

YONGJU CHOI, Ph.D.

Professor in Environmental Engineering, Deputy Departmental Chair of Student Affairs,
Department of Civil & Environmental Engineering
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Major Research Interests

- Recovery of ammonia and gas-phase resources from wastewater using membrane contactor
- Investigation of sorption mechanisms of water contaminants and novel sorbent development
- Sustainable management of contaminated sediment and dredged materials

Education

STANFORD UNIVERSITY Stanford, CA

Ph.D. in Environmental Engineering and Science, Sep 2013

Dissertation: “The effectiveness of *in-situ* activated carbon treatment to sequester hydrophobic organic contaminants in sediments”

SEOUL NATIONAL UNIVERSITY Seoul, South Korea

M.S. in Environmental Engineering, Feb 2008

Dissertation: “Use of microbubble suspension to enhance aerobic biodegradation in the subsurface”

B.S. in Civil, Urban and Geosystem Engineering, Feb 2006, *Summa cum laude*

Professional Experience

Full professor, Dept. of Civil & Environmental Eng., Seoul National University Seoul, South Korea

Sep 2023 – present

Associate professor, Dept. of Civil & Environmental Eng., Seoul National University Seoul, South Korea

Sep 2018 – Aug 2023

Assistant professor, Dept. of Civil & Environmental Eng., Seoul National University Seoul, South Korea

Sep 2014 – Aug 2018

Post-doctoral scholar, Stanford University Stanford, CA

Oct 2013 – Aug 2014; Supervisor: Professor Richard G. Luthy

Paper Publications[#]

[#] Selected among a total of 75 published in peer-reviewed journals; full list available in google scholar (<https://tinyurl.com/4wan69rc>)

- H. Lee, **Y. Choi*** (2024) “Predicting apparent adsorption capacity of sediment-amended activated carbon for hydrophobic organic contaminants using machine learning.” *Chemosphere* 350, 141003.
- J. Park, W. Lee, J. K. Choe, **Y. Choi*** (2023) “Non-evaporative solid phase ammonium sulfate separation from ammonia-stripped sulfuric acid solution by solvent-driven fractional crystallization.” *Sep. Purif. Technol.* 318,

123869.

