

OFC

The future of optical networking and communications is here.

OFC 2019 *First News* #2

OFC 2019 Preview – Pauline Rigby, PhD.

LightCounting Market Research, (www.lightcounting.com)

With less than two weeks to go before OFC 2019, there is a crescendo of activity as companies try to make themselves heard among the cacophony of announcements centered on the show. The selection of news that I've been asked to review fall into two broad groups: some look back to celebrate past achievements, while many more look forward with new product announcements, demonstrations and partnerships that will help the industry meet the challenges of tomorrow.

Individual brilliance vs collaboration

Ciena's Kim Roberts will be honored with the John Tyndall Award, which recognizes an individual who has made a pioneering technical or leadership contribution to the industry. Roberts played a leading role in developing digital signal processing techniques that lie at the heart of the coherent optical transceivers deployed in telecom networks around the world today. The award will be presented at a special luncheon and ceremony on Tuesday March 5, at 12:00pm in Ballroom 20A.

Team effort will be recognized by the Ethernet Alliance. During an in-booth reception on Wednesday, March 6 at 3:00pm the Ethernet Alliance will award its 'Holy Cup' to five companies for their success in achieving single-lambda 100 Gigabit Ethernet in a QSFP28 module. The Ethernet Alliance laid down a second challenge – the Holy Grail – which will be awarded to the company that manages to compress single-lambda 100GbE into the tiny SFP form factor. It could be a while before any company attains the Holy Grail, but we expect to see substantial progress towards lower power and higher speed Ethernet transmission at OFC 2019.

The Ethernet Alliance will host an interactive multivendor demo in booth #4749, highlighting the growing maturity of the next generation of Ethernet. Ethernet remains the largest segment of the

transceiver market; LightCounting estimates that sales of Ethernet transceivers will reach \$6.8 billion by 2023. The 2019 edition of the Ethernet Alliance Ethernet Roadmap will also be unveiled.

Also emphasizing the importance of collaborative working, 13 Optical Internetworking Forum (OIF) member companies will participate in live interoperability demos of the industry's hottest technologies – 400ZR, Common Electrical I/O (CEI)-112G and Flex Ethernet (FlexE).

Integrated Photonics To The Fore

In the never-ending quest for higher speeds and improved cost efficiency, the focus is turning to integrated optics to achieve those aims. On Tuesday March 5, Acacia founder and CTO Benny Mikkelsen will be giving a plenary talk entitled “Tackling Capacity and Density Challenges by Electro-photonics Integration” – one of 12 presentations from the company across the week. Acacia's high-speed coherent optical transceivers rely on silicon photonics based photonic integrated circuits (PICs) – the company's incredible success contributed more than half of silicon photonics transceiver revenues in 2018, according to LightCounting's survey of integrated optics vendors.

There are more integrated photonics announcements in this round-up. Members of the EU-funded H2020 project L3MATRIX will be showing a demonstrator of their co-packaging technology – with vertically assembled 2D silicon photonics modulator arrays and integrated lasers on a silicon chiplet. Foundry services provider CompoundTek will launch its partnership with Lumerical with live demonstrations of an enhanced silicon photonics PDK (process design kit) for photonics design automation. Photon Design will launch a comprehensive VCSEL simulator tool that computes the optical output of the device from the epitaxy materials 'recipe'.

Following the release of its report about silicon photonics foundries at OFC 2018, VLC Photonics is releasing a second technical report, on indium phosphide foundries. While silicon photonics may steal the headlines, more integrated optical transceivers today are manufactured in indium phosphide than any other materials system – and LightCounting believes this will not change over the next five years – so this report is timely and should be well received.

Advanced Test and Manufacturing

Several press releases draw attention to developments in photonics test and manufacturing. While less eye-catching than the major breakthroughs, these advancements underscore the culture of continuous improvement that has advanced the industry to where we are today.

Arden Photonics is unveiling a measurement system for checking the geometric characteristics and fiber alignment of multifiber V-groove arrays, used to connect optical fibers to photonic chips. Responding to the need for components to become ever smaller, Nanosytec will launch a 'selective laser soldering station' for small wires and pads. Luna Innovations will introduce the Luna 6415, a high-speed optical component analyzer which provides the robust measurements and throughput needed for manufacturing test. nPoint will showcase its latest piezo-electric position controllers, which employ active alignment algorithms to find the optimal position of the fibers.

