Technical Conference Program

OFC

The future of optical networking and communications

TECHNICAL CONFERENCE
06 – 11 June 2021

EXHIBITION
07 – 11 June 2021

ofcconference.org

IEEE ComSoc IEEE Communications Society
IEEE Photonics Society
OSA The Optical Society | 100 Since 1916

Get the Latest Advancements at OFC, a Virtual Conference and Exhibition

OFC, the largest conference for the optical communications and networking industry, will be presented in an all-virtual format, web conference format.

Participate live online or view recorded sessions later on-demand. The conference schedule, based on Pacific Daylight Time (PDT, UTC-07:00), includes programs both day and night to encourage live participation from multiple, international time zones.

The virtual format impacts how programs are delivered, not what is presented – the breadth and depth of the OFC program is intact.

Hear the Latest Research at the Virtual Technical Conference

The complete program will be presented featuring peer-reviewed presentations, 120 invited speakers in more than 100 technical sessions. Additional technical programming throughout the week includes symposia, in-depth tutorials, workshops, panels and the thought-provoking rump session.

Take a Virtual Training Course

Learn from the experts about important topics in the industry – there are 53 to choose from. Additonal fee required.

View Short Courses

Hear about New Products at the Virtual Exhibition

Although we cannot meet face-to-face this year, exhibitors will be showcasing their products virtually. The virtual exhibit allows you to learn about new products, discover new technologies, obtain product information, watch demos and view media releases. And you can still interact with exhibitors – meet one-on-one, exchange business cards or join a group chat.

Attend Business Programs on the Virtual Show Floor

Show floor programs will be presented Intact virtually. Panels of experts from global brands and key industry organizations provide high-level takes on the state of the industry, hot topics and perspectives on current and future challenges and solutions.

- **Market Watch** – Seven panel discussions including the "State of the Industry"
- **Network Operator Summit** – Keynote speaker is Neil McRae, Chief Architect at BT, followed by two panels, one on 5G and the other on data centers.
- **Data Center Summit** – Keynote speaker is Gaya Nagarajan, Director, Network Engineering at Facebook, followed by two panels covering inter- and intra- data center.
- **15 other sessions** covering intra data center connectivity, network infrastructure, optical systems and components, and standards and industry group updates.

View Show Floor Programs

Important! The conference schedule is based on Pacific Daylight Time (PDT, UTC-07:00).

Use an **online time converter** to translate session times to your local time zone. During the meeting, a more detailed program schedule will be published. When you log in to the schedule with your OSA credentials, session times will convert to your selected time zone.

	Sunday, 06 June	Monday, 07 June	Tuesday, 08 June	Wednesday, 09 June	Thursday, 10 June	Friday, 11 June
Technical Conference						
Short Courses	03:00 – 07:00 08:00 – 12:00 13:00 – 21:00	03:00 – 07:00 08:00 – 12:00 13:00 – 21:00				
OFC Workshops	05:00 – 07:30 08:00 – 10:30 13:00 – 17:30 17:00 – 19:30					
Demo Zone Presentations		05:00 – 07:00 07:30 – 09:30				
Special Sessions and Symposia		05:00 – 09:30 11:00 – 15:30	03:00 – 07:30 11:00 – 16:00	08:00 – 09:30 11:00 – 15:30	05:00 – 09:30	
Technical Sessions		10:00 – 12:00 13:00 – 15:00	03:00 – 05:00 14:00 – 16:00 17:00 – 19:00	03:00 – 05:00 19:00 – 21:00	12:30– 14:30 15:00– 17:00	03:00 – 05:00 05:30 – 07:30 10:30 – 12:30
Plenary Sessions			08:00 – 10:00			
Rump Session				06:00 – 08:00		
Poster Session				17:00 – 19:00	03:00 – 05:00	
Postdeadline Paper Session						08:00 – 10:00
Special Events						
Dedicated Exhibit Time and Technology Showcases		03:30 – 05:00 15:30 – 19:00	10:00 – 11:00 16:00 – 17:00 19:00 – 20:30	05:00 – 06:00 10:00 – 11:00 15:30 – 17:00	10:00 – 12:00 17:00 – 19:00	05:00 – 05:30 12:30 – 13:30
Market Watch			10:30 – 12:00 14:30 – 16:00	15:30 – 17:00	10:30 – 12:00 12:30 – 14:00 14:30 – 16:00	11:30 – 13:00
Data Center Summit			11:45 – 15:45			
Network Operator Summit				10:15 – 12:30 13:30 – 15:00		
Show Floor Programming			05:30– 08:00 11:00– 12:00	13:30– 14:30 17:00– 18:00	07:00 – 08:00 11:00 – 12:00 13:30 – 15:30	11:30 – 13:30

All times are PDT, UTC-07:00
* This schedule is subject to change. Please check back for updates and changes.

Plenary Speakers

The plenary speakers at OFC typically include an industrial leader and a research leader, both covering topics related to the technical core of the conference, and a visionary speaker linking topics outside OFC's focus to the conference.

Yiqun Cai

Vice President, Alibaba Group, China

Hammers and Nails: How Technologies and Applications Drive the Evolution of Networking in Alibaba

People tend to view technologies as hammers and applications as nails. Problems found in development and operations are always met with the latest technology. This talk reviews how cloud computing evolves in Alibaba to become the foundation of their infrastructures, and share their experience in building networks to enable this transition.

Young-Kai Chen

Program Manager, Microsystems Technology Office, DARPA, USA

Symbiotic Perspective of Photonics and Artificial Intelligence

Over the past decades, tremendous advances in photonics and artificial intelligence have changed our life in the real world as well as in the virtual space. This talk surveys and explores a strong coalescence of photonics and artificial intelligence to enable the next generation of communications and computing.

Nancy Shemwell

Chief Operating Officer, Trilogy Networks, USA

Industrial Revolution 4.0 — Gone Country

Unlocking the promise of technology during the Industrial Revolution 4.0 presents new opportunities and challenges throughout the modern world especially in agriculture and energy.

Trilogy Networks has made it their mission to provide 1,500,000 miles of distributed cloud support and applications across rural America. The Rural Cloud Initiative, with over 60 technology and rural carrier partners coordinating the deployment of distributed cloud networks, will bring the technology platforms required to run advanced solutions software and hardware and create an ecosystem. This discusses this initiative and the groundbreaking solutions being deployed.

Special Sessions

Symposia

Emerging Photonic Technologies and Architectures for Femtojoule per Bit Optical Networks

ORGANIZERS

Dan Blumenthal, *University of California, Santa Barbara, USA*
Argishti Melikyan, *Nokia Bell Labs, USA*
Oleg Sinkin, *TE Subcom, USA*

Addresses the energy efficiency of DCI networks and how new fJ/bit fiber link designs and technologies will be employed to realize 100 Tbps links and scalable DCIs. What are the power requirements for scalability and the bottlenecks? Which architectures can be used for efficient scaling? Is some new physics and/or good engineering necessary for fJ/bit 100 Tbps links and what technologies are candidates to commercialization? What is the role of coherent technology and connection to telecom applications outside DCIs?

On the Edge: MEC- based Network Architectures in Support of Enterprise Cloud

ORGANIZERS

Dimitra Simeonidou, *University of Bristol, UK*
Reza Nejabati, *University of Bristol, UK*
Elaine Wong, *The University of Melbourne, Australia*
Yawei Yin, *Microsoft Corp., USA*

Discusses research and practice related to architectures, design, implementation, evaluation and use of Multi-Access Edge Computing (MEC) for enterprise network solutions and applications. Panelists from industry and academia will discuss the opportunities and challenges that arise from rethinking enterprise networks by enhancing the capabilities and functionalities at the network edge.

