

Stanford



Joseph Kahn

Professor of Electrical Engineering

Bio

BIO

Joseph M. Kahn is a Professor of Electrical Engineering at Stanford University. His research addresses communication and imaging through optical fibers, including modulation, detection, signal processing and spatial multiplexing. He received A.B. and Ph.D. degrees in Physics from U.C. Berkeley in 1981 and 1986. From 1987-1990, he was at AT&T Bell Laboratories, Crawford Hill Laboratory, in Holmdel, NJ. He was on the Electrical Engineering faculty at U.C. Berkeley from 1990-2003. In 2000, he co-founded StrataLight Communications, which was acquired by Opnext, Inc. in 2009. He received the National Science Foundation Presidential Young Investigator Award in 1991 and is a Fellow of the IEEE.

ACADEMIC APPOINTMENTS

- Professor, Electrical Engineering
- Member, Bio-X

ADMINISTRATIVE APPOINTMENTS

- Chair, Academic Affairs Committee, Department of Electrical Engineering, (2012- present)

HONORS AND AWARDS

- Fellow, IEEE (2000)
- Presidential Young Investigator, National Science Foundation (1991-1996)
- Hoover Faculty Scholar, Stanford University (2003-2005)

PROFESSIONAL EDUCATION

- PhD, University of California, Berkeley , Physics (1986)
- MS, University of California, Berkeley , Physics (1983)
- BA, University of California, Berkeley , Physics (1981)

LINKS

- Profile at EE Department: <http://ee.stanford.edu/~jmk>
- Curriculum Vitae: <http://ee.stanford.edu/~jmk/biographical/Joseph.M.Kahn.resume.pdf>
- Google Scholar Profile: <http://scholar.google.com/citations?user=D22GptUAAAAJ&hl=en>

Teaching

COURSES

2019-20

- Advanced Optical Fiber Communications: EE 348 (Spr)
- Signal Processing and Linear Systems I: EE 102A (Win)

2018-19

- Digital Communication: EE 379 (Spr)
- Introduction to Optical Fiber Communications: EE 247 (Win)
- Signal Processing and Linear Systems I: EE 102A (Win)

2017-18

- Advanced Optical Fiber Communications: EE 348 (Aut)
- Signal Processing and Linear Systems I: EE 102A (Win)

2016-17

- Digital Communication: EE 379 (Win)
- Introduction to Optical Fiber Communications: EE 247 (Aut)
- Signal Processing and Linear Systems II: EE 102B (Spr)

STANFORD ADVISEES

Doctoral Dissertation Advisor (AC)

Brandon Buscaino, Elaine Chou, Karthik Choutagunta Nagaraj, Hrishikesh Srinivas, Michael Taylor

Master's Program Advisor

Stephen Badger, Sakshi Namdeo, Jonathan Wheeler

Doctoral (Program)

Elizabeth Chen, Karthik Choutagunta Nagaraj, Jonathan Fisher, Marc Jankowski, Ruishan Liu, Mehrad Moradshahi, Hrishikesh Srinivas, Michael Taylor, Stephanie Tietz, Anirudh Vijay, Jonathan Wheeler

Publications

PUBLICATIONS

- **Multi-Tb/s-per-Fiber Coherent Co-Packaged Optical Interfaces for Data Center Switches** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Buscaino, B., Taylor, B. D., Kahn, J. M.
2019; 37 (13): 3401–12
- **Importance of Amplifier Physics in Maximizing the Capacity of Submarine Links** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Perin, J., Kahn, J. M., Downie, J. D., Hurley, J., Bennett, K.
2019; 37 (9): 2076–85
- **Broadband electro-optic frequency comb generation in a lithium niobate microring resonator** *NATURE*
Zhang, M., Buscaino, B., Wang, C., Shams-Ansari, A., Reimer, C., Zhu, R., Kahn, J. M., Loncar, M.
2019; 568 (7752): 373–+
- **Efficient Quantification and Simulation of Modal Dynamics in Multimode Fiber Links** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Choutagunta, K., Roberts, I., Kahn, J. M.
2019; 37 (8): 1813–25

