos C. Stylianou
Tuning Enantioselective Drug Adsorption in Isorecticular Homochiral Metal-Peptide Frameworks through Proximity Pore Interactions
Submitted to JACS Chemistry of Materials: August 16th, 2023
- Review Paper for CH615: Special Topics in Inorganic Chemistry:
Homochiral Metal-Organic Frameworks for Chiral Drug Separations

- Review Paper for CHE 541: Catalysis:
Metal-Organic Framework and Bimetallic Nanoparticle Composite for One-Pot CO₂ Hydrogenation and PET Methanolysis

Professional Presentations

- AIChE Student Design Competition/Senior Engineering Capstone Project Fair *June 9th, 2023*
Closing Critical Gaps to Enable a Circular Economy of Plastics
- Oregon State University Honors College Thesis Defense *June 5th, 2023*
Reticular Synthesis of Homochiral Metal-Organic Frameworks for Enhanced Enantioselective Separation of Racemic Drugs
- Oregon State University Honors College Research Symposium *May 19th, 2023*
Reticular Synthesis of Homochiral Metal-Organic Frameworks for Enhanced Enantioselective Separation of Racemic Drugs
- Pacific Northwest AIChE Student Regional Conference Poster Presentation *April 15th, 2023*
Reticular Synthesis of Homochiral Metal-Organic Frameworks for Enhanced Enantioselective Separation of Racemic Drugs
- Pacific Northwest AIChE Student Regional Conference Technical Presentation *April 15th, 2023*
Active Ruthenium-based Metal-Organic Framework Catalyst for CO₂ Fixation onto Epoxides
- AIChE Annual Conference Undergraduate Research Poster Presentation *November 14th, 2022*
Reticular Synthesis of Homochiral Metal-Organic Frameworks for Enhanced Enantioselective Separation of Racemic Drugs

Scholarships, Honors, Awards, and Distinctions

Undergraduate (Oregon State University)

- **ChE Erik Muehlenkamp Memorial Leadership Award** *OSU CBEE*
Awarded to a chemical engineering undergraduate student for service and educational outreach toward undergraduate chemical engineers *May 2023*
- **National Science Foundation GFRP Honorable Mention** *National Science Foundation*
Recognition accorded during undergraduate studies *Apr. 2023*
- **Honors College Experiential Scholarship** *OSU Honors College*
Funding awarded to attend national AIChE research conference *Nov. 2023*
- **Barry Goldwater Scholar Nominee** *Goldwater Foundation*
Nominated to represent OSU for the national Goldwater Scholar competition *Jan. 2022*
- **Dorsey & Aurelia Edwards Endowed Scholarship** *OSU CBEE*
Merit scholarship for undergraduate students at OSU studying chemical engineering *Sept. 2022*
- **Charles & Faye Daellenbach Family Endowed Scholarship** *OSU College of Engineering*
Merit scholarship for undergraduate students at OSU *Nov. 2021*
- **Honors General Scholarship** *OSU Honors College*
Grant awarded to Honors College students to pursue undergraduate studies, research and thesis *Sept. 2021*
- **Peter & Rosalie Johnson Scholarship** *OSU CBEE*
Academic scholarship for chemical, biological and environmental engineering undergraduates *Sept. 2021*

- **Dianne Finklein Memorial Scholarship** *OSU University Housing and Dining Services*
Awarded to 1 resident assistant for their contribution and
impact towards their living community *May 2021*
- **Weatherford Educational Fund** *OSU*
Merit scholarship awarded for undergraduate studies *Sept. 2020*
- **Engineering Scholarship** *OSU College of Engineering*
Merit scholarship for students in the College of
Engineering *Mar. 2020*
- **Dean's List** *OSU*
Distinction accorded for maintaining a quarter GPA of +3.50 *2019 - 2023*

Teaching Experience

Undergraduate (Oregon State University)

