

Curriculum Vitae

Prof. JUNG-DONG PARK

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EDUCATION

Ph.D.	University of California Berkeley, USA Electrical Engineering and Computer Sciences (Advisor: Prof. Ali M. Niknejad)	Aug. 2007 ~ May 2012
M.S.	Gwangju Institute of Science and Technology, Gwangju, South Korea Information and Communications (EE) (Advisor: Prof. Jong-In Song)	Mar. 1998 ~ Aug.2000
B.E.	Dongguk University, Seoul, South Korea Electronic Engineering (EE)	Mar. 1994 ~ Feb. 1998

PROFESSIONAL POSITIONS

Associate Professor	Dongguk Univ., South Korea	Mar. 2019 ~ Present
Assistant Professor	Dongguk Univ., South Korea	Mar. 2012 ~ Feb. 2019
Senior Engineer	Qualcomm, USA	Jul. 2012 ~ Feb. 2015
Internship	Qualcomm, USA	Jun. 2011 ~ Sept. 2011
Internship	HealthMicro, USA	Jun. 2010 ~ Nov. 2010
Consultant	Streetline, USA	Dec. 2008 ~ May 2009
Senior Researcher	Agency for Defense Development (ADD)	Aug. 2002 ~ Jul. 2007
Researcher	Institute for Advanced Engineering (IAE)	Jul. 2000 ~ Jul. 2002

MEMBERSHIP

- *Senior Member*, the Institute of Electrical and Electronics Engineers (IEEE)
- *Member*, the Institute of Electronics Engineers of Korea (IEEK)

REPRESENTATIVE PAPERS

- [1] **Jung-Dong Park**, Shinwon Kang, Siva V Thyagarajan, Elad Alon, Ali M. Niknejad, “A 260 GHz Fully Integrated CMOS Transceiver for Wireless Chip-to-Chip Communication,” in *Proc. IEEE Symposium on VLSI Circuits, Honolulu*, June 2012. (2017 Most Frequently Cited Paper Award in 2010–2016, IEEE Symposium on VLSI)
- [2] **Jung-Dong Park**, Shinwon Kang, and Ali M. Niknejad, “A 0.38 THz Fully Integrated Transceiver Utilizing a Quadrature Push-Push Harmonic Circuitry in SiGe BiCMOS,” *IEEE Journal of Solid-State Circuits*, vol. 47, no. 10, October 2012, pp.2344~2354.

HONORS AND AWARDS

- 2019 IEEK Semiconductor Society Best Paper Award Dec. 2019
- 2018 Albert Nelson Marquis Lifetime Achievement Award Nov. 2018
- 2017 Most Frequently Cited Paper Award in 2010–2016, June 2017
IEEE Symposium on VLSI Circuits (as the lead author)
- Dongguk Centennial Power Elite Scholarship 2007–2009
- Silver Medal Award for National Defense Technology, ADD Aug. 2006
- Distinguished Service Medal, ADD Aug. 2006, Feb. 2005

RESEARCH EXPERIENCE

Researches in Berkeley Wireless Research Center, UC Berkeley

- Fully Integrated 0.26 THz TRx for Chip to Chip Communication in 65nm CMOS
 - One of the first fully-integrated THz wireless transceiver with the on-chip antenna in CMOS
- Fully Integrated 0.38 THz FMCW Radar TRx in 0.13 μm SiGe
 - One of the first fully-integrated THz radar transceiver with the on-chip antenna in silicon
- W-band Radar for Autonomous Helicopters: Polarimetric Radar TRx architecture
- 100 GHz LNA Design in 65nm LP CMOS
- 60 GHz TRx in 90nm CMOS: LNA with ESD Protection, Passive Circuits

Consulting and Internship Works

- 60 GHz LNA with ESD protection in 40nm CMOS in Qualcomm, USA
- 2.4 GHz Low-power receiver design in 90 nm CMOS in HealthMicro, USA
- 2.4 GHz Low-profile antenna design in Streetline, USA

