

Networks and  
Switching

Systems and  
Subsystems

Fibers and Cables

Active Components

Passive Components

Integrated Optics

Optoelectronics

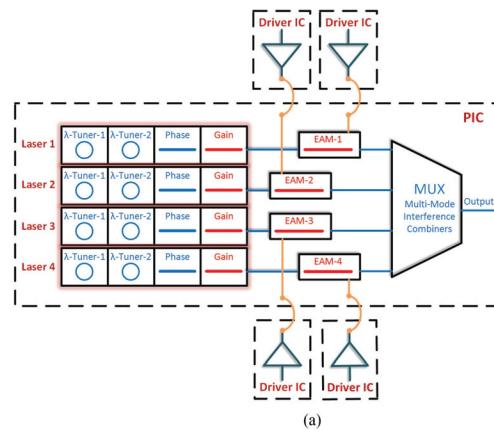
Sensors

Theory

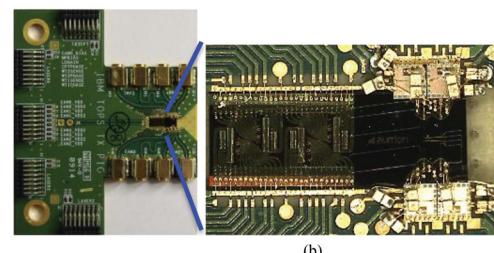
# *Journal of* **Lightwave Technology**

*This Print Collection Contains the Following Issues:*

July 1, 2016	Volume 34	Number 13	JLTEDG
July 15, 2016	Volume 34	Number 14	
August 1, 2016	Volume 34	Number 15	
August 15, 2016	Volume 34	Number 16	



(a)



(b)

---

For the July 1, 2016 issue, see p. 3021 for the Table of Contents.  
 For the July 15, 2016 issue, see p. 3273 for the Table of Contents.  
 For the August 1, 2016 issue, see p. 3473 for the Table of Contents.  
 For the August 15, 2016 issue, see p. 3661 for the Table of Contents.

---



**IEEE** A JOINT IEEE / OSA PUBLICATION

**OSA**  
The Optical Society

# *Journal of* **Lightwave Technology**

A JOINT IEEE / OSA PUBLICATION

JULY 15, 2016

VOLUME 34

NUMBER 14

JLTEDG

(ISSN 0733-8724)

---

## Networks

- Orchestrating Tree-Type VNF Forwarding Graphs in Inter-DC Elastic Optical Networks ..... *M. Zeng, W. Fang, and Z. Zhu* 3330

## Systems/Subsystems

- Error-Free 56 Gb/s NRZ Modulation of a 1530-nm VCSEL Link ..... *D. M. Kuchta, T. N. Huynh, F. E. Doany, L. Schares, C. W. Baks, C. Neumeyr, A. Daly, B. Kögel, J. Rosskopf, and M. Ortsiefer* 3275
- Nonlinear Phase Modulation Inside an MQW Optical Modulator ..... *L. Xu, S. Jin, and Y. Li* 3300
- Proposed Implementation of “Non-Physical” Four-Dimensional Polarization Rotations ..... *G. Björk, K. Stensson, and M. Karlsson* 3317
- Modulation Format Independent Joint Polarization and Phase Tracking for Coherent Receivers ..... *C. B. Czegledi, E. Agrell, M. Karlsson, and P. Johannisson* 3354
- Optical Cable Changeover Tool With Light Injection and Detection Technology ..... *H. Hirota, T. Kawano, M. Shimpo, N. Kazutaka, T. Uematsu, N. Honda, T. Kiyokura, and T. Manabe* 3379
- Comparing DMT Variants in Medium-Reach 100G Optically Amplified Systems ..... *D. Pilori, C. Fludger, and R. Gaudino* 3389
- Signal Overlap for Elastic Optical Networks ..... *T. Foggi and F. Cugini* 3400
- Adaptive Filter for Automatic Identification of Multiple Faults in a Noisy OTDR Profile ..... *J. P. von der Weid, M. H. Souto, J. D. Garcia, and G. C. Amaral* 3418
- Photonic-Assisted Wideband Phase Noise Analyzer Based on Optoelectronic Hybrid Units ..... *W. Wang, J. G. Liu, H. Mei, W. Sun, and N. Zhu* 3425
- Dual Purpose Antenna for Hybrid Free Space Optics/RF Communication Systems ..... *M. M. Abadi, Z. Ghassemlooy, S. Zvanovec, D. Smith, M. R. Bhatnagar, and Y. Wu* 3432
- Efficient Photonic Microwave Mixer With Compensation of the Chromatic Dispersion-Induced Power Fading ..... *Y. Gao, A. Wen, X. Wu, Y. Wang, and H. Zhang* 3440
- Design and Characterization of Active Matrix LED Microdisplays With Embedded Visible Light Communication Transmitter ..... *X. Li, L. Wu, Z. Liu, B. Hussain, W. C. Chong, K. M. Lau, and C. P. Yue* 3449
- 

(Contents Continued on Page 3274)