Also worthy of note, Palomar Technologies is offering customers and media contacts a unique opportunity to tour the Palomar Innovation Center and Engineering Lab in Carlsbad, CA on March 6. A highlight of the tour will be a demonstration of the manufacturing process for Ouster's OS-1-64 lidar unit, offering attendees what is sure to be a fascinating insight into an exciting (and dare I say overhyped) new market opportunity for photonics – lidar for autonomous vehicles.

Best of The Rest

Fujitsu Network Communications will unveil a new technology development, TransLambda™: Fiber Capacity Multiplier, in a live network demonstration. The company hasn't disclosed how its new DWDM technology can triple the capacity on an optical fiber in data center interconnect (DCI) networks without using the L- and S-bands.

In other news, Optelian announced its MPX-9103 100Gbps hardened service aggregation muxponder has achieved full NEBS Level 3 and GR-3108 certification. Sumitomo will be showcasing its comprehensive range of optical transceivers for long-haul, data center and access networks, including the QSFP-DD FR4 2km module for 400G inside data centers. InLC Technology is expanding the manufacturing capacity of its high-port-count flexible grid wavelength selective switches. 3M will showcase an expanded beam optical connector for use in data center networks. Precise-ITC, an intellectual property core developer for ASIC and FPGA, will be demonstrating 400GE PCS and MAC cores through its partnership with Intel. And VeEx is introducing the RTU-4100+ optical test module, incorporating a high-performance field-portable OTDR for fault finding in access networks.

Finally, Brimrose Corporation of America is sending optical components into the most harsh environment known to man – space. The company's acousto-optic modulator is being implemented by NASA as part of a new facility known as the Cold Atom Laboratory (CAL) on the International Space Station, which will use lasers to cool atoms to temperatures close to absolute zero.

The press releases below provide more details.

OFC 2019 First News #2

Company Name:	3M Electronics Materials Solutions Division
OFC Booth Number:	1701, 1814
Release Date:	3/4/2019
Product Category:	Communications Equipment, Data Center Interconnects, Optical Components – Passive, Optical Fibers – Communication, Optical Fibers - Specialty

Description of News:

New 3M™ Expanded Beam Optical Interconnect enables data demands of the future, yet is designed to drastically reduce ongoing cleaning and maintenance costs today. 3M™ Expanded Beam Optical Interconnect provides high performance based on a unique ferrule and fiber connector design, offering solutions for hyperscale and high-performance computing applications as well as communications network equipment, servers and switches. The technology is resilient to dust, reducing operational expenses and lowering the total cost of ownership. Its performance enables multi-link connections in data centers. 3M™ Expanded Beam Optical Interconnect allows data center architects and data center network engineers to connect with confidence.

PR Contact:	Becca Lunt
Phone:	612-677-2036
On-Site Phone:	201-961-3010
Email:	becca@inprela.com
Company website:	www.3m.com



Company Name: Acacia Communications
OFC Booth Number: Meeting Rooms 26A & 26B
Release Date: 2/20/19
Product Category: Coherent optics

Description of News:

Celebrating its 10-year anniversary, Acacia Communication will take center stage at OFC 2019. The company's Founder and CTO Benny Mikkelsen will be giving a [plenary talk](#) and other Acacia thought leaders will be participating in 11 panels, workshops, and short courses. Acacia is also the sponsor of Theater III, hosting educational programs throughout the conference, including Acacia's session on ["Next-Generation Coherent Architectures – Pluggable vs Multi-haul, a Knockout or a Draw?"](#)

Throughout the show, Acacia will be showcasing its broad portfolio of high-speed coherent optical interconnect products designed to accelerate optical networks through continued improvements in performance, capacity and power consumption.

