OFC

The future of optical networking and communications

TECHNICAL CONFERENCE
3 – 7 March 2019

SHORT COURSES
3 – 4 March 2019

EXHIBITION
5 – 7 March 2019

San Diego, California, USA

ofcconference.org

Short Courses

Connect with and Learn from Industry Experts

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IEEE Photonics Society

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Get the Latest Advancements at OFC

OFC is the world's largest conference and exhibition for optical communication and networking professionals. The program is comprehensive — from research to marketplace, from components to systems and networks, from technical sessions to the exhibition.

Hear the Latest Research at the Technical Conference

The five day technical conference features peer reviewed presentations and more than 120 invited speakers, the thought leaders in the industry presenting the highlights of emerging technologies. Kicking off the conference are Short Courses taught by experts. Choose from 55 courses on important topics in the industry. Additional technical programming throughout the week includes special symposia, in-depth tutorials, workshops, panels and the thought-provoking rump session.

See New Products at the Exhibition

Over 700 participating companies can help you build your competitive edge. Hear new product announcements, explore innovative and cost-effective solutions and meet industry innovators to learn what's new and what is coming next.

Attend Educational Programs on the Show Floor

Market Watch, the Network Operator Summit and 25 other show floor programs cover market trends, new technologies and insight into the future. Experts from global brands and key industry organizations provide high-level takes on the state of the industry, hot topics and recommended courses of action to tackle today's toughest business challenges.

Attend OFC

Be part of the event that brings together the people, products and information that drive optical networking and communications.

SHORT COURSE PROGRAM

Get In-depth Training. Take a Short Course.

Stay current in your field by taking a Short Course at OFC. Learn from the experts. These half-day Short Courses are a good way to get clear, concise overviews of important topics in optical communications and networking. Hands-on courses provide demonstrations and the opportunity to use optical equipment. Short Courses cover a broad range of topic areas at a variety of educational levels.

Browse course descriptions, objectives and instruction biographies.
ofcconference.org/shortcourse

Benefits of Attending

- Keep informed on the latest trends with new cutting-edge topics.
- Get clear, concise overviews of research, theoretical background and new applications.
- Learn from the experts – a faculty of distinguished instructors representing the industry's leading corporations and esteemed learning institutions.
- Receive printed materials with syllabus and course notes.
- Get opportunities for personalized instruction with small class sizes.
- Develop your expertise – become a knowledge center for your team!

Register Early!

Last year Short Courses sold out prior to the conference. Make sure you have a seat in your preferred courses by registering now.

When you register for a Short Course, you also gain FREE admission to the exhibition, educational sessions on the show floor, the plenary session and workshops.

Hear Prestigious Instructors from:

Acacia Communications
ADVA Optical Networking
AT&T Labs
Ciena
Corning
DARPA
Google
Huawei
IBM
Intel
Juniper Networks
Microsoft
MIT
Nokia Bell Labs
TE Subcom

SHORT COURSE SCHEDULE

Sunday, 3 March		
09:00 – 12:00	SC177	High-speed Semiconductor Lasers and Modulators
	SC359	Datacenter Networking 101
	SC444	Optical Communication Technologies for 5G Wireless
	SC460	Digital Coherent Optical System Performance Basics
	SC470	Secure Optical Communications **[NEW]**
09:00 – 13:00	SC328	New Developments in High-speed Optical Networking
	SC341	Multi-carrier Modulation and Superchannels for Terabit-class Transceivers
	SC384	Background Concepts of Optical Communication Systems
	SC395	Modeling and System Impact of Optical Transmitter and Receiver Components
	SC432	Hands-on: Silicon Photonics Component Design & Fabrication
13:00 – 16:00	SC216	An Introduction to Optical Network Design and Planning
	SC431	Photonic Technologies in the Data Center
	SC433	Introduction to Photodetectors and Optical Receivers
	SC459	Space Division Multiplexing Components and Devices
13:00 – 17:00	SC203	400 Gb/s and Beyond Transmission Systems, Design and Design Trade-offs
	SC267	Silicon Microphotonics: Technology Elements and the Roadmap to Implementation
	SC369	Test and Measurement for Signals with Complex Optical Modulation
	SC443	Optical Amplifiers: From Fundamental Principles to Technology Trends
	SC450	Design, Manufacturing and Packaging of Opto-electronic Modules
	SC463	Optical Transport SDN: Architectures, Applications and Actual Implementations
13:30 – 17:30	SC105	Modulation Formats and Receiver Concepts for Optical Transmission Systems
	SC451	Optical Fiber Sensors
	SC452	FPGA Programming for Optical Subsystem Prototyping
17:00 – 20:00	SC205	Integrated Electronic Circuits for Fiber Optics
	SC385	Optical Interconnects for Extreme-scale Data Centers and HPC
	SC390	Introduction to Forward Error Correction
	SC408	Space Division Multiplexing in Optical Fibers
	SC428	Link Design and Modeling for Intra Data Center Optical Interconnects

