

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 <i>PhD student in Civil Engineering</i>	Aug. 2025 – Present
Seoul National University (SNU) , Seoul, South Korea <i>Master of Science in Civil and Environmental Engineering</i> Thesis: Investigation on the applicability of UV/sulfite reductive treatment of PFASs in sorption regenerant	Mar. 2022 – Feb. 2024
Seoul National University (SNU) , Seoul, South Korea <i>Bachelor of Science in Chemistry (cum laude)</i> Thesis: Synthesis of less rigid ^{acri} PNP ligand to offer enhanced reactivity toward carbonyl conversion	Mar. 2017 – Feb. 2022

PUBLICATION

- Jaehhee 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
Research Intern

Mar. 2024 – Dec. 2024

- 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
Undergraduate Research Intern

Jun. 2020 – Feb. 2021

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

Synthetic Organic Chemistry Lab (Prof. Hong Geun Lee), SNU
Undergraduate Research Intern

Jun. 2019 – Feb. 2020

- 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
Samsung Electronics

Feb. 2024 – Nov. 2024

- 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
National Research Foundation of Korea

Mar. 2021 – Feb. 2024

- Investigated photoreductive degradation of PFASs in UV/sulfite process

Precise Analysis of PFCs in G-tower Wastewater
Samsung Electronics

Jul. 2023 – Dec. 2023

- 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
<i>Vice President (Oct. 2018 – Mar. 2019), Team leader (Apr. 2019 – Nov. 2019)</i>	
• 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
<i>Organizing committee</i>	
• Participated in planning and volunteer works for science education and mentoring programs aimed at rural youth	
SNU Girls' Dance Crew (GoAheD) , SNU	Mar. 2017 – Dec. 2022
<i>Vice President (Mar. 2018 – Feb. 2019)</i>	
• Directed five performance showcases involving 30 to 50 members as Vice President	

HONORS AND AWARDS

College Recruitment Fellowship <i>UT Austin</i>	Spring 2025, Fall 2025
Conference Paper Award <i>Korean Society of Environmental Engineers</i> For oral presentation at the 2024 KSEE Conference	
Alumni Association Scholarship <i>Gwanak Corporation, SNU</i>	Fall 2023, Spring 2023, Fall 2022
Awarded to 3 graduate students in the department for studies in water treatment	
BrainKorea21 Four Scholarship <i>National Research Foundation of Korea</i>	Spring 2022
Merit-Based Scholarship <i>SNU</i>	
Awarded 50% tuition in Spring 2018, 30% tuition in Fall 2020	
Alumni Association Scholarship <i>Gwanak Corporation, SNU</i>	Spring 2019
Awarded to 10 undergraduate students in the university for remarkable dedication to student government	
13th Creative Design Competition for Underserved Communities <i>Sharing and Technologies Incorporated</i>	2021
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 ^{1}H , ^{13}C , ^{19}F , ^{31}P), TOC analysis, SPE, organic synthesis, openLCA