

YERIN CHOE

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RESEARCH INTEREST

Advanced reductive water treatment, electrochemical catalyst, determination and degradation of Per- and Polyfluoroalkyl Substances (PFASs), sustainability, scalable process, photochemical degradation, tandem process, non-noble metal catalyst

EDUCATION

The University of Texas at Austin (UT Austin), Austin, TX Aug. 2025 – Present
PhD student in Civil Engineering

Seoul National University (SNU), Seoul, South Korea Mar. 2022 – Feb. 2024
Master of Science in Civil and Environmental Engineering
Thesis: Investigation on the applicability of UV/sulfite reductive treatment of PFASs in sorption regenerant

Seoul National University (SNU), Seoul, South Korea Mar. 2017 – Feb. 2022
Bachelor of Science in Chemistry (cum laude)
Thesis: Synthesis of less rigid ^{acri}PNP ligand to offer enhanced reactivity toward carbonyl conversion

PUBLICATION

- Jaehee Kim, Taeyeon Kim, Heungjoo Park, Moon-Kyung Kim, Soyeon Eom, **Yerin Choe**, Jong Kwon Choe, Kyung-Duk Zoh (2024) Kinetics and proposed mechanisms of hexafluoropropylene oxide dimer acid (GenX) degradation via vacuum-UV (VUV) photolysis and VUV/sulfite processes, *Journal of Hazardous Materials* 463, 132864. <https://doi.org/10.1016/j.jhazmat.2023.132864>

RESEARCH EXPERIENCE

Werth Research Group (Prof. Charles Werth), UT Austin Aug. 2025 – Present
Graduate Research Assistant (Aug. 2025 – Present)

- Investigated electrochemical catalyst for reductive defluorination of PFOA Investigated electrocatalytic nitrate removal using parallel plate thin layer flow reactor

Sustainable Environmental Technology Lab (Prof. Jong Kwon Choe), SNU Mar. 2021 – Feb. 2025
Post-master Fellow (Mar. 2024 – Feb. 2025)
Research Assistant (Mar. 2022 – Feb. 2024)
Undergraduate Research Intern (Mar. 2021 – Feb. 2022)

- Conducted batch and column tests to investigate sorption removal of Per- and Polyfluoroalkyl Substances (PFASs) in industrial wastewater
- Examined inhibition mechanisms of sorption regenerants during UV/sulfite treatment of PFASs
- Compared field-implementation strategies to mitigate inhibition caused by regenerant components in UV/sulfite treatment of PFASs
- Enhanced nuclear magnetic resonance (NMR) data quality using principal component analysis (PCA)

Metabolism-Carbon Modeling Group (Prof. Jooyoung Park), SNU Mar. 2024 – Dec. 2024
Research Intern

- Conducted annual MFA of food-related nitrogen in Korea
- Incorporated ten processes for MFA including crop production, feed industry, human consumption, water treatment, etc.

Inorganic Molecular Conversion Lab (Prof. Yunho Lee), SNU Jun. 2020 – Feb. 2021
Undergraduate Research Intern

- Synthesized phenyl derivative of ^{acri}PNP ligand for the reduction of CO₂ into carbonyl compounds

Synthetic Organic Chemistry Lab (Prof. Hong Geun Lee), SNU Jun. 2019 – Feb. 2020
Undergraduate Research Intern

- Synthesized chiral ligand to induce enantioselective N-centered conjugate addition to activated alkene

PRESENTATION

[Oral]

- **Yerin Choe & Jong Kwon Choe** (2024, November 6-8). *The impact of organic solvents and inorganic salts on the treatment of per- and polyfluoroalkyl substances and strategies for mitigation* [In-person oral presentation]. 2024 Korean Society of Environmental Engineers Conference, Yeosu, South Korea.
- **Yerin Choe & Jong Kwon Choe** (2023, August 16-21). *Influence of regenerant conditions on degradation and defluorination efficiency of UV/sulfite reductive treatment of PFASs in sorption regenerant* [In-person oral presentation]. ACS Fall 2023, San Francisco, CA, United States.

[Poster]

- **Yerin Choe & Jong Kwon Choe** (2022, November 8-11). *Investigation on photoreductive degradation products and degradation mechanisms of perfluorooctane sulfonate (PFOS) using 19F NMR characterization* [In-person poster session]. 2022 Korean Society of Environmental Engineers Conference, Jeju, South Korea.

PROJECT

Adsorption-based Removal Technology and Detoxification of PFASs Feb. 2024 – Nov. 2024
Samsung Electronics

- Predicted the adsorbent exchange cycle of a company's wastewater treatment facility based on laboratory experiments

Comprehensive Compilation and Utilization Framework Development for Carbon Neutral Technologies Information: Energy Sector Aug. 2024

- Collected process flows and technical information in oil-refinery sector to develop reference energy system (RES)

Super Recalcitrant PFAS Treatment LAB Mar. 2021 – Feb. 2024
National Research Foundation of Korea

- Investigated photoreductive degradation of PFASs in UV/sulfite process

Precise Analysis of PFCs in G-tower Wastewater Jul. 2023 – Dec. 2023
Samsung Electronics

- Developed 19F NMR analysis method for detection and quantification of PFASs in wastewater

LEADERSHIP / EXTRACURRICULAR

Volunteering Engineers & Scientists of SNU, SNU Mar. 2021 – Feb. 2022

- Developed assistive device for improving mobility rights of visually impaired individuals

College of Natural Sciences Student Government, SNU Sep. 2017 – Nov. 2019

Vice President (Oct. 2018 – Mar. 2019), Team leader (Apr. 2019 – Nov. 2019)

- Served as Vice President, directly elected by the undergraduate student body of the college

Tenspoon (Non Profit Organization), SNU Sep. 2018 – Feb. 2019

- Volunteered weekly at the university cafeteria in exchange of meal tickets for students in financial need

Summer Science Volunteering Camp, SNU Aug. 2017, Aug. 2018

Organizing committee

- Participated in planning and volunteer works for science education and mentoring programs aimed at rural youth

SNU Girls' Dance Crew (GoAhead), SNU Mar. 2017 – Dec. 2022

Vice President (Mar. 2018 – Feb. 2019)

- Directed five performance showcases involving 30 to 50 members as Vice President

HONORS AND AWARDS

College Recruitment Fellowship Spring 2025, Fall 2025

UT Austin

Conference Paper Award Nov. 2025

Korean Society of Environmental Engineers

For oral presentation at the 2024 KSEE Conference

Alumni Association Scholarship Fall 2023, Spring 2023, Fall 2022

Gwanak Corporation, SNU

Awarded to 3 graduate students in the department for studies in water treatment

BrainKorea21 Four Scholarship Spring 2022

National Research Foundation of Korea

Merit-Based Scholarship Spring 2018, Fall 2020

SNU

Awarded 50% tuition in Spring 2018, 30% tuition in Fall 2020

Alumni Association Scholarship Spring 2019

Gwanak Corporation, SNU

Awarded to 10 undergraduate students in the university for remarkable dedication to student government

13th Creative Design Competition for Underserved Communities 2021

Sharing and Technologies Incorporated

Awarded Bronze Prize for developing an assistive device for visually impaired individuals

SKILLS

TEM, LC-MS (SIM mode), LC-MS-MS (MRM, dynamic MRM, scan, product ion, precursor ion mode), IC, GC-MS, ICP-MS, ICP-OES, NMR spectroscopy (1D & 2D, experience in ¹H, ¹³C, ¹⁹F, ³¹P), TOC analysis, SPE, organic synthesis, openLCA