Curriculum Vitae

Woojin Go

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EDUCATION

***Ph.D.* in Urban and Environmental Engineering**
Ulsan National Institute of Science and Technology (UNIST) — Ulsan, Korea
Mar. 2018 – Aug. 2023
Advisor: Prof. Yongwon Seo

***Bachelor of Science* in Chemical Engineering & Environmental Science and Engineering**
Ulsan National Institute of Science and Technology (UNIST) — Ulsan, Korea
Mar. 2014 – Feb. 2018

RESEARCH EXPERIENCE

Senior Research Engineer
HD Korea Shipbuilding & Offshore Engineering (HD KSOE) — Seongnam, Korea
Jan. 2025 – Present
Green Energy System Research Dept.

Postdoctoral Fellow
Seoul National University (SNU) — Seoul, Korea
Sep. 2023 – Dec. 2024
Supervisor: Prof. Yutaek Seo

HONORS AND AWARDS

Excellent Poster Presentation Award — Oct. 26th, 2018
The Korean Institute of Chemical Engineers

Best Paper Award — Dec. 27th, 2018
The Korean Society of New and Renewable Energy

Excellent Oral Presentation Awards — Nov. 11st, 2022
The Korean Institute of Chemical Engineers

TEACHING EXPERIENCE

Ulsan National Institute of Science and Technology (UNIST) Mar. 2022 ~ June 2022
Teaching Assistant, *Teaching assistant for Environmental Thermodynamics*

Ulsan National Institute of Science and Technology (UNIST) Aug. 2016 ~ June 2017
Teaching Assistant, *Teaching assistant for General Chemistry*

PUBLICATIONS

†: equal contribution
*: corresponding author
IF and Ranking: 2025 JCR Science Edition

Journal Publications

[1] Lee, D., **Go, W.**, and Seo, Y.*, "Experimental and computational investigation of methane hydrate inhibition in the presence of amino acids and ionic liquids," *ENERGY*, (2019) (**SCI, IF: 10.1, Rank: 3/78 (3.85%)** in Thermodynamics)

[2] Lee, D., **Go, W.**, and Seo, Y.*, "Synergistic kinetic inhibition of amino acids and ionic liquids on CH_4 hydrate for flow assurance," *FUEL*, (2020) (**SCI, IF: 7.8, Rank: 31/183 (16.94%)** in Chemical Engineering)

[3] Lee, D., **Go, W.**, Ko, G., and Seo, Y.*, "Inhibition synergism of glycine (an amino acid) and [BMIM][BF_4] (an ionic liquid) on the growth of CH_4 hydrate," *CHEMICAL ENGINEERING JOURNAL*, (2020) (**SCI, IF: 12.5, Rank: 4/88 (4.55%)** in Environmental Engineering)

[4] Lee, D.†, **Go, W.**†, Oh, J., Lee, J., Jo, I., Kim, KS. *, and Seo, Y.*, "Thermodynamic inhibition effects of an ionic liquid (choline chloride), a naturally derived substance (urea), and their mixture (deep eutectic solvent) on CH_4 hydrates," *CHEMICAL ENGINEERING JOURNAL*, (2020) (**SCI, IF: 12.5, Rank: 4/88 (4.55%)** in Environmental Engineering)

[5] Choi, W., **Go, W.**, Lee, Y., Mok, J., and Seo, Y.*, "Mechanism and kinetics of guest exchange in sII hydrate – Flue gas replacement as revealed by experimental and computational approaches for hydrocarbon recovery and CO_2 sequestration," *CHEMICAL ENGINEERING JOURNAL*, (2021) (**SCI, IF: 12.5, Rank: 4/88 (4.55%)** in Environmental Engineering)

[6] **Go, W.**, Lee, D., and Seo, Y.*, "Synergistic inhibition effects of hydrophilic monomeric substances on CH_4 hydrate as revealed by experimental and computational approaches," *CHEMICAL ENGINEERING JOURNAL*, (2021) (**SCI, IF: 12.5, Rank: 4/88 (4.55%)** in Environmental Engineering)

