Bibliography

[1] L. Gruner-Nielsen, M. Wandel, P. Kristensen, C. Jorgensen, L. V. Jorgensen, B. Edvold, B. Pálsdóttir, and D. Jakobsen, "Dispersion-compensating fibers," *Journal of Lightwave Technology*, vol. 23, no. 11, pp. 3566–3579, 2005.

[2] J. C. Vel'asquez Micolta, "Analysis of the performances and tolerances of the 2nd generation passive optical networks (ngpon2) for ftth systems," 2014.

[3] H. Lee and S. Lee, "Time and wavelength division multiplexing - passive optical network (twdm-pon) system and communication link method thereof," June 12 2014. US Patent App. 14/092,260.

[4] D. Walsh, D. Moodie, I. Mauchline, S. Conner, W. Johnstone, and B. Culshaw, "Practical bit error rate measurements on fibre optic communications links in student teaching laboratories," in *Ninth International Topical Meeting on Education and Training in Optics and Photonics*, pp. 96642I–96642I, International Society for Optics and Photonics, 2005.

[5] C. S. Clara, "Fsan news," July 2012.

[6] D. Nowak and J. Murphy, "Ftth: The overview of existing technologies," in *OPTO-Ireland*, pp. 500–509, International Society for Optics and Photonics, 2005.

[7] R. Khosravani, "Timing-jitter in high bit-rate wdm communication systems due to pmd-nonlinearity interaction," in *OFC/NFOEC Technical Digest. Optical Fiber Communication Conference, 2005.*, vol. 5, pp. 3 pp. Vol. 6–, March 2005.

[8] R. Noe, D. Sandel, and V. Mirvoda, "Pmd in high-bit-rate transmission and means for its mitigation," *IEEE Journal of Selected Topics in Quantum Electronics*, vol. 10, pp. 341–355, March 2004.

[9] J. Li, K. Worms, R. Maestle, D. Hillerkuss, W. Freude, and J. Leuthold, "Free-space optical delay interferometer with tunable delay and phase," *Optics express*, vol. 19, no. 12, pp. 11654–11666, 2011.

[10] "Q-factor test equipment to estimate the transmission performance of optical channels," 2003.

[11] H. Takahashi, K. Oda, H. Toba, and Y. Inoue, "Transmission characteristics of arrayed waveguide n times;n wavelength multiplexer," *Journal of Lightwave Technology*, vol. 13, pp. 447–455, Mar 1995.

[12] Z. Zhou, M. Bi, S. Xiao, Y. Zhang, and W. Hu, "Experimental demonstration of symmetric 100-gb/s dml-based twdm-pon system," *IEEE Photonics Technology Letters*, vol. 27, pp. 470–473, March 2015.

[13] M. Bi, S. Xiao, L. Yi, H. He, J. Li, X. Yang, and W. Hu, "Power budget improvement of symmetric 40-gb/s dml-based twdm-pon system," *Optics express*, vol. 22, no. 6, pp. 6925–6933, 2014.

[14] Y. Luo, X. Zhou, F. Effenberger, X. Yan, G. Peng, Y. Qian, and Y. Ma, "Time- and wavelength-division multiplexed passive optical network (twdm-pon) for next-generation pon stage 2 (ng-pon2)," *Lightwave Technology, Journal of*, vol. 31, no. 4, pp. 587–593, 2013.

[15] S. Bindhaiq, A. S. M. Supa'at, and N. Zulkifli, "80-gb/s wavelength stacked time and wavelength division multiplexing-passive optical network for the next generation-pon second stage," in *Photonics (ICP), 2014 IEEE 5th International Conference on*, pp. 69–71, IEEE, 2014.

[16] M. Bi, S. Xiao, H. He, L. Yi, Z. Li, J. Li, X. Yang, and W. Hu, "Simultaneous dpsk demodulation and chirp management using delay interferometer in symmetric 40-gb/s capability twdm-pon system," *Optics express*, vol. 21, no. 14, pp. 16528–16535, 2013.

[17] J. Salgado and N. Monteiro, "New ftth-based technologies and applications," *FTTH Council Europe*, 2014.

[18] E. Wong, "Chapter 3 - optical technologies in passive optical access networks," in *Passive Optical Networks* (C. F. Lam, ed.), pp. 87 – 149, Burlington: Academic Press, 2007.

[19] J. Prat and E. Ciaramella, "Low cost solutions implementing ultra-dense-wdm in access," in *2014 16th International Conference on Transparent Optical Networks (ICTON)*, pp. 1–2, July 2014.

[20] K. Taguchi, H. Nakamura, K. Asaka, S. Nakano, S. Kimura, and N. Yoshimoto, "100-ns lambda-selective burst-mode transceiver for 40-km reach symmetric 40-gbit/s wdm/tdm-pon," in *Optical Communication (ECOC 2013), 39th European Conference and Exhibition on*, pp. 1–3, Sept 2013.

[21] S. Ihara, S. Yoshima, T. Suehiro, M. Noda, E. Igawa, M. Nogami, and J. Nakagawa, "Experimental demonstration of c-band burst-mode transmission for high power budget (64-split with 40km distance) twdm-pon systems," in *Optical Communication (ECOC 2013), 39th European Conference and Exhibition on*, pp. 1–3, Sept 2013.

[22] Z. Li, L. Yi, and W. Hu, "Key technologies and system proposals of twdm-pon," *Frontiers of Optoelectronics*, vol. 6, no. 1, pp. 46–56, 2013.

[23] M. S. Borella, J. P. Jue, D. Banerjee, B. Ramamurthy, and B. Mukherjee, "Optical components for wdm lightwave networks," *Proceedings of the IEEE*, vol. 85, pp. 1274–1307, Aug 1997.

