

Full Publications:

Refereed Journal Papers:

1. Jhih-Heng Yan, You-Wei Chen, Kuan-Heng Shen, and **Kai-Ming Feng**, “An Experimental Demonstration for Carrier Reused Bidirectional PON System with Adaptive Modulation DDO-OFDM Downstream and QPSK Upstream Signals,” *Optics Express*, Vol. 21, Iss. 23, pp. 28154–28166 (2013)
2. Banghong Zhang, Hongyu Zhang, Changyuan Yu, Xiaofei Cheng, Yong Kee Yeo, Pooi-Kuen Kam, Jing Yang, Hongguang Zhang, Yu-Hsiang Wen, and **Kai-Ming Feng**, “An All-Optical Modulation Format Conversion for 8QAM Based on Four-Wave Mixing in Highly Non-Linear Fiber,” *IEEE Photonics Technology Letters*, vol. 25, pp. 327-330, Feb. 2013.
3. **Kai-Ming Feng**, Chung-Yu Wu, Jhih-Heng Yan, Chih-Yuan Lin and Peng-Chun Peng, “Fiber Bragg Grating Based Three-Dimensional Multipoint Ring-Mesh Sensing System with Robust Self-healing Function,” *IEEE Journal of Selected Topics in Quantum Electronics*, Vol.18, No. 5, pp. 1613-1620, 2012.
4. Wen-Hung Tseng and **Kai-Ming Feng**, “Impact of fiber delay fluctuation on reference injection-locked optoelectronic oscillators,” *Optics Letters*, Vol. 37, Iss. 17, pp. 3525–3527 (2012).
5. Wen-Hung Tseng, Yi-Jiun Huang, Tadahiro Gotoh, Jun Amagai, Thomas Hobiger, Miho Fujieda, Shinn-Yan Lin, Huang-Tien Lin, and **Kai-Ming Feng**, “First International TWSTFT Experiment by Employing Dual Pseudo-random Noise Codes,” *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*, vol. 59, no. 3, pp. 531-538, 2012.
6. Wen-Hung Tseng and **Kai-Ming Feng**, “Enhancing long-term stability of the optoelectronic oscillator with a probe-injected fiber delay monitoring mechanism,” *Optics Express*, Vol. 20, Iss. 2, pp. 1597–1607 (2012)
7. **Kai-Ming Feng**, Chung-Yu Wu, and Yu-Hsiang Wen, “Multi-function all optical packet switch by periodic wavelength arrangement in an arrayed waveguide grating and wideband optical filters,” *Optics Express*, Vol. 20 Issue 2, pp.712-717 (2012)
8. Wen-Hung Tseng, **Kai-Ming Feng**, Shinn-Yan Lin, Huang-Tien Lin, Yi-Jiun Huang, and Chia-Shu Liao, “Sagnac Effect and Diurnal Correction on Two-Way Satellite Time Transfer,” *IEEE Transactions on Instrumentation and Measurement*, Vol. 60, No. 7, pp. 2298-2303, (2011).
9. Hong-Sheng Hsieh, **Kai-Ming Feng** and Ming-Chang M. Lee, “Study of cross-phase modulation and free-carrier dispersion in silicon photonic wires for Mamyshev signal regenerators,” *Optics Express*, Vol. 18, Iss. 9, pp. 9613–9621 (2010).
10. Chung-Yu Wu, **Kai-Ming Feng**, and Jhih-Heng Yan, “Periodic Wavelength Arrangement Based All Optical Packet Switch,” *IEEE Photonics Technology Letters*, vol. 22, pp. 622-624, May. 2010.
11. Chung-Yu Wu, **Kai-Ming Feng**, Peng-Chun Peng, and Chih-Yuan Lin, “Three-Dimensional Mesh-Based Multipoint Sensing System with Self-Healing Functionality,” *IEEE Photonics Technology Letters*, vol. 22, pp. 565-567, Apr. 2010.
12. Wei-Ren Peng, **Kai-Ming Feng**, and Sien Chi, “Joint compensation of CD and PMD in direct-detected OFDM transmission using polarization-time coding,” *Optics Express*, vol. 18, Iss. 3, pp. 1916–1926 (2010).