Quantum Information Science and Technology (QIST) in the Context of Optical Communications

ORGANIZERS

Michela Svaluto Moreolo, *CTTC, Spain*
Eleni Diamanti, *CNRS, France*
Ivan Djordjevic, *University of Arizona, USA*
Helmut Griesser, *ADVA, Germany*
Dominic O'Brien, *University of Oxford, UK*

This symposium, discusses different aspects of QIST relevant for optical communications. For quantum key distribution (QKD), which is one of the most mature applications, the focus is on the integration into a communications environment, the operator perspective and deployment experiences. Technological progress and future developments for QKD will also be covered.

The second part of the symposium addresses the challenges for realizing full-scale quantum networks and the advanced applications such a network can support, like connecting quantum computers or sensors. In addition, we discuss the role integrated quantum optics can play for photonic quantum computing.

The Role of Machine Learning in Optical Systems and the Role of Optics in Machine Learning Systems

ORGANIZERS

S. J. Ben Yoo, *University of California, Davis, USA*
Manya Ghobadi, *MIT, USA*

This symposium explores optics, machine learning, and AI techniques for next-generation data centers and networking systems, both in terms of leveraging ML techniques for optical systems (ML for optics) and optical technologies for ML workloads (optics for ML) and their impacts, and use cases. It covers (a) the role of machine learning and AI techniques to effectively control, manage, and plan next-generation data centers, high-performance clusters, and communication networks, and (b) the role of emerging optical technologies in enabling disaggregated ML systems, next-generation ML/AI architectures, application-driven reconfiguration and neuromorphic computing.

Special Sessions

Taking Free Space Optical (FSO) Technologies to Market

ORGANIZERS

Harald Haas, *University of Strathclyde, UK*
Michael Watts, *Analog Photonics, USA*

There are different FSO technologies addressing different use cases. These include outdoor point-to-point FSO systems for terrestrial and also space applications; visible light communications (VLC); optical camera communications (OCC); and LiFi. Common to all these classes of FSO technologies are metrics such as: data rate, energy efficiency, distance, security, size of modem and resilience to link blockages and other channel impairments. The fundamental technological challenges, however, differ, which is reflected in transmitters and detectors. In this special session a group of four leading experts discuss the respective technical challenges and explore market opportunities for the different classes of FSO technologies.

Vision Talks: Beyond 2021 and Towards 2030

ORGANIZERS

Ramon Casellas, *CTTC, Spain*
Chris Cole, *II-VI Incorporated, USA*
Ming-Jun Li, *Corning, USA*

Looking forward to the next decade, this special session gets industry experts together to share their visions for optical fiber communications in the next decade and discuss the emerging hot topics and groundbreaking innovations.

Lessons Learned: Networks 2020 Status and Next Steps

ORGANIZERS

Steve Grubb, *Facebook, USA*
Loukas Paraschis, *Infinera, USA*

The global pandemic has had a profound effect on our networks and traffic resulting in changes in usage and behavior. These trends will persist to a large degree, now that the benefits of these are realized and fundamental behavior in how we communicate and consume information has been modified. This panel will cover the 2020 surge of traffic, but more importantly the changes in network traffic and architecture for the future.

View Symposia and Special Sessions

Open Networking Summit

Towards Converged Open Packet-optical Networks

ORGANIZERS

Filippo Cugini, *CNIT, Italy*
Wataru Ishida, *NTT Electronics America, USA*
Victor Lopez, *Telefonica, Spain*

This summit provides the most recent updates and trends on open technologies, architectures and interfaces in optical networking. Invited speakers will give their views on network disaggregation and how it is driving the design of new devices and technologies such as open optical and packet/optical transponders (e.g., Phoenix, Cassini, etc.), open source network operating system, and open planning tools. The speakers will also report on the progress in initiatives such as OpenRoadm, Telecom Infra Project, OpenConfig, and ONF. The session closes with a panel discussion where operators and vendors will debate deployment strategies, challenges in open networking and discuss the expected trends towards fully converged open packet-optical networks.

Rump Session

Did the Optics Industry Blunder by Switching Intra-Datacenter Links from NRZ to PAM4? Will More DSP like PAM6 and Coherent Follow, or Will WDM and Parallel Save the Day?

Two teams, WDM and DSP, will debate this question. Each team will present their perspective in introductory presentations followed by vigorous audience participation.

View Rump Session

OFC Virtual Demo Zone

The OFC Demo Zone features demonstrations of research projects and proof-of-concept implementations in the space of optical communication devices, systems, and networks. The 2021 OFC Demo Zone covers topics ranging from SDN/NFV and software tools/functions to software and hardware aspects on all conference topics.

This year's Demo Zone will be presented in an all-virtual format and follow the technical session style where each presenter will have 10 minutes to pitch their Demo, followed by Q & A. Following the live presentation, each presenter will provide a longer video displaying their Demo in action.

View Demo Zone Presentations

Show Floor

Keynote Speakers

NETWORK OPERATOR SUMMIT KEYNOTE

Neil McRae
Chief Architect and Managing Director Architecture and Technology Strategy, BT, UK

Connecting for Good

How far we have progressed in the past 20 years, with plenty more to look forward to, from the perspective of a major international carrier.

DATA CENTER SUMMIT KEYNOTE

Gaya Nagarajan
Director, Network Engineering, Facebook, Network Infrastructure, USA

Market Watch

This series of panel discussions engages the latest application topics and business issues in the field of optical communications. Presentations and panel sessions feature esteemed guest speakers from industry, research and the investment community.

PANEL I
State of the Industry

PANEL II
The Industrial Internet of Things, Smart Manufacturing and Industry 4.0

PANEL III
Terabit WDM Channels: Beyond 100GBaud Operation

PANEL IV
Evolution to Coherent WDM Integration in Routers

PANEL V
Next-gen Access Networks (Including Coherent Technology as an Alternative to Access Optics)

PANEL VI
Evolving Photonics Integration and Packaging

PANEL VII
Optical Interconnect and Computing for Scaling Machine Learning Systems

View Market Watch

Network Operator Summit

This dynamic program presents the inside perspective from network operators and service providers – their issues, drivers and how their requirements may impact the future of the industry. Everyone in the supply chain, from equipment manufacturer to components, will want to hear what's next in meeting the needs of network operators.

PANEL I
Reality Check for 5G Networks: Network Operator Perspective

PANEL II
Less Hyper Scale and More Co-location and Compute at the Edge?

View Network Operator Summit

Data Center Summit

This program focuses on next generation optical technologies for intra and/or inter data center connectivity. It discusses evolving data center requirements for technologies, equipment, applications and deployment scenarios in hyperscale and enterprise.

PANEL I
What is next for Inter Data Center Interconnects (DCIs)?

PANEL II
Inside the Data Center

View Data Center Summit

N5 NETWORK OPERATOR SUMMIT AND MARKET WATCH SUB-COMMITTEE CHAIR
Loukas Paraschis, *Senior Director, Cloud Transport System Engineering, Infinera, USA*

Program by Tracks and Topic Categories

OFC features an exciting roster of invited speakers and tutorial speakers to anchor the technical sessions. These experts have been carefully chosen by subcommittees of over 150 volunteers representing the 15 topic categories. They have also put together a thought-provoking program of 10 interactive workshops designed to stimulate debate and discussion on time-critical topics. Short Courses provide training from a distinguished faculty to expand your knowledge and advance your career.