- J. Park, Y. Jang, W. Lee, **Y. Choi*** (2023) “Effect of chemical speciation in boundary layer on performance of ammonia recovery in membrane contactor.” *Desalination* 558, 116618.
- K. Kim, H. Kwon, J. Park, H. Lee, **Y. Choi*** (2023) “Thermal treatment of petroleum-contaminated marine sediment according to oxygen availability and temperature: Product quality as a potential plant-growth medium.” *Chemosphere* 324, 138347.
- J. Park, S. Bae, **Y. Choi**, J. K. Choe* (2023) “Rh-Pd/TiO₂ as bilateral catalysts for reductive and oxidative degradation of fluorinated pharmaceutical contaminant.” *Appl. Catal. B-Environ.* 322, 122089.
- W. Lee, **Y. Choi*** (2022) “Facile preparation of robust anti-wetting membrane by simple two-step FeOOH and fluorosilane membrane modification.” *Chem. Eng. J.* 442, 136112.
- Y. Jang, W. Lee, J. Park, **Y. Choi*** (2022) “Recovery of ammonia from wastewater by liquid–liquid membrane contactor: A review.” *Membrane and Water Treatment* 13(3), 147-166.
- J. (Jaebeom) Park, J. (Jeryang) Park, **Y. Choi*** (2022) “The driving force for collaboration networks in environmental engineering in South Korea.” *Environ. Eng. Res.* 27(2), 200475.
- J. (Jaebeom) Park, J. (Jeryang) Park, **Y. Choi*** (2022) “Identification of research communities of environmental engineering and their evolution using coauthor network analysis.” *Environ. Model. Softw.* 149, 105320.
- B. -C. Kim, C. Moon, **Y. Choi**, K. Nam* (2022) “Long-term stability of high *n*-caproate specificity-ensuring anaerobic membrane bioreactors: Controlling microbial competitions through feeding strategies.” *ACS Sustain. Chem. Eng.* 10(4), 1595-1604.
- J. Park, K. -A. Yang, **Y. Choi**, J. K. Choe* (2022) “Novel ssDNA aptamer-based fluorescence sensor for perfluorooctanoic acid detection in water.” *Environ. Int.* 158, 107000.
- B. -C. Kim, C. Moon, B. S. Jeon, L. T. Angenent, Y. Choi, K. Nam* (2021) “Shaping a reactor microbiome generating *n*-caproate productivity through Design-Build-Test-Learn approach.” *Chem. Eng. J.* 425, 131587.
- K. Kim, G. Joo, H. Kwon, **Y. Choi*** (2021) “Development of a low-temperature thermal treatment process for the production of plant-growable media using petroleum-impacted dredged sediment.” *Sci. Total Environ.* 776, 145917.
- G. Joo, Y. Kim, G. Kim, J. Song, M. Lee, J. K. Choe, **Y. Choi*** (2021) “Perfluorochemicals in Korean wastewater treatment plants: Implications on sources and monitoring.” *KSCE J. Civ. Eng.* 25(6), 1931-1938.
- G. Joo, W. Lee, **Y. Choi*** (2021) “Heavy metal adsorption capacity of powdered *Chlorella vulgaris* biosorbent: Effect of chemical modification and growth media.” *Environ. Sci. Pollut. Res.* 28(20), 25390-25399.
- W. Lee, S. An, **Y. Choi*** (2021) “Ammonia harvesting via membrane gas extraction at moderately alkaline pH: A step toward net-profitable nitrogen recovery from domestic wastewater.” *Chem. Eng. J.* 405, 126662.
- K. Kim, S. Yoon, H. Kwon, **Y. Choi*** (2020) “Effects of treatment agents during acid washing and pH neutralization on the fertility of heavy metal-impacted dredged marine sediment as plant-growing soil.” *Environ. Pollut.* 267, 115466.
- J. Park, S. An, E. H. Jho, S. Bae, **Y. Choi**, J. K. Choe* (2020) “Exploring reductive degradation of fluorinated pharmaceuticals using Al₂O₃-supported Pt-group metallic catalysts: Catalytic reactivity, reaction pathways, and toxicity assessment.” *Water Res.* 185, 116242.
- S. Ravi, Y. Choi, J. K. Choe* (2020) “Achieving effective fructose-to-5-hydroxymethylfurfural conversion via

facile synthesis of phosphate-functionalized porous organic polymers with a large surface area and high mesoporosity.” *Appl. Catal. B-Environ.* 271, 118942.

