

# YERIN CHOE

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## RESEARCH INTEREST

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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

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**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 <sup>acri</sup>PNP ligand to offer enhanced reactivity toward carbonyl conversion

## PUBLICATION

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- 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

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**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 <sup>acri</sup>PNP ligand for the reduction of CO<sub>2</sub> 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

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[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

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**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

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**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

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**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

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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 <sup>1</sup>H, <sup>13</sup>C, <sup>19</sup>F, <sup>31</sup>P), TOC analysis, SPE, organic synthesis, openLCA