The technical program and Short Courses are organized by topic category.

D1: Advances in prototypes and product developments of components and subsystems for data centers and optical networks

Invited Speakers

Polymer Waveguide-coupled Co-packaged Silicon Photonics Transceiver Modules
Takeru Amano, *National Institute of Advanced Industrial Science and Technology (AIST), Japan*

Overview and Future Challenges on III-V Laser Integration Technologies in Silicon Photonics Platform
Richard Jones, *Intel, USA*

Prototype of DSP-free IM/DD MDM Transceiver Based on Multiple- ring-core FMF for Datacenter Interconnection
Juhao Li, *Peking University, China*

Record-fast Directly Modulated Lasers
Shinji Matsuo, *NTT, Japan*

Fiber to the Server
Cyriel Minkenberg, *Rockley Photonics, UK*

>25 Gbit/s LiFi with Laser Based SMD White Light Source
James Raring, *SLD Laser, USA*

Opportunities and Challenges of Directly Modulated Lasers in Future Datacom, Data Center and 5G Applications
Tsurugi Sudo, *II-VI Incorporated, USA*

Silicon Photonics Applications for 5G and Data Centers
Rangchen (Ryan) Yu, *SiFotonics Technologies Co., Ltd., USA*

High-performance 100Gbaud Coherent Photonic Modules
Mehrdad Ziari, *Infinera Corporation, USA*

Tutorial

High Speed VCSEL Technology and Applications
Nikolay Ledentsov, *VI Systems GmBH, Germany*

Panels

Advanced Laser Technologies in Post-100Gbaud Era

Deployment Challenges of 400G Optics and Beyond

Workshops

Are We on the Right Track to Bring Co-packaged Optics to Its Prime Time?

Which Device Technologies Will Get Us Beyond 400G?

Pluggable Coherent Technologies and Applications: Where Will We Land in 5 Years?

Are Wide-Band Optical Frequency Comb Capabilities Adequate to Address Evolving Capacity Demands?

Short Courses

SC205 Integrated Electronic Circuits for Fiber Optics
Y. K. Chen, *Bell Labs (Retired), USA*

SC261 ROADM Technologies and Network Applications
Thomas Strasser, *Molex, USA*

SC347 Reliability and Qualification of Fiber-optic Components
David Maack, *David Maack Consulting, USA*

SC357 Circuits and Equalization Methods for Coherent and Direct Detection Optical Links
Alexander Rylyakov, *Nokia, USA*

SC359 Datacenter Networking 101
Hong Liu and Ryohei Urata, *Google, USA*

SC428 Link Design and Modeling for Intra Data Center Optical Interconnects
Petar Pepeljugoski, *IBM Research, USA*

SC431 Photonic Technologies in the Data Center
Clint Schow, *University of California, Santa Barbara, USA*

SC450 Design, Manufacturing, and Packaging of Opto-electronic Modules
Peter O'Brien, *Tyndall National Institute, Ireland*
Yoichi Taira, *Keio University, Japan*

D2: Passive optical devices for switching and filtering

Invited Speakers

Metasurface Integrated Photonic Circuits
Vladimir Aksyuk, *NIST, USA*

Process-variation Aware Photonic Design
Duane Boning, *MIT, USA*

Wavelength Selective Switch Components with High Spectral Resolution and Compactness
Haoshuo Chen, *Nokia Bell Labs, USA*

High-performance Polarization-handling Devices on Silicon
Daoxin Dai, *University of Zhejiang, China*

Integrated SBS Devices
Ben Eggleton, *University of Sydney, Australia*

Subwavelength Grating Metamaterial Structures for Integrated Photonics
Robert Halir, *University of Malaga, Spain*

State-of-the-art in Optical Components and Technologies for Undersea Applications
Haifeng Li, *Subcom, USA*

Large-scale Programmable Integrated Photonics
Oded Raz, *Eindhoven University of Technology, Netherlands*

Wavelength Selective Switches for Multi-core Fiber
Kazunori Seno, *NTT Photonics Laboratories, Japan*

Use of Commercially Available Passive Fiber Optic Components in Emerging Space Laser Communications Applications: Optimizing Performance, Cost and Reliability
Neal Spellmeyer, *MIT Lincoln Laboratory, USA*

Panels

THz Communication for Beyond 5G Networks

Is Optical Switching Finally Ready for Large-scale Deployment in Datacenters and Advanced Networks?

Workshop

Will Multiband, Multidimensional, SDM Effectively Address the Need for Increased Network Capacity?

Short Courses

SC261 ROADM Technologies and Network Applications
Thomas Strasser, *Molex, USA*

SC267 Silicon Microphotonics: Technology Elements and the Roadmap to Implementation
Lionel Kimerling, *MIT, USA*

SC325 Highly Integrated Monolithic Photonic Integrated Circuits
Chris Doerr, *Doerr Consulting, LLC, USA*

SC432 Hands-on: Silicon Photonics Component Design & Fabrication
Lukas Chrostowski, *University of British Columbia, Canada*

SC454 Hands-on: Introduction to Silicon Photonics Circuit Design
Wim Boegarts, *University of Ghent, Belgium*

SC473 Photonic Switching Systems
David Neilson, *Nokia Bell Labs, USA*
Benjamin Lee, *IBM, USA*

D3: Active optical devices and photonic integrated circuits

Invited Speakers

Optical Modulator Based on TMD
Michal Lipson, *Columbia University, USA*

All-optical Switching with Graphene-loaded Plasmonic Waveguides in the Femtojoule and Femtosecond Range
Masaaki Ono, *NTT Corporation, Japan*

Photonic Assisted Computing
Wolfram Pernice, *University of Münster, Germany*

Silicon and Neuromorphic Photonics
Bhavin Shastri, *Queen's University, Canada*

A Poor Man's Ising Machine
Guy Van der Sande, *Free University of Brussels, Belgium*

Title TBD
Yi Yang, *MIT, USA*

Tutorials

Silicon Photonics for 2-2.5um Wavelengths
Goran Mashanovich, *University of South Hampton, UK*

Analog ASIC for Silicon Photonics
Alexander Rylyakov, *Nokia Bell Labs, USA*

Panel

Advanced Laser Technologies in Post-100Gbaud Era

Workshops

Which Device Technologies Will Get Us Beyond 400G?

Will Multiband, Multidimensional, SDM Effectively Address the Need for Increased Network Capacity?

Is Photonics Integration Ready for Next-generation Optical Access Demands?

