Curriculum Vitae

JIN-WEI SHI

 Department of Electrical Engineering

 National Central University, Taoyuan, 320, TAIWAN

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*Interests*ultrahigh speed/power photodetectors, high-speed vertical-cavity surface-emitting laser and photodiode for optical interconnect, ultrahigh speed/power photonic transmitter, whit-light source for fiber communication and solid-state lighting.

*Education* **B.S.**, Electrical Engineering, **National Taiwan University**, Taipei, Taiwan.

1998.6.

**Ph.D.**, Electro-Optical Engineering, **National Taiwan University,** Taipei, Taiwan, 2002.6. Thesis: Metal-Semiconductor-Metal Traveling Wave Photodetectors Advisor: Chi-Kuang Sun

*Experience* **NATIONAL TAIWAN UNIVERSITY Taipei, TAIWAN**

Graduate Institute of Electro-Optical Engineering

**Research Assistant** 1998.8 –2002.7

Research topics cover design and modeling of ultra-high speed and high power traveling wave photodetector/photomixer, measurement of ultra-high speed device (E-O sampling), nonlinearity of low temperature grown GaAs based photodetector, and optoelectronic generation of sub-millimeter wave.

# UNIVERSITY of CALIFORNIA Santa Barbara, CA

Department of Electrical and Computer Engineering

**Visiting Scholar** 2000.6- 2000.9 and 2001.2-2001.8

Research includes fabrication of ultrahigh speed and high power traveling wave photodetector/photomixer, photomixer array, membrane THz photomixer.

**INDUS. TECH. RES. INS. Hsinchu, TAIWAN**

Electronics Research & Service Organization

**Consultant** 2002/12~2003/8

Research includes Si/SiGe/SiC based optical communication systems on a single Si chip (SOC), high speed HPT, ultra-high gain-bandwidth product APD.

**NATIONAL CENTRAL UNIVERSITY Taoyuan, TAIWAN**

Department of Electrical Engineering

**Assistant Professor** 2003/8~2006/8

**Associate Professor** 2006/8 to 2011/8

**Professor** 2011/8- now

Research includes high-speed and high-power photodiode, THz photonic transmitter, electro-absorption modulator, Si/SiGe based avalanche photodiode, High-speed GaN based LED, High-Speed VCSEL, Infrared and visible white-light LED

# UNIVERSITY of CALIFORNIA Santa Barbara, CA

Department of Electrical and Computer Engineering

**Visiting Professor** 2011/02-2012/02 and 2016/02-2017/02

Research includes Si photonic integrated circuit, sub-THz photonic transmitter-mixer, photonic wireless communication with ultra-high data rate.

*Contributions* **Demonstrated record high saturation-current bandwidth product** *(7500mA-GHz, 75mA, 100GHz)* among all reported photodiodes(published in *IEEE/OSA Journal of Lightwave Technology,* vol. 29, No. 4, pp. 432-438, Feb., 2011.)

**Demonstrated record high O-E bandiwtdh** *(0.33 THz)* among all reported photodiodes at telecommunication wavelengths(published in J.-M. Wun, *et al.,* *IEEE J. of Sel. Topics in Quantum Electronics,* vol. 24, No. 2, pp. 8500207, March,/April, 2018.)

**Demonstrated record high THz output power from a single PD** *(1mW, 300GHz)* among all reported photodiode(published in *IEEE/OSA Journal of Lightwave Technology,* vol. 34, pp. 1387-1397, Feb., 2016.)

 **Demonstrated photodiode and photonic transmitter-mixer with record-high bias modulation speed** *(>25 GHz)* and **error-free data rate** *(25 Gbit/sec)* for wireless transmission. (published in *Optics Express,* vol. 20, No. 19, pp. 21223-21234, Sep., 2012.)

 **Demonstrated record peak output power bandwidth product performance** *(30V-190GHz, 5.7THz-V)* of traveling-wave photodiode among all reported ultra-high speed photodetectors. (published in *IEEE Photon. Tech. Lett.,* vol. 14, pp.1587-1589, Nov., 2002.)