Industrial Fieldworks**Qualcomm, USA**

- GPS Front-end Design in 28nm CMOS (WTR3925, WTR5975)

Agency for Defense Development, South Korea

- 94 GHz Radiometer/Radar Multi-sensor TRx design
- RCS Characterization of the ground clutter and various targets

Institute for Advanced Engineering (IAE), South Korea

- 35 GHz Radiometer/Radar TRx Design

Projects in Dongguk Univ. as the Principal Investigator

- Fully integrated E-band CMOS Transceiver for Point-to-Point High-Speed Communication Network Using Drone in Future Battlefield Environment by Ministry of Science, ICT
- Dielectric Material Characterization in Microwave Range by LG Display
- Sub-THz CMOS Transceiver by Ministry of Science, ICT
- Multifunctional Chip (Transmit/Receive Module) by Hanwha Systems
- 5G Up-converter by Samsung Electronics
- Ultra-fast Compressed Sensing Receiver by Hanwha Systems
- W-band CMOS Receiver by Poongsan LTD
- Dual-band Signal Source using Meta-material by Poongsan LTD
- Fire detection radiometer in quasi-mm-wave range by Ministry of Science, ICT
- Studies on on-chip transmission-lines for high-speed switching circuitries, by Samsung Thales

Professional and Extracurricular Activities

- Reviewer of IEEE Journal of Solid-State Circuits (JSSC), 2015–present
- Reviewer of IEEE Transactions on Microwave and Theory and Techniques, 2015–present
- Reviewer of IEEE Antennas and Wireless Propagation Letters (AWPL), 2015–present
- Reviewer of IEEE Microwave and Wireless Components Letters (MWCL), 2017–present
- Reviewer of IEEE Transactions on Electronic Devices (T-ED), 2017–present
- Reviewer of IEEE Transactions on Device and Materials Reliability, 2016–present
- Reviewer of IEEE Transactions on Nanotechnology, 2018–present
- Reviewer of Electronics Letters, IET, 2016–present
- Reviewer of IET Circuit, Devices and Systems, 2018–present
- Reviewer of Sensors, MDPI, 2017–present
- Reviewer of Electronics, MDPI, 2018–present

- Reviewer of Micromachines, MDPI, 2019–present
- Reviewer of Applied Sciences, MDPI, 2019–present
- Guest Editor of Electronics, MDPI, 2019–present

REFERENCE

- Prof. Ali M. Niknejad, EECS, University of California, Berkeley: niknejad@eecs.berkeley.edu

PUBLICATIONS

Journal and Letter Articles

- [45] Hyohyun Nam, and **Jung-Dong Park**, "A W-band Divide-by-Three Injection Locked Frequency Divider with Injection Current Boosting Utilizing Inductive Feedback in 65nm CMOS," *IEEE Microw. Wireless Compon. Letters*, major revision.
- [46] Hyohyun Nam, Van-Viet Nguyen, Van-Son Trinh, Jeong-Moon Song, Bok-Hyung Lee, and **JungDong Park**, "A Full X-band Phased-Array Transmit/Receive Module Chip in 65-nm CMOS Technology," under review in *IEEE Access*.
- [44] Van-Son Trinh, and **Jung-Dong Park**, "Common-Mode Stability Test and Design Guidelines for a Transformer-coupled Push-pull Power Amplifier," *IEEE Access*, vol. 8, 2020, pp.42243-42250, DOI: 10.1109/ACCESS.2020.2977360.
- [41] Van-Son Trinh, and **Jung-Dong Park**, "A +3dBm-EIRP 240-GHz Circular-Polarized Radiator Utilizing a Sub-THz PA in 65-nm CMOS," *IEEE Microw. Wireless Compon. Letters*, accepted, DOI: 10.1109/LMWC.2020.2975111.
- [40] Young-Joe Choe, Hyohyun Nam, and **Jung-Dong Park** "A Low Drop-Out Regulator With PSRR Enhancement Through Feed-Forward Ripple Cancellation Technique in 65-nm CMOS Process," *Electronics*, 2020, 9(1), 146.
- [39] Hyohyun Nam, Woo-Jae Lee, Ju-ho Son, and **Jung-Dong Park**, "Compact I/Q Up-Conversion Chain for a 5G Wireless Transmitter in 65-nm CMOS Technology," *IEEE Microw. Wireless Compon. Letters*, vol. 30, no. 3, March 2020, pp.284-287.
- [38] Van-Son Trinh, and **Jung-Dong Park**, "A 16.3-dBm 14.1% PAE 28-dB Gain W-band Power Amplifier with Inductive Feedback in a 65-nm CMOS," *IEEE Microw. Wireless Compon. Letters*, vol.30, issue 2, February 2020, pp.193-196.
- [37] Van-Son Trinh, and **Jung-Dong Park**, "Theory and Design of Impedance Matching Network Utilizing a Lossy On-Chip Transformer," *IEEE Access*, vol.7, no.1, October 2019, pp. 140980-

