Minjae Kwen

Curriculum Vitae

Department of Chemistry, KAIST,
291, Daehak-ro, Yuseong-gu, Daejeon, Republic of Korea(34141)

Contact Info

Email: kmjaday0082@kaist.ac.kr
Phone: +82-10-9204-6950
Website: https://minjaekwen.github.io/

Research Interests

Computational Chemistry
- Nonadiabatic Dynamics Simulations
- First-principle Calculations in Catalytic Reactions

Synthesis and Application of Nanocatalysts

Educations

KAIST, Daejeon Mar. 2019 – Present
Major in Chemistry (Minor: Material Science)
- Current GPA: 4.18/4.3, Major GPA: 4.23/4.3
- Military Service, Alternative: May. 2022 – Feb. 2024

UC Berkeley, Berkeley, CA Jun. 2019 – Aug. 2019
Summer Sessions at UC Berkeley

Daegu Science High School, Daegu Mar. 2016 – Feb. 2019
High school for the gifted in science and mathematics

Publications

Journal Articles

1. *Splitting of Hydrogen Atoms into Proton–Electron Pairs at BaO–Ru Interfaces for Promoting Ammonia Synthesis under Mild Conditions*
   J. Am. Chem. Soc. 2023, 145, 20, 11364–11374.

   : As a co-first author, performed DFT calculation study of BaO-Ru interface in Ba-Ru/MgO catalyst.

Conference Papers

1. *Time-domain ab initio analysis of facet-dependent carrier dynamics in Cuprous oxide*
   : To deliver poster-presentation in the conference, ISTCP 2024

Research Experiences

M-design Lab (KAIST) Sep. 2021 – Present
Individual Study, Undergraduate Research Program (URP)

Advisor: Hyungjun Kim
Topic:

- Time-domain ab initio analysis of facet-dependent carrier dynamics in Cuprous oxide

- Splitting of Hydrogen Atoms into Proton–Electron Pairs at BaO–Ru Interfaces for Promoting Ammonia Synthesis under Mild Conditions - Computational Study
- Screening Pathways for Nitrogen Monoxide Electroreduction on Transition Metal on TPP using Density-Functional Theory

Nanocatalyst Research Laboratory (KAIST) Apr. 2021 – Aug. 2021
Individual Study

Advisor: Hyunjoon Song

Studied the synthesis and characterization of various nanocatalysts including Au nanoparticles, Ag nanorods, Cu MOFs, etc. Applied the products to electrocatalysts and evaluated the catalytic efficiency.

Electrochemical Materials Design Laboratory (KAIST) Dec. 2020 – Feb. 2021
Individual Study

Advisor: Hye Ryung Byon
Topic: Electrochemical Potential Window of Molecular Crowded Electrolyte with Various Li Salt

Honors and Awards

Korean Presidential Science Scholarship, Chemistry 2019–Present
Korea Student Aid Foundation (KOSAF)
Designed to support top undergraduates in Korea, about twenty freshmen in chemistry selected annually

KAIST Presidential Fellowship (KPF) 2019–Present
Global Leadership Center, KAIST
Designed to support top students in KAIST, twenty-six freshmen selected in 2019

Dean's list, KAIST 2021
Department of Chemistry, KAIST
Best academic performance during the first six semesters, Spring 2019–Fall 2021

Certificate of Commendation, Social Service 2023
Gyeongin Regional Office of Military Manpower Administration
Praise for faithful social service and setting a good example for other social service agents

Others

Academic Conferences 2024

- ISTCP 2024, Qingdao, China
  Academic conference for theoretical chemical physics, planning to deliver poster presentation
- NANO KOREA 2024, Goyang-si, Republic of Korea
  Academic conference specializing in the nanotechnology
- 2024 Korea-Japan Symposium on Molecular Science, Busan, Republic of Korea
  Academic conference for cutting-edge molecular sciences

KAIST-IIT Madras Joint Research Challenge 2020
Indian Institute of Technology Madras, Chennai, Tamil Nadu, India

Collaborated research with IITM students on the topics of sustainable environment

Alternative Military Service (Social Service) 2022–2024
Dangaram Kindergarten, Hanam-si, Gyeonggi-do, Korea