**Demonstrated 850 nm VCSELs with record-high single-mode output power as 7.3 mW**

J.-W. Shi, *et al.,* *IEEE Photon. Technol. Lett.,* vol. 20, pp.1121-1123, July, 2008.

**Demonstrated 850 nm VCSELs with record-low driving current density (8 kA/cm2) for 50 Gbit/sec operation (**published in *IEEE J. of Sel. Topics in Quantum Electronics,* vol. 21, no. 6, pp. 1701510, Nov.,/Dec., 2015.)

**Demonstrated 940 nm VCSELs with record-high 3-dB E-O bandwidth as 40 GHz among all reported VCSELs** (publihsed in *IEEE J. of Sel. Topics in Quantum Electronics,* vol.25, pp. 1700507, Nov./Dec., 2019.)

**Demonstrated light-emitting diode (LED) with a record-high E-O bandwidth (1 GHz) among visible LEDs**. (published in *IEEE Electron Device Lett.,* vol. 37, pp. 894-897, July, 2016.)

**Demonstrated transverse-junction white-light light-emitting diode (LED) structure with a record wide 3-dB optical bandwidth** *(580nm)* among all reported white-light LEDs. (published in *IEEE Photon. Technol. Lett.,”* vol. 18, pp. 2053-2055, Oct., 2006.)

**Over 3700 citations to publications; H-index= 26**

*Publications* Authored and co-authored 136 SCI journal papers, 1 book editor, 5 invited book chapters, 113 international conference papers, 10 U.S.A. patents, 9 Taiwan patents, 6 invited magazine reports, and 7 invited international conference papers.

*Awards &*

*Honors* ***Lam Research Award 2002***

***Student Thesis Award of ROCOES 2002.***

***Invited speaker in IEEE/OSA OFC 2011***

***Invited speaker in IEEE IPC (formerly LEOS) 2012***

***Invited speaker in Plastic Optical Fiber (POF) Conference 2012***

***Invited magazine report in Compound Semiconductor 2012***

***Invited magazine report in SPIE Newsroom 2007, 2013, and 2017***

***Invited speaker in SPIE Photonic West 2015 and 2017***

***Invited speaker in JASP Autumn meeting at 2016***

***Invited speaker in IPC 2017***

***Invited speaker in ICO-24 2017***

***Invited speaker in PIERS 2018***

***2007 CIEE Young Research Award***

***2007, 2009-2013 Outstanding Research Awards at National Central University***

***2013 till now Distinguished Professor at National Central University***

***OFC Technical Program Committee (From 2009-2011)***

***SSDM Technical Program Committee (2012)***

***MWP Technical Program Committee (2012)***

***CLEO-PR Technical Program Committee (2013)***

***IPRM Technical Program Committee (2014)***

***OECC Technical Program Committee (2014-2016)***

***2010 Da-You Wu Memorial Award (Outstanding Young Research Award at National Science Council of Taiwan)***

***2012 IEEE Senior Member***

***2017-now Optics Express Associate Editor***

**Selective Journal Publications:**

**(2022)**

1. Cheng-Yi Liu, Chun-Kai Huang, Yen-Yu Huang, Kun-Chieh Chang, Kun-Lin Yu, Chien-Hung Chiang, Chun-Guey Wu, Shih-Chang Lee, Wei-Yu Yen, Jinn-Kong Sheu, and Jin-Wei Shi, “Flexible multijunction solar cells embedded inside smart dust modules for outdoor applications to Smart Grids,” *Applied Energy,* vol. 306, Part A, pp. 117970, Jan., 2022.

2. Jie-Chen Shih, Zuhaib Khan, Yung-Hao Chang*,* and Jin-Wei Shi, “High-Brightness VCSEL Arrays with Inter-Mesa Waveguides for the Enhancement of Efficiency and High-Speed Data Transmission,” IEEE Journal of Selected Topics in Quantum Electronics vol. 28, no. 1, pp. 1-11, Jan.-Feb. 2022.