[7] Ko, G.†, **Go, W.**†, and Seo, Y.*, "Kinetic Selectivity of SF_6 during Formation and Dissociation of SF_6 + N_2 Hydrates and Its Significance in Hydrate-Based Greenhouse Gas Separation," *ACS SUSTAINABLE CHEMISTRY & ENGINEERING*, (2021) (**SCI, IF: 7.6, Rank: 33/183 (18.03%)** in Chemical Engineering)

[8] Noh, HJ.†, Lee, D.†, **Go, W.**, Cho, G., Im, YK., Mahmood, J., Seo, Y.*, and Baek JB.*, "Fused aromatic networks as a new class of gas hydrate inhibitors", *CHEMICAL ENGINEERING JOURNAL*, (2022) (**SCI, IF: 12.5, Rank: 4/88 (4.55%)** in Environmental Engineering)

[9] Farhadian, A.†, **Go, W.**†, Yun, S.†, Rahimi, A., Nabid, M. R., Iravani, D., and Seo, Y.*, "Efficient dual-function inhibitors for prevention of gas hydrate formation and CO_2/H_2S corrosion inside oil and gas pipelines", *CHEMICAL ENGINEERING JOURNAL*, (2022) (**SCI, IF: 12.5, Rank: 4/88 (4.55%)** in Environmental Engineering)

[10] **Go, W.**, Yun, S., Lee, D., and Seo, Y.*, "Experimental and computational investigation of hydrophilic monomeric substances as novel CO_2 hydrate inhibitors and potential synergists", *ENERGY*, (2022) (**SCI, IF: 10.1, Rank: 3/78 (3.85%)** in Thermodynamics)

[11] **Go, W.**, Yun, S., Lee, D., and Seo, Y.*, "Dipeptides as environmentally friendly CH_4 hydrate inhibitors: experimental and computational approaches", *FUEL,* (2022) (**SCI, IF: 7.8, Rank: 31/183 (16.94%)** in Chemical Engineering)

[12] Lee, Y.†, **Go, W.**†, Kim, Y., Lim, J., Choi, W., and Seo, Y.*, "Molecular guest exchange and subsequent structural transformation in CH_4 – CO_2 replacement occurring in sH hydrates as revealed by ^{13}C NMR spectroscopy and molecular dynamic simulations", *CHEMICAL ENGINEERING JOURNAL*, (2023) (**SCI, IF: 12.5, Rank: 4/88 (4.55%)** in Environmental Engineering)

[13] Yun, S., Jo, I., **Go, W.**, Kim, Y., Kim, K-S., and Seo, Y.*, "Water-Soluble Cellulose As a New Class of Green CH_4 Hydrate Inhibitors: Insights from Experiments and Molecular Dynamics Simulations", *ACS SUSTAINABLE CHEMISTRY & ENGINEERING*, (2023) (**SCI, IF: 7.6, Rank: 33/183 (18.03%)** in Chemical Engineering)

[14] Park, M.†, **Go, W.**†, Jung, J., Jeong, G., Park, J., Seo, Y.*, "Navigating pH Influence: A Detailed Study on the Performance of Vitamin E-TS, Span-60, DTAB, and Monoethylene Glycol in Controlling Gas Hydrate Formation", *ENERGY & FUELS,* (2023) (**SCI, IF: 6.0, Rank: 45/183 (24.59%)**in Chemical Engineering)

[15] Mok, J., **Go, W.**, Seo, Y.*, "Predicting Phase Equilibria of CO_2 Hydrate in Complex Systems Containing Salts and Organic Inhibitors for CO_2 Storage: A Machine Learning Approach", *ENERGY & FUELS*, (2024) (**SCI, IF: 6.0, Rank: 45/183 (24.59%)**in Chemical Engineering)