13. Wen-Hung Tseng, Shinn-Yan Lin, **Kai-Ming Feng**, Miho Fujieda, Hideo Maeno, “Improving TWSTFT Short-Term Stability by Network Time Transfer,” *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*, vol. 57, no. 1, pp. 161-167, Jan, 2010.
14. Wei-Ren Peng, Bo Zhang, **Kai-Ming Feng**, Xiaoxia Wu, Alan E. Willner, and Sien Chi, “Spectrally Efficient Direct-Detected OFDM Transmission Incorporating a Tunable Frequency Gap and an Iterative Detection Techniques,” *IEEE/OSA Journal of Lightwave Technology*, vol. 27, no. 24, pp. 5723-5735, Dec. 2009.
15. Wei-Ren Peng, **Kai-Ming Feng**, and Alan E. Willner, “Ultimate Sensitivity for Optically-Preamplified Direct-Detected OFDM Systems Using Spectrally Matched Optical Filters,” *IEEE*

Photonics Technology Letters, vol. 21, pp. 1764-1766, Dec. 2009.

16. Wei-Ren Peng, Xiaoxia Wu, **Kai-Ming Feng**, Vahid R. Arbab, Bishara Shamee, Jeng-Yuan Yang, Louis C. Christen, Alan E. Willner, and Sien Chi, "Spectrally efficient direct-detected OFDM transmission employing an iterative estimation and cancellation technique," *Optics Express*, vol. 17, Iss. 11, pp. 9099–9111 (2009).
17. Wei-Ren Peng, Xiaoxia Wu, Vahid R. Arbab, **Kai-Ming Feng**, Bishara Shamee, Louis C. Christen, Jeng-Yuan Yang, Alan E. Willner, and Sien Chi, "Theoretical and Experimental Investigations of a Direct-Detected RF-Tone Assisted Optical OFDM System," *IEEE/OSA Journal of Lightwave Technology*, vol. 27, pp. 1332-1339, May 2009.
18. Wei-Ren Peng, **Kai-Ming Feng**, Alan E. Willner, and Sien Chi, "Estimation of the Bit Error Rate for Direct-Detected OFDM Signals with Optically Pre-amplified Receivers," *IEEE/OSA Journal of Lightwave Technology*, vol. 27, pp. 1340-1346, May. 2009.
19. Wei-Ren Peng, Bo Zhang, Xiaoxia Wu, **Kai-Ming Feng**, Alan E. Willner, and Sien Chi, "Compensation for I/Q Imbalances and Bias Deviation of the Mach-Zehnder Modulators in Direct-Detected Optical OFDM Systems," *IEEE Photonics Technology Letters*, vol. 21, pp. 103-105, Jan. 2009.
20. Peng-Chun Peng, **Kai-Ming Feng**, Hung-Yu Chiou, Wei-Ren Peng, JyeHong Chen, Hao-Chung Kuo, Shing-Chung Wang, and Sien Chi, "Reliable Architecture for High-Capacity Fiber-Radio Systems," *Optical Fiber Technology*, vol. 13, July, pp.236-239, 2007.
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22. Ming-Fang Huang, Jason (Jyehong) Chen, **Kai-Ming Feng**, Tse-Yu Lin, Chung-Yu Lai, Chia-Chien Wei, Sien Chi, Zhonghua Zhu, Yung Jui Chen, Yin-Chieh Huang, and Shih-Jung Chang, "Add/Drop Applications in Fiber Ring Networks Based on a Reconfigurable Optical Add/Drop Multiplexer in a Re-circulating Loop," *Optics Communications* 267 (2006) 113-117.
23. Yu-Sheng Liao, Gong-Ru Lin, Hao-Chung Kuo, **Kai-Ming Feng**, and Milton Feng, "10-Gbps Operation of an $\text{In}_{0.53}\text{Ga}_{0.47}\text{As}$ p-i-n Photodiode on Metamorphic InGaP Buffered Semi-Insulating GaAs Substrate," *IEEE Photonics Technology Letters*, vol. 18, pp. 1822-1824, 2006.
