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### **Education**

B.S. 1983.3 ~ 1987.2 Dept. of Physics, Seoul National University, Seoul, Korea

M.S. 1987.3 ~ 1989.5 Dept. of Physics, The University of Michigan, Ann Arbor, Michigan

Ph.D. 1990.9 ~ 1995.5 School of Applied and Engineering Physics, Cornell University, Ithaca, New York

Advisor: Lester F. Eastman

### **Experiences**

Jul. 1995 -Aug. 1996 Postdoctoral Associate, School of Electrical Engineering, Cornell University,  
USA

Sep. 1996-Feb. 1998 PMTS, Bell Labs, Lucent Technologies, Murray Hill, NJ, USA

Mar. 1998-present Assistant/ Associate/Full Professor,  
Dept. of Electronic Engineering, Sogang University, Seoul, Korea

Aug. 2006- Jul. 2007 Principal Scientist, Pixelplus Semiconductor, San Jose, CA, USA.

### **Activities:**

2000 AP-ASIC (Asia-Pacific Conference on Advanced System ICs), Cheju, Korea

Technical Program Committee Secreatry

2004 AP-ASIC (Asia-Pacific Conference on Advanced System ICs), Fukuoka, Japan

Technical Program Committee Co-chair

2014 ISOCC (International SoC Design Conference), Seoul, Korea, Technical Program Chair

2015 ISOCC (International SoC Design Conference), Seoul, Korea, General Chair

2021 ISCAS (International Symposium on Circuits and Systems) General Chair

IEIE (THE INSTITUTE OF ELECTRONICS AND INFORMATION ENGINEERS) a member in the Board of  
Directors

### **Research Interests:**

- CMOS and BiCMOS Wireless Communication Circuits
  - Research project on 5-6 GHz on transceiver IC from Samsung Electronics
- Optical Fiber Communication Circuits
  - Pre-Amplifiers, Limiting Amps, Laser Drivers, CDRs
  - Research projects from Korean Government

## SELECTED PUBLICATIONS

### Journal Publications

S.D. Peacor, R.A. Richardson, **J. Burm**, C. Uher, and A.B. Kaiser, "Thermal Conductivity of Ba-K-Bi-O: A Contrast to Copper Oxide Superconductors," *Physical Review B* (Condensed Matter), vol. 42, pp. 2684-2687 (1990).

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**J. Burm**, K.I. Litvin, W.J. Schaff, and L.F. Eastman, "Optimization of High-Speed Metal-Semiconductor-Metal Photodetectors," *IEEE Photonics Tech. Lett.* vol. 6, pp. 722-724 (1994).

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M. A. Khan, M.S. Shur, J.N. Kuznia, Q. Chen, **J. Burm** and W. Schaff, "Temperature Activated Conductance in GaN/AlGaIn Heterostructure Field Effect Transistors Operating at Temperatures up to 300 °C," *Appl. Phys. Lett.* vol. 66 (9) pp. 1083-1085 (1995).

**J. Burm**, K. I. Litvin, D. W. Woodard, W. J. Schaff, P. Mandeville, M. A. Jaspan, M. M. Gitin, and L. F. Eastman, "High-Frequency, High-Efficiency MSM Photodetectors," *IEEE J. Quantum Electron.* vol. 31, no. 8, pp. 1504-9 (1995).

**J. Burm** and L. F. Eastman, "The low frequency gain in MSM photodiodes by charge accumulation and image force lowering," *IEEE Photon. Tech. Lett.*, vol. 8, no. 1, pp.113-115 (1996).

M.A. Khan, Q. Chen, M.S. Shur, B.T. Dermott, J.A. Higgins, **J. Burm**, W. Schaff and L.F. Eastman, "Short-channel GaN/AlGaIn doped channel heterostructure field effect transistors with 36.1 cutoff frequency," *Electron. Lett.*, vol. 32, no. 4, pp. 357-8 (1996).

**J. Burm**, W. J. Schaff, L. F. Eastman, H. Amano, and I. Akasaki, "75Å GaN channel Modulation Doped Field Effect Transistors," *Appl. Phys. Lett.*, vol. 68, pp. 2849-2851 (1996).

