Sangwoo Nam

Independent Researcher
nsw0196@uos.ac.kr
+82) 10-3685-0196
sangwoo-nam.com

EDUCATION

Mar. 2023 ~ Aug. 2024	**University of Seoul** Department of Physics Thesis: Transport and Temperature Dependent Properties of AlOxNy on MoS2 2D-FETs *Advisor: Moonsup Han* *Master of Science* GPA: 4.33 / 4.5	Seoul, Korea
Feb. 2017 ~ Feb. 2023	**University of Seoul** Department of Physics *Bachelor of Science* GPA: 3.98 / 4.5	Seoul, Korea

RESEARCH EXPERIENCES

- Researcher at Natural Science Research Institute, University of Seoul, Korea (Sep. 2024 ~ Feb. 2026) / Investigating charge trapping, phonon-assisted processes, and transport physics in 2D semiconductor

RESEARCH INTERESTS

- 2D materials & devices
- Neuromorphic / memory functionality
- Device physics (electron–phonon, traps, transport)

PUBLICATIONS (SCIE)

1. **Sangwoo Nam**, Hanyeol Ahn, Beomjin Park, Minseon Gu, Hyun Su Park, Seungchul Choi, Young Jun Chang, Moonsup Han, "Phonon-Assisted Charge Trapping and Threshold Voltage Modulation in MoS_2 FETs with AlO_xN_y Overlayers", *ACS APPLIED MATERIALS & INTERFACES*, (2025)
2. Beomjin Park, Minseon Gu, **Sangwoo Nam**, Hyundon Kim, Jaehui Im, Hanyeol Ahn, Young Jun Chang, Moonsup Han, "Charge Transfer Doping of MoS_2 Field-Effect Transistors by Aluminum Oxynitride Deposition", *PHYSICA STATUS SOLIDI (A)*, (2025)
3. Hanyeol Ahn, Hyun Su Park, Minseon Gu, Young Hun Khim, Hyun Don Kim, Jaehui Im,**Sangwoo**

Nam, Eunjip Choi, Young Jun Chang, Moonsup Han, "Ti-doping in Silicon Nitride: Enhanced Charge Trap Characteristics for Flash Memory", *ACS APPLIED ELECTRONIC MATERIALS*, (2025)

4. Minseon Gu, Hansol Jang,Hanyeol Ahn, Hyuk Jin Kim, Moon Seop Hyun, Yun Chang Park, In Hye Kwak, **Sangwoo Nam**, Jaehui Im, Jaeyoon Baik, Hyun-Joon Shin, Moonsup Han, Gyungtae Kim, Young Jun Chang, "Nano-mapping of vertical contact electrodes using synchrotron scanning photoelectron microscopy", *APPLIED SURFACE SCIENCE*, (2024)

PATENTS

1. Moonsup HAN, **Sangwoo NAM**, Beomjin PARK, Minseon GU, Hanyeol AHN, Jaehui IM, Hyun Su PARK, Young Jun CHANG, "METHOD FOR DOPING MOLYBDENUM DISULFIDE THIN FILM WITH ALUMINUM NITRIDE, AND ALUMINUM NITRIDE FOR THE SAME", US-Application No. 18/936,641
2. Moonsup HAN, **Sangwoo NAM**, Beomjin PARK, Minseon GU, Hanyeol AHN, Jaehui IM, Hyun Su PARK, Young Jun CHANG, "MOLYBDENUM DISULFIDE THIN FILM DOPING METHODS WITH ALUMINUM OXYNITRIDE", JP-Application No. 2024-188484
3. Moonsup HAN, **Sangwoo NAM**, Beomjin PARK, Minseon GU, Hanyeol AHN, Jaehui IM, Hyun Su PARK, Young Jun CHANG, "Molybdenum Disulfide Thin Film Doping Methods with Aluminum Oxynitride", KR-Application No. 10-2024-0123236

CONFERENCES

1. **Sangwoo NAM**, Beomjin PARK, Minseon GU, Hanyeol AHN, Jaehui IM, BAEK Junghyun, Young Jun CHANG, Moonsup HAN, "2024 KPS Spring Meeting", The Korean Physical Society (KPS), Daejeon, Korea (Apr. 2024) - Poster
2. **Sangwoo NAM**, Beomjin PARK, Minseon GU, Hanyeol AHN, Jaehui IM, Young Jun CHANG, Moonsup HAN, "2023 KPS Fall Meeting", The Korean Physical Society (KPS), Changwon, Korea (Oct. 2023) - Poster

AWARDS AND HONORS

- Best Presentation Award, The Korean Physical Society (KPS), Korea (Apr. 2024)

PROJECTS

- Development of a multi-correlated spectroscopic analysis method to improve the reliability of CTF devices, Samsung Electronics, Korea / Electrode deposition and C–V measurements (Jul. 2023 ~ May. 2024)

SKILLS AND TECHNIQUES

Electrical Characterization

- Temperature-dependent I–V measurement
- Temperature-dependent threshold-voltage & mobility analysis
- C–V measurement

Spectroscopy & Materials Analysis

- Raman spectroscopy, Photoluminescence
- XPS & REELS data interpretation

Thin-Film Deposition & Device Fabrication

- Reactive sputtering
- Thermal evaporation
- Furnace annealing
- Photolithography

SELECTED PRESS COVERAGE

- Munhwa Ilbo (KOR) – "UOS Research Team Develops Next-Generation Neuromorphic Device Based on 2D Semiconductors" (Aug.2025) Also covered by University of Seoul News (English version) and other national outlets.

TEACHING EXPERIENCES

- Semiconductor Processing & Circuit Camp, Jangchung High School, Korea (Nov. 2025)
- Supplemental General Physics Course for Engineering Undergraduates, University of Seoul, Korea (Mar. 2024 ~ Jun. 2024)

ADDITIONAL EXPERIENCES

- Republic of Korea Air Force (2019–2020) / Military Police (mandatory service)