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2. Conference Presentations, Fiber Optic Communication, Invited

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- [2.2.] C. Cole, "Ultrahigh Capacity Challenges in the Datacenter," MW15: Workshop on Ultrahigh-Capacity Communications with Spatial, Temporal, Spectral Domains, International Symposium on Ultrafast Photonic Technologies & Special Symposium on Silicon Photonics of the Future, Napa, CA, 17 June 2019.
- [2.3.] C. Cole, "Electronics and Optics for Large Scale Optical Switching," 2nd International Workshop, Peta Cloud Consortium, Tel-Aviv, Israel, 3 April 2019.
- [2.4.] C. Cole, "Direct Detection vs. Coherent SNR Inside the Datacenter," Will Coherent Optics Become a Reality for Intra-data Center Applications? Workshop, OFC 2019, San Diego, CA, 3 March 2019.

- [2.5.] C. Cole, "Before 400G for Hyperscale Data Centers," Beyond 400G for Hyperscale Data Centers, Panel Th1A, San Diego, CA, 3 March 2019.
- [2.6.] C. Cole, "Optics Integration onto Switch Engines," Defining Key Areas for Industry Roadmap Development, ON2020 Exhibit Floor Theater II Session, OFC 2019, 6 March 2019.
- [2.7.] C. Cole, "Inside the Datacenter is not yet a Nail for the Coherent Hammer," WS05 - Data Centres - 1, Session 1, Has the Time come for Coherent Optics in the Data Centres? ECOC 2018, Rome, Italy, 23 September 2018.
- [2.8.] C. Cole, "100G/Lane: Which Problem Are We Solving?," Workshop on 100G Signaling: Enabling Next Generation Interconnects, Optical Interconnects 2018, Santa Fe, NM, 5 June 2018.
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- [2.12.] C. Cole, "1310nm vs 1550nm," S1, 5th Int. Symposium for Optical Interconnect in Data Centers, ECOC 2017, Gothenburg, Sweden, 19 September 2017.
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- [2.16.] C. Cole, "Current and Next Generation Datacom Optics," Future Trend of Optical Interconnection in Data Center & HPC and All Optical Switching Industry Forum, Asia Communications and Photonics Conference, Wuhan, China, 2 November 2016.
- [2.17.] C. Cole, et al., "The Fracturing of the Ethernet Optics Market," Optics in Cloud Computing Session, Market Focus, ECOC 2016, Dusseldorf, Germany, 21 September 2016.
- [2.18.] C. Cole, "Optical Transceiver Technologies for Next Generation Fiber Optic Interfaces," S3: Advanced Optical Technologies for Future Data Center Network, 21st Optoelectronics and Communications Conference, Niigata, Japan, 5 July 2016.
- [2.19.] C. Cole, "400G Client Optics Roadmap," A Rational Assessment of 400G Ethernet, Market Watch Panel V, OFC 2016, Anaheim, CA, 24 March 2016.
- [2.20.] C. Cole, "Ethernet Optics Tomorrow: 50G PAM4," The State of Ethernet Optics, Panel, OFC 2016, Anaheim, CA, 23 March 2016.

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- [2.22.] C. Cole, "Datacenter Silicon Photonics Examples," Is Integrated Photonics Finally Turning the Corner? OSA Executive Forum Program: Panel 2, In conjunction with OFC 2016, Anaheim, CA, 22 March 2016.
- [2.23.] C. Cole, "Silicon Photonics Update," III-V vs. Silicon Photonic Transceivers: Competition or Coexistence? Workshop, Anaheim, CA, 21 March 2016.
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- [2.26.] C. Cole, "100G to 400G Standards Based Interfaces," Next-Generation Network Components 2015, P1, Santa Clara, CA, 5 November 2015.
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- [2.36.] C. Cole, "50 Gb/s Per Lane Electrical and Optical Technology: The Next Generation of Server I/O," System Level Issues Panel, SP-4, The Open Server Summit, Santa Clara, CA, 11 November 2014.