Monday, 4 March		
08:30 – 12:30	SC102	WDM in Long-haul Transmission Systems
	SC160	Microwave Photonics
	SC178	Test and Measurement for Data Center/Short Reach Communications
	SC357	Circuits and Equalization Methods for Coherent and Direct Detection Optical Links
	SC446	Hands-on: Characterization of Coherent Opto-electronic Subsystems
	SC453A	Hands-on: Fiber Optic Handling, Measurements and Component Testing
	SC454	Hands-on: Introduction to Silicon Photonics Circuit Design
	SC468	Advanced FEC Techniques for Optical Communications **[NEW]**
	SC473	Photonic Switching Systems **[NEW]**
09:00 – 12:00	SC114	Technologies and Applications for Passive Optical Networks (PONs)
	SC261	ROADM Technologies and Network Applications
	SC448	Software Defined Networking for Optical Networks: a Practical Introduction
	SC461	High-capacity Data Center Interconnects
	SC465	Transmission Fiber and Cables
13:30 – 16:30	SC208	Optical Fiber Design for Telecommunications and Specialty Applications
	SC217	Optical Fiber Based Solutions for Next Generation Mobile Networks
	SC325	Highly Integrated Monolithic Photonic Integrated Circuits
	SC429	Introduction to Flexible Photonic Networks
	SC462	Introduction to Pluggable Optics
	SC464	SDN Inside and In Between Data Centers **[NEW]**
13:30 – 17:30	SC327	Modeling and Design of Fiber-optic Communication Systems
	SC347	Reliability and Qualification of Fiber-optic Components
	SC393	Digital Signal Processing for Coherent Optical Transceivers
	SC445	Optical Wireless for Mobile Communications
	SC453B	Hands-on: Fiber Optic Handling, Measurements and Component Testing
	SC469	Laboratory Automation and Control Using Python [NEW]
	SC472	Hands-on: Controlling and Monitoring Optical Network Equipment with Netconf/YANG **[NEW]**

NEW AND UPDATED FOR 2019

New

SC468 Advanced FEC Techniques for Optical Communications

Monday, 4 March
08:30 – 12:30

INSTRUCTOR

Laurent Schmalen, *Nokia Bell Labs, USA*

DESCRIPTION

The course provides insights on the selection of FEC schemes for different applications, the design of LDPC-based schemes and the design of hardware-emulators to simulate very low bit error rates. Some of the topics covered in the course are hard-decision decoding versus soft-decision decoding, in-depth coverage of low-density parity-check (LDPC) codes and simulation of LDPC codes on FPGA-boards for error floor analysis.

SC469 Laboratory Automation and Control Using Python

Monday, 4 March
13:30 – 17:30

INSTRUCTORS

Nicolas Fontaine, *Nokia Bell Labs, USA*

Binbin Guan, *Acacia Communications, USA*

Jochen Schröder, *Chalmers University of Technology, Sweden*

DESCRIPTION:

This course aims to provide participants with the tools and knowledge to create sustainable automation of your experiments using the Python programming language. You will learn how to install all required Python packages on your computer, write basic programs using the most common scientific packages, apply programming practices and more.