**J. Burm**, K. I. Litvin, G. H. Martin, W. J. Schaff, and L. F. Eastman, "Monolithic Millimeter Wave Optical Receivers," *IEEE Transactions on Microwave Theory and Techniques*, vol. 44, no. 11, pp. 1984-9 (1996) .

M.A. Khan, Q. Chen, M.S. Shur, B.T. Dermott, J.A. Higgins, **J. Burm**, W.J. Schaff, L.F. Eastman, "CW Operation of Short-Channel GaN/AlGaIn Doped Channel Heterostructure Field Effect Transistors at 10 GHz and 15 GHz," *IEEE Electron Device Letters*, vol. 17, no. 12, pp. 584-585 (1996).

L. Eastman, **J. Burm**, W. Schaff, M. Murphy, K. Chu, H. Amano, and I. Akasaki, "Research on GaN MODFET's," *Material Research Society Internet Journal, Nitride of Semiconductor Research*, vol. 1, no. 4, <http://nsr.mij.mrs.org/1/> (1996).

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**J. Burm**, W. J. Schaff, G. H. Martin, L. F. Eastman, H. Amano, and I. Akasaki, "Recessed Gate GaN MODFET's," *Solid State Electronics*, vol. 41, no. 2, pp. 247-250, (1997).

**J. Burm**, K. Chu, W.J. Schaff, L.F. Eastman, M.A. Khan, Q. Chen, J.W. Yang, M.S. Shur, "0.12  $\mu\text{m}$  Gate III-V nitride HFET's with High Contact Resistances," *IEEE Electron Device Letters*, vol. 18, no. 4, pp. 141-143, (1997).

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**J. Burm**, K. Chu, W. J. Schaff, M. J. Murphy, L. F. Eastman, H. Amano, and I. Akasaki, "Effect of Schottky barrier height variations on III-V nitride Modulation Doped Field Effect Transistors," submitted to *IEEE Transactions on Electron Devices*.

R.F. Kopf, R.A. Hamm, R.J. Malik, R.W. Ryan, M. Geva, **J. Burm**, and A. Tate, "ECR Plasma Etch Fabrication of C-Doped Base InGaAs/InP DHBT Structures: A Comparison of  $\text{CH}_4/\text{H}_2$  Versus  $\text{BCl}_3/\text{N}_2$  Plasma Etch Chemistries," submitted to *Journal of Electronic Materials*.

M. A. Khan, Q. Chen, M. S. Shur, B. T. Dermott, J. A. Higgins, **J. Burm**, W. J. Schaff, and L. F. Eastman, "GaN based Heterostructure for High Power Devices," *Solid-State Electronics*, vol. 41, No. 10, pp. 1555-1559, 1997.

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R.F. Kopf, R.A. Hamm, R.W. Ryan, J. Burm. A. tate, H-k. Chen, G. Georgiou, D.V. Lang, and F. Ren, "Evaluation of Encapsulation and Passivation of InGaAs/InP DHBT Devices for Long-Term Reliability," *Journal of Electronic Materials*, Vol.27, No.8, pp. 954, 1998.

**J. Burm**, J. H. Choi, D.-H. Kim, J.-C. Woo, "Improvements of Short-Channel Effects using Selectively Recess-Etched (SRFET) with Two Gate Regions," *Journal of the Korean Physical Society*, Vol. 34, pp. S85-S87, 1999.

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H. S. Kim, J. H. Choi, H. M. Bang, Y. Jee, S. W. Yun, **J. Burm**, M. D. Kim, and A. G. Choo, "Dark current reduction in APD with BCB passivation," *Electronics Letters*, vol. 37, no. 7, pp. 455-457, 2001, vol. 37, no. 7, pp. 455-457, 2001.

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No. 2, pp. 831-834, 2008.

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Bongsub Song, Kyunghoon Kim, Junan Lee, Kwangsoo Kim, Younglok Kim, and Jinwook Burm, "1.5–9.7-Gb/s Complete 4-PAM Serial Link Transceiver with a Wide Frequency Range CDR," IEICE Transaction on Electronics, Vol. E96-C, No. 8, pp. 1048-1053, 2013.