3. Zuhaib Khan, Yong-Hao Chang, Te-Lieh Pan, Yaung-Cheng Zhao, Yen-Yu Huang, Chia-Hung Lee, Jui-Sheng Chang, Cheng-Yi Liu, Cheng-Yuan Lee, Chao-Yi Fang, and Jin-Wei Shi\*,"High-Brightness, High-Speed, and Low-Noise VCSEL Arrays for Optical Wireless Communication," in IEEE Access, vol. 10, pp. 2303-2317, 2022, doi: 10.1109/ACCESS.2021.3133436.

4. Zohauddin Ahmad, Sheng-I Kuo, You-Chia Chang, Rui-Lin Chao, Naseem, Yi-Shan Lee, Yung-Jr Hung, Huang-Ming Chen, Jyehong Chen, Chee Seong Goh, and Jin-Wei Shi "Avalanche Photodiodes with Dual Multiplication Layers and Ultra-High Responsivity-Bandwidth Products for FMCW Lidar System Applications," IEEE Journal of Selected Topics in Quantum Electronics vol. 28, no. 2, pp. 1-9, March-April 2022, Art no. 3800709, doi: 10.1109/JSTQE.2021.3062637. **(Invited Paper)**

5. **Yi-Shan Lee,** Yan-Min Liao, Ping-Li Wu, Chi-En Chen, Yu-Jie Teng, Yu-Ying Hung and Jin-Wei Shi, "In0.52Al0.48As Based Single Photon Avalanche Diodes with Stepped E-field in Multiplication Layers and High Efficiency Beyond 60 %,” IEEE Journal of Selected Topics in Quantum Electronics, vol. 28, no. 2, pp. 1-7, March-April 2022, Art no. 3802107, doi: 10.1109/JSTQE.2021.3114130.

6. Naseem, Zohauddin Ahmad, Yan-Min Liao, Po-Shun Wang, Sean Yang, Sheng-Yun Wang, Hsiang-Szu Chang, H.-S. Chen, Jack Jia-Sheng Huang, Emin Chou, Yu-Heng Jan, and Jin-Wei Shi, “Avalanche Photodiodes with Composite Charge-Layers for Low Dark Current, High-Speed, and High-Power Performance,” IEEE Journal of Selected Topics in Quantum Electronics, vol. 28, no. 2, pp. 1-10, March-April 2022, Art no. 3801910, doi: 10.1109/JSTQE.2021.3111895.

7. Yen-Yu Huang, Yung-Hao Chang, Yaung-Cheng Zhao, Zuhaib Khan, Zohauddin Ahmad, Chia-Hung Lee, Jui-Sheng Chang, Cheng-Yi Liu, and Jin-Wei Shi, “Low-Noise, Single-Polarized, and High-Speed Vertical-Cavity Surface-Emitting Lasers for Very Short Reach Data Communication,” *IEEE/OSA Journal of Lightwave Technolog*y, doi: 10.1109/JLT.2022.3151905.

 **(2021)**

8. Bohao Liu, Suparna Seshadri, Jhih-Min Wun, Nathan P. O’Malley, Daniel E. Leaird, Nan-Wei Chen, Jin-Wei Shi, and Andrew M. Weiner, "W-Band Photonic Pulse Compression Radar with Dual Transmission Mode Beamforming," *IEEE/OSA Journal of Lightwave Technolog*y, vol. 39, no. 6, pp. 1619-1628, March, 2021, doi: 10.1109/JLT.2020.3038846.

9. Y. -S. Lee, Naseem, P. -L. Wu, Y. -J. Chen and J. -W. Shi, "Neat Temporal Performance of InGaAs/InAlAs Single Photon Avalanche Diode With Stepwise Electric Field in Multiplication Layers," in IEEE Access, vol. 9, pp. 32979-32985, Feb., 2021, doi: 10.1109/ACCESS.2021.3060824.