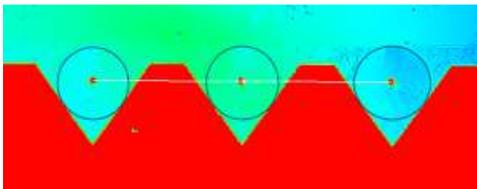
PR Contact: Kelly Karr
Phone: 408-718-9350
On-Site Phone: 978-996-5770
Email: kkarr@acacia-inc.com
Company Website: www.acacia-inc.com

Company Name: Arden Photonics
OFC Booth Number: 4736
Release Date: 2/11/19
Product Category: Fiber Geometry Measurement

Description of News:

Measurement of geometric characteristics and fiber alignment of multifiber V-groove arrays. Arden Photonics are releasing a new measurement system for multifiber V-groove arrays. The new system based on the existing line of fiber geometry products provides production engineers and technicians with the most modern and efficient tool on the market for QA and process control of multifiber V-groove arrays. The FGC-GA uses transmitted light to measure the X and Y offset as well as core-core pitch over a 15mm range. Image stitching is then used to give the user a full image of every core to assess the full width of the array. Due to the darkfield illumination, reflected light can also be used to assess the quality of the V-groove blocks prior to fixing the fibers in place, therefore helping to increase production efficiency.

PR Contact: Lesley Allison
Telephone: +44 121 733 7721
On-Site Phone: +44 7808 254895
Email: sales@ardenphotonics.com
Company Website: www.ardenphotonics.com



Company Name: Brimrose Corporation of America
OFC Booth Number: 6102
Release Date: 6/11/18
Product Category: Acousto-Optic Modulator

Description of News:

An Acousto-Optic Modulator (AOM) made by the Brimrose Corporation of America is now being implemented by NASA as part of a new facility known as the Cold Atom Laboratory (CAL) on the International Space Station (ISS). We are delighted that our acousto-optic modulator was selected by NASA for this important mission. It is another example of how we customize our A-O devices for various applications so that they can be used throughout the world and on into space.

The Cold Atom Laboratory was developed at NASA's Jet Propulsion Laboratory and already has begun operating on the ISS. It will provide scientists with an improved set of tools for probing the realm of quantum mechanics, which is the study of nature at the very smallest scale.

PR Contact: Jan S. Kasprzak
Phone: 410-472-7070
On-site Phone: 410-472-7070
Email: jkasprzak@brimrose.com
Company Website: www.brimrose.com

Company Name: Ciena
OFC Booth Number: 3850
Release Date: 2/20/19
Product Category: Optical

Description of News:

Ciena will highlight recently announced optical technology advancements that will set the stage for the next wave of divergent requirements that go far beyond the need to just scale for bandwidth growth. Through a series of demos, the company will showcase Ciena's leadership in optical networking, packet and software featuring Waveserver Ai, Blue Planet and the latest innovations in WaveLogic coherent optics. The capabilities will be underpinned by the Adaptive Network™ architecture – programmability, intelligence and scalability – which is completely changing how service providers are meeting insatiable connectivity demands while delivering richer customer experiences.

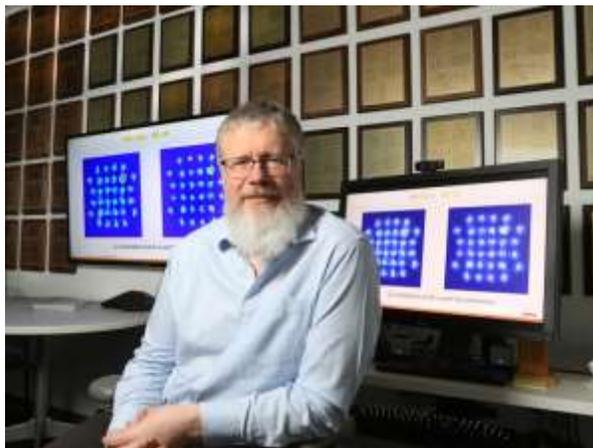
PR Contact: Shannon N. Booker
Phone: 410-865-8570
On-site Phone: 410-865-8570
Email: pr@ciena.com
Company Website: www.ciena.com

Company Name: Ciena
OFC Booth Number: 3850
Release Date: 2/20/19
Product Category: Optical

Description of News:

Often referred to as a passionate evangelist for optical technology advancement, Ciena’s Kim Roberts will be honored with the prestigious John Tyndall Award during OFC 2019. As the current Vice President of WaveLogic Science at Ciena, Kim is a major force and key influencer in the optical industry. In a career that spans more than 30 years, Kim has relentlessly designed Ciena’s WaveLogic modems to deliver higher capacity, longer distances, and greater spectral efficiency. Today, Kim leads an R&D team focused on pushing the optical boundaries to help address real world problems. His countless contributions in the optical industry, including 160 patents, have made significant impacts in the fields of science, technology, and society overall.

