

Curriculum Vitae

Prof. JUNG-DONG PARK

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jdpark@dongguk.edu

parkjungdong@gmail.com

TEL: +82-2-2260-3346

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. 2015 ~ 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 (TED), 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, 2019–2020

REFERENCE

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

PUBLICATIONS*Journal and Letter Articles***2021**

- [46] Van-Son Trinh, and **Jung-Dong Park**, "A 25.1dBm 25.9-dB Gain 25.4% PAE X-band Power Amplifier Utilizing Voltage Combining Transformer in 65-nm CMOS," IEEE Access, 2021; 10.1109/ACCESS.2020.3048757

2020

- [45] 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.76182-76192.
- [44] 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," IEEE Access, vol. 8, 2020, pp.76182-76192.
- [42] 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, vol.30, no.5, May 2020, pp.516-519.
- [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, vol.30, no.4, April 2020, pp.399-402.
- [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.

2019

- [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.

2018

- [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*, 2018, 18(3), 911; 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.

2017

- [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*, 2017, 17(10), 2174; 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.

2016

- [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.
- [19] Hyohyun Nam, Youngtaek Lee, **Jung-Dong Park**, and Changhwan Shin, "Study of Work-Function Variation in High- κ Metal-Gate Gate-All-Around Nanowire MOSFET," *IEEE Transactions on Electron Devices*, vol. 63, no. 8, August 2016, pp.3338 - 3341.
- [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.

2015

- [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.
- [15] Jaesung Jo, Woo Young Choi, **Jung-Dong Park**, Jae Won Shim, Hyun-Yong Yu, and Changhwan Shin, "Negative Capacitance in Organic/Ferroelectric Capacitor to Implement Steep Switching MOS Devices," Nano Letters, vol. 15, no.7, June 2015, pp.4553-4556.
- [14] Sangheon Oh, Jaesung Jo, Hyunjae Lee, Gyo Sub Lee, **Jung-Dong Park**, and Changhwan Shin, "Worst Case Sampling Method with Confidence Ellipse for Estimating the Impact of Random Variation on Static Random Access Memory (SRAM)," Journal of Semiconductor Technology and Science.vol.15, no3, 2015, pp.374-380.

~2014

- [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.
- [2] B.H. Lee, D. An, M.K. Lee, B.O. Lim, J.H. Oh, S.D. Kim, J.K. Rhee, **J.-D. Park**, S.R. Lee, "Low Conversion Loss and High LO-RF Isolation 94GHz Active Down Converter," IEEE Trans. Microw. Theory Tech., vol. 54, no. 6, June 2006, pp. 2422-2430.
- [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.
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- [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.
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- [2] 안단, 이복형, 임병옥, 이문교, 오정훈, 백용현, 김성찬, **박정동**, 신동훈, 박형무, 박현창, 김삼 동, 이진구, "낮은 변환손실 특성의 94 GHz MHEMT MMIC Resistive 믹서," 전자공학회 논 문지, 42, TC편, 2005.5, pp.357-364.
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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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- [13] 남효현, 고동식, 김형규, 김당오, 류현준, 김주혜, **박정동**, "A Wideband Signal Generator Integrated with a PA and Oscillator with C-Switch banks in 65-nm CMOS," 제 25회 한국반도체학술대 회, 2018.02.
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