10. Zohauddin Ahmad, Yan-Min Liao, Sheng-I Kuo, You-Chia Chang, Rui-Lin Chao, Naseem, Yi-Shan Lee, Yung-Jr Hung, Huang-Ming Chen, Jyehong Chen, Jiun-In Guo, and Jin-Wei Shi, “High-Power and High-Responsivity Avalanche Photodiodes for Self-Heterodyne FMCW Lidar System Applications,” in IEEE Access, vol. 9, pp. 85661-85671, June, 2021.

11. Naseem, Z. Ahmad, Y.-M. Liao, R.-L. Chao, P.-S. Wang, Y.-S. Lee, S. Yang, S.-Y. Wang, H.-S. Chang, H.-S. Chen, J. J.-S. Huang, E. Chou, Y.-H. Jan, and J.-W. Shi, “Avalanche Photodiodes with Dual Multiplication Layers for High-Speed and Wide Dynamic Range Performances,” *Photonics*, vol. 8, no. 4, p. 98, Mar. 2021. **(Invited Paper)**

12. R. -L. Chao, Z. Ahmad, J. Chen, Y. Lai, Y. -J. Hung and J. -W. Shi, "Microring Optical Phase-Shifters With Low Driving-Voltage, Low Insertion Loss, and Small Residual Amplitude Modulation," in Journal of Lightwave Technology, vol. 39, no. 24, pp. 7740-7747, 15 Dec.15, 2021, doi: 10.1109/JLT.2021.3098347.

**(2020)**

13. Zuhaib Khan, Jie-Chen Shih, Rui-Lin Chao, Tzong-Liang Tsai, Hsin-Chuan Wang, Gang-Wei Fan, Yu-Chen Lin, Jin-Wei Shi, “High-Brightness and High-Speed Vertical-Cavity Surface-Emitting Laser Arrays,” *Optica,* vol. 7, no. 4, pp. 267-275, April, 2020.

14. Rui-Lin Chao, Z. Ahmad, J. Chen, Y. Lai and Jin-Wei Shi, "BJT-Type Optical Phase Shifter with Small Power Consumption and Fast Response Time on a Silicon Photonics Foundry Platform," in IEEE Journal of Selected Topics in Quantum Electronics, vol. 26, no. 2, pp. 1-7, March-April 2020, Art no. 8301107.

15. Z. Khan et al., "Single-Mode 940 nm VCSELs with Narrow Divergence Angles and High-Power Performances for Fiber and Free-Space Optical Communications," in IEEE Access, vol. 8, pp. 72095-72101, 2020.

16.R. L. Chao, Z. Ahmad, J. Chen, Y. Lai and J. Shi, "Three-Port Optical Phase-Shifters and Modulators with Ultra-High Modulation Efficiency, Positive RF-Linking Gain, and Low Residual Amplitude Modulation," in IEEE Access, vol. 8, pp. 80836-80841, 2020.

17.Jin-Wei Shi, Zuhaib Khan, Ray-Hua Horng, Hsiao-Yun Yeh, Chun-Kai Huang, Cheng-Yi Liu, Jie-Chen Shih, Yung-Hao Chang, Jia-Liang Yen, and Jinn-Kong Sheu, “High-power and single-mode VCSEL arrays with single-polarized outputs by using package-induced tensile strain,” *Optics Letters*, vol. 45, No. 17, pp. 4839-4842, Sep., 2020.

18. Po-Chou Pan, Dhiman Nag, Zuhaib Khan, Ching-Jung Chen, Jin-Wei Shi, Apurba Laha, and Ray-Hua Horng, "Effect of Thermal Management on the Performance of VCSELs," IEEE Transactions on Electron Devices, vol. 67, no. 9, pp. 3736-3739, Sept. 2020.