24. Yan, L.-S.; Luo, T.; Yu, Q.; Xie, Y.; **Feng, K.-M.**; Khosravani, R.; Willner, A.E., "Investigation of performance variations due to the amplitude of group-delay ripple in chirped fiber Bragg gratings," *Optical Fiber Technology*, vol. 12, July, pp.238-242, 2006.
25. Ming-Fang Huang, **Kai-Ming Feng**, Jason (Jyehong) Chen, Tse-Yu Lin, Chia-Chien Wei, and Sien Chi, "Wavelength-Interleaving Bidirectional Transmission System Using Unidirectional Amplification in a 5 x 100 km Recirculating Loop," *IEEE Photonics Technology Letters*, vol. 18, pp. 1326-1328, 2006.
26. Peng-Chun Peng, Wei-Ren Peng, **Kai-Ming Feng**, Hung-Yu Chiou, Jason (Jyehong) Chen, Hao-Chung Kuo, Shing-Chung Wang, and Sien Chi "OCDMA Light Source Using Directly Modulated Fabry-Pérot Laser Diode in an External Injection Scheme," *IEEE Photonics Technology Letters*, vol. 18, pp. 1103-1105, 2006.
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18, pp. 172-174, 2006.

30. Yu-Chang Lu, Jason (Jyehong) Chen, **Kai-Ming Feng**, Pao-Chi Yeh, Tzu-Yen Huang, Wei-Ren Peng, Ming-Fang Huang, and Chia-Chien Wei, "Penalty-Free Demonstration of Improved SPM Tolerance and Cost-Effective Phase-Modulation-Enhanced Duobinary Transmission over 230-km Standard Single-Mode Fiber Using Single Mach-Zehnder Modulator," *IEEE Photonics Technology Letters*, vol. 17, pp. 2754-2756, 2005.
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34. Chien-Chung Lee, Yung-Kuang Chen, Chia-Hsiung Chang, **Kai-Ming Feng**, Sohn-Ling Tzeng and Sien Chi, "Hybrid 10-Gb/s, 2.5-Gb/s, 64-QAM, and AM-VSB high-capacity wavelength-division-multiplexing transport systems using SMF and LEAF fibers," *IEEE Photonics Technology Letters*, Vol. 13, pp. 230-232, 2002.
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40. **K.-M. Feng**, J.-X. Cai, V. Grubsky, D. S. Starodubov, M. I. Hayee, S. Lee, X. Jiang, A. E. Willner, and J. Feinberg, "Dynamic Dispersion Compensation in a 10-Gb/s Optical System using a Novel Voltage Tuned Nonlinearly-Chirped Fiber Bragg Grating," *IEEE Photonics Technology Letters*, vol. 11, pp. 373-375, 1999.
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Refereed International Conference Papers

1. **Kai-Ming Feng**, Jhih-Heng Yan and You-Wei Chen, "A Simple >100-Gb/s Multiband DDO-OFDM Receiver for High Splitting Ratio Long Reach PON Systems," the 9th *International Conference on Information, Communications and Signal Processing (ICICS'2013)*, **Invited Paper**, Tainan, Taiwan, Dec, 2013.
2. **Kai-Ming Feng**, Wei-Ren Peng, Jhih-Heng Yan and You-Wei Chen, "Improving Spectral Efficiency and Receiving Sensitivity in a Direct-Detected OFDM System," the *Asia Communications and Photonics Conference (ACP'2013)*, **Invited Paper**, Beijing, China, Nov, 2013.
3. **Kai-Ming Feng**, Jhih-Heng Yan and You-Wei Chen, "A 172.8 Gb/s double-sided multiband DDO-OFDM system on a single optical carrier," **invited paper**, the 6th *IEEE International Conference on Advanced Infocomm Technologies (ICAIT'2013)*, Paper, MO-A-11, Hsinchu, Taiwan, July, 2013.
4. Jhih-Heng Yan, You-Wei Chen, Kai-Ming Feng, and Yuan-Wei Chang, "A Simple Receiving System Design for a 172.8-Gb/s Double-Sided Multiband Direct-Detected O-OFDM System," the 18th *Opto-Electronics Communications Conference (OECC'2013)* Paper TuPR-13, Kyoto, Japan, July, 2013.