140989.

- [36] Hsiang Nerng Chen, Jeong-Moon Song, and **Jung-Dong Park**, "A Compact Circularly Polarized MIMO Dielectric Resonator Antenna over Electromagnetic Bandgap Surface for 5G Applications," *IEEE Access*, vol.7, no.1, October 2019, pp. 140889-140898.
- [35] Young Jo Choe, Hyohyun Nam, and **Jung-Dong Park**, "A Compact 5 GHz Power Amplifier using a Spiral Transformer for Enhanced Power Supply Rejection in 180-nm CMOS Technology," *Electronics*, 2019, 8(9), 1043.
- [34] Hyohyun Nam, Junsik Park, **Jung-Dong Park**, "A 2-18 GHz Compressed Sensing Receiver with Broadband LO chain in 0.13- μm SiGe BiCMOS," *IEEE Microw. Wireless Compon. Letters*, vol. 29, no. 9, September 2019, pp. 620-622.
- [33] Hyohyun Nam, Dong-Sik Ko, and **Jung-Dong Park**, "A Compact W-band Mixer-First Receiver in 65-nm CMOS," *Microw. Opt. Technol. Lett.*, vol.61, no.7, July 2019, pp.1702-1705.
- [32] Van-Son Trinh and **Jung-Dong Park**, "An X-band Single-Pull Class A/B Power Amplifier in 0.18 μm CMOS," *Microw. Opt. Technol. Lett.*, vol.61, no.7, July 2019, pp.1736-1740.
- [31] Van-Viet Nguyen, Hyohyun Nam, Bok-Hyung Lee, and **Jung-Dong Park**, "A 5.8-17.6 GHz Cascaded Bidirectional Distributed Gain Amplifier utilizing Asymmetric Stages in 65nm CMOS," *Microw. Opt. Technol. Lett.*, vol.61, no.7, July 2019, pp.1683-1687.
- [30] **Jung-Dong Park**, Muhib Ur Rahman, Hsiang Nerng Chen, "Isolation Enhancement of Wide-Band MIMO Array Antennas Utilizing Resistive Loading," *IEEE Access*, vol.7, no.1, June 2019, pp.81020-81026.
- [29] Hyohyun Nam, Changhwan Shin, and **Jung-Dong Park**, "Impact of the Metal-Gate Material Properties in FinFET (versus FD-SOI MOSFET) on High- κ /Metal-Gate Work-Function Variation," *IEEE Transactions on Electron Devices*, vol. 65, no. 11, November 2018, pp.4780 - 4785.
- [28] Van-Viet Nguyen, Hyohyun Nam, Young Jo Choe, Bok-Hyung Lee, **Jung-Dong Park**, 2018. "An X-band Bi-Directional Transmit/Receive Module for a Phased Array System in 65-nm CMOS." *Sensors*, 18, no. 82569, October 2018.
- [27] MuhibUr Rahman, Dong-Sik Ko, and **Jung-Dong Park**, "A compact tri-band bandpass filter utilizing double mode resonator with 6 transmission zeros," *Microw. Opt. Technol Lett.*, vol.60, issue 7, October 2018, pp.1767-1771.
- [26] MuhibUr Rahman, and **Jung-Dong Park**, "The Smallest Form Factor UWB Antenna with Quintuple Rejection Bands for IoT Applications Utilizing RSRR and RCSRR," *Sensors*, 18(3), 911, 2018; DOI:10.3390/s18030911.