 **(2019)**

 19.Fu-Bang Chen, Kai-Lun Chi, Wei-Yu Yen, Jinn-Kong Sheu, Ming-Lun Lee, and Jin-Wei Shi, “Investigation on Modulation Speed of Photon-recycling White Light-emitting Diodes with Vertical-conduction Structure” *IEEE/OSA Journal of Lightwave Technology,* vol. 37, pp. 1225-1230, Feb., 2019.

20. Naseem, Zohauddin Ahmad, Rui-Lin Chao, Hsiang-Szu Chang, C.-J. Ni, H.-S. Chen, Jack Jia-Sheng Huang, Emin Chou, Yu-Heng Jan, and Jin-Wei Shi, “The enhancement in speed and responsivity of uni-traveling carrier photodiodes with GaAs0.5Sb0.5/In0.53Ga0.47As type-II hybrid absorbers,” *Optics Express,* vol. 27, no. 11, pp. 15495-15504, May, 2019.

21. Jin-Wei Shi, Jiun-In Guo, Manabu Kagami, Paul Suni, and Olaf Ziemann, "Photonic technologies for autonomous cars: feature introduction," *Optics Express* vol. 27, pp. 7627-7628, March, 2019. (SCI)

22. N. Ledentsov Jr., M. Agustin, V.A. Shchukin, J.-R. Kropp, N.N. Ledentsov, Ł. Chorchos, J.P. Turkiewicz, Z. Khan, C.-L. Cheng, J.-W. Shi, N. Cherkashin, “Quantum dot 850 nm VCSELs with extreme high temperature stability operating at bit rates up to 25 Gbit/s at 150 °C,” *Solid State Electronics*, vol. 155, pp. 150-158, March, 2019. (SCI)

23. [Fan Jun Wei](https://aip.scitation.org/author/Wei%2C%2BFan%2BJun)*,* [Richard A. Mole](https://aip.scitation.org/author/Mole%2C%2BRichard%2BA)*,* [Sunil K. Karna](https://aip.scitation.org/author/Karna%2C%2BSunil%2BK)*,* [Jin-Wei Shi](https://aip.scitation.org/author/Shi%2C%2BJin-Wei)*,* [Jinn-Kong Sheu](https://aip.scitation.org/author/Sheu%2C%2BJinn-Kong)*,* and[Kung-Hsuan Lin](https://aip.scitation.org/author/Lin%2C%2BKung-Hsuan), “Verification of complex acoustic mismatch model in sub-THz regime,” *Appl. Phys. Lett.,* vol. 114, pp. 151106, April, 2019. (SCI)

24. Chen-Lung Cheng, N. Ledentsov Jr., Zuhaib Khan, Jia-Liang Yen, N. N. Ledentsov*,* and Jin-Wei Shi, “Ultrafast Zn-Diffusion and Oxide-Relief 940 nm Vertical-Cavity Surface-Emitting Lasers under High-Temperature Operation,” *IEEE J. of Sel. Topics in Quantum Electronics,* vol.25, pp. 1700507, Nov./Dec., 2019.

25. Hao-Yi Zhao, Naseem, Andrew H. Jones, Rui-Lin Chao, Zohauddin Ahmad, Joe C. Campbell, and Jin-Wei Shi, "High-Speed Avalanche Photodiodes with Wide Dynamic Range Performance," Journal of Lightwave Technology, vol. 37, no. 23, pp. 5945-5952, 1 Dec.1, 2019.

 **(2018)**

26. Yi-Han Chen, Jhih-Min Wun, Song-Lin Wu, Rui-Lin Chao, Jack Jia-Sheng Huang, Yu-Heng Jan, H.-S. Chen, C.-J. Ni, Hsiang-Szu Chang, Emin Chou, and Jin-Wei Shi, “Top-Illuminated In0.52Al0.48As-Based Avalanche Photodiode with Dual Charge Layers for High-Speed and Low Dark Current Performances,” *IEEE J. of Sel. Topics in Quantum Electronics,* vol.24, No. 2, pp. 3800208, March/April., 2018.