Optical Signal Processing: Neuromorphic Computing and Quantum Information Processing

Short Courses

SC177 High-speed Semiconductor Lasers and Modulators
John Bowers, *University of California, Santa Barbara, USA*

SC205 Integrated Electronic Circuits for Fiber Optics
Y. K. Chen, *Bell Labs (Retired), USA*

SC267 Silicon Microphotonics: Technology Elements and the Roadmap to Implementation
Lionel Kimerling, *MIT, USA*

SC325 Highly Integrated Monolithic Photonic Integrated Circuits
Chris Doerr, *Doerr Consulting, LLC, USA*

SC357 Circuits and Equalization Methods for Coherent and Direct Detection Optical Links
Alexander Rylyakov, *Nokia, USA*

SC431 Photonic Technologies in the Data Center
Clint Schow, *University of California, Santa Barbara, USA*

SC432 Hands-on: Silicon Photonics Component Design & Fabrication
Lukas Chrostowski, *University of British Columbia, Canada*

SC433 Introduction to Photodetectors and Optical Receivers
Andreas Beling, *University of Virginia, USA*

SC454 Hands-on: Introduction to Silicon Photonics Circuit Design
Wim Boegarts, *University of Ghent, Belgium*

SC486 Optoelectronic Devices for LIDAR and High-BW or 3D Sensing
Martin Zirngibl, *II-VI Incorporated, USA*
Cibby Pulikkaseril, *Baraja, Australia*

D4: Fibers and Propagation Physics

Invited Speakers

Modelling of the Time Dynamics of Inter-core Crosstalk in Multi-core Fibers
Tiago Alves, *Instituto De Telecomunicacoes, Portugal*

Multicore Optical Fibers and Devices: Design, Manufacturing and Applications
Jose Antonio-Lopez, *CREOL, University of Florida, USA*

Dynamic Skew in Multi-core Fibers: From Lab Measurements to Field Trials
Ruben Luis, *National Institute of Information and Communications Technology, Japan*

Standard Cladding Diameter MCF Fiber Technology
Takashi Matsui, *NTT Corporation, Japan*

Learning to See through Multimode Fibers
Christophe Moser, *Swiss Federal Institute of Technology Lausanne, Switzerland*

Opportunities and Challenges for Long Distance Transmission in Hollow-core Fibres
Pierluigi Poggiolini, *Polytechnic of Turin, Italy*

Tutorials

Spectral and Spatial Shaping of Light in Multimode Fibers
Joel Carpenter, *University of Queensland, Australia*

Multi-core Fiber Technology for SDM: Coupling Mechanisms and Design
Kunimasa Saitoh, *Hokkaido University, Japan*

Workshops

Are We on the Right Track to Bring Co-packaged Optics to Its Prime Time?

Will Multiband, Multidimensional, SDM Effectively Address the Need for Increased Network Capacity?

Are Wide-band Optical Frequency Comb Capabilities Adequate to Address Evolving Capacity Demands?

Low Latency Communications — Where Do We Need It? How To Achieve It?

Short Courses

SC208 Optical Fiber Design for Telecommunications and Specialty Applications
David J. DiGiovanni, *OFS Labs, USA*

SC347 Reliability and Qualification of Fiber-optic Components
David Maack, *David Maack Consulting, USA*

D5: Fiber-optic and waveguide devices and sensors

Invited Speakers

Fiber Lasers with Regular and Random Distributed Feedback
Sergey Babin, *Institute of Automation and Electrometry, Russia*

Meeting Industrial Needs with Optical Fibre Sensors
Kenneth Grattan, *City University of London, UK*

Neuromorphic Photonics for Mitigation of Fiber Transmission Impairments
Chaoran Huang, *Princeton University, USA*

Power Efficient SDM Amplifier
Saurabh Jain, *University of Southampton, UK*

Multimode/Multicore Edfas
Sophie LaRochelle, *Laval University, Canada*

Wideband PPLN-based Optical Parametric Amplifiers for Scalable Optical Transport Network
Yutaka Miyamoto, *NTT Network Innovation Laboratories, Japan*

Giant Brillouin Amplification in Gas Using Hollow-core Fiber
Luc Thévenaz, *Ecole Polytechnique Federale de Lausanne, Switzerland*

Tutorial

Silicon-photonics-based Spectroscopic Sensing for Environmental Monitoring and Health Care
Roel Baets, *University of Ghent, INTEC, Belgium*

Workshops

Low Latency Communications — Where Do We Need It? How To Achieve It?

Optical Signal Processing: Neuromorphic Computing and Quantum Information Processing

Short Courses

SC208 Optical Fiber Design for Telecommunications and Specialty Applications
David J. DiGiovanni, *OFS Labs, USA*

SC451 Optical Fiber Sensors
Alexis Mendez, *MCH Engineering, USA*
William Shroyer, *SageRider Inc., USA*

SC459 Multimode Photonic Devices, Characterization and Applications
Nicolas Fontaine, *Nokia Bell Labs, USA*

TRACK S: SYSTEMS AND SUBSYSTEMS

S1: Digital subsystems and systems for data centers

Invited Speakers

Optical Switching for Memory-disaggregated Datacenters
Nicola Calabretta, *Eindhoven University of Technology, Netherlands*

Silicon-photonics Segmented MZM Design Enabling 200G IMDD Transmissions
Maxime Jacques, *McGill University, Canada*

Coherent Technologies for Datacenter Applications
Joseph Kahn, *Stanford University, USA*

Free Space Optics for the Datacenter
Mohsen Kavehrad, *Pennsylvania State University, USA*

Interoperable Coherent Optics for Extended Reach Assisting Data Center Evolutions
Atul Srivastava, *NEL-America, USA*

Current State and Outlook on High-bandwidth In-package Optics
Mark Wade, *Ayar Labs, USA*

Coherent Silicon Photonics Subassembly for High Data-rate Signal Transmission
Shogo Yamanaka, *NTT Photonics Laboratories, Japan*

Tutorial

Performance Oriented DSP Design for Flexible Coherent Transmission in Data Centers
Han Henry Sun, *Infinera Corporation, Canada*

Workshops

Which Device Technologies Will Get Us Beyond 400G?

Optical Wireless Communications: What Is Stopping Us?

Short Courses

SC178 Test and Measurement for Data Center/ Short Reach Communications
Greg D. Le Cheminant, *Keysight Technologies, USA*

SC203 400 Gb/s and Beyond Optical Communication Systems, Design and Design Trade-offs
Ezra Ip, *NEC Labs, USA*
Chongjin Xie, *Alibaba Group, USA*

SC205 Integrated Electronic Circuits for Fiber Optics
Y. K. Chen, *Bell Labs (Retired), USA*

SC328 Standards for High-speed Optical Networking
Tom Huber, *Nokia, USA*

SC357 Circuits and Equalization Methods for Coherent and Direct Detection Optical Links
Alexander Rylyakov, *Nokia, USA*

SC428 Link Design and Modeling for Intra Data Center Optical Interconnects
Petar Pepeljugoski, *IBM Research, USA*

SC461 High-capacity Data Center Interconnects for Cloud-scale Networking
Mark Filer, *Microsoft, USA*
Sander L. Jansen, *ADVA Optical Networking, Germany*
Dirk van den Borne, *Juniper Networks, Germany*

S2: Optical, photonic and microwave photonic subsystems

Invited Speakers

Nanophotonic Phase Noise Filter in Silicon
Firooz Aflatouni, *University of Pennsylvania, USA*

Photonic Integrated Circuits for Thz Communication
Guillermo Carpintero, *University Carlos III of Madrid, Spain*

Whole Band Wavelength Conversion for Wideband Transmission
Tomoyuki Kato, *Fujitsu Laboratories Ltd., Japan*

Integrated Microwave Photonic Filters
Yang Liu, *University of Sydney, Australia*

Fast Clock Recovery to Enable Burst-mode Optically-switched Networks
Zhixin Liu, *University College London, UK*

Brillouin Laser Gyroscope
Myoung-Gyun Suh, *NTT Research Inc, USA*

Opto-mechanical Inter-core Cross-talk in Multi-core Fibers
Avinoam Zadok, *Bar-Ilan University, Israel*

Tutorials

Programmable Silicon Photonic Circuits
Wim Bogaerts, *Ghent University, Belgium*

Thz Integrated Electronic and Hybrid Electronic-photonic Systems
Kaushik Sengupta, *Princeton University, USA*

Workshop

Are Wide-Band Optical Frequency Comb Capabilities Adequate to Address Evolving Capacity Demands?