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- [2.41.] C. Cole, "Are Optical Standards Keeping Up?," Workshop, OFC 2014, San Francisco, CA, 9 March 2014.
- [2.42.] C. Cole, "High Speed Technology," Ethernet's Rate Roadmap BOF Session, The International Conference on High Performance Computing (SC), Denver, CO, 21 November 2013.
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- [2.47.] C. Cole, "Optics Technology Advances," North American Network Operators' Group (NANOG) Meeting, New Orleans, LA, 3-5 June 2013.
- [2.48.] C. Cole, "Datacenter Bottleneck Solutions & Crystal Ball for Panelists," How Can Optics Address Bandwidth and Latency Bottlenecks in Data Centers? OMIF OFC Workshop, OFC/NFOEC 2013, Anaheim, CA, 18 March 2013.
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- [2.51.] C. Cole, "Next Generation CFP Modules," OFC/NFOEC 2012, NTu1F, Los Angeles, CA, 4-8 March 2012.
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- [2.62.] C. Cole, "Why Are We Having this Tutorial?," 1TbE Transport - Why, When and How? OMA, OFC/NFOEC 2010, San Diego, CA, 22 March 2010.
- [2.63.] C. Cole, "Optical PMD Overview," 40/100GbE Tutorial, Ethernet Technology Summit, T1A, San Jose, CA, 24 February 2010.
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- [2.66.] C. Cole, "400Gb/s Ethernet," Technology Exploration Forum, Ethernet Alliance, Santa Clara, CA, 15 September 2009.
- [2.67.] C. Cole, "100GE Ethernet Optics," 100GE: Market Drivers, Architectures, Technical and Economic Challenges Panel, IEEE Compound Semiconductor IC Symposium (CSICS), Portland, OR, 14-17 October 2007.
- [2.68.] C. Cole, "Parallel Optics for Ethernet Access and Metro Aggregation Networks," 100 Gigabit Ethernet for Carrier-Class Transport Networks Workshop, WS1, ECOC 2007, Berlin, Germany, 16 September 2007.

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3. Conference Presentations, Fiber Optic Communication

- [3.1.] L. E. Nelson, et al., "SDN-Controlled 400GbE end-to-end service using a CFP8 client over a deployed, commercial flexible ROADM system," Th5A.1, OFC 2017, Los Angeles, CA, 23 March 2017.
- [3.2.] M. Birk, et al., "First 400GBASE-LR8 interoperability using CFP8 modules," Th5B.7, OFC 2017, Los Angeles, CA, 23 March 2017.
- [3.3.] S.M.R. Motaghiannezam, et al., "Single Chip 52 Gb/s PAM4 Transmission through -58 and +10 ps/nm Chromatic Dispersion using Directly Modulated Laser," Th2A.59, OFC 2016, Anaheim, CA, 24 March 2016.
- [3.4.] T. J. Xia, et al., "End-to-end Native IP Data 100G Single Carrier Coherent Detection Transport over 1520-km Field Deployed Fiber," OFC/NFOEC 2010, PDPD4, San Diego, CA, 21-25 March 2010.

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4. University Lectures, Fiber Optic Communication, Invited

- [4.1.] C. Cole, "The Perils of Conventional Thinking," Emergent Science and Technologies Seminar Series, Department of Electrical & Computer Engineering, University of California Davis, Davis, CA, 11 October 2019.
- [4.2.] C. Cole, "The Perils of Conventional Thinking," The Industry Perspective Lecture Series, UCSB Photonics Society, University of California, Santa Barbara, CA, 9 May 2019.
- [4.3.] C. Cole, "Current and Next Generation Datacom Optics," Industrial Technology Research Institute & National Chiao-Tung University, Hsin-Chu, Taiwan, 28 October 2016.
- [4.4.] C. Cole, "Datacom Optics," Electrical and Computer Engineering Seminar, University of California San Diego, La Jolla, CA, 22 April 2015.
- [4.5.] C. Cole, "Evolution of Data Center Optics," Department of Telecommunications Lecture, AGH University of Science and Technology, Krakow, Poland, 20 September 2013.
- [4.6.] C. Cole, "Evolution of Optical Interfaces for Data Centers," Annual Symposium, Stanford Photonics Research Center, Stanford University, Stanford, CA, 17 September 2013.
- [4.7.] C. Cole, "Fiber Optic Communication in Practice," Research Experience for Undergraduates Seminar, Electrical Engineering, Stanford University, Stanford, CA, 25 June 2013.
- [4.8.] C. Cole, "Fiber Optic Communication Future Data Rate Technologies," Electrical and Computer Engineering Seminar, University of California, Santa Barbara, CA, 26 October 2012.
- [4.9.] C. Cole, "Fiber Optic Communication in Practice," RAD Seminar, Stanford University, Stanford, CA, 4 October 2012.
- [4.10.] C. Cole, "Capacity and Power Efficiency Increases in Fiber Optic Communications," The Institute for Energy Efficiency Lecture, University of California, Santa Barbara, CA, 11 February 2011.
- [4.11.] C. Cole, "Fiber-Optic Communications," Institute of Microelectronic Lecture, A-STAR, Singapore, 7 May 2010.