- **Broadband electro-optic frequency comb generation in a lithium niobate microring resonator.** *Nature*
Zhang, M., Buscaino, B., Wang, C., Shams-Ansari, A., Reimer, C., Zhu, R., Kahn, J. M., Loncar, M.
2019
- **Mode-Multiplexed Transmission Within and Across Mode Groups of a Multimode-Fiber**
Wittek, S., Ryf, R., Fontaine, N. K., Choutagunta, K., Mazur, M., Chen, H., Alvarado-Zacarias, J., Capuzzo, M., Kopf, R., Tate, A., Safar, H., Bolle, C., Neilson, et al
IEEE.2019
- **Modal Dynamics in Spatially Multiplexed Links**
Choutagunta, K., Ryf, R., Fontaine, N., Wittek, S., Alvarado-Zacarias, J., Mazur, M., Chen, H., Essiambre, R., Amezcua-Correa, R., Hayashi, T., Tamura, Y., Hasegawa, T., Taru, et al
IEEE.2019
- **Scaling SDM Optical Networks Using Full-Spectrum Spatial Switching** *JOURNAL OF OPTICAL COMMUNICATIONS AND NETWORKING*
Jatoba-Neto, A. C., Mello, D. A., Rothenberg, C. E., Arik, S. O., Kahn, J. M.
2018; 10 (12): 991–1004
- **Characterizing Mode-Dependent Loss and Gain in Multimode Components** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Choutagunta, K., Arik, S. O., Ho, K., Kahn, J. M.
2018; 36 (18): 3815–23
- **Data center links beyond 100 Gbit/s per wavelength** *OPTICAL FIBER TECHNOLOGY*
Perin, J., Shastri, A., Kahn, J. M.
2018; 44: 69–85
- **Measurement-Based Optimization of Channel Powers With Non-Gaussian Nonlinear Interference Noise** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Roberts, I., Kahn, J. M.
2018; 36 (13): 2746–56
- **Low-Complexity Implementation of Convex Optimization-Based Phase Retrieval** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Arik, S. O., Kahn, J. M.
2018; 36 (12): 2358–65
- **Channel Power Optimization of WDM Systems Following Gaussian Noise Nonlinearity Model in Presence of Stimulated Raman Scattering (vol 35, pg 5237, 2017)** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Roberts, I., Kahn, J. M., Harley, J., Boertjes, D.
2018; 36 (11): 2309
- **Approaching fundamental limits to free-space communication through atmospheric turbulence**
Belmonte, A., Kahn, J. M., Dingel, B. B., Tsukamoto, K., Mikroulis, S.
SPIE-INT SOC OPTICAL ENGINEERING.2018
- **Data Center Links Beyond 100 Gbit/s per Wavelength**
Perin, J., Shastri, A., Kahn, J. M., He, S., Lee, E. H.
SPIE-INT SOC OPTICAL ENGINEERING.2018
- **Improving the Capacity of Terrestrial and Submarine Systems via Channel Power Optimization**
Perin, J., Roberts, I., Kahn, J. M., Jaworski, M., Marciniak, M.
IEEE.2018
- **Stable Measurement of Effective Area in Coupled Multi-core Fiber**
Chou, E. S., Hayashi, T., Nagashima, T., Kahn, J. M., Nakanishi, T., IEEE
IEEE.2018
- **DSP-Free Coherent Receivers for Data Center Links**
Perin, J., Shastri, A., Kahn, J. M., IEEE
IEEE.2018
- **Channel Power Optimization of WDM Systems Following Gaussian Noise Nonlinearity Model in Presence of Stimulated Raman Scattering** *JOURNAL OF LIGHTWAVE TECHNOLOGY*