SC470 Secure Optical Communications

Sunday, 3 March
09:00 – 12:00

INSTRUCTORS

Andrew Shields, *Toshiba Research Europe Ltd., UK*

Helmut Griesser, *ADVA Optical Networking SE, Germany*

DESCRIPTION

This is an introductory course on encryption for optical networks that explains the basic principles of quantum cryptography and how it can be applied to quantum safe communications. The first part of the course explains the current state of the art. The second part covers most promising concepts to make encryption quantum-resistant, discussing both theoretical information and algorithmic approaches.

SC472 Hands-on: Controlling and Monitoring Optical Network Equipment with Netconf/YANG

Monday, 4 March
13:30 – 17:30

INSTRUCTORS

Ricard Vilalta, *CTTC, Spain*

Noboru Yoshikane, *KDDI Research, Japan*

DESCRIPTION

This course offers an overview and hands-on experience on programming the necessary tools to control and monitor network equipment. Part A provides an overview of YANG data modelling language, NETCONF protocol and ONOS and OpenDayLight support for NETCONF. Part B focuses on OpenROADM and OpenConfig. Part C covers RESTconf interfaces and Part D introduces gRPC using pyNMS and pyangbind.

SC473 Photonic Switching Systems

Monday, 4 March
08:30 – 12:30

INSTRUCTORS

David Neilson, *Nokia Bell Labs, USA*

Benjamin Lee, *IBM, USA*

DESCRIPTION

This course consists of two parts focusing respectively on free-space switching systems with near-term commercial impact and on chip-scale photonic switching systems with potential for future commercial impact. The course addresses material platform selection, device design, component architecture, system topology and packaging implications. State-of-the-art performance and ultimate limitations of the components and systems will be reviewed.

Updated

SC341 Multi-carrier Modulation and Superchannels for Terabit-class Transceivers

Sunday, 3 March
09:00 – 13:00

INSTRUCTORS

Sander L. Jansen, *ADVA Optical Networking, Germany*

Dirk van den Borne, *Juniper Networks, Germany*

DESCRIPTION

This course covers different digital multi-carrier technologies such as OFDM, DMT and SCM and details their impacts on the design of transmission systems, both in performance-optimized long-haul networks as well as cost-optimized short-reach metro-access networks. The course also covers the advantages and disadvantages of Superchannels.

SC357 Circuits and Equalization Methods for Coherent and Direct Detection Optical Links

Monday, 4 March
08:30 – 12:30

INSTRUCTOR

Alexander Rylyakov, *Elenion, USA*

DESCRIPTION:

This course covers overall transceiver architectures of optical and wireline links and compares coherent vs direct detection. It provides an understanding of the critical interface between analog circuits and optics, analyzes the key performance metrics of drivers and TIAs, compares equalization techniques (CTLE, FFE, DFE) and evaluates and compares power efficiencies of wireline and optical interconnects.

Short Courses by Topic

55 Short Courses Cover Key Technologies in Three Tracks

TRACK D: Devices, Optical Components and Fiber		PAGE
D1	Advances in prototypes and product developments of components and subsystems for data centers and optical networks	7
D2	Passive optical devices for switching and filtering	7
D3	Active optical devices and photonic integrated circuits	7–8
D4	Fibers and propagation physics	8
D5	Fiber-optic and waveguide devices and sensors	8
TRACK S: Systems and Subsystems		**PAGE**
S1	Digital subsystems and systems for data centers	8-9
S2	Optical, photonic and microwave photonic subsystems	9
S3	Radio-over-fiber, free space optics and sensing systems	9
S4	Digital and electronic subsystems	9–10
S5	Digital transmission systems	10
TRACK N: Networks, Applications and Access		**PAGE**
N1	Advances in system, network and service developments and field trials in commercial data centers and networks	10–11
N2	Architectures and software-defined control for intra-data center networks	11
N3	Architectures and software-defined control for metro and core networks	11
N4	Optical access networks for fixed and mobile services	11

TRACK D: DEVICES, OPTICAL COMPONENTS AND FIBER

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

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

SC261 ROADM Technologies and Network Applications
Thomas Strasser, *Nistica Inc., USA*

