

# Guodong Xie

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## EDUCATION

- 08/2012 – present. Ph.D. Student, **University of Southern California**.  
Major: Electrical Engineering, GPA: 4.0/4.0.  
Minor: Computer Science, GPA: 3.6/4.0.  
Advisor: Prof. Alan E. Willner
- 08/2009 – 07/2012 M.S. in Engineering, **Peking University**, China.  
Thesis: Experimental analysis of the key technologies in wireless coherent optical communication  
GPA: 89.2/100 (overall), 90.2/100 (major).
- 09/2005 – 07/2009 B.E, **Beijing University of Posts and Telecommunications**, China.  
GPA: 89/100 (overall), 90.6/100 (major).

## GOOGLE SCHOLAR

<https://scholar.google.com/citations?user=Kbnv-fAAAAAJ&hl=en>

**Citation: 736, h-index: 13, i10-index: 17** (updated: 08/22/2016)

## RESEARCH EXPERIENCE

- 04/2016 – present “Multiple Structured Electromagnetic Waves Containing Orbital Angular Momentum”
- 02/2016 – present “OAM-Based Wireless Systems”
- 06/2015 – present “Fundamentals of Wireless Communication Systems using Orbital Angular Momenta”
- 03/2016 – present “Phase II, The Terabit Optical COMMunications (TOCOMM) System”
- 12/2015 – present “Using OAM Beams for High-capacity RF E-band and Optical Fiber km Links”
- 05/2014 – present “Application of Orbital Angular Momentum to Communications”
- 12/2014 – 06/2015 “Terabit Optical COMMunications (TOCOMM) System”
- 12/2012 – 12/2015 “Higher, Denser, Wilder: Massively Broadband and Adaptive Wireless for 5th Generation Wireless Communications”
- 09/2012 – 01/2014 “Reconfigurable Networking Functions (Add/Drop, Data Exchange, Multicasting) in OAM-Based Systems,
- 09/2012 – 08/2013 “The Ultimate Capacity- Achieving Receiver for Classical Optical Communications”
- 09/2009 – 07/2012 “Free Space Coherent Optical Communications”

## SELECTED AWARDS & HONORSORNERS

- 08/2012 – 05/2016 Provost Fellowship, University of Southern California
- 09/2010 – 09/2011 Leo Koguan Scholarship, Peking University
- 09/2009 – 09/2010 Excellent Student Award, Peking University
- 09/2009 – 07/2011 Graduate Scholarship of China
- 06/2009 Excellent Graduate Student of Beijing Province
- 06/2009 Monitor of Excellent Class of Beijing Province
- 09/2005 – 09/2008 National Scholarship of China

## PROFESSIONAL ACTIVITIES

### *Journal Reviewer:*

- The Scientific World Journal (Hindawi Publishing)
- Optics Express (Optical Society of America)
- Optics Communication (Elsevier), [**Outstanding Reviewer**]
- Wiley Encyclopedia of EEE (Wiley)
- Radio Science (Wiley)
- Applied Optics (Optical Society of America)

Journal of Optical Society of American A (Optical Society of America)  
Photonics Journal (IEEE)  
Communication Letter (IEEE)  
Microwaves, Antennas & Propagation (Institution of Engineering. & Tech.)  
Optics Letters (Optical Society of America)  
IEEE Transactions on Wireless Communications

**Conference Reviewer:**

IEEE GLOBECOM 2014  
IEEE International Conference on Communications 2015

**Membership:**

Student Member, IEEE Communications Society (ComSoc)  
Student Member, the International Society for Optical Engineering (SPIE)  
Student Member, Optical Society of America (OSA)

**PUBLICATIONS**

**Summary:** I have had articles published in several high-impact journals, such as *Nature Communications*, *Optica*, *Scientific Reports*, and *Optics Letters*. I have published **1** book chapter, **1** provisional patent, **7** invited papers, **26** journal papers, and **51** conference papers. Of these publications, I am the first-author of **17** and the leading author (as first, second or third author) of **54**. According to Google Scholar, my publications have been cited more than **730** times by researchers from around the world.