27. J.-M. Wun, Y.-W. Wang, and J.-W. Shi, “Ultra-Fast Uni-Traveling Carrier Photodiodes with GaAs0.5Sb0.5/In0.53Ga0.47As Type-II Hybrid Absorbers for High-Power Operation at THz Frequencies,” *IEEE J. of Sel. Topics in Quantum Electronics,* vol. 24, No. 2, pp. 8500207, March,/April, 2018.

28. N. N. Ledentsov, V. A. Shchukin, V. P. Kalosha,N. N. Ledentsov Jr.,J.-R. Kropp,M. Augustin,Ł. Chorchos,J. P. Turkiewicz,and J.-W. Shi, “Anti–waveguiding vertical–cavity surface–emitting laser at 850 nm: From concept to advances in high–speed data transmission,” *Optics Express,* vol. 26, pp. 445-453, Jan., 2018.

29. N. Ledentsov Jr., M. Agustin, J.-R. Kropp, V. A. Shchukin, V. P. Kalosha, K. L. Chi, Z. Khan, J.-W. Shi, N. N. Ledentsov “Temperature stable oxide-confined 850 nm VCSELs operating at bit rates up to 25 Gbit/s at 150°C,” *Proc. SPIE, Vertical-Cavity Surface Emitting Lasers XXII*, pp. 10552-24, Feb., 2018.

30. M. Agustin, N. Ledentsov Jr., J.-R. Kropp, V.A. Shchukin, V. P. Kalosha, K. L. Chi, J.-W. Shi, N. N. Ledentsov, “50 Gb/s NRZ data transmission over OM5 fiber in the SWDM wavelength range,” *Proc. SPIE, Vertical-Cavity Surface Emitting Lasers XXII*, pp. 10552-1, Feb., 2018.

31. Rui-Lin Chao, Linjun Liang, Jin-Wei Shi, Tin Komljenovic, Jared Hulme, M. J. Kennedy, and J. E. Bowers, “Fully Integrated Photonic Millimeter-Wave Tracking Generators on the Heterogeneous III-V/Si Platform” *IEEE Photon. Technol. Lett.,* vol. 30, no. 10, pp. 919-922, May, 2018.

32. Nan-Wei Chen, Jhih-Min Wun, Hao-Chen Wang, Rui-Lin Chao, Chris Koh, C. H. Dreyfus and Jin-Wei Shi, “Design and Analysis of Waveguide-Coupled Photonic THz Transmitters with an Extremely Wide Fractional Bandwidth,” *IEEE/OSA Journal of Lightwave Technology,* vol. 36, pp. 4235-4242, Oct., 2018. (Special Issue on Microwave Photonics)

33. Song-Lin Wu, Naseem, Jhih-Min Wun, Rui-Lin Chao, Jack Jia-Sheng Huang, N.-W. Wang, Yu-Heng Jan, H.-S. Chen, C.-J. Ni, Hsiang-Szu Chang, Emin Chou, and Jin-Wei Shi, “High-Speed In0.52Al0.48As Based Avalanche Photodiode with Top-Illuminated Design for 100 Gbit/sec ER-4 System,” *IEEE/OSA Journal of Lightwave Technology,* vol. 36, pp. 5505-5510, Dec., 2018.

34. Zuhaib Khan, Jia-Liang Yen, Chen-Lung Cheng, Kai-Lun Chi, and Jin-Wei Shi, “Enhancing the Static and Dynamic Performance of High-Speed VCSELs by Zn-Diffused Shallow Surface Relief Apertures,” *IEEE J. of Quantum Electronics,* vol. 54, pp. 2400706, Oct., 2018.