-
- Roberts, I., Kahn, J. M., Harley, J., Boertjes, D. W.
2017; 35 (23): 5237–49
- **Linear Propagation Effects in Mode-Division Multiplexing Systems** *J. of Lightwave Technol. (Invited Paper)*.
Ho, K., P., Kahn, J., M.
 - **Coded Modulation for Fiber-Optic Networks** *IEEE Signal Processing Magazine*.
Beygi, L., Agrell, E., Kahn, J., M.
 - **MIMO Signal Processing for Mode-Division Multiplexing** *IEEE Signal Processing Magazine (Invited Paper)*.
Ar#k, S., Ö., Kahn, J., M., Ho, K., P.
 - **Optical MIMO Signal Processing for Direct-Detection Mode-Division Multiplexing**
Choutagunta, K., Arik, S. O., Moradshahi, M., Kahn, J. M., IEEE
IEEE.2017
 - **Scaling Optical Networks Using Full-Spectrum Spatial Switching**
Jatoba-Neto, A. C., Rothenberg, C. E., Mello, D. A., Arik, S. O., Kahn, J. M., IEEE
IEEE.2017
 - **Sensitivity Improvement in 100 Gb/s-per-Wavelength Links Using Semiconductor Optical Amplifiers or Avalanche Photodiodes** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Perin, J. K., Sharif, M., Kahn, J. M.
2016; 34 (23): 5542-5553
 - **Direct-detection mode-division multiplexing in modal basis using phase retrieval** *OPTICS LETTERS*
Arik, S. O., Kahn, J. M.
2016; 41 (18): 4265-4268
 - **Space-time reference with an optical link** *CLASSICAL AND QUANTUM GRAVITY*
Berceau, P., Taylor, M., Kahn, J., Hollberg, L.
2016; 33 (13)
 - **Convex Channel Power Optimization in Nonlinear WDM Systems Using Gaussian Noise Model** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Roberts, I., Kahn, J. M., Boertjes, D.
2016; 34 (13): 3212-3222
 - **Group Delay Management and Multiinput Multioutput Signal Processing in Mode-Division Multiplexing Systems** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Arik, S. O., Ho, K., Kahn, J. M.
2016; 34 (11): 2867-2880
 - **Modulation Schemes for Single-Laser 100 Gb/s Links: Multicarrier** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Perin, J. K., Sharif, M., Kahn, J. M.
2015; 33 (24): 5122-5132
 - **Capacity limits of spatially multiplexed free-space communication** *NATURE PHOTONICS*
Zhao, N., Li, X., Liu, G., Kahn, J. M.
2015; 9 (12): 822-826
 - **Delay Spread Reduction in Mode-Division Multiplexing: Mode Coupling Versus Delay Compensation** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Arik, S. O., Ho, K., Kahn, J. M.
2015; 33 (21): 4504-4512
 - **Design of flexible multi-mode fiber endoscope** *OPTICS EXPRESS*
Gu, R. Y., Mahalati, R. N., Kahn, J. M.
2015; 23 (21): 26905-26918
 - **Modulation Schemes for Single-Laser 100 Gb/s Links: Single-Carrier** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Sharif, M., Perin, J. K., Kahn, J. M.