Short Courses

SC443 Optical Amplifiers: From Fundamental Principles to Technology Trends
Peter Andrekson, *Chalmers University of Technology, Sweden*
Michael Vasilyev, *University of Texas at Arlington, USA*

S3: Radio-over-fiber, free-space and sensing subsystems and systems

Invited Speakers

Underwater and Water-air Optical Wireless Communication
Lian-Kuan Chen, *Chinese University of Hong Kong, Hong Kong*

High-speed and Wide Fov Autonomous Beamformer Driving Forward to 4D Resource Allocation in 6G RAN Era
You-Wei Chen, *Georgia Institute of Technology, USA*

Distributed Acoustic Sensing for Seismic Monitoring
Miguel Gonzalez-Herraez, *University of Alcala, Spain*

Positioning Using Visible Light Systems
Steve Hranilovic, *McMaster University, Canada*

Wireless Body-area Networks (Wbans) in Medical Applications Using Optical Signal Transmission
Mohammad-Ali Khalighi, *Fresnel Institut, France*

Machine Learning for Distributed Optical Fiber Sensing
Sascha Liehr, *DiGOS Potsdam GmbH, Germany*

Millimeter-wave and Terahertz Photonics for Communications and Sensors
Tadao Nagatsuma, *Osaka University, Japan*

Tutorial

Distributed Optical Fiber Sensor for Oil and Gas Industry and Agricultural Applications
Boon S. Ooi, *King Abdullah University of Science & Technology, Saudi Arabia*

Panel

THz Communication for Beyond 5G Networks

Workshop

Optical Wireless Communications: What is Stopping Us?

Short Course

SC217 Applications of Radio-over-fiber Technologies Including Future 5G Networks
Dalma Novak, *Octane Wireless, USA*

S4: Digital and electronic subsystems

Invited Speakers

Symbol-pattern-dependent Adaptive Equalization for Coherent Optical Fiber Communication Systems
Yi Cai, *ZTE Tx Inc., USA*

End-to-end Deep Learning of Optical Fiber Communications
Boris Karanov, *University College London, UK*

Advanced Nonlinear Digital Signal Processing for Short-reach Applications
Xiang Li, *University of Cambridge, UK*

Techniques for Subsea Applications
Massimiliano Salsi, *Google, USA*

Nonlinear Impairment Compensation Using Neural Networks
Fatih Yaman, *NEC Laboratories America Inc., USA*

Tutorials

Beyond 1 Tbit/S Transmission Using High-speed Dacs and Analog Multiplexing
Fred Buchali, *Nokia Bell Labs, Germany*

Advanced Direct Detection Schemes
William Shieh, *The University of Melbourne, Australia*

Panel

Deployment Challenges of 400G Optics and Beyond

Workshops

Are We on the Right Track to Bring Co-packaged Optics to its Prime Time?

Pluggable Coherent Technologies and Applications: Where Will We Land In 5 Years?

Optical Signal Processing: Neuromorphic Computing and Quantum Information Processing

Short Courses

SC105 Modulation Formats and Receiver Concepts for Optical Transmission Systems
Peter Winzer, *Nubis Communications, USA*
Xi Vivian Chen, *Nokia Bell Labs, USA*

SC114 Technologies and Applications for Passive Optical Networks (PONs)
Yuanqiu Luo, *Futurewei Technologies, USA*

SC205 Integrated Electronic Circuits for Fiber Optics
Y. K. Chen, *Bell Labs (Retired), USA*

SC328 Standards for High-speed Optical Networking
Tom Huber, *Nokia, USA*

SC341 Sub-carrier Modulation and Superchannels for Terabit-class DWDM Transceivers
Sander L. Jansen, *ADVA Optical Networking, Germany*
Dirk van den Borne, Juniper Networks, Germany

SC357 Circuits and Equalization Methods for Coherent and Direct Detection Optical Links
Alexander Rylyakov, *Nokia, USA*

SC369 Test and Measurement for Signals with Complex Optical Modulation
Michael Koenigsmann and Bernd Nebendahl, *Keysight Technologies, Germany*

SC384 Background Concepts of Optical Communication Systems
Alan Willner, *University of Southern California, USA*

SC390 Introduction to Forward Error Correction
Georg Böcherer, *Huawei Technologies, Technical University of Munich, Germany*

SC393 Digital Signal Processing for Coherent Optical Transceivers
Chris Fludger, *Infinera, Germany*

SC395 Modeling and Simulation of Optical Transmitter and Receiver Components for Coherent Communications
Harald Rohde, *Nokia, Germany*
Howard Wang, *Nokia, USA*

SC408 Space Division Multiplexing for Optical Communication Systems and Networks
Roland Ryf, *Nokia Bell Labs, USA*

SC452 FPGA Programming for Optical Subsystem Prototyping
Robert Elschner, Fraunhofer HHI, Germany
Noriaki Kaneda, *Nokia Bell Labs, USA*

SC460 Digital Coherent Optical System Performance Basics
John Cartledge, *Queen's University, Canada*
Maurice O'Sullivan, *Ciena, Canada*

SC468 Advanced FEC Techniques for Optical Communications
Laurent Schmalen, *Karlsruhe Institute of Technology (KIT), Germany*

SC469 Hands-on: Laboratory Automation and Control Using Python (Beginner)
Jochen Schröder, *Chalmers University of Technology, Sweden*
Binbin Guan, *Microsoft, USA*
Roland Ryf, *Nokia Bell Labs, USA*

SC483 Machine Learning in Optical Networks
Massimo Tornatore, *Polytechnic University of Milan, Italy*
Darko Zibar, *DTU Fotonik, Denmark*

SC487 Hands-on: Laboratory Automation and Control Using Python (Advanced)
Nicolas Fontaine, *Nokia Bell Labs, USA*
Binbin Guan, *Microsoft, USA*
Jochen Schröder, *Chalmers University of Technology, Sweden*

S5: Digital transmission systems

Invited Speakers

Real-time MIMO-DSP Technologies for SDM Systems
Shohei Beppu, *KDDI, Japan*

Techno-economic Analysis of Multicore Fibers in Submarine Systems
John Downie, *Corning Inc., USA*

Recent Breakthroughs in Hollow Core Fiber Technology
Gregory Jasion, *Southampton University, UK*

High Spectrum Efficiency and High Capacity Transmission for 800Gbps and Beyond
Asuka Matsushita, *NTT Corporation, Japan*

High-data Rate Long Haul SDM Transmission
Georg Rademacher, *National Inst of Information & Comm Tech, Japan*

Optical Amplifiers for Wideband Optical Transmission Systems
Lutz Rapp, *ADVA Optical Networking SE, Germany*

Tutorials

Quantum Limits in Optical Communications
Konrad Banaszek, *University of Warsaw, Poland*

Application of Perturbation Theory in the Performance Analysis of Fiber-optic Transmission Systems
Amirhossein Ghazisaeidi, *Nokia Bell Labs France, France*

Panel

Single Fiber SDM Cable Commercialization: Impact to Subsea Eco-System

Workshops

Which Device Technologies Will Get Us Beyond 400G?