PR Contact: Shannon N. Booker
Phone: 410-865-8570
On-Site Phone: 410-865-8570
Email: pr@ciena.com
Company Website: www.ciena.com



Company Name: CompoundTek Pte.Ltd
OFC Booth Number: 6105
Release Date: 2/13/19
Product Category: Services

Description of News:

CompoundTek to launch Partnership with Lumerical on Enhanced Silicon Photonics PDK with live demo at OFC2019.

CompoundTek, a global foundry services leader in emerging silicon photonic (SiPh) solutions announces the availability of a Process Design Kit (PDK) developed in collaboration with leading SiPh simulation software provider, Lumerical. Combining Lumerical's photonics design automation capable of accelerated PIC design prototyping, with CompoundTek's proprietary foundry services, the PDK is poised to strengthen CompoundTek's efforts in driving customers' process efficiencies by accelerating customers' time-to-market. The SiPh PDK, offered through a reliable compact model library (CML) using Lumerical's PIC simulator, INTERCONNECT, will be showcased via live demos at CompoundTek (#6105) and Lumerical (#5438) booths.

PR Contact: Suchithra Krishnan
Phone: +6012 3901555
On-Site Phone: +6012 3901555
Email: suji@engagesea.com
Company Website: www.compoundtek.com



Company Name: Diamond USA, Inc.
OFC Booth Number: 2212
Release Date: 2/20/19
Product Category: Fiber Optic Interconnects

Description of News:

Reliable connectors with consistent optical performance under varying environmental conditions are critical to the operation and performance of backbone systems. Insertion loss, return loss and the ability to withstand high power densities are essential criteria that should be considered when selecting the suitable connector. For more than 30 years, DIAMOND has increasingly specialized in developing and manufacturing high-quality connectors. DIAMOND has also developed various technologies that are unrivalled worldwide and, therefore, guarantee unparalleled transmission quality.

PR Contact: David Fanning
Phone: 978-808-9024
On-Site Phone: 978-808-9024
Email: dfanning@diausa.com
Company Website: www.diausa.com



Company Name: Ethernet Alliance

OFC Booth Number: 4749

Release Date: 2/26/19

Product Category: General

Description of News:

At OFC2019 the Ethernet Alliance will host an interactive multivendor demo in booth #4749, highlighting the growing diversity and maturity of the next generation of Ethernet. The organization will also debut the 2019 edition of the Ethernet Alliance Ethernet Roadmap. During its in-booth reception on Wednesday, March 6 at 3:00 the Ethernet Alliance will award its prestigious Holy Cup to five companies for their success for single-lambda 100 GbE in QSFP28.

PR Contact: Melissa Power

Phone: 508-517-5560

On-Site Phone: 508-517-5560

Email: Melissa.power@interprosepr.com

Company Website: www.EthernetAlliance.org



Company Name: Fujitsu Network Communications, Inc.
OFC Booth Number: 2539
Release Date: 2/20/19
Product Category: Data Center Interconnects

Description of News:

[Fujitsu Network Communications, Inc.](#) will unveil a new technology development, TransLambda™: Fiber Capacity Multiplier, in a live network demonstration during the OFC 2019 Conference and Exhibition. This ultra-high capacity wavelength-division multiplexing (WDM) system substantially expands the transmission capacity of optical fibers in data center interconnect (DCI) networks, without the deployment of new transceivers dedicated to the L and S bands. Fujitsu's TransLambda technology enables triple the fiber capacity, offering reduced cost, simplified operation and ultra-high capacity.

To view the live TransLambda™: Fiber Capacity Multiplier demonstration, as well as other high-speed optical network solutions, visit Fujitsu Booth # 2539 during OFC.

PR Contact: Susan Dianto
Phone: 972-479-2593
On-Site Phone: 972-479-2593
Email: susan.dianto@us.fujitsu.com
Company Website: www.fujitsu.com/us/products/network/

Company Name: InLC Technology Inc.
OFC Booth Number: 5805
Release Date: 2/12/19
Product Category: Optical Components – Active/Dynamic

Description of News:

InLC Technology Inc. Expands Manufacturing Capacity of High Port Count Flexible Grid Wavelength Selective Switches.