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

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

SC359 Datacenter Networking 101
Hong Liu, *Google, USA*

SC385 Optical Interconnects for Extreme-scale Data Centers and HPC
John Shalf, *Lawrence Berkeley National Laboratory, USA*
Keren Bergman, *Columbia University, 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 at Santa Barbara, USA*

SC450 Design, Manufacturing and Packaging of Opto-electronic Modules
Twan Korthorst, *Synopsys, Netherlands*
Arne Leinse, *LioniX, Netherlands*
Peter O'Brien, *Tyndall National Institute, Ireland*
Kevin Williams, *Eindhoven University of Technology, Netherlands*

SC462 Introduction to Pluggable Optics
Robert Blum, *Intel, USA*
Sharon Hall, *Oclaro, USA*

D2: Passive optical devices for switching and filtering

SC261 ROADM Technologies and Network Applications
Thomas Strasser, *Nistica Inc., USA*

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

SC325 Highly Integrated Monolithic Photonic Integrated Circuits
Chris Doerr, *Acacia Communications, USA*

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

SC454 Hands-on: Introduction to Silicon Photonics Circuit Design
Roel Baets, *University of Ghent, Belgium*
Pieter Dumon, *Luceda Photonics, Belgium*

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

D3: Active optical devices and photonic integrated circuits

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

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

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

SC325 Highly Integrated Monolithic Photonic Integrated Circuits
Chris Doerr, *Acacia Communications, USA*

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

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

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

SC433 Introduction to Photodetectors and Optical Receivers
Joe Campbell, *University of Virginia, USA*

SC454 Hands-on: Introduction to Silicon Photonics Circuit Design
Roel Baets, *University of Ghent, Belgium*
Pieter Dumon, *Luceda Photonics, Belgium*

D4: Fibers and propagation physics

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, *Corning, USA*

SC453A and B Hands-on: Fiber Optic Handling, Measurements and Component Testing
Steve Baldo, *Seikoh Giken Company, USA*
Chris Heisler, *OptoTest Corporation, USA*
Steve Lane, *Data-Pixel, France*
Julien Maille, *Data-Pixel, France*

SC465 Transmission Fiber and Cables
Michael Ellwanger and Chris Towery, *Corning Optical Communications, USA*

D5 Fiber-optic and waveguide devices and sensors

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

SC451 Optical Fiber Sensors
Zuyuan He, *Shanghai Jiao Tong University, China*
William Shroyer, *SageRider, Inc., USA*

SC453A and B Hands-on: Fiber Optic Handling, Measurements and Component Testing
Steve Baldo, *Seikoh Giken Company, USA*
Chris Heisler, *OptoTest Corporation, USA*
Steve Lane, *Data-Pixel, France*
Julien Maille, *Data-Pixel, France*

SC459 Space Division Multiplexing Components and Devices
Nicolas Fontaine, *Nokia Bell Labs, USA*

TRACK S: SYSTEMS AND SUBSYSTEMS

S1: Digital subsystems and systems for data centers

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

SC203 400 Gb/s and Beyond Transmission Systems, Design and Design Trade-offs
Martin Birk, *AT&T Labs, USA*
Benny Mikkelsen, *Acacia Communications, USA*

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

SC328 New Developments in High Speed Optical Networking: OTN beyond 100G, 100G/200G/400G Ethernet, Flex Ethernet
Stephen Trowbridge, *Nokia Bell Labs, USA*

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

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

SC461 High-capacity Data Center Interconnects

Sander L. Jansen, *ADVA Optical Networking, Germany*
Dirk van den Borne, *Juniper Networks, Germany*

SC462 Introduction to Pluggable Optics

Robert Blum, *Intel, USA*
Sharon Hall, *Oclaro, USA*

S2: Optical, photonic and microwave photonic subsystems

SC160 Microwave Photonics

Vince Urick, *DARPA, USA*

SC443 Optical Amplifiers: From Fundamental Principles to Technology Trends

Shu Namiki, N*ational Institute of Advanced Industrial Science and Technology (AIST), Japan*
Michael Vasilyev, *University of Texas at Arlington, USA*