[4.12.] C. Cole, "Technology Directions in Fiber-Optic Communication," Electrical Engineering Department Lecture, National Taiwan University, Taipei, Taiwan, 12 September 2008.

[4.13.] C. Cole, "Technology Directions in Fiber-Optic Communication," Electrical Engineering Lecture, Fudan University, Shanghai, China, 18 April 2008

[4.14.] C. Cole, "Technology Directions in Fiber-Optic Communication," Electrical and Computer Engineering Seminar, University of California, Davis, CA, 7 December 2007.

[4.15.] C. Cole, "Future Technology Directions in Fiber-Optic Communication," Electrical Engineering Lecture, Nanyang Technological University, Singapore, 29 January 2007.

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5. Contributions, CWDM4 MSA and 4WDM MSA, 100 Gb/s Ethernet

[5.1.] C. Cole, "100G 10km, 20km & 40km 4x25G NRZ WDM Optical Specifications Proposal, Draft 04," 4WDM MSA, CWDM4 Draft 04 Specs, 18 October 2016.

[5.2.] C. Cole, "100G 10km, 20km & 40km 4x25G NRZ WDM Optical Specifications Proposal, Draft 03," 4WDM MSA, CWDM4 Draft 03 Specs, 28 September 2016.

[5.3.] C. Cole, "100G 10km, 20km & 40km 4x25G NRZ WDM Optical Specifications Proposal, Draft 02," 4WDM MSA, CWDM4 Draft 02 Specs, 13 July 2016.

[5.4.] Cole, "100G 10km, 20km & 40km 4x25G NRZ WDM Optical Specifications Proposal, Draft 01," 4WDM MSA, CWDM4 Draft 01 Specs, 12 July 2016.

[5.5.] C. Cole, "CWDM4 w/ FEC Nominal Specifications, Draft 03," CWDM4 MSA, Cole CWDM4 Draft 03 Spec, 9 May 2014.

[5.6.] C. Cole, "CWDM4 w/ FEC Nominal Specifications, Draft 02," CWDM4 MSA, Cole CWDM4 Draft 02 Spec v1, 28 April 2014.

[5.7.] C. Cole, "CWDM4 Optical Specifications, Draft 01," CWDM4 MSA, Cole CWDM4 Draft 01 Spec, 14 April 2014.

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6. Contributions, IEEE 802.3, Next Gen 50, 100, 200 & 400 Gb/s Ethernet

[6.1.] C. Cole, "400GBASE-ER8, 200GBASE-ER4, 50GBASE-ER1 Specifications Proposal," Interim Teleconference, P802.3cn 50 Gb/s, 200 Gb/s, and 400 Gb/s over greater than 10 km of SMF Task Force, 24 September 2019.

[6.2.] C. Cole, "400GBASE-LR4 Link Budget Proposal," IEEE 802.3 100 Gb/s and 400 Gb/s over SMF at 100 Gb/s per Wavelength Task Force, cole_3cu_01b_0919, Indianapolis, IN, 9 September 2019.

[6.3.] D. Lewis, et al., "400GBASE-LR4 (6 km) Baseline Proposal," IEEE 802.3 100 Gb/s and 400 Gb/s over SMF at 100 Gb/s per Wavelength Task Force, lewis_3cu_02a_0919, Indianapolis, IN, 9 September 2019.

[6.4.] C. Cole, et al., "PMD Naming Proposal Update," IEEE 802.3 100 Gb/s and 400 Gb/s over SMF at 100 Gb/s per Wavelength Task Force, cole_3cu_01a_0719, Vienna, Austria, 15 July 2019.