**BOOK CHAPTER**

1. Alan Willner, Yan Yan, Yongxiong Ren, Nisar Ahmed, **Guodong Xie**, Signal Processing for 5G: Algorithms and Implementations, Chapter 13, Orbital Angular Momentum-Based Wireless Communications: Designs and Implementations. John Wiley & Sons, October 2016.

**PATENT**

1. Yongxiong Ren, **Guodong Xie**, Hao Huang, and Alan E. Willner, "Adaptive optics based simultaneous turbulence compensation of multiple orbital angular momentum beams," U.S. Patent Provisional 20,160,028,479, January 28, 2016.

**INVITED PAPERS**

1. Alan Willner, Long Li, **Guodong Xie**, Yongxiong Ren, Hao Huang, Yang Yue, Nisar Ahmed, Moshe J. Willner, Asher J. Willner, Yan Yan, Zhe Zhao, Zhe Wang, Cong Liu, Moshe Tur, and Solyman Ashrafi, "Orbital-angular-momentum-based reconfigurable optical switching and routing," **invited paper**, *Photonics Research*, vol. **4**, no. 5, pp. B5-B8, 2016.
2. Alan Willner, **Guodong Xie**, Long Li, Yongxiong Ren, Yan Yan, Nisar Ahmed, Zhe Zhao, Zhe Wang, Cong Liu, Asher J. Willner, Nima Ashrafi, Solyman Ashrafi, Moshe Tur, Andreas F. Molisch, "Design challenges and guidelines for free-space optical communication links using orbital-angular-momentum multiplexing of multiple beams," **invited paper**, *Journal of Optics*, vol. **18**, no. 7, pp. 074014, 2016.
3. Yongxiong Ren, **Guodong Xie**, Asher J. Willner, Nisar Ahmed, Long Li, Zhe Wang, and Alan E. Willner, "Challenges and Opportunities in using Orbital Angular Momentum for Communication Links," **Invited Presentation**, *Asian Communications and Photonics Conference (APC) Workshop on Recent Advances in Space-Division Multiplexing (SDM)*, Hong Kong, China, Nov. 2015 (Optical Society of America, Wash., D.C., 2015).
4. Alan E. Willner, Hao Huang, Yan Yan, Yongxiong Ren, Nisar Ahmed, **Guodong Xie**, Changjing Bao, Long Li, Yinwen Cao, Zhe Zhao, Zhe Wang, Martin P. J. Lavery, Moshe Tur, Siddharth Ramachandran, Andreas F. Molisch, Nima Ashrafi, and Solyman Ashrafi, "Optical Communications using Orbital Angular Momentum Beams," **Invited Paper**, *Advances in Optics and Photonics*, vol. **7**, no. 1, pp. 66-106, 2015.
5. Martin P.J. Lavery, Giovanni Milione, Thien An Nguyen, Hao Huang, **Guodong Xie**, Dan A. Nolan, Robert R. Alfano, and Alan E. Willner, "Demonstration of Vector Mode Multiplexing and Demultiplexing

in a 160 Gbit/s Free-space link," **Invited Paper, European Conference on Optical Communications (ECOC)**, paper We.3.6.1, Cannes, France, Sept. 2014.