- E. Kim, J. K. Choe, B. H. Kim, J. Kim, J. Park, **Y. Choi*** (2020) “Unraveling the mystery of ultrafine bubbles: Establishment of thermodynamic equilibrium for sub-micron bubbles and its implications.” *J. Colloid Interface Sci.* 570, 173-181.
- B. Chen, L. Han, S. Yoon, W. Lee, Y. Zhang, L. Yuan, **Y. Choi*** (2020) “Applying steel slag leachate as a reagent substantially enhances pH reduction efficiency for humidification treatment.” *Environ. Sci. Pollut. Res.* 27(15), 18911-18923
- B. Chen, S. Yoon, Y. Zhang, L. Han, **Y. Choi*** (2019) “Reduction of steel slag leachate pH by humidification using water and aqueous reagents.” *Sci. Total Environ.* 671:598-607.
- S. Kang, J., G. Kim, J. K. Choe, **Y. Choi*** (2019) “Enhancing desorption and biodegradability of phenanthrene sorbed to biochar: effect of using powdered biochar and surfactant.” *J. Hazard. Mater.* 371:253-260.
- M. Kim, B. -C. Kim, K. Nam, **Y. Choi*** (2018) “Effect of pretreatment solutions and conditions on depolymerization and anaerobic digestion of lignocellulosic biomass in rice straw.” *Biochem. Eng. J.* 140:108-114.
- W. Lee, S. Yoon, J. K. Choe, **Y. Choi*** (2018) “Anionic surfactant modification of activated carbon for enhancing adsorption of ammonium ion from aqueous solution.” *Sci. Total Environ.* 639:1432-1439.
- S. Kang, J. Jung, J. K. Choe, Y. S. Ok, **Y. Choi*** (2018) “Effect of biochar particle size on hydrophobic organic compound sorption kinetics: applicability of using representative size.” *Sci. Total Environ.* 619-620:410-418.
- M. T. O. Jonker*, S. A. van der Heijden, ..., **Y. Choi**, et al. (2018) “Advancing the use of passive sampling in risk assessment and management of contaminated sediments: Results of an international passive sampling inter-laboratory comparison. *Environ. Sci. Technol.* 52(6):3574-3582.
- Y. Wu, Y. -M. Cho, R. G. Luthy, K. Kim, J. Jung, **Y. Choi*** (2017) “Assessment of hydrophobic organic contaminant availability in sediments after sorbent amendment and its selective removal.” *Environ. Pollut.* 231:1380-1387.
- **Y. Choi***, Y. Wu, B. Sani, R. G. Luthy, D. Werner, E. Kim (2016) “Performance of retrievable activated carbons to treat sediment contaminated with polycyclic aromatic hydrocarbons.” *J. Hazard. Mater.* 320:359-367.
- **Y. Choi***, Y. Wu, R. G. Luthy, S. Kang (2016) “Non-equilibrium passive sampling of hydrophobic organic contaminants in sediment pore-water: PCB exchange kinetics.” *J. Hazard. Mater.* 318:579-586.
- **Y. Choi**, Y. -M. Cho, W. R. Gala, T. P. Hoelen, D. Werner, R. G. Luthy* (2016) “Decision-making framework for preliminary assessment of in-situ activated carbon treatment to sediment.” *J. Hazard. Mater.* 306:184-192.
- **Y. Choi***, J. M. Thompson, D. Lin, Y. -M. Cho, N. S. Ismail, C. -H. Hsieh, R. G. Luthy (2016) “Secondary environmental impacts of remedial alternatives for sediment contaminated with hydrophobic organic contaminants.” *J. Hazard. Mater.* 304:352-359.
- **Y. Choi***, Y. -M. Cho, R. G. Luthy, D. Werner (2016) “Predicted effectiveness of in-situ activated carbon amendment for field sediment sites with variable site- and compound-specific characteristics.” *J. Hazard. Mater.*, 301, 424-432.
- **Y. Choi**, Y. -M. Cho, R. G. Luthy* (2014) “In situ sequestration of hydrophobic organic contaminants in sediments under stagnant contact with activated carbon. 2. Mass transfer modeling.” *Environ. Sci. Technol.* 48:1843-1850.
- **Y. Choi**, Y. -M. Cho, R. G. Luthy* (2014) “In situ sequestration of hydrophobic organic contaminants in sediments under stagnant contact with activated carbon. 1. Column studies.” *Environ. Sci. Technol.* 48:1835-1842.

- **Y. Choi**, Y. -M. Cho, R. G. Luthy* (2013) “Polyethylene-water partitioning coefficients for parent- and alkylated-polycyclic aromatic hydrocarbons and polychlorinated biphenyls.” *Environ. Sci. Technol.* 47:6943-6950.
- **Y. Choi**, Y. -M. Cho, W. R. Gala, R. G. Luthy* (2013) “Measurement and modeling of activated carbon performance for the sequestration of parent- and alkylated-polycyclic aromatic hydrocarbons in petroleum-impacted sediments.” *Environ. Sci. Technol.* 47:1024-1032.
- **Y. J. Choi**, Y. -J. Kim, K. Nam* (2009) “Enhancement of aerobic biodegradation in an oxygen-limiting environment using a saponin-based microbubble suspension.” *Environ. Pollut.* 157:2197-2202.