Will Multiband, Multidimensional, SDM Effectively Address the Need for Increased Network Capacity?

Cognitive Network Automation: How Smart Can Optical Transport Networks Be?

Short Courses

SC102 WDM in Long-haul Transmission Systems
Neal S. Bergano, *Retired, USA*

SC203 400 Gb/s and Beyond Optical Communication Systems, Design and Design Trade-offs
Ezra Ip, *NEC Labs, USA*
Chongjin Xie, *Alibaba Group, USA*

SC327 Modeling and Design of Long-haul Fiber-optic Communication Systems
Rene-Jean Essiambre, *Nokia Bell Labs, USA*

SC341 Sub-carrier Modulation and Superchannels for Terabit-class DWDM Transceivers
Sander L. Jansen, *ADVA Optical Networking, Germany*
Dirk van den Borne, *Juniper Networks, Germany*

SC384 Background Concepts of Optical Communication Systems
Alan Willner, *University of Southern California, USA*

SC408 Space Division Multiplexing for Optical Communication Systems and Networks
Roland Ryf, *Nokia Bell Labs, USA*

SC429 Advances in Flexible Photonic Networks and Open Architectures
David Boertjes, *Ciena, Canada*

SC460 Digital Coherent Optical System Performance Basics
John Cartledge, *Queen's University, Canada*
Maurice O'Sullivan, *Ciena, Canada*

SC469 Hands-on: Laboratory Automation and Control Using Python (Beginner)
Binbin Guan, *Microsoft, USA*
Roland Ryf, *Nokia Bell Labs, USA*
Jochen Schröder, *Chalmers University of Technology, Sweden*

SC470 Secure Optical Communications Andrew Shields, Toshiba Research Europe Ltd., UK
Helmut Griesser, *ADVA Optical Networking SE, Germany*
Andrew Shields, *Toshiba Research Labs, UK*

SC487 Hands-on: Laboratory Automation and Control Using Python (Advanced)
Nicolas Fontaine, *Nokia Bell Labs, USA*
Binbin Guan, Microsoft, USA
Jochen Schröder, *Chalmers University of Technology, Sweden*

N1: Advances in system, network and service developments and field trials in commercial data centers and networks

Invited Speakers

Low Cost Optical Access Technologies for Wireless X-Haul — What are the Optimal Deployment Scenarios
Pascal Dom, *Nokia Corporation, Finland*

Standardization for Coherent System: Methodology and Specification
Tad Hofmeister, *Google, USA*

Distributed Fiber Sensor Network Using Telecom Cables as Sensing Media: Technology Advancements and Applications
Ezra Ip, *NEC Laboratories America Inc, USA*

Google Fiber Deployments: Lessons Learned and Future Directions
Cedric Lam, *Google, USA*

Terrestrial and Submarine Field Trial Results with Next Generation Coherent Transponders
Jeff Rahn, *Facebook Inc., USA*

Optimization of Power Efficient SDM Submarine Cables Using Machine Learning
Jeremie Renaudier, *Nokia Bell Labs, France*

Network Use Cases of ZR Optics, State of Development and Standardisation
Walid Wakim, *Cisco Systems Inc., USA*

5G-ready Railway Trial Utilizing Integrated Optical Passive WDM Access and Broadband Millimeter Wave
Jim Zou, *ADVA Optical Networking SE, Germany*

Tutorial

Fiber Sensing in Existing Telecom Fiber Networks
Glenn Wellbrock, *Verizon Communications Inc., USA*

Panels

Challenges of Coherent Transponders Approaching the Shannon Limit

Single Mode Fiber SDM Cable Commercialization: Impact to Subsea Eco-system

Short Courses

SC328 Standards for High-speed Optical Networking
Tom Huber, *Nokia, USA*

SC429 Advances in Flexible Photonic Networks and Open Architectures
David Boertjes, *Ciena, Canada*

SC447 The Life Cycle of an Optical Network: From Planning to Decommissioning
Andrew Lord, *BT Labs, BT, UK*

SC461 High-capacity Data Center Interconnects for Cloud-scale Networking
Mark Filer, *Microsoft, USA*
Sander L. Jansen, *ADVA Optical Networking, Germany*
Dirk van den Borne, *Juniper Networks, Germany*

SC463 Optical Transport SDN: Architectures, Applications and Actual Implementations
Achim Autenrieth and Jörg-Peter Elbers, *ADVA Optical Networking SE, Germany*

SC464 Software Defined Networking in the Cloud — Designs, Operations and Management
David Maltz, *Microsoft, USA*

SC472 Hands-on: Controlling and Monitoring Optical Network Equipment
Ricard Vilalta, *CTTC, Spain*

N2: Optical networking for data center and computing applications

Invited Speakers

Towards Ultra-efficient Nanophotonic AI Acceleration: From a Computer Architecture Perspective
Koji Inoue, *Kyushu University, Japan*

Time Stretch Computing for Ultrafast Single-shot Data Acquisition and Inference
Bahram Jalali, *University of California, Los Angeles, USA*

Optical Networks for Memory-driven Computing
Terry Morris, *Hewlett Packard Enterprise, Servers, USA*

High-performance Neuromorphic Computing Based on Photonics Technologies
Bert Offrein, *IBM Research GmbH, Switzerland*

Energy-efficient, Scalable and Reconfigurable Data Centers with Flexible Bandwidth SiPh All-to-all Fabrics
Roberto Proietti, *University of California, Davis, USA*

Scaling Data Centres with Optical Network
Katharine Schmidtke, *Facebook Inc., USA*

Optical Interconnects for Large Scale Computing Systems: Trends and Challenges
Marc Taubenblatt, *IBM TJ Watson Research Center, USA*

Tutorial

Photonic Technologies in Data Center
Clint Schow, *University of California, Santa Barbara, USA*

Panels

Pros and Cons of Low-margin Optical Networks

Is Optical Switching Finally Ready for Large-scale Deployment in Datacenters and Advanced Networks?

Workshop

Optical Signal Processing: Neuromorphic Computing and Quantum Information Processing

Short Courses

SC359 Datacenter Networking 101
Hong Liu and Ryohei Urata, *Google, USA*

SC448 Software Defined Networking for Optical Networks: A Practical Introduction
Ramon Casellas, *CTTC, Spain*

SC464 Software Defined Networking in the Cloud — Designs, Operations and Management
David Maltz, *Microsoft, USA*

SC472 Hands-on: Controlling and Monitoring Optical Network Equipment
Ricard Vilalta, *CTTC, Spain*

N3: Architecture and software- defined control for metro and core networks

Invited Speakers

Machine Learning Aided Control to Scale to Large Size Optical Networks
Andrea Bianco, *Polytechnic University of Turin, Italy*

Autonomous Security Management in Optical Networks
Marija Furdek, *Chalmers University of Technology, Sweden*

Hierarchical SDN, Open Data Models (Multi-layer)
Ori Gerstel, *Sedona Systems, Israel*

Optical Continuum Architectures for Beyond 5G Domainless Network Operation
Oscar Gonzalez de Dios, *Telefonica, Spain*

Modeling and Automating Fully Disaggregated Optical Networks
Kiyo Ishii, *AIST Tokyo, Japan*

Toward 6G: A New Era of Convergence
Martin Maier, *Optical Zeitgeist Laboratory, INRS, Canada*

Telemetry Solutions in Disaggregated Optical Networks: An Experimental View
Francesco Paolucci, *Sant'Anna School of Advanced Studies, Italy*

Reducing Network Design Margins
Jelena Pesic, *Nokia Bell Labs, France*

Tutorials

Machine Learning for Failure Management in Optical Networks
Franesco Musumeci, *Polytechnic University of Milan, Italy*

How Intent-based Networking Can be Embedded within Transport Optical Networks
Luis Velasco, *Polytechnic University of Catalonia, Spain*

Panel

Pros and Cons of Low-margin Optical Networks

Workshops

Pluggable Coherent Technologies and Applications: Where Will We Land in 5 Years?