- [25] MuhibUr Rahman, and **Jung-Dong Park**, "A Compact Tri-Band Bandpass Filter using Two StubLoaded Dual Mode Resonators, *Progress In Electromagnetics Research M*, Feb. 2018.
- [24] Hyohyun Nam, and **Jung-Dong Park**, "A 1-13 GHz CMOS Low-Noise Amplifier using Compact Transformer-based Inter-stage Networks," *IEICE Electronics Express*, Jan. 2018.
- [23] MuhibUr Rahman, and **Jung-Dong Park**, "A Compact Multiple Notched Ultra-Wide Band Antenna with an Analysis of the CSRR-TO-CSRR Coupling for Portable UWB Applications," *Sensors*, 17(10), 2174, 2017; DOI:10.3390/s17102174.
- [22] Youngtaek Lee, Jaesung Jo, Karam Cho, Sangheon Oh, **Jung-Dong Park**, Changhwan Shin, "Experimental Observation of Negative Capacitance in Organic/Ferroelectric Capacitor for Steep Switching MOSFET," *Journal of Nanoscience and Nanotechnology*, vol. 17, no. 5, 2017, pp.34693471.
- [21] Eunah Ko, Hyunjae Lee, **Jung-Dong Park**, and Changhwan Shin, "Vertical tunnel FET: Design optimization with triple metal-gate layers," *IEEE Trans. Electron Devices*, vol. 63, no. 12, December 2016, pp. 5030-5035.
- [20] Hyunjae Lee, **Jung-Dong Park**, and Changhwan Shin, "Performance booster for vertical tunnel field-effect transistor: Field-enhanced high- κ layer," *IEEE Electron Device Letters*, vol. 37, no. 11, November 2016, pp.1383 - 1386.
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- [18] Hyunjae Lee, **Jung-Dong Park**, and Changhwan Shin, "Study of Random Variation in Germanium Source Vertical Tunnel FET," *IEEE Transactions on Electron Devices*, vol. 63, no. 5, July 2016, pp.1827 - 1834.
- [17] Cho, Karam Park, **Jung-Dong Park**, and Changhwan Shin, "Atomic Layer Deposition of TiO₂ using Titanium Isopropoxide and H₂O: Operational Principle of Equipment and Parameter Setting," *Journal of Semiconductor Technology and Science*, vol.16, no.3, June 2016, pp.346-351.
- [16] Youngtaek Lee, Hyohyun Nam, **Jung-Dong Park**, and Changhwan Shin, "Study of Work-Function Variation for High-k/Metal-Gate Ge-Source Tunnel Field-Effect Transistors," *IEEE Transactions on Electron Devices*, vol. 62, no. 7, July 2015, pp.2143 - 2147.