Bongsub Song, Kyunghoon Kim, Junan Lee, Jinil Chung, Youngjung Choi, and Jinwook Burm, "A 13.5-mW 10-Gb/s 4-PAM Serial Link Transmitter in 0.13- $\mu\text{m}$  CMOS Technology," IEEE TRANSACTIONS

ON CIRCUITS AND SYSTEMS—II: EXPRESS BRIEFS, VOL. 61, NO. 9, pp. 646-650, 2014.

Kyunghoon Kim, Junan Lee, Bongsub Song, and Jinwook Burm, "Improved Circuits for Single-photon Avalanche Photodiode Detectors," 2014 JSTS, Vol.14, NO. 6, pp. 789-796, 2014.

Junan Lee, Qiwei Huang, Kiwoon Kim, Kyunghoon Kim, and Jinwook Burm, "High Frame Rate VGA CMOS Image Sensor using Three Step Single Slope Column-Parallel ADCs," 2015 JSTS, Vol.15, NO. 1, pp. 22-28, 2015.

Junan Lee, Himchan Park, Bongsub Song, Kiwoon Kim, Jaeha Eom, Kyunghoon Kim and Jinwook Burm, "High Frame Rate VGA CMOS Image Sensor using Non-Memory Capacitor Two-Step Single Slope ADCs," IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS I, VOL. 62, NO. 9, pp. 2147-2154, 2015.

Qiwei Haung, Hyobin Joo, Jinwoo Kim, Chenchang Zhan, Jinwook Burm, "An Energy-Efficient Frequency Domain CMOS Temperature Sensor with Switched Vernier Time-to-Digital Conversion," 2017 Sensors Journal, VOL. 17, NO. 10, pp. 3001-3011, 2017.

#### Patents

**J. Burm**, R. A. Hamm, R. F. Kopf, R. W. Ryan, A. Tate, "Alignment Techniques for Photolithography utilizing Multiple Photoresist Layers," US6,042,975, Lucent Tech, 2000.

**J. Burm**, R. A. Hamm, R. F. Kopf, R. W. Ryan, A. Tate, "Method of manufacturing schottky gate transistor utilizing alignment techniques with multiple photoresist layers," US6,139,995, Lucent Tech, 2000.

**J. Burm**, A. Tate, R. F. Kopf, R. W. Ryan, and R. A. Hamm, "Repairing fractured wafers in semiconductor manufacturing," US5,932,379, Lucent Tech., 1999.

**J. Burm**, "Gate Fabrication on Compound Semiconductor Devices," Korean Patent 0331018, 2002.

Moon-Deock Kim, Seung-Ryong Cho, **Jinwook Burm**, "Avalanche Photodiode," Japanese Patent Filed. JP2002021750, 2002.

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#### Conferences Proceedings and Presentations

L.F. Eastman, K. Litvin, **J. Burm**, "High-Speed Photodetectors for Millimeter Waves," GOMAC-91 (*Government Microcircuit Applications Conference*), Orlando, FL, (Nov. 4-7, 1991).

L. F. Eastman, K. Litvin **J. Burm**, D.W. Woodard and W.J. Schaff, "High Frequency Optical Receivers," *2nd Annual DARPA/Rome Lab. Symp. on Photonics Systems for Antenna Applications (PSSA)*, Monterey, CA (Dec. 10-12, 1991).

**J. Burm**, K. Litvin, D. Woodard, W. Schaff and L. Eastman, "High-Speed Photodetectors for Millimeter Waves," *SPIE - Optoelectronic Signal Processing for Phased Array Antennas III*, Orlando, FL, (April 20-24, 1992). Proc SPIE-Int. Society of Optical Engineers, vol. 1703, pp. 313-320.

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K. Litvin, **J. Burm**, and L.F. Eastman, "High Speed Optical Detectors for Monolithic Millimeter Wave Integrated Circuits," *OTC-DARPA REVIEW*, Santa Barbara, CA (Aug. 2-3, 1992)

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**J. Burm**, K.I. Litvin, W.J. Schaff and L.F. Eastman, "Optimization of High-Speed, High-Frequency MSM Photodetectors," 1993 Int. Semiconductor Device Research Symp., Charlottesville, VA (Dec. 1-3, 1993), Proceedings Engineering Academic Outreach, Univ. VA 1993 749-752.

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