- [6.5.] C. Cole, "What's so special about 10km?" IEEE 802.3 100 Gb/s and 400 Gb/s over SMF at 100 Gb/s per Wavelength Task Force, cole_3cu_02a_0519, Salt Lake City, UT, 23 May 2019.
- [6.6.] C. Cole, "Two SMF Spec Limit Types for 802.3 PMDs Proposal," IEEE 802.3 100 Gb/s and 400 Gb/s over SMF at 100 Gb/s per Wavelength Task Force, cole_3cu_01a_0519, Salt Lake City, UT, 23 May 2019.
- [6.7.] C. Cole, et al., "Broad Market Potential for 100GbE FR, LR & 400GbE FR4, LR4," IEEE 802.3 Beyond 10km Optical PHYs Study Group, cole_optx_01c_0319, 100 Gb/s per lane optical PHYs Study Group, Vancouver, Canada, 13 March 2019.
- [6.8.] C. Cole, et al., "400GBASE-LR8 Measurement Data for Reaches >10km," IEEE 802.3 Beyond 10km Optical PHYs Study Group, cole_b10k_01_0718, San Diego, CA, 10-11 July 2018.
- [6.9.] J. King, et al., "Additional PAM4 Transmitter Constraints," IEEE 802.3 50 Gb/s, 100 Gb/s and 200 Gb/s Ethernet Task Force, king_3cd_02a_0518, Pittsburgh, PA, 22-23 May 2018.
- [6.10.] C. Cole, "100GBASE-FR2, -LR2 Baseline Proposal," IEEE 802.3 50 Gb/s, 100 Gb/s and 200 Gb/s Ethernet Task Force, cole_3cd_01a_0716, San Diego, CA, 26-28 July 2016.
- [6.11.] C. Cole, "50GBASE-FR & -LR Specification Proposal," IEEE 802.3 50 Gb/s, 100 Gb/s and 200 Gb/s Ethernet Task Force, cole_3cd_01_0516, Whistler, Canada, 23 - 25 May 2016.
- [6.12.] C. Cole, "100G 40km 4x25G NRZ LWDM APD RX Measurement Results," 100G-EPON Task Force, cole_3ca_01_0316, Macau, China, 14-16 March 2016.
- [6.13.] C. Cole, "100 Gb/s SMF PMD Specifications and Objectives Proposal," IEEE 802.3 50 Gb/s Ethernet Over a Single Lane Study Group and IEEE 802.3 Next Generation 100 Gb/s Ethernet & 200 Gb/s Ethernet Study Group, cole_50GE_NGOATH_02b_0116, Atlanta, GA, 20-22 January 2016.
- [6.14.] C. Cole, "50 Gb/s and 200 Gb/s SMF PMD Specifications & Objectives Proposal," IEEE 802.3 50 Gb/s Ethernet Over a Single Lane Study Group and IEEE 802.3 Next Generation 100 Gb/s Ethernet & 200 Gb/s Ethernet Study Group, cole_50GE_NGOATH_01_0116, Atlanta, GA, 20-22 January 2016.

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7. Contributions, IEEE 802.3, 200 Gb/s & 400 Gb/s Ethernet

- [7.1.] C. Cole, "200GBASE-FR4 & -LR4 Baseline Proposal," IEEE 802.3 200 Gb/s and 400 Gb/s Ethernet Task Force, cole_3bs_03_0516, Whistler, Canada, 25 - 27 May 2016.
- [7.2.] C. Cole, et al., "50G PAM4 CWDM TDP Measurements," IEEE 802.3 200 Gb/s and 400 Gb/s Ethernet Task Force, cole_3bs_03_0516, Whistler, Canada, 25 - 27 May 2016.
- [7.3.] C. Cole, "200Gb/s Ethernet End User Comments," IEEE 802.3 IEEE 802.3 200 Gb/s Ethernet Single-mode Fiber Study Group, cole_50GE_NGOATH_01_0316, Macau, China, 14-16 March 2016.
- [7.4.] C. Cole, et al., "400Gb/s 8x50G PAM4 WDM 2km SMF PMD Baseline Specifications," IEEE 802.3bs 400 Gb/s Ethernet Task Force, cole_3bs_01a_0715, Waikoloa, HI, 13-15 July 2015.

- [7.5.] G. Nicholl, et al., "400Gb/s 2km PMD Considerations," IEEE 802.3bs 400 Gb/s Ethernet Task Force, nicholl_3bs_03c_0715, Waikoloa, HI, 13-15 July 2015.
- [7.6.] C. Cole, "400Gb/s 2km & 10km duplex SMF PAM-4 PMD Analysis & Measurements," IEEE 802.3bs 400 Gb/s Ethernet Task Force, cole_3bs_02_0515, Pittsburgh, PA, 18-20 May 2015.
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