[16] **Go, W.**, Mun, S., Seo, Y.*, "Experimental and computational insights into the inhibition of CO_2 hydrate formation using biodegradable oligopeptides and their significance in CO_2 transport and storage", *APPLIED ENERGY*, (2024) (**SCI, IF: 12.2, Rank: 14/183 (7.65%)** in Chemical Engineering)

[17] **Go, W.**†, Jung, J.†, Park, M.†, Sohn, Y., Lim, J., Seo, Y., Seo, Y.*, "Advancing the Hydrate-Based CO_2 Separation Process by Implementing Spectroscopic Analysis and Process Simulation", *ENERGY & FUELS*, (2024) (**SCI, IF: 6.0, Rank: 45/183 (24.59%)**in Chemical Engineering)

[18] Yun, S., Lee, D., **Go, W.**, Kim, K.-S.*, Seo, Y.*, "Evaluation of hydrophilic and hydrophobic ionic liquids as dual-functional CH_4 hydrate inhibitors: A combined experimental and simulation study", *FUEL*, (2024) (**SCI, IF: 7.8, Rank: 31/183 (16.94%)** in Chemical Engineering)

[19] Mun, S.†, Kim, S.†, Mok, J., **Go, W.**, Kang, K., Lee, S., Lee, J., Seo, Y.*, "Experimental and computational analysis of R152a hydrate-based desalination: A promising solution for hypersaline brine treatment", *CHEMICAL ENGINEERING JOURNAL*, (2024) (**SCI, IF: 12.5, Rank: 4/88 (4.55%)** in Environmental Engineering)

[20] Jung, J.†, **Go, W.**†, Park, S., Seo, Y.*, "Hydrate management strategies for CO_2 injection into depleted gas reservoirs", *CHEMICAL ENGINEERING JOURNAL,* (2024) (**SCI, IF: 12.5, Rank: 4/88 (4.55%)** in Environmental Engineering)

[21] Jeong, G., Park, S., Park, I., **Go, W.**, Seo, Y.*, "Early Detection and Prevention of Two-Phase Flow-Induced Vibrations in CO_2 Transport Pipelines Using a Flow Control System Coupled with a Neural Network Model", *ENERGY & FUELS,* (2024) (**SCI, IF: 6.0, Rank: 45/183 (24.59%)**in Chemical Engineering)

[22] Ock, D., Kang, Y., Lee, J., Kim, S., Mok, J., **Go, W.**, Choi, W.*, "Influence of Memory Effect on the Growth Kinetics of Thermodynamically Promoted $CO_2 + H_2$ Hydrate for Rapid Hydrate-Based Gas Separation", *KOREAN JOURNAL OF CHEMICAL ENGINEERING,* (2025) (**SCI, IF: 3.4, Rank: 117/251 (46.61%)** in Multidisciplinary Chemistry)

[23] Kang, Y., Ock, D., Lee, J., Lee, J., Mok, J., **Go, W.**, Choi, W.*, "Optimizing Hydrate-Based CO_2 Capture in Saline Environments Using Low-Dosage THF for Seawater Utilization", *KOREAN JOURNAL OF CHEMICAL ENGINEERING,* (2025) (**SCI, IF: 3.4, Rank: 117/251 (46.61%)** in Multidisciplinary Chemistry)

[24] Jeong, G.†, Jung, J.†, **Go, W.**†, Min, C., Wan, Z., Colin, D.W.*, Seo, Y.*, "From material characterization to process simulation: Performance evaluation of amine-infused resins for CO_2 capture", *JOURNAL OF CO_2 UTILIZATION,* (2025) (**SCI, IF: 8.6, Rank: 26/183 (14.21%)** in Chemical Engineering)