5. Jhih-Heng Yan, You-Wei Chen, Kuan-Heng Shen and **Kai-Ming Feng**, "A 1:128 High Splitting Ratio Long Reach PON Based on a Simple Receiving Design for ONU with 120-Gb/s Double-sided Multiband DDO-OFDM Signal," *Conference on Optical Fiber Communication (OFC'2013)*, Paper JW2A.74, Anaheim, CA, Mar. 2012 (Optical Society of America, Washington, DC, 2013)
6. Wen-Hung Tseng and **Kai-Ming Feng**, "Influence of Fiber Delay Fluctuation on a Reference Injection-Locked Optoelectronic Oscillator," *Proc. 2012 Joint IEEE International Frequency Control Symposium & European Frequency and Time Forum, (2012 joint IFCS/EFTF conference, paper 7100)*, paper C1L-A3, Baltimore, MA, USA, May, 2012.
7. **Kai-Ming Feng**, Jhih-Heng Yan, Yuan-Wei Chang and Fu-Lien Cheng, "A Novel Double-Sided Multiband Direct-Detection Optical OFDM System with Single Laser Source," *Conference on Lasers and Electro-Optics (CLEO'2012)*, Paper CF1F.5, San Jose, CA, May, 2012 (Optical Society of America, Washington, DC, 2012)
8. **Kai-Ming Feng**, "Multi-function all optical packet switches by periodic wavelength arrangement in an arrayed waveguide grating," *the 21st wireless and Optical Communication Conference*, Paper N4_1, **invited paper**, Kaohsiung, Taiwan, April, 2012.
9. Jie Su-Lin, Yu-Hsiang Wen, **Kai-Ming Feng**, "Power Efficiency Improvement of a Wavelength-Preserved All Optical 2R Regeneration System in an SOA-based Optical Cross-Gain Compression Mechanism," *IEEE Photonics 2011 Conference (IPC11)*, paper TuV 3, Arlington, VA, USA, Oct. 2011.
10. **Kai-Ming Feng**, Yu-Hsiang Wen, Chung-Yu Wu, "All Optical Packet Switch Based on Periodic Wavelength Arrangement in Arrayed Waveguide Grating and Wideband Optical Filters," *European Conference on Optical Communication (ECOC'2011)*, Paper We.10.P1.91, Geneva, Switzerland, September, 2011.
11. Jhih-Heng Yan, **Kai-Ming Feng**, and Chung-Yu Wu, "An N-to-N Multi-functional All Optical Packet Switch Architecture Based on Periodic Wavelength Routing Scheme," the 16th *Opto-Electronics Communications Conference (OECC'2011)* Paper 8A2_1, Kaohsiung, Taiwan, July, 2011.
12. Jhih-Heng Yan, Yu-Hsiang Wen, Jie Su-Lin, **Kai-Ming Feng**, and Shih-Lun Lai, "Wavelength-Preserved All Optical 2R Regeneration Based on Michelson Interferometer Architecture with Counter-propagating Wavelength Conversion," the 16th *Opto-Electronics Communications Conference (OECC'2011)* Paper 8A2_6, Kaohsiung, Taiwan, July, 2011.
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- & *European Frequency and Time Forum*, (2011 joint IFCS/EFTF conference, paper 7190), 2-5 May 2011, San Francisco, CA, USA, pp. 174-177, 2011.
14. Yi-Jiun Huang, Wen-Hung Tseng, Shinn-Yan Lin, Huang-Tien Lin, Chia-Shu Liao, and **Kai-Ming Feng**, "The Dual Pseudo-random noise TWSTFT time transfer experiment between NICT and TL," *Proc. 2011 Joint IEEE International Frequency Control Symposium & European Frequency and Time Forum*, (2011 joint IFCS/EFTF conference, paper 7060), 2-5 May 2011, San Francisco, CA, USA, pp. 389-392, 2011.