6. Alan E. Willner, Yongxiong Ren, Hao Huang, Yan Yan, Nisar Ahmed, **Guodong Xie**, Jian Wang, Yang Yue, Martin P. J. Lavery, Miles J. Padgett, Moshe Tur, Nenad Bozinovic, and Siddharth Ramachandran, and Long Li, "Optical Communications using Multiplexing of Multiple Orbital-Angular-Momentum Beams," **Invited Paper, Newsletter of the IEEE Lasers and Electro-Optics Society (Photonics Society)**, June. 2014 (IEEE/LEOS, Piscataway, New Jersey, 2014).
7. Yongxiong Ren, Hao Huang, **Guodong Xie**, Nisar Ahmed, Baris Erkmen, Nivedita Chandrasekaran, Martin Lavery, Jeffrey Shapiro, Nicholas Steinhoff, Moshe Tur, Miles Padgett, Robert Boyd, and Alan Willner, "Experimental Turbulence Effects on Crosstalk and System Power Penalty over a Free Space Optical Communication link using Orbital Angular Momentum Multiplexing," **Invited Paper, APS/IEEE/OSA Conference on Lasers and Electro-Optics (CLEO)**, paper CM2G.4, San Jose, CA, June 2013 (Optical Society of America, Wash., D.C., 2013).

## JOURNAL ARTICLES

1. **Guodong Xie**, Zhe Zhao, Yan Yan, Long Li, Yongxiong Ren, Nisar Ahmed, Yinwen Cao, Asher J. Willner, Changjing Bao, Zhe Wang, Cong Liu, Morteza Ziyadi, Shilpa Talwar, Soji Sajuyigbe, Solyman Ashrafi, Moshe Tur, Andreas F. Molisch, Alan E. Willner, "Demonstration of tunable steering and multiplexing of two 28 GHz data carrying orbital angular momentum beams using antenna array," under review by **Scientific Reports**, 2016.
2. **Guodong Xie**, Yongxiong Ren, Yan Yan, Hao Huang, Nisar Ahmed, Long Li, Zhe Zhao, Changjing Bao, Moshe Tur, and Alan E. Willner, "Experimental demonstration of a 200 Gbit/s free-space optical link by multiplexing laguerre Gaussian beams with different radial indices," **Optics Letters**, vol. **41**, no. 15, pp. 3447-3450, 2016.
3. Changjing Bao, Peicheng Liao, Lin Zhang, Yan Yan, Yinwen Cao, **Guodong Xie**, Amirhossein Mohajerin-Ariaei, Long Li, Morteza Ziyadi, Ahmed Almainan, Lionel C. Kimerling, Jurgen Michel, and Alan E. Willner, "Effect of a breather soliton in Kerr frequency combs on optical communication systems," **Optics Letters**, vol. **41**, no. 8, pp. 1764-1767, 2016.
4. Long Li, **Guodong Xie**, Yongxiong Ren, Nisar Ahmed, Hao Huang, Zhe Zhao, Peicheng Liao Martin P. J. Lavery, Yan Yan, Changjing Bao, Zhe Wang, Asher J. Willner, Nima Ashrafi, Solyman Ashrafi, Moshe Tur, and Alan E. Willner, "Orbital-angular-momentum-multiplexed free-space optical communication link using transmitter lenses," **Applied Optics**, vol. **55**, no. 8, pp. 2098-2103, 2016.
5. Nisar Ahmed, Zhe Zhao, Long Li, Hao Huang, Martin P. J. Lavery, Peicheng Liao, Yan Yan, Zhe Wang, **Guodong Xie**, Yongxiong Ren, Ahmed Almainan, Asher J. Willner, Solyman Ashrafi, Andreas F. Molisch, Moshe Tur, and Alan E. Willner, "Mode-Division-Multiplexing of Multiple Bessel-Gaussian Beams Carrying Orbital-Angular-Momentum for Obstruction-Tolerant Free-Space Optical and Millimetre-Wave Communication Links," **Scientific Reports**, vol. **6**, 2016.
6. Yongxiong Ren, Zhe Wang, Peicheng Liao, Long Li, **Guodong Xie**, Hao Huang, Zhe Zhao, Yan Yan, Nisar Ahmed, Asher Willner, Martin P. J. Lavery, Nima Ashrafi, Solyman Ashrafi, Robert Bock, Moshe Tur, Ivan B. Djordjevic, Mark A. Neifeld, and Alan E. Willner, "Experimental Characterization of a 400 Gbit/s Orbital Angular Momentum Multiplexed Free-space Optical Link over 120-meters," **Optics Letters**, vol. **41**, no. 3, pp. 622-625, 2016.
7. Martin P. J. Lavery, Hao Huang, Yongxiong Ren, **Guodong Xie**, and Alan E. Willner, "Demonstration of a 280-Gbit/s Free-space Space-Division-Multiplexing Communications Link Utilizing Plane-wave Spatial Multiplexing," **Optics Letters**, vol. **41**, no. 5, pp. 851-854, 2016.
8. Asher J. Willner, Yongxiong Ren, **Guodong Xie**, Zhe Zhao, Yinwen Cao, Long Li, Nisar Ahmed, Zhe Wang, Yan Yan, Peicheng Liao, Cong Liu, Mohammad Mirhosseini, Robert W. Boyd, Moshe Tur, and Alan E. Willner, "Experimental Demonstration of 20 Gbit/s Data Encoding and 2 ns Channel Hopping using Orbital Angular Momentum Modes," **Optics Letters**, vol. **40**, no. 18, pp. 5810-5813, 2015.