InLC is pleased to announce the implementation of additional manufacturing capacity for its industry-leading TLC Series Flexible Grid WSS in response to global customer demand. During the second half of 2018, the company added capacity for both C-band and L-band versions of TLC10 twin 1x9 and TLC20 Twin 1x20 WSS at its facility in South Korea. The TLC Series also offers very high port-count configurations including TLC30 twin 1x35 and TLC40 twin 1x47 WSS. The novel optical design of the TLC Series WSS is based on the company's proprietary LCoS engines, enabling excellent performance, low power consumption, and high reliability.

PR Contact: Clarel Thevenot
Phone: 908-834-8390
On-Site Phone: 973-668-0756
Email: clarel@inlct.com
Company Website: www.inlct.com

Company Name: INNO Instrument Inc.
OFC Booth Number: 4607
Release Date: 2/20/19
Product Category: Fiber Splicers, Network Test Equipment

Description of News:

At booth #4607, INNO Instrument will showcase the renowned View 12R Ribbon Splicer, the most powerful and advanced Ribbon Splicer on the market. The complete INNO Instrument portfolio including the View 12R, View 7, View 900, View 500, MINI2, and View 950M will also be on display at the booth. Attendees are invited to experience demonstrations of INNO technology at the Test & Measurement Centre at booth #4549.

PR Contact: Brittany Montzka-Caceres
Phone: +44 (0) 1636 704888
On-Site Phone: 214-484-3627
Email: sales@americainno.com
Company Website: www.innoinstrument.com/eng/

Company Name: L3MATRIX European H2020 Project

OFC Booth Number: 3842

Release Date: 2/20/19

Product Category: Data Center Interconnects; Switches, Routers and ROADMs; Integrated Photonics; Optical Transmitters/Receivers; Fiber Cables, Assemblies; Manufacturing/Automation/Packaging Equip. & Materials

Description of News:

The EU funded H2020 project L3MATRIX will be showing a demonstrator of their co-package technology platform. In co-package design, chip I/O is physically decoupled from the switch ASIC and handled by a custom chiplet ASIC. An optical interconnect is used to route the I/O via fiber optics to its destination thus significantly reducing the power consumption of the SerDes array. The L3MATRIX technology demonstrator exhibits the necessary building blocks for such a design. The system is based on a large multi-chip module with vertically assembled 2D Silicon photonics arrays and integrated lasers on a silicon chiplet.

PR Contact: Dr. Tolga Tekin; M. Bogdan Sirbu

Phone: +493046403639

On-Site Phone: +491728524160; +4917687631009

Email: tolga.tekin@izm.fraunhofer.de; phoxlab@izm.fraunhofer.de

Company Website: www.L3MATRIX.eu



L3MATRIX
LARGE, LOW POWER AND LOW COST DATA CENTRES

Exhibiting Company Name: Luna Innovations
OFC Booth Number: 4339
Release Date: **Embargoed until 3/5/19**
Product Category: Fiber Optic Test & Measurement – Reflectometry, Component Analyzer

Description of News:

Luna Innovations is advancing its suite of fiber optic test and measurement products, which provide fast and accurate characterization of fiber optics and integrated optical components. The Luna 6415, launching in March 2019, is a high-speed component analyzer that works both as an ultra-high resolution OFDR reflectometer for distributed loss measurements and a high-performance insertion loss analyzer. The Luna 6415 provides the robust measurements and throughput needed for manufacturing test in addition to the high precision needed for advanced research and development applications.