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- [13] **Jung-Dong Park**, "Design of Switching-Mode CMOS Frequency Multipliers in Sub-Terahertz Regime," *IEICE Electronics Express*, vol. 11, no. 18, Sept. 2014.
- [12] **Jung-Dong Park**, "260GHz Spatially Combined Transmitter with a V-band Distributed OOK Modulator," *IEICE Electronics Express*, vol. 11, no. 18, Sept. 2014.
- [11] **Jung-Dong Park**, Ali M. Niknejad, "Y-band On-chip Dual Half-width Leaky-wave Antenna in a Nanoscale CMOS Process," *IEEE Antennas and Wireless Propagation Letters*, vol. 12, November 2013.
- [10] **Jung-Dong Park**, Ali M. Niknejad, "A Wideband W-Band Low Noise Amplifier with Slow-wave CPW in 65nm LP CMOS," *Microw. Opt. Technol. Lett.*, vol. 55, no. 8, August. 2013.
- [9] **Jung-Dong Park**, Ali M. Niknejad, "Theory and Design of N-Push BJT Clamping Harmonic Generator for Silicon Terahertz ICs," *IEEE Microw. Wireless Compon. Lett.*, vol. 22, no. 12, December 2012.
- [8] **Jung-Dong Park**, Shinwon Kang, and Ali M. Niknejad, "A 0.38 THz Fully Integrated Transceiver Utilizing a Quadrature Push-Push Harmonic Circuitry in SiGe BiCMOS," *IEEE Journal of SolidState Circuits*, vol. 47, no. 10, October 2012, pp.2344~2354.
- [7] **Jung-Dong Park**, Ali M. Niknejad, "A Ladder Shaped Network for ESD Protection of Millimeterwave CMOS ICs," *Electronics Letters*, vol.45, no.15, July 2009, pp.795~797.
- [6] Marcu, D. Chowdhury, C. Thakkar, **J.-D. Park**, L.-K. Kong, M. Tabesh, Y. Wang, A. Afshar, A. Gupta, A. Arbabian, S. Gambini, R. Zamani, E. Alon, A. M. Niknejad, "A 90nm CMOS Low-Power 60GHz Transceiver with Integrated Baseband Circuitry," *IEEE Journal of Solid-State Circuits*, vol. 44, no.12, December 2009.
- [5] **Jung-Dong Park**, Wan Joo Kim, "An Efficient Method of Eliminating the Range Ambiguity for a Low-Cost FMCW Radar Using VCO Tuning Characteristics," *IEEE Trans. Microw. Theory Techn.*, vol. 54, no. 10, October 2006, pp. 3623-3629.
- [4] Y.-H. Baek, B.-H. Lee, J.-H. Oh, B.-O. Lim, D.-An, **J.-D. Park**, S.-D. Kim, J.-K. Rhee, "W-band resistive mixer using metamorphic HEMT," *Current Applied Physics*, 6, September 2006, pp.821826.
- [3] D. An, S.-C. Kim, **J.-D. Park**, M.-K Lee, H.-C. Park, S.-D. Kim, W.-J. Kim, and J.-K Rhee, "A Novel 94-GHz MHEMT Resistive Mixer Using a Micromachined Ring Coupler," *IEEE Microw.*

