

Taewoo Kim

Assistant Professor
Electrical and Computer Engineering
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Education

<u>Degree</u>	<u>Year</u>	<u>University</u>	<u>Major</u>
Ph. D.	2008	Gwangju Institute of Science and Technology	Electrical Engineering (Ph. D. dissertation: Study on Impact of the Gate Recess Process for the High Performance InP-based HEMTs, Advisor: Join-In Song)
M.S.	2003	Gwangju Institute of Science and Technology	Electrical Engineering
B.S.	2001	Kumoh National Institute of Technology	Electrical Engineering

Professional Experience

<u>Year</u>	<u>Title</u>	<u>Organization</u>	<u>Location</u>
2023-Present	Assistant Professor	Electrical and Computer Eng.	Lubbock, TX
2021-2023	Associate Professor	School of EE, U. of Ulsan	Ulsan, Korea
2022-2023	Visiting Professor	School of MSE, UT Dallas	Richardson, TX
2017-2021	Assistant Professor	School of EE, U. of Ulsan	Ulsan, Korea
2015-2017	Process Int. Eng. Mang.	Samsung Austin Semiconductor	Austin, TX
2013-2015	Senior MTS	SEMATECH INC.	Albany, NY
2011-2013	Member of Tech. Staff	SEMATECH INC.	Austin, TX
2008-2011	Post-Doc. Associate	Massachusetts Institute of Technology	Boston, MA

Research Interests

Advanced Materials and Novel Devices for High-Frequency/Power and Cryogenic Applications
 State-of-the-art InGaAs channel High-Electron-Mobility-Transistors (HEMTs)
 State-of-the-art AlGaIn/GaN High-Electron-Mobility-Transistors (HEMTs)
"Heterogeneous" Integration of III-V/III-Nitride and Si
 Electron Beam lithography for sub-10nm gate process
 MTTF Analysis depending on temperature and stress
 Physical based Large-Signal Modeling for III-V/Nitride device
 High-frequency noise/small signal modeling for High-Frequency MMICs
 Development and Characterization on III-V interface with ALD films
 Novel logic device materials, fabrication, and applications
 Cryogenic device measurement and device modeling for Quantum Computing Applications

Awards, Honors and Recognitions

Distinguish Professor in Research Award at University of Ulsan, 2020

Distinguish Professor in Research Award at University of Ulsan, 2019

Distinguish Professor in Teaching Award at University of Ulsan, 2019

Korean Research Foundation Fellowship (2008. 10 ~ 2009.09)

Best Research Award in Gwangju Institute of Science and Technology (GIST), 2008

Selected as a featured paper at IEEE Electronics Letters, 2011

- Given to the paper of “InGaAs HEMT with InAs-rich InAlAs barrier spacer for reduced source resistance”. This was published at *IEEE Electronics Letters (EL)* in 2011

Selected as a featured paper at IEEE Electronics Letters, 2012

- Given to the paper of “ $L_g = 100$ nm InAs PHEMTs on InP substrate with record high frequency response”. This was published at *IEEE Electronics Letters (EL)* in 2012.

Selected as a featured paper at IEEE Electronics Letters, 2012

- Given to the paper of “ $L_g = 150$ nm Recessed Quantum-Well $\text{In}_{0.7}\text{Ga}_{0.3}\text{As}$ MOS-HEMTs with $\text{Al}_2\text{O}_3/\text{In}_{0.52}\text{Al}_{0.48}\text{As}$ composite insulator”. This was published at *IEEE Electronics Letters (EL)* in 2012.

Professional Activity

Membership in Professional Organization

Institute of Electrical and Electronics Engineer (IEEE) (Senior Member)

Electron Device Society (EDS) and Microwave Theory and Techniques Society (MTTS)

The Korean Institute of Electronics and Information Engineers (KIEEE)

The Korean Scientists and Engineers Association (KSEA)

The Korean Institute of Semiconductor Engineers (KISE)

University Committees and Councils

Committee, Brain Korea Research Program Development (2022- Present)

Committee, Engineering College Research Program Development (2020-2022)

Task Force Committee, Information Technology Research Center Planning (2021-2022)

Committee, School of Electrical Engineering Planning (2019-2021)

Committee, School of Electrical Engineering Program Development (2018-2019)

Papers and Conference Abstracts

<Journal Papers>:

ACS Applied Electronic Materials, AIP Advances, Applied Physics Letters, Applied Physics Express, Electronics, IEICE Transactions on Electron, IEEE Access, IEEE Electronic Device Letter, IEEE Transaction on Electron Device, IEEE Transactions on Device and Materials Reliability, IEEE Electron Device Society, IEE Electron Letters, Journal of Crystal Growth, Journal of Japanese Applied Physics, Journal of Vacuum Science Technology B, Materials, Micromachine, Nanomaterials, Scientific Reports, Solid-State Electronics, etc.

<Conference Abstracts>

Total: 66 Presentations

Major conferences

IEDM: 13 presentations

VLSI Technology and Circuits: 5 Presentations