- **Instructor (1 course)**
 - CHE 331: Transport Phenomena I (co-instructor) *Winter 2023*
- **Teaching Assistant (14 courses overall)**
 - CH 231: General Chemistry (2 sections total) *Fall 2020, 2022*
 - CH 232: General Chemistry (2 sections total) *Winter 2021, 2022*
 - CH 233: General Chemistry (3 sections total) *Spring 2021, 2022*
 - CH 261: General Chemistry Laboratory (2 sections total) *Fall 2020, 2022*
 - CH 262: General Chemistry Laboratory (4 sections total) *Winter 2021, 2022, 2023*
 - CH 263: General Chemistry Laboratory (1 section total) *Spring 2021*
- **Learning Assistant (7 courses overall)**
 - MTH 251: Differential Calculus (E-Campus) *Fall 2020*
 - MTH 251: Differential Calculus (Hybrid) *Fall 2020*
 - CHE 331: Transport Phenomena I (two guest lectures) *Fall 2022*
 - CHE 332: Transport Phenomena II *Winter 2023*
 - CHE 312: Chemical Engineering Thermodynamics II *Winter 2023*
 - CHE 333: Transport Phenomena III *Spring 2023*
 - CHE 334: Transport Phenomena Laboratory *Spring 2023*
- **Honors College Chemistry Tutor** (20 students) *Nov. 2021 – Jun. 2023*
- **Resident Assistant** (6 dormitories, totaling over 2,000 students) *Sept. 2020 – Jun. 2023*
- **Supplemental Instructions Leader** (90 students total) *Jan. 2021 – Jun. 2021*

Activities and Service

Northwestern University

- **Pedagogy**
 - NU ChBE Teaching Committee *Present*
 - Searle Center for Advancing Learning and Teaching *Present*
- **Diversity Programs**
 - Anti-Racism, Diversity, Equity and Inclusion Committee *Present*
 - GoSTEM (Graduate Out in STEM) *Present*
- **STEM Outreach**
 - Northwestern University Science Club
 - *NeuroSports* *Fall 2023*
 - MORE (Mentorship Opportunities for Research Engagement) *Present*

Oregon State University

- **Diversity Programs**
 - OSTEM (Out in Stem) *Fall 2022 – Spring 2023*
 - Trevor Project Crisis Line Operator *Summer 2020 - Summer 2022*
 - SafeGuard Youth LGBTQ+ Affairs Coordinator *Summer 2020 - Fall 2021*
- **Professional Societies**
 - American Institute of Chemical Engineers (AIChE) Society *Present*
 - ChemE-Car Club *Fall 2022 – Spring 2023*
 - CBEE (AIChE) Club *Fall 2021 – Spring 2023*
 - Acacia Fraternity *Winter 2020 – Spring 2023*
- **STEM Outreach**
 - AIChE K-12 STEM Showcase, Phoenix AZ *November 14th, 2022*
 - OSU Discovery Day STEM K-8 outreach, OSU campus *November 1st, 2022*
 - Jefferson Elementary School Science Night, Jefferson OR *April 13th, 2023*
 - Family Science and Engineering Night Kennedy Elementary, Keizer OR *April 20th, 2023*
 - Faye Wright Elementary, Salem OR *May 4th, 2023*
 - Green Acres Elementary, Lebanon OR *May 11th, 2023*
 - Cascades Elementary, Lebanon OR *May 18th, 2023*
 - Science, Engineering and Art Day at Goss Stadium, OSU campus *May 25th, 2023*
 - Mountain View Elementary, Corvallis OR *June 1st, 2023*
 - Sunrise Elementary, Albany OR *June 8th, 2023*
 - Beaver Believers Middle School, OSU campus *June 26th, 2023*
 - Summer Experience in Science and Engineering for Youth (SESEY) *July 17th - 21st, 2023*
 - *Investigation of MOF ZIF-8 Growth/Synthesis and Characterization*

Relevant Courses

Oregon State University

- Graduate
 - CH 615: Selected Topics in Inorganic Chemistry, CHE 541: Catalysis
- Undergraduate
 - CH 230x: General Chemistry, CH 330x: Organic Chemistry, CH 440x: Physical Chemistry, BB 450x: Biochemistry, CHE 310x: Thermodynamics, CHE 330x: Transport Phenomena, MATS 321: Introduction to Materials Science, BIOE 351: Biomaterials and Bio-interfaces, BIOE 445: Surface Analysis, CHE 443: Chemical Reaction Engineering

Instrumentation and Skills

- Laboratory
 - PXRD, TGA, NMR, FT-IR, UV-Vis, SEM, SC-XRD, BET Isotherm, circular dichroism, dielectric measurements, colorimetry, neutron and optical characterization
 - Metal-organic framework synthesis, solid-state synthesis and ceramic composite synthesis
- Coding Languages/software
 - Excel, MATLAB, Python, Julia, COMSOL, ChemSep, HTML, CSS, JavaScript, Aspen HYSYS
- Personal
 - American Sign Language (7 years), Vietnamese, website design, pedagogy, science outreach and communication