PR Contact: David Potter
Phone: 540-558-1680
On-Site Phone: 512-917-2602
Email: pottedr@lunainc.com
Company Website: www.lunainc.com

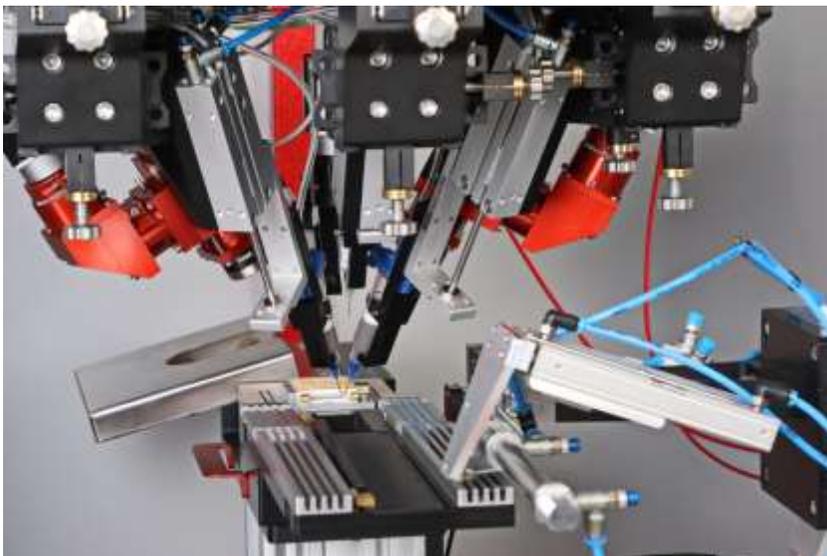


Company Name: Nanosystec Inc.
OFC Booth Number: 4627
Release Date: 2/12/19
Product category: Manufacturing Equipment

Description of News:

Selective Laser Soldering Station for small wires and pads. The ongoing trend to miniaturization of electronic circuits leads to smaller soldering pads, thinner wires and cables – thus increasing the difficulties for the soldering operation. Selective Laser Soldering is the superior method for soldering wires with diameter of less than 250 μ m (> 30 AWG) or pads with similar dimensions (< 10 mil). The laser beam heats only the small processing area, while all surrounding components and circuits are not affected. The precision motion system of NanoPlace from nanosystec picks and moves the wires accurately to the corresponding pad.

PR Contact: Christiane Hummelt
Phone: +49 6078 782540
On-Site Phone: +49 6078 782540
Email: christiane.hummelt@nanosystec.com
Company Website: www.nanosystec.com



Company Name: nPoint
OFC Booth Number: 5909
Release Date: 2/20/19
Product category: Nanopositioning

Description of News:

With continued advancement of fiber optics, nanopositioning stages have become more critical to fiber alignment. nPoint's piezo stages provide the ability to precisely align the fibers with speed and precision for optimal coupling. nPoint's controllers are capable using algorithms to find the optimal position of the fibers with the use of the optical signal. The NPXY40-467 is a 1 x 1inch 2-axis piezo stage designed for fast scanning applications with footprint restrictions. nPoint also specializes in custom OEM designs for both piezo stages and controllers.

PR Contact: Katerina Moloni
Phone: 608-698-0503
On-Site Phone: 815-236-7153
Email: katerina.moloni@npoint.com
Company Website: www.npoint.com



Company Name: OIF
OFC Booth Number: 6215
Release Date: 2/20/19
Product Category: Communications Equipment

Description of News:

Demonstrating how interoperability works get done, 13 OIF member companies will participate in live interoperability demos of the industry's hottest technologies – 400ZR, Common Electrical I/O (CEI)-112G and Flex Ethernet (FlexE) – at OFC 2019 in San Diego, March 5-7, 2019. On Thursday, March 7, industry experts from OIF will lead panels focused on the latest update on 400ZR specifications and the drivers, needs, and challenges in the evolution to widescale adoption of open, interoperable optical networks.

PR Contact: Leah Wilkinson
Phone: 703-907-0010
On-Site phone: 703-307-3964
Email: leah@wilkinson.associates
Company Website: www.oifforum.com

Company Name: Optelian
OFC Booth Number: 3946
Release Date: 2/12/19
Product Category: Communications Equipment

Description of News:

Optical networking solution provider Optelian announced its MPX-9103 100Gbps hardened service aggregation muxponder has achieved full NEBS Level 3 and GR-3108 certification. The MPX-9103 is purpose-built for deployment in outside cabinets that are not thermally controlled. Applications for the MPX-9103 include 4G and 5G wireless upgrades for cell sites for fronthaul and backhaul coupled with next generation fiber deep architectures. It extends Metro rings and pushes more bandwidth closer to the edge and is an ideal solution for high-bandwidth remote business service access and fiber deep cabinets. In addition, the MPX-9103 gives service providers more flexibility with remote 100Gbps capacity expansion without the expense of fiber infrastructure.