*\* Selected by editors as one of two papers for that month to appear in OSA Spotlight on Optics.\**

9. Yongxiong Ren, Zhe Wang, **Guodong Xie**, Long Li, Yinwen Cao, Cong Liu, Peicheng Liao, Yan Yan, Nisar Ahmed, Zhe Zhao, Asher Willner, Nima Ashrafi, Solyman Ashrafi, Roger D. Liguist, Robert Bock, Moshe Tur, Andreas F. Molisch and Alan E. Willner, "Free-space Optical Communications using Orbital-Angular-Momentum Multiplexing Combined with MIMO-based Spatial Multiplexing," **Optics Letters**, vol. **40**, no. 18, pp. 4190-4193, 2015.
10. Hao Huang, Giovanni Milione, Martin P. J. Lavery, **Guodong Xie**, Yongxiong Ren, Yinwen Cao, Nisar Ahmed, Thien An Nguyen, Daniel A. Nolan, Ming-Jun Li, Moshe Tur, Robert R. Alfano, and Alan E. Willner, "Mode Division Multiplexing using an Orbital Angular Momentum Mode Sorter and 4×4 MIMO-DSP over a Graded-Index Few-Mode Optical Fibre," **Scientific Reports**, vol. **5**, no. 14931, pp. 1-7, 2015.
11. **Guodong Xie**, Long Li, Yongxiong Ren, Hao Huang, Yan Yan, Nisar Ahmed, Zhe Zhao, Martin P.J. Lavery, Nima Ashrafi, Solyman Ashrafi, Robert Bock, Moshe Tur, Andreas F. Molisch, and Alan E. Willner, "Performance Metrics and Design Considerations for a Free-Space Optical Orbital-Angular-Momentum Multiplexed Communication Link," **Optica**, vol. **2**, no. 4, pp. 357-365, 2015.
12. Yongxiong Ren, **Guodong Xie**, Hao Huang, Long Li, Nisar Ahmed, Yan Yan, Martin P. J. Lavery, Robert Bock, Moshe Tur, Mark A. Neifeld, Robert W. Boyd, Jeffrey H. Shapiro, and Alan E. Willner, "Turbulence Compensation of an Orbital-Angular-Momentum and Polarization Multiplexed Link using a Data-Carrying Beacon on a Separate Wavelength," **Optics Letters**, vol. **40**, no. 10, pp. 2249-2252, 2015.
13. **Guodong Xie**, Yongxiong Ren, Hao Huang, Martin P.J. Lavery, Nisar Ahmed, Yan Yan, Changjing Bao, Long Li, Zhe Zhao, Yinwen Cao, Moshe Willner, Moshe Tur, Samuel J. Dolinar, Robert W Boyd, Jeffrey H. Shapiro, and Alan E. Willner, "Phase Correction for a Distorted Orbital Angular Momentum Beam using a Zernike Polynomials based Stochastic-Parallel-Gradient-Descent Algorithm," **Optics Letters**, vol. **40**, no. 7, pp.1197-1200, 2015.