[25] Kim, S.†, Lim, J.†, Ryu, J., **Go, W.**, Seo, Y.*, "Competitive crystallization and guest dynamics during secondary hydrate formation in $CH_4 + CO_2$ + neohexane systems: Implications for CO_2 sequestration and CH_4 recovery in structure H hydrates", *CHEMICAL ENGINEERING JOURNAL,* (2026) (**SCI, IF: 12.5, Rank: 4/88 (4.55%)** in Environmental Engineering)

[26] Jeong, G., **Go, W.**, Park, J., Koo, B., Seo, Y.*, "Enrichment of light gas components in CO2 liquefaction and transport process for industrial gas streams", *JOURNAL OF CO*2 *UTILIZATION,* (2026) (**SCI, IF: 8.6, Rank: 26/183 (14.21%)** in Chemical Engineering)

[27] Lee, J., Lee, J., Park, M., Kim, S., Kim, M., Mok, J., **Go, W.**, Lee, Y.*, Seo, Y.*, “Multiphase flow and hydrate plugging during liquid CO2 injection into water-saturated sediments: Experimental and CFD insights for geological CO2 storage”, *JOURNAL OF CLEANER PRODUCTION,* (2026) (**SCI, IF: 10.7, Rank: 27/395 (6.84%) in Environmental Sciences**)

[28] Mun, S., **Go, W.**, Mok, J., Kim, S., Jang, H., Seo, Y.*, “Amino acid derivatives as kinetic hydrate inhibitors for CO2 transport and storage: Mechanistic insights from experiments and molecular dynamics simulations”, *CHEMICAL ENGINEERING JOURNAL,* (2026) (**SCI, IF: 12.5, Rank: 4/88 (4.55%)** in Environmental Engineering)

PATENTS

[1] Seo, Y., Choi, W., Mok, J., **Go, W.**, Lee, J. "Hydrogen purification and CO_2 sequestration from syngas by using boiling method for gas hydrate formation"
A. Korea – Registration No. 10-2618693

[2] Seo, Y., Choi, W., Mok, J., **Go, W.**, and Yun, S. "Formation of CO_2 hydrate slurry using boiling phenomenon of liquified CO_2 in a submarine reactor for CO_2 ocean sequestration"
A. Korea – Registration No. 10-2478612

[3] Seo, Y., Choi, W., Mok, J., and **Go, W.** "Water pipes with refrigerant-filled double walls for prevention of freezing and bursting"
A. Korea – Registration No. 10-2314846

[4] Seo, Y., Lee, D., **Go, W.**, Yun, S., Kim, S., Lee, C., Beum, H., Kim, J., Yoon, H., Cho, K. "Method of capturing carbon dioxide using additive solution"
A. Korea – Registration No. 10-2553904

[5] Seo, Y., Kim, S., Mok, J., Lim, J., **Go, W.** "High purity separation method of gas hydrate-based methylcyclohexane-toluene mixture"
A. Korea – Registration No. 10-2868945

[6] Seo, Y., Lee, D., **Go, W.**, Oh, J., Kim, K.-S., Jo, I. "Gas hydrate inhibitors using deep eutectic solvents, composition including the same, and inhibiting method of hydrate using the composition"
A. Korea – Registration No. 10-2498886

[7] Kim, K.-S., Jo, I., Lim, J., Seo, Y., Yun, S., **Go, W.** "Gas hydrate inhibitor using cellulose and use thereof"
A. Korea – Registration No. 10-2704300

[8] Seo, Y., Kim, S., Mok, J., Yun, S., Park, M., **Go, W.** "Effective hydrate nucleation method using vaporization heat and bubble formation of liquefied gas"
A. Korea – Application No. 10-2023-0186093 (Publication No. 10-2025-0095228)

[9] **Go, W.**, Lee, D. "Gas detection system"
A. Korea – Application No. 10-2025-0101113 (Publication No. 10-2026-0016441)

[10] Lee, D., **Go, W.**, Jung, J. "Gas detection system"
A. PCT – Application No. PCT/KR2025/020018 (Publication No. WO 2026/117056 A1)