JOURNAL OF LIGHTWAVE TECHNOLOGY (ISSN 0733-8724) is published semimonthly by the Institute of Electrical and Electronics Engineers, Inc. Responsibility for the contents rests upon the authors and not upon the IEEE, the Society/Council, or its members. **IEEE Corporate Office:** 3 Park Avenue, 17th Floor, New York, NY 10016-5997. **IEEE Operations Center:** 445 Hoes Lane, Piscataway, NJ 08854-4141. **NJ Telephone:** +1 732 981 0060. **Price/Publication Information:** Individual copies: IEEE Members \$20.00 (first copy only), nonmembers \$427.00 per copy. (Note: Postage and handling charge not included.) Member and nonmember subscription prices available upon request. Available in microfiche and microfilm. **Copyright and Reprint Permissions:** Abstracting is permitted with credit to the source. Libraries are permitted to photocopy for private use of patrons, provided the per-copy fee of \$31.00 is paid through the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923. For all other copying, reprint, or republication permission, write to Copyrights and Permissions Department, IEEE Publications Administration, 445 Hoes Lane, Piscataway, NJ 08854-4141. Copyright © 2016 by the Institute of Electrical and Electronics Engineers, Inc. All rights reserved. **Postmaster:** Send address changes to JOURNAL OF LIGHTWAVE TECHNOLOGY, IEEE, 445 Hoes Lane, Piscataway, NJ 08854-4141. GST Registration No. 125634188. CPC Sales Agreement #40013087. Return undeliverable Canada addresses to: Pitney Bowes IMEX, P.O. Box 4332, Stanton Rd., Toronto, ON M5W 3J4, Canada. IEEE prohibits discrimination, harassment and bullying. For more information visit <http://www.ieee.org/nondiscrimination>. Printed in U.S.A.

Bandwidth Compressed Waveform for 60-GHz Millimeter-Wave Radio Over Fiber Experiment .....	3458
..... <i>T. Xu, S. Mikroulis, J. E. Mitchell, and I. Darwazeh</i>	
A Wavelength Tunable Optical Buffer Based on Self-Pulsation in an Active Microring Resonator.....	3466
..... <i>W. Liu, B. Romeira, M. Li, R. S. Guzzon, E. J. Norberg, J. S. Parker, L. A. Coldren, and J. Yao</i>	
<b>Fibers/Cables</b>	
High Sensitive Refractometric Sensor Using Symmetric Cladding Modes of an FBG Operating at Mode Transition .....	3348
..... <i>S. Bandyopadhyay, T. K. Dey, N. Basumallick, P. Biswas, K. Dasgupta, and S. Bandyopadhyay</i>	
Mode Coupling Effects in Ring-Core Fibers for Space-Division Multiplexing Systems .....	3365
..... <i>X. Jin, A. Gomez, K. Shi, B. C. Thomsen, F. Feng, G. S. D. Gordon, T. D. Wilkinson, Y. Jung, Q. Kang, P. Barua, J. Sahu, S.-U. Alam, D. J. Richardson, D. C. O'Brien, and F. P. Payne</i>	
Large Mode Area Single Trench Fiber for 2 $\mu\text{m}$ Operation .....	3412
..... <i>D. Jain and J. K. Sahu</i>	
<b>Integrated Optics/Optoelectronics</b>	
Enhancing Light Emission From Germanium Quantum Dots by Bowtie Antennas .....	3283
..... <i>C. Zeng, X. Hu, M. Shi, X. Qiu, Y. Li, and J. Xia</i>	
High- $Q$ LiNbO <sub>3</sub> Microtoroid Resonators .....	3306
..... <i>T.-J. Wang, P.-T. Chen, W.-C. Hsiao, and C.-H. Chen</i>	
Super Diffraction in a Single-Layer Metasurface .....	3312
..... <i>Y. Zhang, C.-P. Huang, and H.-C. Chang</i>	
Linearity Measurement and Pulse Amplitude Modulation in a Silicon Single-Drive Push-Pull Mach-Zehnder Modulator .....	3323
..... <i>Y. Zhou, L. Zhou, F. Su, X. Li, and J. Chen</i>	
Sensing Application in Fano Resonance With T-Shape Structure .....	3342
..... <i>B.-X. Li, H.-J. Li, L.-L. Zeng, S.-P. Zhan, Z.-H. He, Z.-Q. Chen, and H. Xu</i>	
Numerical Study of Compact Terahertz Gas Laser Based on Photonic Crystal Fiber Cavity .....	3373
..... <i>D. Yan, H. Zhang, D. Xu, W. Shi, C. Yan, P. Liu, J. Shi, and J. Yao</i>	
<b>Sensors</b>	
Pure Directional Bending Measurement With a Fiber Bragg Grating at the Connection Joint of Eccentric-Core and Single-Mode Fibers .....	3288
..... <i>J. Kong, X. Ouyang, A. Zhou, H. Yu, and L. Yuan</i>	
Enhancement of RI Sensitivity Through Bending a Tapered-SMF-Based Balloon-Like Interferometer .....	3293
..... <i>X. Liu, Y. Zhao, R.-Q. Lv, and Q. Wang</i>	
<b>COMMENTS AND CORRECTIONS</b>	
Comments on “Simple Generation of Gamma, Gamma–Gamma and K Distributions With Exponential Autocorrelation Function” .....	3411

---