Cognitive Network Automation: How Smart Can Optical Transport Networks Be?

Short Courses

SC261 ROADM Technologies and Network Applications
Thomas Strasser, *Molex, USA*

SC328 Standards for High-speed Optical Networking
Tom Huber, *Nokia, USA*

SC429 Advances in Flexible Photonic Networks and Open Architectures
David Boertjes, *Ciena, Canada*

SC448 Software Defined Networking for Optical Networks: A Practical Introduction
Ramon Casellas, *CTTC, Spain*

SC463 Optical Transport SDN: Architectures, Applications and Actual Implementations
Achim Autenrieth and Jörg-Peter Elbers, *ADVA Optical Networking SE, Germany*

SC472 Hands-on: Controlling and Monitoring Optical Network Equipment
Ricard Vilalta, *CTTC, Spain*

SC483 Machine Learning in Optical Networks
Massimo Tornatore, *Polytechnic University of Milan, Italy*
Darko Zibar, *DTU Fotonik, Denmark*

SC484 Transport Evolution Due to Cloud Services and Network Resiliency
Loukas Paraschis, *Infinera, USA*

N4: Optical access networks for fixed and mobile services

Invited Speakers

Lessons Learned from A Tactile Internet Testbed: An Access Network Perspective
Hwan Seok Chung, *Electronics and Telecom Research Institute, Korea*

Choosing the Right Network-as-a Service Deployment Model
Eric Heaton, *Intel Corp., USA*

Comparative Study of Coherent and Direct Detection Schemes for Future 100 Gb/s/λ PON
Weisheng Hu, *Shanghai Jiaotong University, China*

Digital Coherent PON Technologies for Beyond 100G Optical Access
Naoki Suzuki, *Mitsubishi Electric Corporation, Japan*

Packet Optical Networks and SDN at the Edge
Marina Thottan, *Nokia Bell Labs, USA*

Advanced Burst-mode Receiving and Equalization Techniques for PONS
Xin Yin, *Ghent University, Belgium*

Tutorials

Use of PONs for High-capacity, Low Latency Services
Thomas Pfeiffer, *Nokia Bell Labs, Germany*

4G to 6G: Disruption and Drivers for Optical Access
Chathurika Ranaweera, *Deakin University, Australia*

Panel

PON Disaggregation, from SDN Abstraction to Full Virtualization: Benefits, Obstacles and Trends

Workshops

Is Photonics Integration Ready for Next-Generation Optical Access Demands?

Low Latency Communications — Where Do We Need It? How to Achieve It?

Optical Wireless Communications: What is Stopping Us?

Short Courses

SC114 Technologies and Applications for Passive Optical Networks (PONs)
Yuanqiu Luo, *Futurewei Technologies, USA*

SC444 Optical Communication Technologies for 5G
Xiang Liu, *Futurewei Technologies, USA*

SC483 Machine Learning in Optical Networks
Massimo Tornatore, *Polytechnic University of Milan, Italy*
Darko Zibar, *DTU Fotonik, Denmark*

SC485 Advanced Fiber Access Networks
Cedric F. Lam and Shuang Yin, *Google, USA*

Short Course Schedule

These times are based on Pacific Daylight Time (PDT, UTC-07:00).

Sunday, 06 June		
3:00 – 7:00	**SC369**	Test and Measurement for Signals with Complex Optical Modulation
	SC452	FPGA Programming for Optical Subsystem Prototyping
	SC463	Optical Transport SDN: Architectures, Applications, and Actual Implementations
4:00 – 7:00	**SC470**	Secure Optical Communications
8:00 – 12:00	**SC105**	Modulation Formats and Receiver Concepts for Optical Transmission Systems
	SC203	400 Gb/s and Beyond Optical Communication Systems, Design and Design Trade-offs
	SC208	Optical Fiber Design for Telecommunications and Specialty Applications
	SC390	Introduction to Forward Error Correction
	SC395	Modeling and Simulation of Optical Transmitter and Receiver Components for Coherent Communications
	SC461	High-capacity Data Center Interconnects for Cloud-scale Networking
9:00 – 12:00	**SC217**	Applications of Radio-over-fiber Technologies Including Future 5G Networks
	SC433	Introduction to Photodetectors and Optical Receivers
	SC444	Optical Communication Technologies for 5G
13:00 – 17:00	**SC267**	Silicon Microphotonics: Technology Elements and the Roadmap to Implementation
	SC384	Background Concepts of Optical Communication Systems
14:00 – 17:00	**SC205**	Integrated Electronic Circuits for Fiber Optics
	SC460	Digital Coherent Optical System Performance Basics
	SC484	Transport Evolution Due to Cloud Services and Network Resiliency
	SC485	Advanced Fiber Access Networks
17:00 – 21:00	**SC432**	**Hands-on:** Silicon Photonics Component Design & Fabrication
	SC469	**Hands-on:** Laboratory Automation and Control Using Python (Beginner)
18:00 – 21:00	**SC177**	High-speed Semiconductor Lasers and Modulators
	SC428	Link Design and Modeling for Intra Data Center Optical Interconnects

Monday, 07 June		
3:00 – 7:00	SC160	Microwave Photonics
	SC341	Sub-carrier Modulation and Superchannels for Terabit-class DWDM Transceivers
	SC393	Digital Signal Processing for Coherent Optical Transceivers
	SC448	Software Defined Networking for Optical Networks: A Practical Introduction
	SC454	**Hands-on:** Introduction to Silicon Photonics Circuit Design
	SC468	Advanced FEC Techniques for Optical Communications
	SC483	Machine Learning in Optical Networks
Monday, 07 June (continued)		
4:00 – 7:00	SC447	The Life Cycle of an Optical Network: From Planning to Decommissioning
	SC450	Design, Manufacturing, and Packaging of Opto-electronic Modules
8:00 – 12:00	SC325	Highly Integrated Monolithic Photonic Integrated Circuits
	SC327	Modeling and Design of Long-haul Fiber-optic Communication Systems
	SC328	Standards for High-Speed Optical Networking
	SC347	Reliability and Qualification of Fiber-Optic Components, Modules and Equipment
	SC357	Circuits and Equalization Methods for Coherent and Direct Detection Optical Links
	SC443	Optical Amplifiers: From Fundamental Principles to Technology Trends
	SC472	**Hands-on:** Controlling and Monitoring Optical Network Equipment
	SC473	Photonic Switching Systems
9:00 – 12:00	SC261	ROADM Technologies and Network Applications
	SC429	Advances in Flexible Photonic Networks and Open Architectures
13:00 – 17:00	SC102	WDM in Long-haul Transmission Systems
	SC431	Photonic Technologies in the Datacenter
	SC451	Optical Fiber Sensors
14:00 – 17:00	SC114	Technologies and Applications for Passive Optical Networks (PONs)
	SC359	Datacenter Networking 101
	SC460	Digital Coherent Optical System Performance Basics
	SC464	Software Defined Networking in the Cloud - Designs, Operations, and Management
	SC486	Optoelectronic Devices for LIDAR and High-BW or 3D Sensing
17:00 – 21:00	SC178	Test and Measurement for Data Center/Short Reach Communications
	SC487	**Hands-on:** Laboratory Automation and Control using Python (Advanced)
18:00 – 21:00	SC408	Space Division Multiplexing for Optical Communication Systems and Networks
	SC459	Multimode Photonic Devices, Characterization and Applications

Meet with OFC Exhibitors

Although we cannot meet face-to-face this year, over 90 exhibitors want to meet with you and tell you about their new products. You can interact with gold and silver exhibitors – meet one-on-one and exchange business cards or join a group chat. 15 other exhibitors have information on their company and products in their booth.

