

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

Undergraduate Researcher | Multi-dimensional Materials Chemistry Lab, SNU, Republic of Korea **Mar. 2024 - Present**

- Synthesized Ag cluster-based AIGS(silver indium gallium sulfide)-core
- SEI Structures Dependent Li-Morphology Characterized by cryo-TEM
- Led a semester-long project “**Undergraduate Independent Study 1**” regarding LMBs SEI Cryo-TEM Imaging

R&E Student | Center for Cell-Encapsulation Research, KAIST, Republic of Korea **Mar. 2018 - May. 2019**

- 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, Republic of Korea (Nov 25, 2024). Poster 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: Spatial-restricted messenger. The receiver can open a message only at the point where the sender had designated it to do so. Consists of an experimental UI Design, including 100 different interfaces for the loading screen.

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, Republic of Korea	Jun. 2021 - May. 2022
<ul style="list-style-type: none">• 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
<ul style="list-style-type: none">• Conducted freshman orientation, facilitating the integration of new students, via Zoom during COVID-19.	

Teaching and Mentoring Experience

Korean Language Peer Mentor Language Education Institute, SNU	Sep. 2024 – Nov. 2024
Teaching Assistant Faculty of Liberal Education, SNU	Sep. 2024 - Dec. 2024
<ul style="list-style-type: none">• Basic Computing: First Adventures in Computing, L0444.000400	
TEM Seminar Multi-dimensional Materials Chemistry Lab, SNU	May. 2024
<ul style="list-style-type: none">• Delivered a presentation titled “Amplitude and Phase Contrast”	
Student Mentor Seoul National University Social Responsibility	Apr. 2023 – Present
<ul style="list-style-type: none">• 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
<ul style="list-style-type: none">• Representative among 10 Korean students and delivered a presentation titled “A Way out of the Child Penalty”	
HKUST Entrepreneurship Bootcamp 2024 Hong Kong University of Science and Technology, Hong Kong	Jul. 2024
<ul style="list-style-type: none">• 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 - Apr. 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
<ul style="list-style-type: none">• 110th Squadron, operating the F-15K Slam Eagle, selected as an exemplary soldier	
SNU in EU program Brussels School of Governance, Belgium	Jul. 2022
<ul style="list-style-type: none">• 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
<ul style="list-style-type: none">• Synthesized ZnSe Quantum dots and applying them on Gratzel cell	

Skills & Languages

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