**(2017)**

35. Jin-Wei Shi, Chia-Chien Wei, Jason (Jyehong) Chen, N.N. Ledentsov, and Ying-Jay Yang,“Single-Mode 850 nm Vertical-Cavity Surface-Emitting Lasers with Zn-diffusion and Oxide-relief Apertures for > 50 Gbit/sec OOK and 4-PAM Transmission,” *Proc. SPIE, Vertical-Cavity Surface Emitting Lasers XXI*, vol. 10122, pp. 101220F, Feb., 2017. **(Invited Paper)**

36. J. Hulme, M. J. Kennedy, Rui-Lin Chao, Linjun Liang, Tin Komljenovic, Jin-Wei Shi, Bogdan Szafraniec, Doug Baney, and J. E. Bowers, “Fully integrated microwave frequency synthesizer on heterogeneous silicon-III/V,” *Optics Express,* vol. 25, no. 3, pp. 279613, Feb.,2017.

37. Jhih-Min Wun, Rui-Lin Chao, Yu-Wen Wang, Yi-Han Chen, and Jin-Wei Shi, “Type-II GaAs0.5Sb0.5/InP Uni-Traveling Carrier Photodiodes with Sub-THz Bandwidth and High-Power Performance under Zero-Bias Operation,” *IEEE/OSA Journal of Lightwave Technology,* vol. 35, pp. 711-716, Feb., 2017.

38. J. Vinogradov, R. Kruglov, R. Engelbrecht, O. Ziemann, J.-K. Sheu, K.-L. Chi, J.-M. Wun, and J.-W. Shi, “GaN-Based Cyan Light Emitting Diode with up to 1 GHz Bandwidth for High-Speed Transmission over SI-POF” *IEEE Photonics Journal,* vol. 9, no. 3, pp. 7201707, June, 2017.

39. Rui-Lin Chao, Jin-Wei Shi, Aditya Jain, Takako Hirokawa, Akhilesh S.P. Khope, Clint Schow,J. E. Bowers, Roger Helkey, and James F. Buckwalter, “Forward Bias Operation of Silicon Photonic Mach Zehnder Modulators for RF Applications,” *Optics Express,* vol. 25, No. 19, pp. 23181-23190, Sep., 2017.

40. Jia-Liang Yen, Xin-Nan Chen, Kai-Lun Chi, Jason Chen, and Jin-Wei Shi*,*“850 nm Vertical-Cavity Surface-Emitting Laser Arrays With Enhanced High-Speed Transmission Performance Over a Standard Multimode Fiber,” *IEEE/OSA Journal of Lightwave Technology,* vol. 35, pp. 3242-3249, Aug., 2017.

41. Y. Wan, Z. Zhang, R.-L. Chao, J. Norman,D. Jung, C. Shang,Q. Li, M. J. Kennedy, J.-W. Shi, A. C. Gossard,K. M. Lau,and J. E. Bowers, “Monolithically Integrated InAs/InGaAs Quantum Dot Photodetectors on Silicon Substrates,” *Optics Express,* vol. 25, no. 22, pp. 27715-27723, Oct.,2017.

**(2016)**

42. Jhih-Min Wun, Hao-Yun Liu, Yu-Lun Zeng, Shang-Da Yang, Ci-Ling Pan,Chen-Bin Huang, and Jin-Wei Shi,“Photonic High-Power CW THz-Wave Generation by Using Flip-Chip Packaged Uni-Traveling Carrier Photodiode and Femtosecond Optical Pulse Generator,” *IEEE/OSA Journal of Lightwave Technology,* vol. 34, pp. 1387-1397, Feb., 2016.

43. Kai-Lun Chi, Yi-Xuan Shi, Xin-Nan Chen, Jason (Jyehong) Chen, Ying-Jay Yang, J.-R Kropp, N. Ledentsov Jr., M. Agustin, N.N. Ledentsov, G. Stepniak, J. P. Turkiewicz, and Jin-Wei Shi, “Single-Mode 850 nm VCSELs for 54 Gbit/sec On-Off Keying Transmission Over 1 km Multi-Mode Fiber,” *IEEE Photon. Technol. Lett.,* vol. 28, no. 12, pp. 1367-1370, June, 2016.