Patents[#]

[#] *The list is for those published; five more patents have been applied and are currently under review.*

- **Y. Choi**, K. Kim, Y. Jang (2022) “Method for preparing soil for plant growth.” Korean Patent No. 10-2447433.
- **Y. Choi**, W. Lee (2022) “System for ammonia recovery from wastewater using hydrophobic gas-permeable membrane.” Korean Patent No. 10-2418008.
- **Y. Choi**, W. Lee (2020) “Adsorbent of ammonium ion and method for preparing the same.” Korean Patent No. 1021793930000.
- S. Yoon, J. Jang, **Y. Choi**, J. Choe (2019) “Method of producing nitrous oxide in the sewage treatment process.” Korean Patent No. 10-2038229.
- K. Nam, **Y. J. Choi**, J. Y. Park (2010) “In situ biodegradation enhancement technology in the contaminated subsurface using microbubbles.” Korean Patent No. 10-0974143.

Book and Book Chapter

- J. Park, **Y. Choi** (translation supervisors), I. Kim, J. Myung, J. Park, S. Yoon, J. Lee, E. H. Jho, **Y. Choi**, J. K. Choe (professional translators) (2022) “Principles of Environmental Engineering and Science, 4th ed.” (Korean version), S. J. Masten, M. L. Davis (original authors), McGraw-Hill and Gyomoon.
- K. Nam, **Y. Choi** (2017) “Soil Environment.” H. Woo et al. (eds.), *Ecological Engineering: Principle and Application*, Cheongmungak, Paju, Korea.

Research Projects[#]

[#] *Selected among 40 ongoing and completed projects as a tenure-track professor at Seoul National University; KRW 1M ≈ USD 1K.*

- “Treatment of Wastewater Sulfate Ion by Solvent-Driven Crystallization.” Samsung Electronics, 2024, KRW 100M, Principal Investigator.
- “Development of High-Purity and High-Quality Ammonia Recovery Process from Anaerobic Digestate.” Korea Ministry of Trade, Industry and Energy, 2023, KRW 55M, Co-Principal Investigator.
- “Development of a Process Integrating Membrane Contact and Zeolite Ion Exchange for Recovery of Ammonia in Anaerobic Digestate.” SK Incheon Petrochem Co., Ltd., 2023, KRW 30M, Principal Investigator.
- “In-situ stabilization of sediment contaminants: Developing a guide for site-specific efficiency prediction and project design.” Korea Environmental Industry & Technology Institute, 2021-2025, KRW 946M, Principal Investigator.

- “Harvesting high purity ammonia from wastewater via membrane gas separation: Process and material development.” National Research Foundation of Korea, 2021-2024, KRW 602M, Principal Investigator.
- “Super recalcitrant PFAS treatment LAB.” National Research Foundation of Korea, 2021-2024, KRW 1,375M, Co-Principal Investigator.
- “Investigating the remediation alternatives for upper Nakdong River.” Korean Ministry of Environment, 2021-2022, KRW 300M, Co-Principal Investigator.
- “Developing recovery technique for hydrogen, methane, and ammonia from swine manure, cattle manure, and food waste via hydrogen fermentation and anaerobic digestion.” 2021-2022, KRW 160M, Co-Investigator.
- “Utilization of thermal energy embedded in wastewater.” Korean Ministry of Environment, 2020-2021, KRW 97M.
- “Process development for complete detoxification of emerging per- and poly-fluorinated organic pollutants via advance and convergence of the state-of-the-art water treatment technologies.” Seoul National University, 2020-2021, KRW 75M, Principal Investigator.
- “Investigating the water and sediment quality of Lower Hyeongsan River.” National Institute of Environmental Research, 2020-2021, KRW 997M, Co-Principal Investigator.
- “Development of a technology for assessment of the fate and prediction of the remediation efficiency for trace and emerging contaminants in adsorption and membrane filtration processes.” Korea Environmental Industry & Technology Institute, 2019-2023, KRW 975M, Co-Principal Investigator.
- “Development of Contaminated Soil Decontamination Technology for Dismantled NPP’s Using Selective Nuclide Adsorption Technique and Microbubble Vortex Breakdown Based on High Pressure Cleaning.” Korea Institute of Energy Technology Evaluation and Planning, 2018-2021, KRW 2,396M, Co-Principal Investigator.
- “Development of risk management technique and decision-making tool for contaminated sites.” Korea Environmental Industry & Technology Institute, 2018-2020, KRW 1,300, Co-Principal Investigator.
- “Pyrolytic Treatment of Petroleum-Impacted Dredged Sediment for the Sediment Reuse as Soil with High Ecological Value.” National Research Foundation of Korea, 2018-2020, KRW 150M, Principal Investigator.
- “Stabilization of wastewater treatment system through development of bio-accelerator.” Samsung Electronics, 2018-2019, KRW 100M, Principal Investigator.
- “Development of a chemical oxidation technique for integrative quantification of per- and polyfluorinated alkylated substances in wastewater treatment facilities.” Korean Ministry of SMEs and Startups, 2018-2019, KRW 40M, Principal Investigator.
- “Laboratory demonstration of in-situ bioremediation using ultrafine bubbles.” Korea Environmental Industry & Technology Institute, 2016-2018, KRW 112M, Principal Investigator.
- “Development of a biochar-based, semi-permanent infiltration system for the management of nonpoint source pollution.” National Research Foundation of Korea, 2015-2018, KRW 150M, Principal Investigator.
- “In-situ remediation of petroleum hydrocarbon impacted sediments: Advancing the state-of-the-art.” Chevron Energy Technology Company, 2014-2017, USD 220,000, Collaborator.