2015; 33 (20): 4268-4277

- **Long-Period Fiber Gratings for Mode Coupling in Mode-Division-Multiplexing Systems** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Askarov, D., Kahn, J. M.
2015; 33 (19): 4032-4038
- **Performance of Direct-Detection Mode-Group-Division Multiplexing Using Fused Fiber Couplers** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Gasulla, I., Kahn, J. M.
2015; 33 (9): 1748-1760
- **Roles of spectral and spatial aggregation in optical network scaling** *Conference on Next-Generation Optical Communication - Components, Sub-Systems, and Systems IV*
Arik, S. O., Ho, K. P., Kahn, J. M.
SPIE-INT SOC OPTICAL ENGINEERING.2015
- **Array Receivers in Downlink Coherent Lasercom** *Conference on Free-Space Laser Communication and Atmospheric Propagation XXVII*
Belmonte, A., Kahn, J. M.
SPIE-INT SOC OPTICAL ENGINEERING.2015
- **MIMO signal processing in mode-division multiplexing systems** *Conference on Optical Metro Networks and Short-Haul Systems VII*
Arik, S. O., Askarov, D., Kahn, J. M.
SPIE-INT SOC OPTICAL ENGINEERING.2015
- **Optical network scaling: roles of spectral and spatial aggregation** *OPTICS EXPRESS*
Arik, S. O., Ho, K., Kahn, J. M.
2014; 22 (24): 29868-29887
- **Optical network scaling: roles of spectral and spatial aggregation.** *Optics express*
Arik, S. Ö., Ho, K., Kahn, J. M.
2014; 22 (24): 29868-29887
- **Frequency-Derivative Measurement Technique for Dispersive Effects in Single-Mode Fiber Systems** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Askarov, D., Szafraniec, B., Baney, D. M., Kahn, J. M.
2014; 32 (22): 3854-3861
- **Wavelength-Selective Switches for Mode-Division Multiplexing: Scaling and Performance Analysis** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Ho, K., Kahn, J. M., Wilde, J. P.
2014; 32 (22): 3724-3735
- **Noise-reduction algorithms for optimization-based imaging through multi-mode fiber** *OPTICS EXPRESS*
Gu, R. Y., Mahalati, R. N., Kahn, J. M.
2014; 22 (12): 15118-15132
- **Noise-reduction algorithms for optimization-based imaging through multi-mode fiber.** *Optics express*
Gu, R. Y., Mahalati, R. N., Kahn, J. M.
2014; 22 (12): 15118-15132
- **Diversity-multiplexing tradeoff in mode-division multiplexing.** *Optics letters*
Arik, S. Ö., Kahn, J. M.
2014; 39 (11): 3258-3261
- **Adaptive Modal Gain Equalization Techniques in Multi-Mode Erbium-Doped Fiber Amplifiers** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Mahalati, R. N., Askarov, D., Kahn, J. M.
2014; 32 (11): 2133-2143
- **Adaptive Frequency-Domain Equalization in Mode-Division Multiplexing Systems** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Arik, S. O., Askarov, D., Kahn, J. M.
2014; 32 (10)
- **Variable-Bandwidth Superchannels Using Synchronized Colorless Transceivers** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Sharif, M., Kahn, J. M.

2014; 32 (10): 1921-1929

- **MIMO Signal Processing for Mode-Division Multiplexing [An overview of channel models and signal processing architectures]** *IEEE SIGNAL PROCESSING MAGAZINE*
Arik, S. O., Kahn, J. M., Ho, K.
2014; 31 (2): 25-34
- **Coded Modulation for Fiber-Optic Networks [Toward better tradeoff between signal processing complexity and optical transparent reach]** *IEEE SIGNAL PROCESSING MAGAZINE*
Beygi, L., Agrell, E., Kahn, J. M., Karlsson, M.
2014; 31 (2): 93-103
- **Linear Propagation Effects in Mode-Division Multiplexing Systems** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Ho, K., Kahn, J. M.
2014; 32 (4): 614-628
- **Optical Networking With Variable-Code-Rate Transceivers** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Mello, D. A., Barreto, A. N., de Lima, T. C., Portela, T. F., Beygi, L., Kahn, J. M.
2014; 32 (2): 257-266
- **Rate-Adaptive Coded Modulation for Fiber-Optic Communications** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Beygi, L., Agrell, E., Kahn, J. M., Karlsson, M.
2014; 32 (2): 333-343
- **Rate-Adaptive Coded Modulation for Fiber-Optic Communications** *J. of Lightwave Technol.*
Beygi, L., Agrell, E., Kahn, J., M.
2014; 32 (2): 333-343
- **Multimode Transmission Technologies** *19th OptoElectronics and Communication Conference (OECC) / 39th Australian Conference on Optical Fibre Technology (ACOFT)*
Ip, E., Li, M., Gu, R. Y., Kahn, J.
IEEE.2014: 237-239
- **Optical Networking with Variable-Code-Rate Transceivers** *J. of Lightwave Technol.*
Mello, D., A. A., Barreto, A., N., Lima, T., C., Portela, T., F., Beygi, L., Kahn, J., M.
2014; 32 (2): 257-266
- **Coupled-Core Multi-Core Fibers for Spatial Multiplexing** *IEEE PHOTONICS TECHNOLOGY LETTERS*
Arik, S. O., Kahn, J. M.
2013; 25 (21): 2054-2057
- **Sequential Optimization of Adaptive Arrays in Coherent Laser Communications** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Belmonte, A., Kahn, J. M.
2013; 31 (9): 1383-1387
- **Effect of Mode Coupling on Signal Processing Complexity in Mode-Division Multiplexing** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Arik, S. O., Askarov, D., Kahn, J. M.
2013; 31 (3): 423-431
- **Resolution limits for imaging through multi-mode fiber** *OPTICS EXPRESS*
Mahalati, R. N., Gu, R. Y., Kahn, J. M.
2013; 21 (2): 1656-1668
- **Mode-Division Multiplexing Systems: Propagation Effects, Performance and Complexity** *Conference on Optical Fiber Communication (OFC)/National Fiber Optic Engineers Conference (NFOEC)*
Kahn, J. M., Ho, K.
IEEE.2013
- **Experimental Demonstration of a Spatial Light Modulator-based Few-Mode Fiber Switch for Space-Division Multiplexing**
Gu, R., Y., Ip, E., Li, M., J., Huang, Y., K., Kahn, J., M.
2013