44. Jin-Wei Shi*,* Kai-Lun Chi, Jhih-Min Wun, J. E. Bowers, Ya-Hsuan Shih, and Jinn-Kong Sheu, “III-Nitride Based Cyan Light-Emitting Diodes with GHz Bandwidth for High-Speed Visible Light Communication,” *IEEE Electron Device Lett.,* vol. 37, pp. 894-897, July, 2016.

45. Jhih-Min Wun, Yu-Wen Wang, Yi-Han Chen, J. E. Bowers, and Jin-Wei Shi, “GaSb Based p-i-n Photodiodes with Partially Depleted Absorbers for High-Speed and High-Power Performance at 2.5 m Wavelength,” *IEEE Trans. on Electron Device.* vol. 63, pp. 2796-2801, July, 2016.

46. Kai-Lun Chi, **Dan-Hua Hsieh**, Jia-Liang Yen, Xin-Nan Chen, Jason (Jyehong) Chen, Hao-Chung Kuo, Ying-Jay Yang, and Jin-Wei Shi, “850 nm VCSELs with P-type $δ$-Doping in the Active Layers for Improved High-Speed and High-Temperature Performance,” *IEEE J. of Quantum Electronics,* vol. 52, pp. 2400607, Nov., 2016.

**(2015)**

47. Jin-Wei Shi, Kai-Lun Chi, Chi-Yu Li, and Jhih-Min Wun “Dynamic Analysis of High-Efficiency InP Based Photodiode for 40 Gbit/sec Optical Interconnect across a Wide Optical Window (0.85 to 1.55 m),” *IEEE/OSA Journal of Lightwave Technology,* vol. 33, no. 4, pp. 921-927, Feb., 2015.

48. J.-W. Shi, C.-C. Wei, Jason (Jyehong) Chen, and Y.-J. Yang, “850 nm Zn-diffusion Vertical-Cavity Surface-Emitting Lasers with Oxide-Relief Structure for High-Speed and Energy-Efficient Optical Interconnects from Very-Short to Medium (2km) Reaches,” *Proc. SPIE, Vertical-Cavity Surface Emitting Lasers XIX*, vol. 9002, pp. 9381-13, Feb., 2015. **(Invited Paper)**

49. I-Cheng Lu, Chia-Chien Wei, Jin-Wei Shi, Hsing-Yu Chen, Sheng-Fan Tsai, Dar-Zu Hsu, Zhi-Rui Wei, Jhih-Min Wun, and Jyehong Chen, “Optimization of mode numbers of VCSELs for small-cell backhaul applications,” *Optics Communications*, vol. 347, pp. 81-87, March, 2015.

50.I-Cheng Lu, C.-C. Wei\*, H.-Yu Chen, K.-Z. Chen, C.-H. Huang, K.-L. Chi, J.-W. Shi\*, F.-I. Lai, D.-H. Hsieh, H.-C. Kuo,Wei Lin, S.-W. Chiu, and J. (Jason) Chen, “Very High Bit-Rate Distance Product Using High-Power Single-Mode 850 nm VCSEL with Discrete Multi-Tone Modulation Formats Through OM4 Multi-Mode Fiber,” *IEEE J. of Sel. Topics in Quantum Electronics,* vol. 21, no. 6, pp. 1701009, Nov.,/Dec., 2015.

51. Kai-Lun Chi, Jia-Liang Yen, Jhih-Min Wun, Jia-Wei Jiang, I-Cheng Lu, Jason (Jyehong) Chen, Ying-Jay Yang, and Jin-Wei Shi, “Strong Wavelength Detuning of 850 nm Vertical-Cavity Surface-Emitting Lasers for High-Speed (>40 Gbit/sec) and Low-Energy Consumption Operation,” *IEEE J. of Sel. Topics in Quantum Electronics,* vol. 21, no. 6, pp. 1701510, Nov.,/Dec., 2015.

**(2014)**

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