Awards and Honors

- Lee Byoung-ho Best Lecturer Award, College of Engineering, Seoul National University, Apr 17, 2024.
- Most Cited Paper of Year 2023, Korean Society of Water Environment (Journal: Membrane and Water Treatment),

Mar 21, 2024.

- Best poster presentation, Korean Environmental Dredging Society, Nov 10, 2023.
- Best poster presentation, Korean Society of Environmental Engineers Wastewater, Oct 26, 2023.
- Best platform presentation, Korean Society of Water and Wastewater, Oct 26, 2023.
- Best paper, Korean Society of Soil and Groundwater, Oct 12, 2023.
- Best poster presentation, Korean Environmental Dredging Society, May 19, 2023.
- Best poster presentations (for two different presentations), Korean Environmental Dredging Society, May 27, 2022.
- Excellent poster presentation, Korean Environmental Dredging Society, May 27, 2022.
- Excellent associate editor award, Korean Society of Civil Engineers, Dec 31, 2021.
- Best student project, 2021 K-water Tech-Conference, Advisor, Nov 24, 2021.
- Best platform presentation, Korean Society of Water Environment, Nov 24, 2021.
- Best poster presentation, Korean Environmental Dredging Society, Jun 4, 2021.
- Excellent poster presentations (for two different presentations), Korean Environmental Dredging Society, Jun 4, 2021.
- Best platform presentation, Korean Society of Water and Wastewater, Nov 24, 2021.
- Silver prize / Best student project award, The 4th X-corps Festival / The 4th SNU X-Corps Competition, Advisor, Dec 22, 2020 / Nov 16, 2020.
- Best platform presentation, Korean Society of Environmental Engineering, Nov 13, 2020.
- Best student project award, 2020 Female Graduate Student Engineering Team Project, Center for Women in Science, Engineering, and Technology (WISSET), Advisor, Nov 7, 2020.
- Excellent associate editor award, Korean Society of Civil Engineers, Dec 31, 2019.
- Best platform presentation, Korean Society of Water and Wastewater, Mar 22, 2018.
- Best paper, Ecology and Resilient Infrastructure, Jan 28, 2016.