- **Adaptive Control of Mode-Dependent Gain in Multi-Mode Erbium-Doped Fiber Amplifiers** Mahalati, R., Nasiri, Askarov, D., Kahn, J., M.
2013
- **Mode Coupling and its Impact on Spatially Multiplexed Systems** *Optical Fiber Telecommunications VI B: Systems and Networks*
Ho, K., P., Kahn, J., M.
edited by Kaminow, I., P., Li, T., Willner, A., E.
Elsevier, Amsterdam.2013: 1
- **The Time-Reversed Twin** *Nature Photonics*
Ip, E., Kahn, J., M.
2013; 7: 507-508
- **Adaptive Control of Mode-Dependent Gain in Multi-Mode Erbium-Doped Fiber Amplifiers** *IEEE-Photonics-Society Summer Topical Meeting*
Mahalati, R. N., Askarov, D., Kahn, J. M.
IEEE.2013: 107–108
- **Four-Fold Resolution Increase in Scan-Free Single-Fiber Endoscopic Imaging** *SU2P Symposium, Glasgow*
Kahn, J., M.
2013
- **Design of Transmission Fibers and Doped Fiber Amplifiers for Mode-Division Multiplexing** *IEEE PHOTONICS TECHNOLOGY LETTERS*
Askarov, D., Kahn, J. M.
2012; 24 (21): 1945-1948
- **Delay-Spread Distribution for Multimode Fiber With Strong Mode Coupling** *IEEE PHOTONICS TECHNOLOGY LETTERS*
Ho, K., Kahn, J. M.
2012; 24 (21): 1906-1909
- **Rate-Adaptive Modulation and Low-Density Parity-Check Coding for Optical Fiber Transmission Systems** *JOURNAL OF OPTICAL COMMUNICATIONS AND NETWORKING*
Gho, G., Kahn, J. M.
2012; 4 (10): 760-768
- **Bandwidth-Scalable Long-Haul Transmission Using Synchronized Colorless Transceivers and Efficient Wavelength-Selective Switches** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Barros, D. J., Kahn, J. M., Wilde, J. P., Abou Zeid, T.
2012; 30 (16): 2646-2660
- **Adaptive control of input field to achieve desired output intensity profile in multimode fiber with random mode coupling** *OPTICS EXPRESS*
Mahalati, R. N., Askarov, D., Wilde, J. P., Kahn, J. M.
2012; 20 (13): 14321-14337
- **Rate-Adaptive Modulation and Coding for Optical Fiber Transmission Systems** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Gho, G., Kahn, J. M.
2012; 30 (12): 1818-1828
- **Effect of fog on free-space optical links employing imaging receivers** *OPTICS EXPRESS*
Mahalati, R. N., Kahn, J. M.
2012; 20 (2): 1649-1661
- **Comparison of Orthogonal Frequency-Division Multiplexing and Pulse-Amplitude Modulation in Indoor Optical Wireless Links** *IEEE TRANSACTIONS ON COMMUNICATIONS*
Barros, D. J., Wilson, S. K., Kahn, J. M.
2012; 60 (1): 153-163
- **Blind Adaptation of Channel-Matched Receivers in Free-Space Coherent Laser Communication**
Belmonte, A., Kahn, J., M.
2012