Wireless Compon. Lett., vol. 16, no. 8, August 2006, pp.467-469.

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- [1] **Jung-Dong Park**, Wan Joo Kim, "An Efficient Method of Decreasing the Problems of Transmitter Signal Leakages on Low Cost Homodyne FMCW Radar with a Single Antenna Configuration," *Microw. Opt. Technol. Lett.*, vol. 46, no. 5, Sept., 2005, pp. 512-515.

International Conferences

- [8] **Jung-Dong Park**, Shinwon Kang, Siva V Thyagarajan, Elad Alon, Ali M. Niknejad, "A 260 GHz Fully Integrated CMOS Transceiver for Wireless Chip-to-Chip Communication," in Proc. *IEEE Symposium on VLSI Circuits, Honolulu*, June 2012.
- [7] **Jung-Dong Park**, Shinwon Kang, Ali M. Niknejad, "A 0.38 THz Fully Integrated Transceiver Utilizing Quadrature Push-Push Circuitry," in Proc. *IEEE Symposium on VLSI Circuits, Kyoto*, June 2011.
- [6] Omar Bakr, Mark Johnson, **Jung-Dong Park**, Ehsan Adabi, Kevin Jones, Ali Niknejad, "A Scalable, Low Cost Architecture for High Gain Beamforming Antennas," in Proc. *2010 IEEE International Symposium on Phased Array Systems & Technology*, October 2010.
- [5] C. Marcu, D. Chowdhury, C. Thakkar, L.-K. Kong, M. Tabesh, **J.-D. Park**, Y. Wang, A. Afshar, A. Gupta, A. Arbabian, S. Gambini, R. Zamani, A. M. Niknejad, E. Alon, "A 90nm CMOS LowPower 60GHz Transceiver with Integrated Baseband Circuitry," in Proc. *ISSCC Dig. Tech. Papers*, Feb. 2009, pp. 314-316.
- [4] D.-S. Ko, M.-K. Lee, D.An, B.-H. Lee, B.-O. Lim, S.-J. Lee, S.-W. Moon, B.-C. Jun, S.-H. Bang, **J.-D Park**, W.-J Kim, S.-D. Kim, J.-K. Rhee, "94GHz Single-Balanced Diode Mixer for FMCW Radar Applications," in Proc. *Asia Pacific Microwave Conference*, 2007.
- [3] M.K. Lee, **J.-D. Park**, D.An, B.H.Lee, S.C.Kim, B.O.Lim, S.J.Lee, Y.S. Chae, W.J. Kim, Y. H.Kim, J.K.Rhee, "W-band Waveguide-to-Coplanar Waveguide Transition for 94 GHz MIMIC applications," in Proc. *HUT-ICCE 2006*, Hanoi, Vietnam, October 2006.
- [2] Mun-Kyo Lee, **Jung-Dong Park**, Dan An, Bok-Hyung Lee, Sang-Jin Lee, Tae-Jong Baek, WanJoo Kim, Yong-Hoh Kim, Hyung-Moo Park, Jin-Koo Rhee, "A 94 GHz Diode Mixer For Low LO Power Operation," in Proc. *2005 Asia-Pacific Microw. Conf., Suzhou, China*, December 2005.
- [1] **Jung-Dong Park**, Wan Joo Kim, Chang Won Lee, "A Novel Method for Beat Frequency Error

Correction for a Low Cost FMCW Radar Using VCO Sweep Characteristics," in Proc. 2nd Eur. Radar Conf., Paris, 2005.

Korean Journal and Letter Articles

- [9] 뉴엔반비엣, 남효현, 이복형, 이문교, 최선열, 송정문, **박정동**, "비대칭 이득증폭 단위셀을 이용한 2-13 GHz 양방향 증폭기," 대한전자공학회논문지, 55(12), 2018.12, pp.65-71.
(2019년 대한전자공학회 반도체소사이터 최우수 논문상)
- [8] 남효현, 김형규, 김당오, 류현준, 김주혜, **박정동**, "65nm CMOS공정을 이용한 FMCW 레이더 및 라디오미터 일체형 센서용 광대역 IF 가변 이득 증폭기," 대한전자공학회논문지, 55(10), 2018.10, pp.61-66.
- [7] 남효현, 박준식, 송규하, **박정동**, "압축 센싱 수신기용 광대역 전단부 집적화 설계," 전자공학 회논문지 제55권 제4호(통권 제485호), 2018.4, pp.37-43.
- [6] 남효현, 박준식, 송규하, **박정동**, "4 채널 36 Gb/s 27-1 초고속 의사 이진수열 (PRBS) 발생 기의 집적화 설계," 전자공학회논문지 제55권 제1호(통권 제482호), 2018.1.
- [5] **박정동**, 박준식, "실리콘 공정기술 기반 초고속 압축센싱 수신기의 집적화 연구," 전자공학회 지, 제3권 10호, 2016.10, pp.35-42.
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Korean Conferences

- [15] 최영조, 남효현, **박정동**, "A Compact 5 GHz Class-AB Power Amplifier in 180nm CMOS," 제 26회 한국반도체학술대회, 2019.02.
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- [12] 남효현, 고동식, 김형규, 김당오, 류현준, 김주혜, **박정동**, "An Integrated W-band Mixer-First Receiver for a Proximity FMCW Radar Sensor in 65-nm CMOS," 제 25회 한국반도체학술대회, 2018.02.
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