 15. **Kai-Ming Feng** and Wei-Ren Peng, "Enhancing Spectral Efficiency and Receiving Sensitivity in a Direct-Detected OFDM Transmission," *Global Photonics Conference (GPC'2010)*, Oral 1-4F-5, **invited paper**, Singapore, Dec., 2010.
 16. W. H. Tseng, S. Y. Lin, **K. M. Feng**, H. T. Lin, and C. S. Liao, "Precise Sagnac-Effect Correction on Two-Way Satellite Time Transfer," the 27th *Conference on Precision Electromagnetic Measurement (CPEM'2010)* Paper WeP-33, Daejeon, Korea, June, 2010.
 17. Chung-Yu Wu, Jih-Heng Yan, Peng-Chun Peng, and **Kai-Ming Feng**, "Multipoint Mesh Sensing System with Self-Healing Functionality," *Conference on Lasers and Electro-Optics (CLEO'2010)*, Paper JWA50, San Jose, CA, May, 2010 (Optical Society of America, Washington, DC, 2010)
 18. **Kai-Ming Feng** and Wei-Ren Peng, "Improving Spectral Efficiency and Receiving Sensitivity in a Direct-Detected OFDM Transmission," the 19th *Wireless and Optical Communication Conference*, Paper OB.1, **invited paper**, Shanghai, China, May, 2010.
 19. Shinn-Yan Lin, Wen-Hung Tseng, Huang-Tien Lin, Yi-Jiung Huang, and **Kai-Ming Feng**, "Long-term Inconsistency between TWSTFT and GPS Time Transfer Results in PTB-TL and NICT-TL Time Links," *24th European Frequency and Time Forum*, Noordwijk, The Netherlands, Paper 13.3, April, 2010
 20. Chung-Yu Wu, Feng-Cheng Kuo, **Kai-Ming Feng**, Peng-Chung Peng, "Ring Topology Based Mesh Sensing System with Self-healing Function using FBGs and AWG," *Conference on Optical Fiber Communication (OFC'2010)*, Paper OMW1, San Diego, CA, Mar. 2010 (Optical Society of America, Washington, DC, 2010)
 21. **Kai-Ming Feng**, Rung-Ting Shiu, Yu-Wen Huang and Wei-Ren Peng, "Sensitivity Improvement Using Amplified Optical Self-Coherent Detection in an Optical OFDM System," *2009 IEEE Photonics Society Annual Meeting*, Paper ME 2, Belek-Antalya, Turkey, Oct. 2009. (IEEE LEOS, Piscataway, NJ, 2009).
 22. Wei-Ren Peng, **Kai-Ming Feng**, and Sien Chi, "DPSK-Labeled Direct-Detected Optical OFDM Transmission," *2009 IEEE Photonics Society Annual Meeting*, Paper WK 3, Belek-Antalya, Turkey, Oct. 2009. (IEEE LEOS, Piscataway, NJ, 2009).
 23. Wei-Ren Peng, **Kai-Ming Feng**, Alan E. Willner, and Sien Chi, "Sensitivity Bound for Optically-Preamplified Direct-Detected OFDM Systems Using Spectrally Matched Filters," *2009 IEEE Photonics Society Annual Meeting*, Paper ThM 3, Belek-Antalya, Turkey, Oct. 2009. (IEEE LEOS, Piscataway, NJ, 2009).
 24. Wei-Ren Peng, **Kai-Ming Feng**, Sien Chi, "Joint CD and PMD Compensation for Direct-Detected Optical OFDM Using Polarization-Time Coding Approach," *European Conference on Optical Communication (ECOC'2009)*, Paper 2.3.2, Vienna, Austria, September, 2009.
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 26. Chung-Yu Wu, Sheng-Ching Chen, Chieh-Hao Wang, Feng-Cheng Kuo, Jih-Heng Yan and **Kai-Ming Feng**, "Integration of Passive Optical Network and Radio Over Fiber System Using Single DFB Laser," the 14th *Optoelectronics and Communications Conference (OECC2009)*, Paper FN4, July, 2009, Hong Kong.