- **Multi-Carrier versus Single-Carrier Intensity Modulation Techniques for Indoor Optical Wireless Links**
Kahn, J., M., Barros, Daniel, J. F., Wilson, S. K.
2012
- **Field Conjugation Adaptive Arrays for Reliable Space Downlink Coherent Laser Communications**
Belmonte, A., Kahn, J., M.
2012
- **Mode Coupling Effects in Mode-Division-Multiplexed Systems**
Kahn, J., M., Ho, K., P.
2012
- **Design of Multi-Mode Erbium-Doped Fiber Amplifiers for Low Mode-Dependent Gain**
Askarov, D., Kahn, J., M.
2012
- **Mode-Coupling Effects in Multimode Fibers**
Kahn, J., M., Ho, K., P., Shemirani, M., B.
2012
- **Mode Coupling in Coherent Mode-Division-Multiplexed Systems: Impact on Capacity and Signal Processing Complexity** *46th Asilomar Conference on Signals, Systems and Computers*
Kahn, J. M., Ho, K.
IEEE.2012: 650–653
- **Frequency Diversity in Mode-Division Multiplexing Systems** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Ho, K., Kahn, J. M.
2011; 29 (24): 3719-3726
- **Statistics of Group Delays in Multimode Fiber With Strong Mode Coupling** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Ho, K., Kahn, J. M.
2011; 29 (21): 3119-3128
- **Field Conjugation Adaptive Arrays in Free-Space Coherent Laser Communications** *JOURNAL OF OPTICAL COMMUNICATIONS AND NETWORKING*
Belmonte, A., Kahn, J. M.
2011; 3 (11): 830-838
- **Mode-dependent loss and gain: statistics and effect on mode-division multiplexing** *OPTICS EXPRESS*
Ho, K., Kahn, J. M.
2011; 19 (17): 16612-16635
- **Comparison of Orthogonal Frequency-Division Multiplexing and ON-OFF Keying in Direct-Detection Multimode Fiber Links** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Barros, D. J., Kahn, J. M.
2011; 29 (15): 2299-2309
- **Principal Modes in Graded-Index Multimode Fiber in Presence of Spatial- and Polarization-Mode Coupling (vol 27, pg 1248, 2009)** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Shemirani, M. B., Mao, W., Panicker, R. A., Kahn, J. M.
2011; 29 (12): 1901-1901
- **Experimental demonstration of two methods for controlling the group delay in a system with photonic-crystal resonators coupled to a waveguide** *OPTICS LETTERS*
Huo, Y., Sandhu, S., Pan, J., Stuhmann, N., Povinelli, M. L., Kahn, J. M., Harris, J. S., Fejer, M. M., Fan, S.
2011; 36 (8): 1482-1484
- **Rate-Adaptive Coding for Optical Fiber Transmission Systems** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Gho, G., Klak, L., Kahn, J. M.
2011; 29 (2): 222-233