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

SC217 Optical Fiber Based Solutions for Next Generation Mobile Networks

Dalma Novak, *Pharad, LLC., USA*

SC445 Optical Wireless for Mobile Communications

Harald Haas, *LiFi Research and Development Centre, The University of Edinburgh, UK*

S4: Digital and electronic subsystems

SC105 Modulation Formats and Receiver Concepts for Optical Transmission Systems

Xi Vivian Chen and Peter Winzer, *Nokia Bell Labs, USA*

SC114 Technologies and Applications for Passive Optical Networks (PONs)

Yuanqiu Luo, *Huawei, USA*

SC205 Integrated Electronic Circuits for Fiber Optics

Y. K. Chen, *Nokia Bell Labs, USA*

SC328 New Developments in High Speed Optical Networking: OTN beyond 100G, 100G/200G/400G Ethernet, Flex Ethernet

Stephen Trowbridge, *Nokia Bell Labs, USA*

SC341 Multi-carrier Modulation and Superchannels for Terabit-class 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, Elenion, 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

Frank Kschischang, University *of Toronto, Canada*

SC393 Digital Signal Processing for Coherent Optical Transceivers

Chris Fludger, *Cisco Optical GmbH, Germany*

SC395 Modeling and Simulation of Optical Transmitter and Receiver Components

Robert Palmer and Harald Rohde, *Elenion, Germany*

SC408 Space Division Multiplexing in Optical Fibers

Roland Ryf, *Nokia Bell Labs, USA*

SC446 Hands-on: Characterization of Coherent Opto-electronic Technologies and Applications for Passive Optical Networks (PONs)

Robert Palmer and Harald Rohde, *Elenion, Germany*

SC452 FPGA Programming for Optical Subsystem Prototyping
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 **[NEW]**
Laurent Schmalen, *Nokia Bell Labs, USA*

SC469 Laboratory Automation and Control Using Python **[NEW]**
Nicolas Fontaine, *Nokia Bell Labs, USA*
Binbin Guan, *Acacia Communications, USA*
Jochen Schröder, *Chalmers University of Technology, Sweden*

S5: Digital transmission systems

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

SC203 400 Gb/s and Beyond Transmission Systems, Design and Design Trade-offs
Martin Birk, *AT&T Labs Res., USA*
Benny Mikkelsen, *Acacia Communications, USA*

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

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

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

SC408 SDM Based Fiber-optic Transmission Systems
Roland Ryf, *Nokia Bell Labs, USA*

SC429 Introduction to Flexible Photonic Networks
David Boertjes, *Ciena, Canada*

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

SC469 Laboratory Automation and Control Using Python **[NEW]**
Nicolas Fontaine, *Nokia Bell Labs, USA*
Binbin Guan, *Acacia Communications, USA*
Jochen Schröder, *Chalmers University of Technology, Sweden*

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

TRACK N: NETWORKS, APPLICATIONS AND ACCESS

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

SC216 An Introduction to Optical Network Design and Planning
Jane M. Simmons, *Monarch Network Architects, USA*

SC328 New Developments in High Speed Optical Networking: OTN beyond 100G, 100G/200G/400G Ethernet, Flex Ethernet
Stephen Trowbridge, *Nokia Bell Labs, USA*

SC429 Introduction to Flexible Photonic Networks
David Boertjes, *Ciena, Canada*

SC461 High-capacity Data Center Interconnects

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 SDN Inside and In Between Data Centers

David Maltz, *Microsoft, USA*

SC472 Hands-on: Controlling and Monitoring Optical Network Equipment with Netconf/YANG

[NEW]

Ricard Vilalta, *CTTC, Spain*
Noboru Yoshikane, *KDDI Research, Japan*

N2: Architectures and software-defined control for intra-data center networks

SC359 Datacenter Networking 101

Hong Liu, *Google, USA*

SC385 Optical Interconnects for Extreme-scale Computing

Keren Bergman, *Columbia University, USA*
John Shalf, *Lawrence Berkeley National Laboratory, USA*