Academic Activities

- Associate editor, KSCE Journal of Civil Engineering (2021 IF = 2.115), Aug 2019 ~ present.
- Associate editor, Journal of Korean Society of Environmental Engineers, Jan 2024 ~ present.
- Director of General Affairs, Korean Environmental Dredging Society, Jan 2021 ~ present.
- Director of Financial Affairs, Korean Society of Water and Wastewater, Jan 2024 ~ present.
- Director of Student Affairs, Korean Society of Civil Engineers, Jan 2024 ~ present.
- Associate Director of General Affairs, Korean Society of Water and Wastewater, Dec 2017 ~ Dec 2019.
- Director, Committee of Future Water and Wastewater, Korean Society of Water and Wastewater, Jan 2020 ~ Dec 2021.
- Deputy Director, Committee of Future Water Environment, Korean Society of Water Environment, Jan 2019 ~ Dec 2022.
- Board member, Korean Society of Soil and Groundwater Environment, Jan 2021 ~ present.
- Board member, Korean Society of Water Environment, Jan 2021 ~ present.
- Board member, Korean Society of Water and Wastewater, Dec 2017 ~ Dec 2021, Jan 2024 ~ present.
- Board member, Korean Society of Ecology and Infrastructure Engineering, Jan 2017 ~ Dec 2022.
- Member, Committee of International Affairs, Korean Society of Water and Wastewater, Jan 2024 ~ present.

- Member, Committee of the Future, Korean Society of Soil and Groundwater Environment, Jan 2021 ~ Dec 2022.
- Member, Committee of Planning, Korean Society of Soil and Groundwater Environment, Jan 2021 ~ present.
- Member, Committee of Education and Policy, Korean Society of Water and Wastewater, Jan 2020 ~ Dec 2021.
- Member, Committee of Turbid Tap Water Outbreaks, Korean Society of Water and Wastewater, Sep 2019 ~ Dec 2019.
- Member, Committee of Future Water and Wastewater, Korean Society of Water and Wastewater, Dec 2017 ~ Dec 2019.
- Member, Committee of Publication Affairs, Korean Society of Civil Engineers, Feb 2017 ~ Jan 2018.
- Member, News Letter Editorial Board, Korean Society of Ecology and Infrastructure Engineering, Jan 2017 ~ Dec 2020.
- Member, Committee of Planning and Development, Korean Society of Soil and Groundwater Environment, Jan 2017 ~ Dec 2018.
- Member, Academic Committee, Korean Society of Water and Wastewater, Dec 2015 ~ Nov 2017.
- Member, Committee of Technology and Projects, Korean Society of Ecology and Infrastructure Engineering, Aug 2015 ~ Dec 2016.
- Member, Committee of Future Water Welfare, Korean Society of Water Environment, May 2015 ~ Dec 2016.
- Member, Committee of Sustainability, Korean Society of Civil Engineers, Jan 2015 ~ Dec 2015.
- Member, Editorial Board, Korean Society of Ecology and Infrastructure Engineering, Jan 2015 ~ present.
- Symposium organizer, ACS Fall 2023 National Meeting & Expo, " Innovative and Practical Approaches for Separation, Destruction, and Monitoring of Per- and Polyfluoroalkyl Substances (PFASs) and Fluorinated Alternatives", Aug 2022 (scheduled).
- Symposium organizer, ACS Spring 2022 National Meeting & Expo, "Innovative & Practical Approaches for Treatment of Per- and Polyfluoroalkyl Substances (PFASs) and Fluorinated Alternatives", Mar 2022.
- Symposium organizer, ACS Spring 2021 National Meeting & Expo, "Innovative & Practical Approaches for Treatment of Per- and Polyfluoroalkyl Substances (PFASs) and Fluorinated Alternatives", Apr 2021.
- Scientific committee, The 3rd International Conference on Bioresources, Energy, Environment, and Materials Technology (BEEM), Jun 2019.
- Symposium organizer, ACS Fall 2021 National Meeting & Expo, "Physicochemical and Biological Phenomena on Sorbent Surfaces in Environmental Applications", Aug 2018.

Social Services

- Member, Future Innovation Committee, Water Forum of the National Assembly of Korea, Nov 2020 ~ May 2022.
- Member, R&D Panel, Seoul Water Institute, Sep 2020 ~ Aug 2022.
- Member, Proposal Evaluation Committee, Korea Environment Corporation, May 2020 ~ Aug 2022.
- Member, Committee of Construction Technology Review, Korea Ministry of Land and Transportation, Mar 2020 ~ present.
- Member, Evaluation Committee of Risk Assessment, Ministry of Environment, Mar 2019 ~ Mar 2021.
- Member, Professional Committee of Soil Contamination Risk Assessment, National Institute of Environmental Research, Mar 2018 ~ Mar 2020.

