

Woojin Bae


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Education

Bachelor's degree in Chemical and Biological Engineering | **Seoul National University** 2020 - Present

Exchange student in Chemical and Biomolecular Engineering | **North Carolina State University** Jan. 2025 - Apr. 2025

Major in Chemistry | **Daejeon Science High School for the Gifted** 2017 - 2020

Research Experience

Self-Driving Fluidic Lab, NCSU Jan. 2025 - May. 2025
Undergraduate Researcher (Advisor: Prof. Milad Abolhasani) North Carolina, US

Multi-dimensional Materials Chemistry Lab, SNU Mar. 2024 - Present
Undergraduate Researcher (Advisor: Prof. Jungwon Park) Seoul, Korea

- Synthesized Ag cluster-based AIGS(silver indium gallium sulfide)-core
- SEI Structures Dependent Li-Morphology Characterized by cryo-TEM
- Team Leader** of "Undergraduate Independent Study 1" regarding LMBs SEI Cryo-TEM analyzing.

Center for Cell-Encapsulation Research, KAIST Mar. 2018 - May. 2019
Research & Education Student (Advisor: Prof. Insung Choi) Daejeon, Korea

- Created a porous titanium oxide shell to facilitate the simple culturing of astrocytes
- Confirmed the function of encapsulated astrocytes by analyzing the length of neurons co-cultured with astrocytes

Conferences & Research Presentations

SEI Structures Dependent Li-Morphology Characterized by Cryo-TEM. **Bae, W.**; Jeong, S.; Ji, S.; Park, J.
The 2024 Annual Fall Conference of Korean Society of Microscopy, Gyeongju, Korea (Nov 25, 2024). Poster Presentation.

Rethinking Life Choices Beyond the Child Penalty. **Bae, W.**; Miu Akutsu.; Park, J.; Xing Qing.
Tokyo Forum 2024: Shape the Future, Design for Tomorrow, Tokyo, Japan (Nov 22-23, 2024). Oral Presentation.

Regulation of astrocyte growth using porous titanium oxide shells. **Bae, W.**; Lee, K.; Lee, C.; Kim, T.; Choi, I.
Korean Chemical Society Future Chemist Research Presentation, Daegu, Republic of Korea (Oct 19, 2018). Poster Presentation.

Wettability Change of Self-Assembled Monolayers (SAMs) of Thiol on Gold. **Bae, W.**; Lee, K.; Lee, C.
The 51st Joint School Science Exhibition, Hong Kong, Hong Kong (Aug 22-27, 2018). Poster Presentation

Honors & Awards

Young Engineers Honor Society | National Academy of Engineering of Korea Nov. 2024 - Present

Korea-U.S. Student Exchange Program in the field of high-tech industry | Ministry of Trade, Industry and Energy Nov. 2024

- Awarded a **\$9000 scholarship** for Exchange student for a semester

Excellence Poster Award | The 5th Undergraduate Student Advanced Experimental Research Program Jan. 2024

- Theme: Consideration on the relationship between microscopic structure and macroscopic shape according to the synthesis conditions of Hollow ZSM-5

Team Section Selected | Changing SNU Contest Jul. 2022

- Theme: A spatial-restricted messenger allowing messages to be accessed only at SNUfestival locations designated by the sender.

The Education and Research Foundation Scholarship | College of Engineering, SNU Mar. 2021 - Jun. 2021

Merit-based Scholarship | Department of Chemical Biological Engineering, SNU Sep. 2020 - Dec. 2020

2020 Future Chemistry Talent Award | The Korean Union of Chemical Science and Technology Societies Feb. 2020

- Awarded as one of the **top 6 science high school students** in Korea

Excellence Poster Award | 2019 Gifted School R&E Joint presentation **Jan. 2019**
 • Theme: Regulation of astrocyte growth using porous titanium oxide shells

Encouragement Prize | 2017 Korea Foundation for the Advancement of Science & Creativity Conference **Jan. 2018**
 • Theme: Correlation between Z-potential and contact angle of QDs solution

Leadership

Marketing team & manager | SNUfestival, SNU **Jun. 2021 - May. 2022**
 • Promoted the festival through the **online website** during COVID-19
 • **Secured a sponsorship** agreement with the shared scooter company 'Swing'

Vice president | CBE Interim Leadership, SNU, Republic of Korea **Dec. 2020 - Mar. 2021**

Teaching & Mentoring Experience

Korean Language Peer Mentor | Language Education Institute, SNU **Fall 2024**

Learning Assistant | Faculty of Liberal Education, SNU **Fall 2024**
 • Basic Computing: First Adventures in Computing, L0444.000400

TEM Seminar | Multi-dimensional Materials Chemistry Lab, SNU **May. 2024**
 • Amplitude and Phase Contrast

Student Mentor | Seoul National University Social Responsibility **Apr. 2023 - Present**
 • Selected as a **superb mentor**

Extracurricular Activities

Tokyo Forum Youth Session | The University of Tokyo & Chey Institute for Advanced Studies, Japan **Aug. 2024 - Nov. 2024**
 • Represented Korean students and participated in the warp-up session hosted by the President of the University of Tokyo

HKUST Entrepreneurship Bootcamp 2024 | Hong Kong University of Science and Technology, Hong Kong **Jul. 2024**
 • Participated in the mock start-up competition and won the **third prize** for the idea of worldwide healthcare platform

SNU-UMN Culture Exchange Program | via Zoom **Mar. 2024**

2023 Winter Vacation Data Science Bootcamp: **Computing** | Graduate School of Data Science, SNU **Feb. 2024**

Encouragement Prize | SNU in the World Program UCC Contest, Office of International Affairs, SNU **Nov. 2022**

Serving military service | Daegu, Republic of Korea **Aug.2022 - May.2024**
 • 110th Squadron, operating the F-15K Slam Eagle, selected as an **exemplary soldier**

SNU in EU program | Brussels School of Governance, Belgium **Jul. 2022**
 • Understanding European Unions (EU), M2170.004600, delivered a presentation titled "The European External Action Service"

Summer International Exchange program | Kansas Academy of Mathematics and Science, USA **Jul. 2018**
 • Synthesized ZnSe Quantum dots and applying them on Gratzel cell

Skills & Languages

- **Instruments:** TEM, SEM, UV-Vis, OM, PL
- **Language:** Korean (Native), English (C1, TOEFL 95)
- **Computer Language:** Python, C, Html, CSS,
- **Software:** Adobe Premiere Pro, Adobe illustrator, Fusion 360