SC448 Software Defined Networking for Optical Networks: a Practical Introduction

Ramon Casellas, *CTTC, Spain*

SC464 SDN Inside and In Between Data Centers

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[NEW]

Ricard Vilalta, *CTTC, Spain*
Noboru Yoshikane, *KDDI Research, Japan*

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

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SC261 ROADM Technologies and Network Applications

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[NEW]

Ricard Vilalta, *CTTC, Spain*
Noboru Yoshikane, *KDDI Research, Japan*

N4: Optical access networks for fixed and mobile services

SC114 Technologies and Applications for Passive Optical Networks (PONs)

Yuanqiu Luo, *Huawei, USA*

SC444 Optical Communication Technologies for 5G Wireless

Xiang Liu, *Futurewei Technologies, Huawei R&D, USA*

Registration

Categories	On or Before 4 Feb. (US $)			After 4 Feb. (US $)		
Full Conference						
Member *	$672			$798		
Student Member *	$197			$278		
Nonmember	$843			$980		
Student Nonmember	$237			$359		
**Exhibits Pass Plus ** **	$0			$0		
Short Courses	*Half Day*	*Hands-On*	*SC432 Hands-On*	*Half Day*	*Hands-On*	*SC432 Hands-On*
Member *	$275	$335	$435	$335	$385	$485
Nonmember	$350	$410	$510	$410	$480	$580

Categories	Full Conference	Exhibits Pass Plus	Short Course Only
Plenary Sessions	•	•	•
Technical Sessions and Rump Session	•		•
Exhibition and Show Floor Programming	•	•	•
Market Watch	•	•	•
Network Operator Summit	•	•	•
Sunday and Monday Workshops	•	•	•
Poster Sessions	•	•	•
Tuesday's Conference Reception	•		
OFC Career Zone	•	•	•
Conference Program Book	•		
Technical Digest (USB Drive)	•		
Postdeadline Papers Book	•		
Exhibits 2019 Buyers' Guide	•	•	•
Short Course Notes (for Short Course attendees only)			•

* Members of the IEEE Communications Society, IEEE Photonics Society and/or The Optical Society

** Exhibits Pass Plus is not for use by presiders, poster presenters or speakers. You must register as a Full Conference attendee.

Hotel

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San Diego Convention Center
111 W Harbor Drive
San Diego, California 92101

	Convention Center Distance	Rates from (per night)*
Courtyard San Diego Downtown	.7 mile	$236
Embassy Suites San Diego Bay Downtown	.8 mile	$254
Hard Rock Hotel San Diego	.2 mile	$275
Hilton San Diego Bayfront	.2 mile	$283
Hilton San Diego Gaslamp Quarter	.3 mile	$275
Horton Grand Hotel	.4 mile	$199
Hotel Indigo	.8 mile	$233
Hotel Palomar San Diego	1.0 mile	$233
Hotel Salomar	.5 mile	$245
Hotel Z	.6 mile	$239
Manchester Grand Hyatt San Diego	.3 mile	$283
Marriott Marquis San Diego Marina	.2 mile	$283
Omni San Diego Hotel	.5 mile	$271
Pendry San Diego	.3 mile	$264
San Diego Marriott Gaslamp Quarter	.5 mile	$270
The Bristol Hotel	1.0 mile	$214
The Sofia Hotel	.9 mile	$234
The US Grant San Diego	.9 mile	$269
The Westgate Hotel	1.0 mile	$245
The Westin San Diego Gaslamp Quarter	.7 mile	$258

* Hotel rates are listed in U.S. dollars (unless noted otherwise) and do not include taxes or any hotel fee. Rates shown are for single rooms. Double rooms may have an increased rate.

Register Online Now. Secure Attendance.

Short Courses are in high demand and have limited seating. Register today to reserve your seat before the course of your choice **reaches capacity.**

FEBRUARY

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ADVANCE REGISTRATION ENDS

4 February 2019

ofcconference.org

OFC

The future of optical networking and communications

OFC Management
c/o The Optical Society
2010 Massachusetts Avenue, NW
Washington, DC 20036
USA