PR Contact: Leah Wilkinson
Phone: 703-907-0010
On-Site Phone: 703-307-3964
Email: leah@wilkinson.associates
Company Website: www.optelian.com

Company Name: Palomar Technologies, Inc.
OFC Booth Number: 3646
Release Date: 3/6/19
Product Category: Lidar

Description of News:

[Palomar Technologies Inc.](#), is offering customers and media contacts a unique opportunity to tour the Palomar Innovation Center and Engineering Lab in Carlsbad, CA on March 6th. This tour is a rare and unique opportunity to visit Palomar and learn how we equip the customer to scale to full production using proven systems, processes and recipes, enabling them to get to market more quickly with a high output yield. Palomar Technologies is proud to be working with Ouster on the manufacture of their OS-1 lidar sensors and a highlight of the tour will be a demonstration of their OS-1-64 lidar unit.

PR Contact: Rebecca Janzon
Phone: 760-409-7453
On-Site Phone: 760-409-7453
Email: rjanzon@bonders.com
Company Website: www.palomartechnologies.com

Company Name: Palomar Technologies, Inc.
OFC Booth Number: 3646
Release Date: 2/19/19
Product Category: IR Imaging/Microbolometers

Description of News:

[Palomar Technologies Inc.](#), a global leader in total process solutions for advanced photonics and microelectronic device packaging announced today that SST Vacuum Reflow Systems, a wholly owned subsidiary of Palomar Technologies, has taken an order for multiple SST 3150 Vacuum Reflow Furnaces, which are used in the assembly of hermetically sealed, high reliability MEMS packages. These particular systems are for the assembly of IR microbolometers, which are the heart of an IR Imager that can be found in various IR cameras for a variety of applications.

PR Contact: Rebecca Janzon
Phone: 760-409-7453
On-Site Phone: 760-409-7453
Email: rjanzon@bonders.com
Company Website: www.palomartechnologies.com

Company Name: Photon Design
OFC Booth Number: 4630
Release Date: 2/20/19
Product Category: Laser Diodes, Design Software

Description of News:

Photon Design is proud to launch a comprehensive VCSEL simulator tool “Harold-VCSEL”. Harold-VCSEL is a full 3D model, computing the optical cavity modes, electrical drift-diffusion and electron-photon interactions. Building on Photon Design’s 30 year experience in both EM and laser diode modelling, this provides a comprehensive integrated design environment for all the main VCSEL variations being explored by industry today, including QW materials, side and top injection, current blocking apertures and many more. From an epitaxy recipe it will compute all the gain spectra needed. Results include LI, QE, spectra, linewidth, saturation, dynamics.

PR Contact: Dominic Gallagher
Phone: +44 1865 324990
On-Site Phone: +44 1865 324990
Email: info@photond.com
Company Website: www.photond.com

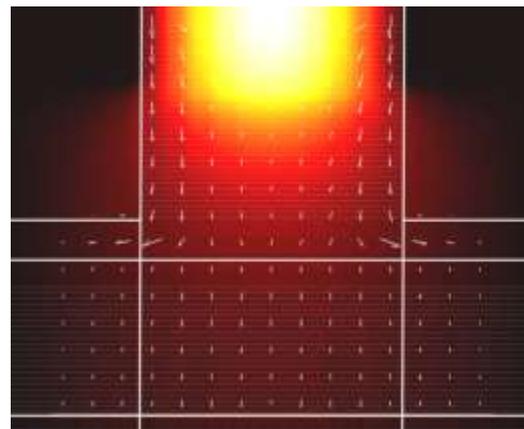
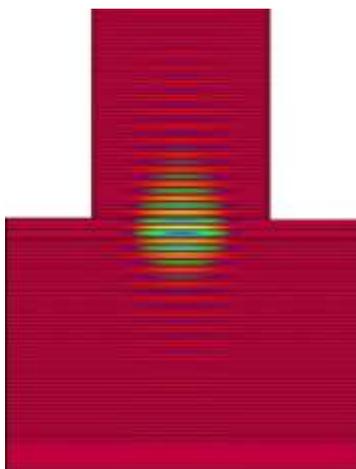
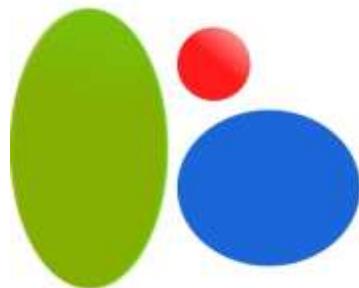