- Advisory member, Research Forum for Water Management, The National Assembly of Korea, Feb 2018 ~ May 2020.
- Member, Evaluation Committee of Private Investment, Korea Environment Corporation, Aug 2016 ~ Aug 2019.

Invited Talks[#]

[#] *Selected among +40 as a tenure-track professor at Seoul National University*

- “Recovery of high-quality nitrogen products from wastewater via integration of membrane contactor and solvent driven crystallization” University of British Columbia, Mar 14, 2024.
- “Evaluation of adsorption characteristics of PFASs to activated carbon (AC) and development of AC modification techniques for enhanced PFAS adsorption capacity” Yonsei University, Mar 06, 2024.
- “Evaluation of adsorption characteristics of PFASs to activated carbon (AC) and development of AC modification techniques for enhanced PFAS adsorption capacity” Korea Research Institute of Chemical Technology, Dec 12, 2023.
- “Evaluation of adsorption characteristics of PFASs to activated carbon (AC) and development of AC modification techniques for enhanced PFAS adsorption capacity” Korea Research Institute of Chemical Technology, Dec 12, 2023.
- “Production of nitrogen resources from wastewater: Integration of membrane contact and solvent-driven crystallization” Pusan University, Nov 11, 2023.
- “Harvesting high-purity ammonium salt from wastewater via membrane contact and solvent-driven fractional crystallization” Konkuk University, Apr 21, 2023.
- “Micropollutants in drinking water: A threat or not?” Koway R&D Center, Dec 13, 2022.
- “Ammonia recovery using membrane extraction technique for mainstream treatment of domestic wastewater.” University of California, Davis, May 18, 2022.
- “Ammonia recovery using membrane extraction technique for mainstream treatment of domestic wastewater.” University of California, Riverside, May 13, 2022.
- “Decision-making the remediation of contaminated sediments: Case study of the U.S.” National Institute of Environmental Research, May 07, 2020.
- “Recovery of ammonia from domestic sewage using gas-permeable membranes.” *Kyungpook* University, May 14, 2020.
- “Recovery of ammonia from domestic sewage using gas-permeable membranes.” Stanford University, Dec 11, 2019.
- “Coauthor network analysis to identify research atmosphere and trend in environmental engineering.” Hongik University, Oct 31, 2019.
- “Decision-Making the Remediation of Contaminated Sediments: Case Study of the U.S.” The 1st Contaminated Sediment Forum 2019, National Institute of Environmental Research, Oct 04, 2019.
- “Development of a remediation technique for sustainable reuse of contaminated dredged marine sediment.” Konkuk University, Jul 25, 2019.
- “Novel bacterial strains isolated from digested sludge show unique characteristics of PHA accumulation under biogas supply.” The 3rd International Conference on Bioresources, Energy, Environment, and Materials

Technology, Jun 14, 2019.

- “Identification of research atmosphere and trend in environmental engineering by coauthor network.” Korea Institute of Science and Technology, May 03, 2019.
- “Engineering techniques for contaminated soil remediation.” Pohang University of Science and Technology, Nov 29, 2018.
- “Sorption-based technologies for water quality management.” Tokyo University, Jan 19, 2018.
- “In-situ treatment of hydrophobic organic contaminants in sediment using activated carbon.” Korea University, Nov 14, 2017.
- “Monitoring hydrophobic organic contaminants in water environment using passive sampling technique.” Yonsei University, Nov 02, 2016.
- “In-situ treatment of hydrophobic organic contaminants in sediment using activated carbon.” Korea Advanced Institute of Science and Technology, Apr 29, 2015.
- “Monitoring hydrophobic organic contaminants in water environment using passive sampling technique.” Pusan University, Jan 08, 2015.
- “Effective treatment of organic contaminants using activated carbon.” Inha University, Oct 06, 2014.

