

Invited Talk #12

Cryogenic InGaAs HEMTs for LNA and routing circuits in Quantum Computing

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Abstract— Cryogenic RF transistors and routing circuits operating with extremely low power are essential as control/readout electronics for future large-scale quantum computing systems. In this talk, we will discuss 3D stackable InGaAs HEMT-based cryogenic RF transistors and routing circuits integrated with Nb superconductors for ultra-low power operation.

Biography



Dr. Sanghyeon Kim received his B.S., M.S., and Ph.D. degrees in electronic engineering from The University of Tokyo, Japan, in 2009, 2011, and 2014, respectively. After his Ph.D., he was with Korea Institute of Science and Technology (KIST), Korea in 2014 until he moved to Korea Advanced Institute of Science and Technology (KAIST), Korea in 2019. Before joining KAIST, he was a post-doc at imec, Belgium from 2017 to 2018. He is currently an associate professor with the School of electrical engineering, KAIST, Korea. His current research interests include Next-generation computing/communication devices, monolithic 3D integration, MicroLED, thin-film imager, and MID-IR photonics, etc.