Exhibit Company: Precise-ITC
OFC Booth Number: 6208
News Release Date: 2/12/19
Product Category: Semiconductors

Description of News:

Precise-ITC is a full-service intellectual property core developer for ASIC and FPGA focusing on high-speed access and aggregation multiplexing for Ethernet and OTN systems. Precise-ITC will be demonstrating 400GE PCS and MAC cores through our partnership with Intel Inc. Optical Transport Network (OTN) cores through our partnership with Xilinx, Inc. These product demonstrations at OFC2019 make use of industry-leading Spirent testers. In addition, Precise-ITC has entered into partnership to produce 7nm multi-channel 400GE ASIC to showcase IP density when coupled with 56/112Gbps SERDES IP.

PR Contact: Tim Warland
Phone: 613-220-7771
On-Site Phone: 613-220-7771
Email: twarland@precise-itc.com
Company Website: www.precise-itc.com



Precise-ITC
ASIC-FPGA Innovation!

Company Name: Sumitomo Electric Industries, Ltd
OFC Booth Number: 3123
Release Date: 2/13/19
Product Category: Optical Components and Modules

Description of News:

Sumitomo Electric Device Innovations(SEDU) will demonstrate next generation products for Telecom, Datacom, Enterprise and Access markets. SEDU will showcase its expansive line of optical devices and modules including:

- *Long Haul/Metro*
 - HB-CDM
 - Small Tunable TOSA
 - HB-ICR (64GBaud)
- *Data Center & Enterprise*
 - EML/DML/VCSEL
 - 200/400Gbs 4 Channel TOSA/ROSA
 - QSFP-DD FR4 2km
 - QSFP28 ER4 Lite (4WDM-40) I-temp
- *Access & 5G Mobile*
 - 10G/25G TOSA/ROSA I-temp and WDM
 - BOSA & TO-CAN for PON OLT/ONU
 - SFP28 LR, ER, DWDM and LAN-WDM for Mobile Fronthaul
 - SFP+ DWDM Extended I-temp for Remote-PHY

PR Contact: Effie Favreau
Phone: 781-929-3124
On-Site Phone: 781-929-3124
Email: efavreau@sei-device.com
Company Website: www.sedi-device.com



Company Name: VeEX Inc.
OFC Booth Number: 1816
Release Date: 3/4/19
Product category: Fiber Optics Monitoring

Description of News:

The new RTU-4000 equipped with RTU-4100+ optical test module is the latest generation fiber optic test probe for VeEX's VeSion Monitoring Eco-System. A modular architecture and a wide range of test modules supports simple configuration for live or dark fiber testing in either point to point or FTTx networks. State of the art OTDR technology and advanced analysis algorithms ensure fiber faults can be detected quickly and accurately. When used with the new OXA4000 optical switches, the overall form factor provides the smallest and most powerful RFTS in the industry.

PR Contact: Pam Gernale
Phone: 510-651-0500
On-Site Phone: 510-651-0500
Email: pam@veexinc.com
Company Website: www.veexinc.com



Company Name: VLC Photonics
OFC Booth Number: 5424
Release Date: 3/1/19
Product Category: Photonic Integration Technical reports

Description of News:

With over a decade experience as a fabless photonic design house offering independent services for the development of Photonics Integrated Circuits, VLC Photonics is now releasing its second technical report. After the success of the Silicon Photonics Foundries Reports, VLC Photonics has released the Indium Phosphide Foundries Report.

Containing information of 25 InP foundries, 4 brokers & more than 560 references in its over 150 pages, this report will provide your company with consolidated and factual information about the different InP foundries' capabilities, equipment, material and processes to facilitate the right foundry selection for your integration project.

PR Contact: Alba Inat
Phone: +34 961337884
On-Site Phone: +34 637615637
Email: info@vlcphotonics.com
Company Website: www.vlcphotonics.com