14. Giovanni Milione, Martin P.J. Lavery, Hao Huang, Yongxiong Ren, **Guodong Xie**, Thien An Nguyen, Ebrahim Karimi, Lorenzo Marrucci, Daniel A. Nolan, Robert R. Alfano, and Alan E. Willner, "4 × 20 Gbit/s Mode Division Multiplexing Over Free Space using Vector Modes and a q-Plate Mode (De)Multiplexer," **Optics Letters**, vol. **40**, no. 9, pp. 1980-1983, 2015.
15. Yongxiong Ren, **Guodong Xie**, Hao Huang, Nisar Ahmed, Yan Yan, Long Li, Changjing Bao, Martin P. J. Lavery, Moshe Tur, Mark A. Neifeld, Robert W. Boyd, Jeffrey H. Shapiro, and Alan Willner, "Adaptive Optics-based Simultaneous Pre-and Post-turbulence Compensation of Multiple Orbital-Angular-Momentum Beams in a Bidirectional Free-space Optical Link," **Optica**, vol. **1**, no. 6, pp. 376-382, 2014.
16. Yan Yan\*, **Guodong Xie\***, Martin P.J. Lavery\*, Hao Huang\*, Nisar Ahemd, Changjing Bao, Yongxiong Ren, Yinwen Cao, Long Li, Andreas F. Molisch, Moshe Tur, Miles J. Padgett, and Alan E. Willner, "High-Capacity Millimetre-wave Communications with Orbital-Angular-Momentum Multiplexing," **Nature Communications**, vol. **5**, pp. 1-9, 2014.
  - **\*These authors contribute equally to this paper.**
  - **#2 most read Nature Communications article in late September 2014.**
17. Changjing Bao, Lin Zhang, Andrey Matsko, Yan Yan, Zhe Zhao, **Guodong Xie**, Anuradha M. Agarwal, Lionel C. Kimmerling, Jurgen Michel, Lute Maleki, and Alan E. Willner, "Nonlinear Conversion Efficiency in Kerr Frequency Comb Generation," **Optics Letters**, vol. **39**, no. 21, pp. 6126-6129, 2014.
18. Hao Huang, Yinwen Cao, **Guodong Xie**, Yongxiong Ren, Yan Yan, Changjing Bao, Nisar Ahmed, Mark A. Neifeld, Samuel J. Dolinar, and Alan E. Willner, "Crosstalk Mitigation in a Free-space Orbital Angular Momentum Multiplexed Communication Link using 4×4 MIMO Equalization," **Optics Letters**, vol. **39**, no. 16, pp. 4360-4363, 2014.
19. Yongxiong Ren, **Guodong Xie**, Hao Huang, Changjing Bao, Yan Yan, Nisar Ahmed, Martin P. J. Lavery, Baris I. Erkmen, Samuel Dolinar, Moshe Tur, Mark A. Neifeld, Miles J. Padgett, Robert W. Boyd, Jeffrey H. Shapiro, and Alan E. Willner, "Adaptive Optics Compensation of Multiple Orbital Angular Momentum

Beams Propagating Through Emulated Atmospheric Turbulence," **Optics Letters**, vol. **39**, no. 10, pp. 2845-2848, 2014.