Courses Taught

(Undergraduate courses)

- “Environmental Engineering” Dept. of Civil and Environmental Engineering (CEE), Seoul National University (SNU).
- “Engineering Solutions for Water Pollution” CEE, SNU.
- “Water Quality and Water Pollution Control” CEE, SNU.
- “Environmental Engineering” International Summer Program, SNU.
- “Leadership for Civil Engineers” CEE, SNU.
- “Environmental Engineering Systems Design” CEE, SNU.
- “Volunteer Social Service” SNU Social Responsibility, SNU.
- “Environment and Environmental Pollution” Department of Liberal Arts, Seoil College.

(Graduate courses)

- “Water Contaminants: Fate of Organics” CEE, SNU.
- “Water Contaminants: Identification and Quantification” CEE, SNU.
- “Biological Processes in Environmental Engineering” CEE, SNU.
- “Integrated Watershed Management: Water Quality Big Data Analytics” CEE, SNU.
- “Introduction to Environmental Engineering” Mongolian University of Science and Technology.
- “Advanced Field Applications of Engineering Knowledge” CEE, SNU.
- “Infrasphere Seminar: Sustainable Environment” CEE, SNU.

(Online courses)

- “Engineering Solutions for Water Pollution” 20 video clips, each ~70 min in length, available through SNUON

(<http://https://etl.snu.ac.kr/snuon>), 2021.

- “Water Contaminants: Fate of Organics” 35 video clips, each ~40 min in length, available through SNUON, 2019.
- “Environmental Engineering” (English version) 73 video clips, each ~20 min in length, available through SNUON, 2017.
 - “Environmental Engineering” (Korean version) 37 video clips, each ~30 min in length, available through SNUON, 2016.
- “Water Pollution Control” 37 video clips, each ~15 min in length, available through SNUON, 2015.

Educational Development Projects[#]

[#] *KRW 1M ≈ USD 1K.*

- “Capacity development of advanced-level education in urban development in Mongolia: S-Quad Project.” 2022-2027, USD 500M, Participant.
- “Development of specialized graduate program of knowledge-based environmental service.” Korean Ministry of Environment, 2021-2024, KRW 1,644M, Faculty member.
- “Development of specialized graduate program of organic waste valorization.” Korean Ministry of Environment, 2016-2019, KRW 1,095M, Faculty member.
- “The capacity development of the environmental education for sustainable development in developing countries: The case of Mongolian University of Science and Technology.” Korean Ministry of Education, 2016-2017, KRW 70M, Co-Investigator.
- “Development of specialized graduate program of organic waste valorization.” Korean Ministry of Environment, 2014-2016, KRW 1,050M, Faculty member.

Educational Outreach

- “SNU Knowledge Lecture: Environmental Engineering”, 1-hr introduction on environmental engineering to the general public; broadcasted via EBS (a TV channel) and Naver TV (a free online streaming service)
- “Establishing laws and regulations for water and wastewater”, LECTURED 3-hr short course to graduate students and lecturers at Mongolian Institute of Science and Technology (MUST), Jan 2023.
- “Friday touch on science”, LECTURED 1-hr class for K-12 students on water cycle and resource recovery, broadcasted and available via Youtube at <https://www.youtube.com/watch?v=34pIu1mJGcc>, Jul 2021.
- “Wetskills South Korea 2018”, Mentored student design projects, Jan 2018.
- “Current practices for wastewater management in Korea”, LECTURED 3-hr short course to graduate students and lecturers at Mongolian Institute of Science and Technology (MUST), May 2017.
- “Management of water and terrestrial environments”, LECTURED 3-hr short course to graduate students and lecturers at Mongolian Institute of Science and Technology (MUST), Jun 2015.
- “Friday touch on science”, LECTURED 1-hr class for K-12 students on the significance of water quality management, water cycle and resource recovery, Aug 2016.
- “Next generation construction leaders academy”, LECTURED 3-hr class of environmental engineering, Jan 2014.