[24] P. Chanclou, A. Cui, F. Geilhardt, H. Nakamura, and D. Nesset, "Network operator requirements for the next generation of optical access networks," *IEEE Network*, vol. 26, pp. 8–14, March 2012.

[25] ITU-T, "G.984.6 : Gigabit-capable passive optical networks (gpon): Reach extension," 2012.

[26] N. Cheng, L. Wang, D. Liu, B. Gao, J. Gao, X. Zhou, H. Lin, and F. Effenberger, "Flexible twdm pon with load balancing and power saving," in *Optical Communication (ECOC 2013), 39th European Conference and Exhibition on*, pp. 1–3, Sept 2013.

[27] ITU-T, "Characteristics of a single-mode optical fibre and cable," 2009.

[28] F. Effenberger and T. S. El-Bawab, "Passive optical networks (pons): past, present, and future," *Optical Switching and Networking*, vol. 6, no. 3, pp. 143–150, 2009.

[29] G. P. Agrawal, *Nonlinear fiber optics*. Academic press, 2007.

[30] R. Murano, "Optical component technology options for ngpon2 systems," in *Optical Fiber Communications Conference and Exhibition (OFC), 2014*, pp. 1–3, March 2014.

[31] N. Cheng, "Flexible twdm pons," in *Optical Fiber Communications Conference and Exhibition (OFC), 2014*, pp. 1–3, March 2014.

[32] G. P. Agrawal, *Lightwave technology: components and devices*, vol. 1. John Wiley & Sons, 2004.

[33] N. Cheng and F. Effenberger, "System impairments and performance implications of ase seeded wdm pon systems," in *Optical Fiber Communication Conference and Exposition (OFC/NFOEC), 2011 and the National Fiber Optic Engineers Conference*, pp. 1–3, March 2011.

[34] D. Seyringer and M. Bielik, "Awg-parameters: new software tool to design arrayed waveguide gratings," in *SPIE OPTO*, pp. 862716–862716, International Society for Optics and Photonics, 2013.

[35] G. P. Agrawal, *Nonlinear fiber optics*. Academic press, 2007.

[36] P. Nouchi, P. Sillard, and L. de Montmorillon, "New transmission fibers for future networks," in *Proceedings of ECOC*, 2004.

[37] Ericsson, "Fiber optic splitter shelf, ncd 520 002."

[38] K. P. Kaur, R. Randhawa, and R. Kaler, "Performance analysis of wdm-pon architecture using different receiver filters," *Optik-International Journal for Light and Electron Optics*, vol. 125, no. 17, pp. 4742–4744, 2014.

[39] L. Yi, Z. Li, M. Bi, W. Wei, and W. Hu, "Symmetric 40-gb/s twdm-pon with 39-db power budget," *IEEE Photonics Technology Letters*, vol. 25, pp. 644–647, April 2013.

[40] L. F. Henning, M. do Carmo R. Medeiros, P. Monteiro, and A. de A. P. Pohl, "Colourless onu based on self seed signal rsoa in a wdm-pon," in *Telecommunications Network Strategy and Planning Symposium (Networks), 2014 16th International*, pp. 1–6, Sept 2014.

[41] ITU-T, "40 gigabit capable passive optical netwroks: Physical media dependent (pmd) layer specification," 2014.

[42] D. Li, C. Ma, Z. Qin, H. Zhang, D. Zhang, and S. Liu, "Design of athermal arrayed waveguide grating using silica/polymer hybrid materials," *Optica Applicata*, vol. 37, no. 3, p. 305, 2007.

[43] Y. Kokubun, S. Yoneda, and S. Matsuura, "Temperature-independent optical filter at 1.55 μm wavelength using a silica-based athermal waveguide," *Electronics Letters*, vol. 34, no. 4, pp. 367–369, 1998.

[44] A. Kaneko, S. Kamei, Y. Inoue, H. Takahashi, and A. Sugita, "Athermal silica-based arrayed-waveguide grating (awg) multi/demultiplexers with new low loss groove design," *Electronics Letters*, vol. 36, no. 4, p. 1, 2000.

[45] A. Elndash, N. A. Mohammed, A. N. Z. Rashed, A. Elndash, and F. A. Saad, "Estimated optimization parameters of arrayed waveguide grating (awg) for c-band applications," *International Journal of Physical Sciences*, vol. 4, no. 4, pp. 149–155, 2009.

[46] F. Effenberger, "Progress in optical access standards," in *Joint ITU/IEEE Workshop on Ethernet-Emerging Applications and Technologies*, 2012.

[47] K. Kondepu, L. Valcarenghi, D. P. Van, and P. Castoldi, "Trading energy savings and network performance in reconfigurable twdm-pons," *IEEE/OSA Journal of Optical Communications and Networking*, vol. 7, pp. 470–471, May 2015.

[48] "40-gigabit-capable passive optical networks (ng-pon2): General requirements," 2013.

[49] A. Mohammed, A. N. Z. Rashed, E. Gaber, and A. Saad, "Ultra low loss of a thermal arrayed waveguide grating (awg) module in passive optical networks," *Journal of Engineering and Technology Research*, vol. 3, no. 10, pp. 298–306, 2011.

[50] A. E.-N. A. Mohamed, A. N. Z. Rashed, and M. Eid, "Rapid progress of a thermal arrayed waveguide grating module for dense wavelength division multiplexing applications," *Advanced Science Letters*, vol. 5, no. 1, pp. 56–63, 2012.

[51] G. Keiser, "Optical fiber communication," *NY: McGraw-Hill*, 2000.