*\* #2 downloaded Optics Letters article in June 2014. \**

20. Hao Huang, Yongxiong Ren, **Guodong Xie**, Yan Yan, Yang Yue, Nisar Ahmed, Martin P. J. Lavery, Miles J. Padgett, Sam Dolinar, Moshe Tur, and Alan E. Willner, "Tunable Orbital Angular Momentum Mode Filter Based on Optical Geometric Transformation," **Optics Letters**, vol. **39**, no. 6, pp. 1689-1692 (2014).
21. Nisar Ahmed, Hao Huang, Yongxiong Ren, Yan Yan, **Guodong Xie**, Moshe Tur, and Alan E. Willner, "Reconfigurable 2×2 Orbital Angular Momentum Based Optical Switching of 50-Gbaud QPSK Channels," **Optics Express**, Special Issue on European Conference on Optical Communications, vol. **22**, no. 1, pp. 756-761, 2014.
22. Hao Huang, **Guodong Xie**, Yan Yan, Nisar Ahmed, Yongxiong Ren, Yang Yue, Dvora Rogawski, Moshe J. Willner, Baris I. Erkmen, Kevin M. Birnbaum, Samuel J. Dolinar, Martin P. J. Lavery, Miles J. Padgett, Moshe Tur, and Alan E. Willner, "100 Tbit/s Free-space Data Link Enabled by Three-dimensional Multiplexing of Orbital Angular Momentum, Polarization, and Wavelength," **Optics Letters**, vol. **39**, no. 2, pp. 197-200, 2014.

*\* #9 downloaded Optics Letters article in February 2014. \**

23. Moshe J. Willner, Hao Huang, Nisar Ahmed, **Guodong Xie**, Yongxiong Ren, Yan Yan, Martin P. J. Lavery, Miles J. Padgett, Moshe Tur, and Alan E. Willner, "Reconfigurable Orbital Angular Momentum and Polarization Manipulation of 100-Gbit/s QPSK Data Channels," **Optics Letters**, vol. **38**, no. 24, pp. 5240-5243, 2013.
24. Yongxiong Ren, Hao Huang, **Guodong Xie**, Nisar Ahmed, Yan Yan, Baris I. Erkmen, Nivedita Chandrasekaran, Martin P. J. Lavery, Nicholas K. Steinhoff, Moshe Tur, Samuel Dolinar, Mark Neifeld, Miles J. Padgett, Robert W. Boyd, Jeffrey H. Shapiro, and Alan E. Willner, "Atmospheric Turbulence Effects on the Performance of a Free Space Optical Link Employing Orbital Angular Momentum Multiplexing," **Optics Letters**, vol. **38**, no. 20, pp.4062-4065, 2013.
25. Yang Yue, Hao Huang, Nisar Ahmed, Yan Yan, Yongxiong Ren, **Guodong Xie**, Dvora Rogawski, Moshe Tur, and Alan E. Willner, "Reconfigurable Switching of Orbital-angular-momentum-based Free-space Data Channels," **Optics Letters**, vol. **38**, no. 23, pp.5118-5121, 2013.
26. Wei Wei, **Guodong Xie**, Anhong Dang, and Hong Guo, "High-speed and bias-free optical random number generator," **IEEE Photonics Technology Letters**, vol. **24**, no. 6, pp. 437-439, 2012.
27. **Guodong Xie**, Fangxiang Wang, Anhong Dang, and Hong Guo, "A novel polarization-multiplexing system for free-space optical links," **IEEE Photonics Technology Letters**, vol. **23**, no. 20, pp. 1484-1486, 2011.

## CONFERENCE PROCEEDINGS

1. **Guodong Xie**, Cong Liu, Long Li, Yongxiong Ren, Zhe Zhao, Yan Yan, Nisar Ahmed, Zhe Wang, Asher Willner, Changjing Bao, Yinwen Cao, Moshe Tur, Alan E. Willner, "Experimental Demonstration of Localized Energy Density Gain using Coherent Superposition of Multiple Structured Orbital-Angular-Momentum Modes," **APS/IEEE/OSA Conference on Lasers and Electro-Optics (CLEO)**, paper 2478717, San Jose, CA, June 2016 (OSA, Wash., D.C., 2016).
2. Long Li, Yongxiong Ren, Yinwen Cao, **Guodong Xie**, Zhe Zhao, Zhe Wang, Cong Liu, Yan Yan, Nisar Ahmed, Asher J. Willner, Nima Ashrafi, Solyman Ashrafi, Moshe Tur, Alan E. Willner, "CMA Equalization for a 2 Gb/s Orbital Angular Momentum Multiplexed Optical Underwater Link through Thermally Induced Refractive Index Inhomogeneity," **APS/IEEE/OSA Conference on Lasers and Electro-Optics (CLEO)**, paper 2479987, San Jose, CA, June 2016 (OSA, Wash., D.C., 2016).
3. Yongxiong Ren, Long Li, Zhe Zhao, **Guodong Xie**, Zhe Wang, Nisar Ahmed, Yan Yan, Asher Willner, Yinwen Cao, Cong Liu, Nima Ashrafi, Solyman Ashrafi, Moshe Tur, Alan E. Willner, "4 Gbit/s Underwater Transmission Using OAM Multiplexing and Directly Modulated Green Laser,"