- **Rate-adaptive modulation and coding for optical fiber transmission systems** *Conference on Coherent Optical Communication - Components, Subsystems, and Systems*
Gho, G., Kahn, J. M.
SPIE-INT SOC OPTICAL ENGINEERING.2011
- **Performance Analysis of Atmospheric Field Conjugation Adaptive Arrays** *Conference on Free-Space Laser Communication Technologies XXIII*
Belmonte, A., Kahn, J. M.
SPIE-INT SOC OPTICAL ENGINEERING.2011
- **Bandwidth-Scalable OFDM Long-Haul Transmission**
Kahn, J., M.
2011
- **System Architecture for Bandwidth-Scalable OFDM Long-Haul Transmission**
Barros, D., J. F., Kahn, J., M., Wilde, J., P., Zeid, T., Abou
2011
- **Field Conjugation Adaptive Arrays in Atmospheric Coherent Optical Links**
Belmonte, A., Kahn, J., M.
2011
- **Spot Formation and Scanning Microscopy via Multimode Fibers** *IEEE Photonics Conference (PHO)*
Boucher, K. J., Jan, C., Kahn, J. M., Wilde, J. P., Solgaard, O.
IEEE.2011: 713–714
- **Comparison of Multi-Carrier and Single-Carrier Intensity Modulation Techniques for Indoor Optical Wireless Links** *IEEE Photonics Conference (PHO)*
Barros, D. J., Kahn, J. M., Wilson, S. K.
IEEE.2011: 294–295
- **Adaptive Compensation of Multimode Fiber Dispersion by Control of Launched Amplitude, Phase, and Polarization** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Shemirani, M. B., Wilde, J. P., Kahn, J. M.
2010; 28 (18): 2627-2639
- **Capacity of coherent free-space optical links using diversity-combining techniques (vol 17, pg 12601, 2009)** *OPTICS EXPRESS*
Belmonte, A., Kahn, J. M.
2010; 18 (17): 17748-17748
- **Compensation of Multimode Fiber Dispersion by Optimization of Launched Amplitude, Phase, and Polarization** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Shemirani, M. B., Kahn, J. M.
2010; 28 (14): 2084-2095
- **Comparison of Orthogonal Frequency-Division Multiplexing and On-Off Keying in Amplified Direct-Detection Single-Mode Fiber Systems** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Barros, D. J., Kahn, J. M.
2010; 28 (12): 1811-1820
- **Hiding Single Photons with Spread Spectrum Technology** *PHYSICAL REVIEW LETTERS*
Belthangady, C., Chuu, C., Yu, I. A., Yin, G. Y., Kahn, J. M., Harris, S. E.
2010; 104 (22)
- **Fiber Impairment Compensation Using Coherent Detection and Digital Signal Processing** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Ip, E. M., Kahn, J. M.
2010; 28 (4): 502-519
- **Efficiency of complex modulation methods in coherent free-space optical links** *OPTICS EXPRESS*
Belmonte, A., Kahn, J. M.
2010; 18 (4): 3928-3937

- **OFDM vs. OOK with MLSF for IM/DD Systems** *Conference on Optical Fiber Communication (OFC)/Collocated National Fiber Optic Engineers (NFOEC)*
Barros, D. J., Kahn, J. M.
IEEE.2010
- **Modulation of Photons and Biphotons**
Harris, S., E., Belthangady, C., Chuu, C., S., Du, S., Kolchin, P., Sensarn, S., Kahn, Joseph, M.
2010
- **Rate-Adaptive Transmission Techniques for Optical Fiber Systems**
Kahn, J., M., Gho, G., H.
2010
- **Understanding the performance of atmospheric free-space laser communications systems using coherent detection** *Conference on Atmospheric and Oceanic Propagation of Electromagnetic Waves IV*
Belmonte, A., Kahn, J. M.
SPIE-INT SOC OPTICAL ENGINEERING.2010
- **Understanding the Performance of Atmospheric Free-Space Laser Communications Systems using Coherent Detection**
Belmonte, A., Kahn, J., M.
2010
- **Analysis of a Field-Conjugation Adaptive Array for Coherent Free-Space Optical Links**
Belmonte, A., Kahn, J., M.
2010
- **Field Conjugation Adaptive Arrays in Atmospheric Coherent Optical Links**
Belmonte, A., Kahn, J., M.
2010
- **Principal Modes in Multimode Fiber: Modeling and Compensation of Dispersion**
Shemirani, M., B., Kahn, J., M.
VDM Verlag, Saarbrücken, Germany.2010: 1
- **Rate-Adaptive Coding for Optical Fiber Transmission Systems**
Gho, G., H., Kahn, J., M.
2010
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