Dedicated Exhibit and Technology Showcase Hours

All times are Pacific Daylight Time (PDT, UTC-07:00)

	Monday, 07 June	Tuesday, 08 June	Wednesday, 09 June	Thursday, 10 June	Friday, 11 June
Dedicated Exhibit Hours Gold and Silver exhibitors will have staff in their booth during dedicated Exhibit Hours. Check the booths for others hours when staff will be available.	03:30 – 05:00 15:30 – 19:00	10:00 – 11:00 16:00 – 17:00 19:00 – 20:30	05:00 – 06:00 10:00 – 11:00 15:30 – 17:00	10:00 – 11:00 17:00 – 19:00	05:00 – 05:30 12:30 – 13:30
Technology Showcase Hours	03:30 – 05:00 15:30 – 19:00	10:00 – 11:00 16:00 – 17:00	05:00 – 06:00 10:00 – 11:00 15:30 – 16:00	10:00 – 12:00 17:00 – 18:00	

Exhibitors Presenting Technology Showcases

3M
Tuesday, 08 June
16:30 – 17:00

AIM Photonics
Wednesday, 09 June
05:30 – 06:00

Corning
Thursday, 10 June
10:00 – 10:30

EFFECT Photonics B.V.
Monday, 07 June
03:30 – 04:00

Infinera
Tuesday, 08 June
10:30 – 11:00
Wednesday, 09 June
10:30 – 11:00

Jabil
Monday, 07 June,
18:00 – 18:30

Juniper Networks
Monday, 07 June
15:30 – 16:00
16:00 – 16:30
16:30 – 17:00

Keysight Technologies
Monday, 07 June
17:30 – 18:00

Luna Innovations
Monday, 07 June
18:30 – 19:00

Lumentum
Thursday, 10 June
11:00 – 11:30

Murata
Wednesday, 09 June
05:00 – 05:30

Nokia of America Corporation
Thursday, 10 June
10:30 – 11:00

Pi
Monday, 07 June
04:00 – 04:30

Renesas
Wednesday, 09 June
10:00 – 10:30

Ribbon
Monday, 07 June
04:30 – 05:00

Samtec
Thursday, 10 June
11:30 – 12:00

Sicoya GmbH
Wednesday, 09 June
15:30 – 16:00

Synopsys
Thursday, 10 June
17:00 – 17:30

Tektronix
Tuesday, 08 June
16:00 – 16:30

Telescent
Thursday, 10 June
17:30 – 18:00

Xilinx
Tuesday, 08 June
10:00 – 10:30

See Who is Exhibiting (as of 5.11.21)

GOLD AND SILVER BOOTHS

3M
AC Photonics, Inc.
Acacia Communications
ADVA Optical Networking North America, Inc.
Advanced Micro Foundry
AIM Photonics
Ajinomoto Fine-Techno USA Corp.
Amphenol
Anritsu Company
Arium Stream
AVX Corporation
Axetris AG
Bristol Instruments, Inc.
Broadcom Inc.
Cadence Design Systems
CIENA Corporation
Cisco Systems, Inc.
Corning
CRXCONEC Company Ltd.
EFFECT Photonics B.V.
Ethernet Alliance
Fiber Optic Center, Inc.
FiberPro, Inc.
Fraunhofer Heinrich Hertz Institute
Fujitsu Optical Components
GLOBALFOUNDRIES
Go!Foton
Gowanda Components Group
Guilin GLsun Science and Tech Group Co., LTD
Henan Shijia Photons Technology Co., Ltd.
HUBER+SUHNER
HYC Co., Ltd.
II-VI Incorporated
Infinera
InnoLight
Innovium
Intel Corporation
Jabil
Juniper Networks
Keysight Technologies
KGS America
Linktel Technologies Co., Ltd.
Lumentum
Lumentum
Lumibird
Luna Innovations
MACOM
Marvell
MaxLinear
Mitsubishi Electric US, Inc.
MKS Instruments
MPB Communications, Inc.
MPI Corporation
MRSI Systems
MultiLane
Murata
NeoPhotonics
NetQuest Corporation
Nokia of America Corporation
NTT Advanced Technology Corporation
NTT Electronics America, Inc.
NTT Electronics Corporation
OFS
Optella
OptoTest Corporation
OZ Optics
Photonics Manufacturing Services
PI (Physik Instrumente) LP
POET Technologies, Inc.
Point2 Technology, Inc.
PPI Inc.
Raith America, Inc.
Renesas Electronics America Inc.
Ribbon
Samtec, Inc.
Senko
Sicoya GmbH
SMART Photonics B.V.
Source Photonics
Suncall America
Synopsys, Inc.
Tecdia, Inc.
Tektronix, Inc.
Telescent, Inc.
The Optical Society
Thorlabs, Inc.
TRUMPF Photonic Components GmbH
VIAVI Solutions
VPIphotonics
Wuhan Yilut Technology Co., Ltd.
Xilinx, Inc.
Yokogawa Test & Measurement
ZGT Optical Comm Limited

STANDARD BOOTHS

Albis Optoelectronics
Berlin Partner für Wirtschaft und Technologie GmbH
Epoxy Technology, Inc.
Jenoptik Optical Systems, Inc.
Lumenisity Limited
Nissin Kasei USA Corp
OE Solutions, Co., Ltd.
Optilab, LLC
Potron Technology Co., Ltd.
Ranovus USA
SHF Communication Technologies AG
SPIE: The Intl Society for Optics and Photonics
Springer Nature
ZTE Corporation

Virtual Registration Types and Rates

Full Conference

Access to all content including Technical Sessions, Plenary Session, Poster Sessions, Symposia and Special Sessions, Panels, Workshops, Market Watch, Network Operator Summit, Data Center Summit, Virtual Exhibition, Technology Showcases and Special Events and Programs. Also includes access to Conference Papers and Postdeadline Papers. The Technical Digest Papers and ability to view recorded technical sessions on demand will be available for 60 days after the conference concludes. Short Courses are an additional fee.

Member	USD $375
Non-Member	USD $469
Student Member	USD $110
Student Non-Member	USD $132
Exhibitor	USD $375

Exhibits Pass Plus

Access to select content including the Virtual Exhibition, Plenary Session, Workshops, Market Watch, Network Operator Summit, Data Center Summit, Technology Showcases and Special Events. Short Courses are an additional fee.

Exhibits Pass Plus	USD $0
Exhibitor Booth Personnel	USD $0

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