**APS/IEEE/OSA Conference on Lasers and Electro-Optics (CLEO)**, paper 2477374, San Jose, CA, June 2016 (OSA, Wash., D.C., 2016)

4. Zhe Wang, Yan Yan, Amir Arbabi, Cong Liu, **Guodong Xie**, Zhe Zhao, Yongxiong Ren, Long Li, Nisar Ahmed, Asher Willner, Ehsan Arbabi, Andrei Faraon, Nima Ashrafi, Solyman Ashrafi, Moshe Tur, Alan E. Willner, "Demonstration of using Passive Integrated Phase Masks to Generate Orbital-Angular-Momentum Beams in a Communications Link," **APS/IEEE/OSA Conference on Lasers and Electro-Optics (CLEO)**, paper 2480002, San Jose, CA, June 2016 (OSA, Wash., D.C., 2016)
5. Changjing Bao, Peicheng Liao, Martin Hubert Peter Pfeiffer, Lin Zhang, Maxim Karpov, Arne Kordts, Yinwen Cao, Yan Yan, Ahmed Almainan, **Guodong Xie**, Amirhossein Mohajerin Ariaei, Long Li, Morteza Ziyadi, Steven Wilkinson, Moshe Tur, Tobias Kippenberg, Alan Willner, "Experimental generation of high-coherence sub-prime comb lines with multiple sub-lines in a Kerr frequency comb using dual pumps, " **APS/IEEE/OSA Conference on Lasers and Electro-Optics (CLEO)**, paper 2480163, San Jose, CA, June 2016 (OSA, Wash., D.C., 2016)
6. Asher J. Willner, Yongxiong Ren, **Guodong Xie**, Long Li, Yinwen Cao, Zhe Zhao, Peicheng Liao, Zhe Wang, Yan Yan, Nisar Ahmed, Cong Liu, Moshe Tur, Alan E. Willner, "Free-space optical communications using encoding of data on different orbital-angular-momentum modes," SPIE LASE, International Society for Optics and Photonics, 2016.
7. Yan Yan, Long Li, Zhe Zhao, **Guodong Xie**, Yongxiong Ren, Nisar Ahmed, Zhe Wang, Soji Sajuyigbe, Shilpa Talwar, Moshe Tur, Solyman Ashrafi, Andreas F. Molisch, and Alan E. Willner, "32 Gbit/s 60 GHz Millimeter-Wave Wireless Communications using Orbital-Angular-Momentum and Polarization Multiplexing," **IEEE International Communication Conference (ICC) 2016**, paper 1570226040, Kuala Lumpur, Malaysia, May 2016 (IEEE, Piscataway, NJ, 2016).
8. **Guodong Xie**, Yan Yan, Zhe Zhao, Long Li, Yongxiong Ren, Nisar Ahmed, Asher J. Willner, Changjing Bao, Zhe Wang, Cong Liu, Nima Ashrafi, Solyman Ashrafi, Shilpa Talwar, Soji Sajuyigbe, Moshe Tur, Andreas F. Molisch, and Alan E. Willner, "Tunable Generation and Angular Steering of a Millimeter-Wave Orbital-Angular-Momentum Beam using Differential Time Delays in a Circular Antenna Array," **IEEE International Communication Conference (ICC) 2016**, paper 1570225424, Kuala Lumpur, Malaysia, May 2016 (IEEE, Piscataway, NJ, 2016).