27. Wen-Hung Tseng, Shinn-Yan Lin, and **Kai-Ming Feng**, "Improving TWSTFT Short-Term Stability by Network Time Transfer," *EFTF-IFCS 2009*, paper 7342, Besancon, France, April, 2009.
28. Shinn Yan Lin, Wen-Hung Tseng, Huang Tien Lin, and **Kai-Ming Feng**, "The Comparison Between TWSTFT and GPS Time Transfers of PTB-TL Link," *EFTF-IFCS 2009*, paper 7180, Besancon, France, April, 2009.
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32. Wei-Ren Peng, Bo Zhang, XiaoXia Wu, **Kai-Ming Feng**, Alan E. Willner and Sien Chi, "Experimental Demonstration of 1600 km SSMF Transmission of a Generalized Direct Detection Optical Virtual SSB-OFDM System," *European Conference on Optical Communication (ECOC'2008)*, Paper Mo.3.E.6, Brussels, Belgium, September, 2008.
33. W. H. Tseng, S. Y. Lin and **K. M. Feng**, "Analysis of the Asia-Pacific TWSTFT network," 2008 *IEEE International Frequency Control Symposium (IFCS 2008)*, paper B4P-D, Honolulu, HI, USA, May, 2008.
34. Wei-Ren Peng, **Kai-Ming Feng**, Sien Chi and Alan E. Willner, "Bit Error Rate Calculation for a Single Sideband OFDM Signal with Direct Detection Optically Pre-Amplified Receivers," *Conference on Lasers and Electro-Optics (CLEO'2008)*, Paper CWN3, San Jose, CA, May 2008 (Optical Society of America, Washington, DC, 2008)
35. **Kai-Ming Feng**, Chung-Yu Wu, Dong-Hua Hsueh, Chu-Sheng Ku, Cheng-Pin Chang, Hung-Yu Lin, Jay Cheng and Jason (Jyehong) Chen, "Demonstration of an Optical FIFO Multiplexer," *Conference on Optical Fiber Communication (OFC'2008)*, Paper OMN5, San Diego, CA, Feb. 2008 (Optical Society of America, Washington, DC, 2008).
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37. Wei-Ren Peng, Xiaoxia Wu, Vahid R. Arbab, Bishara Shamee, Jeng-Yuan Yang, Louis C. Christen, **Kai-Ming Feng**, Alan E. Willner and Sien Chi, "Experimental Demonstration of 340 km SSMF Transmission Using a Virtual Single Sideband OFDM Signal that Employs Carrier Suppressed and Interactive Detection techniques," *Conference on Optical Fiber Communication (OFC'2008)*, Paper OMU2, San Diego, CA, Feb. 2008 (Optical Society of America, Washington, DC, 2008).
38. W. H. Tseng, H. T. Lin, P. C. Chang, S. Y. Lin and **K. M. Feng**, "Analysis of delay fluctuations in two-way time transfer earth stations," *the 39th Precise Time and Time Interval (PTTI) Systems and Applications Meeting*, Paper 47, Long Beach, CA, Nov. 2007.
39. Chien-Hsun Lu and **Kai-Ming Feng**, "Reduction of high PAPR effect with FEC enhanced deep data clipping ratio in an optical OFDM system," *LEOS Annual Meeting (IEEE LEOS 2007)*, Paper ThEE1, Lake Buena Vista, FL, USA, Oct. 2007 (IEEE LEOS, Piscataway, NJ, 2007).

40. **Kai-Ming Feng** and Pi-Jen Tsai, "Gain and Noise Figure Enhancement through C-band Signal Injection in a Double-Pass L-band EDFA," *the 12th Optoelectronics and Communications Conference/16th International Conference on Integrated Optics and Optical Fiber Communication (OECC/IOOC2007)*, Paper 12P-16, July, 2007, Yokohama, Japan.
41. **Kai-Ming Feng**, "Enabling Bi-directional Traffic by Using a Novel Four-Port Optical Interleaver," *International Symposium on Next- Generation Lightwave Communications, International Symposium on Next-Generation Lightwave Communications*, **invited talk**, June, 2007, Hong Kong.
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Patents: (4 US Patents, 2 World Patents)

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