9. Zhe Zhao, Yan Yan, Long Li, **Guodong Xie**, Yongxiong Ren, Nisar Ahmed, Zhe Wang, Cong Liu, Asher J. Willner, Pingyue Song, Hossein Hashemi, Haohan Yao, Duncan Macfarlane, Rashaunda Henderson, Nima Ashrafi, Solyman Ashrafi, Shilpa Talwar, Soji Sajuyigbe, Moshe Tur, Andreas F. Molisch and Alan E. Willner, "A Dual-Channel 60 GHz Communications Link Using Patch Antenna Arrays to Generate Data-Carrying Orbital-Angular-Momentum Beams," **IEEE International Communication Conference (ICC) 2016**, paper 1570224643, Kuala Lumpur, Malaysia, May 2016 (IEEE, Piscataway, NJ, 2016).
10. Yongxiong Ren, Zhe Wang, **Guodong Xie**, Long Li, Asher Willner, Yinwen Cao, Zhe Zhao, Yan Yan, Nisar Ahmed, Nima Ashrafi, Solyman Ashrafi, Robert Bock, Moshe Tur, and Alan Willner, "Demonstration of OAM-based MIMO FSO link using spatial diversity and MIMO equalization for turbulence mitigation," **IEEE/OSA Conference on Optical Fiber Communications (OFC) and National Fiber Optics Engineers Conference (NFOEC)**, paper Th1H.2, Anaheim, CA, Mar. 2016 (Optical Society of America, Washington, D.C., 2016).
11. Changjing Bao, Peicheng Liao, Lin Zhang, Yan Yan, Yinwen Cao, **Guodong Xie**, Amirhossein Mohajerin Ariaei, Long Li, Morteza Ziyadi, Lionel C. Kimerling, Jurgen Michee, and Alan E. Willner, "Impact of Breather Soliton in Kerr Combs on the Performance of Communication Systems," **IEEE Photonics Conference (IPC)**, paper TuD1.2, Reston, VA, Oct. 2015 (IEEE, Piscataway, NJ, 2015).
12. Zhe Zhao, Yongxiong Ren, **Guodong Xie**, Long Li, Yan Yan, Nisar Ahmed, Zhe Wang, Nima Ashrafi, Solyman Ashrafi, Roger Linquist, and Alan Willner, "Dividing and Multiplying the Mode Order for Orbital-Angular-Momentum Beams," **European Conference on Optical Communications (ECOC)**, paper Th.4.5.1, Valencia, Spain, Sept. 2015.

13. **Guodong Xie**, Long Li, Yongxiong Ren, Yan Yan, Nisar Ahmed, Zhe Zhao, Zhe Wang, Nima Ashrafi, Solyman Ashrafi, Roger Linquist, and Alan Willner, "Exploiting the Unique Intensity Gradient of an Orbital-Angular-Momentum Beam for Accurate Receiver Alignment Monitoring in a Free-Space Communication Link," **European Conference on Optical Communications (ECOC)**, paper We.3.6.2, Valencia, Spain, Sept. 2015.
14. Long Li, **Guodong Xie**, Yan Yan, Yongxiong Ren, Peicheng Liao, Nisar Ahmed, Zhe Zhao, Changjing Bao, Zhe Wang, Nima Ashrafi, Solyman Ashrafi, Roger D. Linquist, Moshe Tur, and Alan E. Willner, "Experimental Demonstration of a 400-Gbit/s Free Space Optical Link using Multiple Orbital-Angular-Momentum Beams with Higher Order Radial Indices," **APS/IEEE/OSA Conference on Lasers and Electro-Optics (CLEO)**, paper SW4M.5, San Jose, CA, May 2015 (OSA, Wash., D.C., 2015).
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