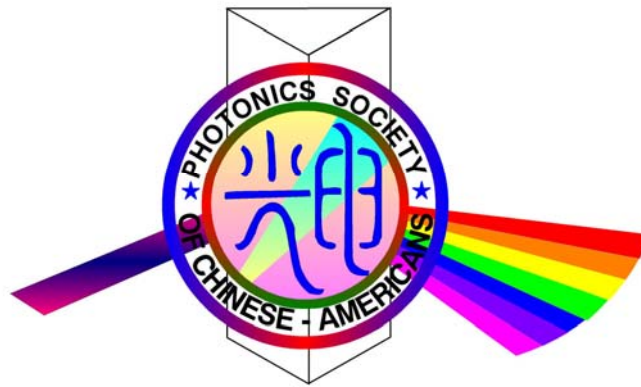


*The Photonics Society of Chinese-Americans*

*2008 Annual Conference*

中华光电学会 2008 年会

中華光電學會



*100GbE and Its Impact to The  
Industry of Optical Networking*

**Date:**

*February 24<sup>th</sup>, 2008, Sunday*

**Conference:**

*12:30-6:00 pm*

**Reception & networking:**

*6:30-9:00 pm*

**Location:**

*Crystal II ballroom*

*Westin San Diego, 400 West Broadway, San Diego, California 92101*



# Photonics Link

*Publication of Photonic Society of Chinese-Americans*  
*Issue 0068&0069:Nov. 2007 & Jan. 2008*

## Content

<i>President Message &amp; Acknowledgement</i>	3
<i>PSC 2008 Annual Meeting Agenda</i>	5
<i>PSC 2008 Officer Candidates</i>	7
<i>Speech Titles, Abstracts and Biographies</i>	8
<i>PSC 2008 Annual Meeting Location</i>	17
<i>Introduction of Photonics Society of Chinese-Americans</i>	18
<i>Advertisement Page</i>	20

## ***President Message & Acknowledgement***

### **President Message**

Dear Fellow PSC Members and Colleagues,

Welcome to San Diego for OFC'08 and PSC 2008 annual meeting.

Thanks for the hard work of PSC Annual Meeting Organizing Committee and the strong corporation sponsorships we received; we have put together an excellent program this year for you prior to OFC'08. Please set aside Feb. 24<sup>th</sup> for an afternoon workshop and evening reception/networking meetings.

**Theme:** 100GbE and Its Impact to the Industry of Optical Networking

**Location:** Crystal II ballroom, Westin San Diego, 400 West Broadway, San Diego, California 92101  
<http://www.starwoodhotels.com/westin/property/overview/index.html?propertyID=1762>

**Date & Time:** February 24<sup>th</sup>, 2008 (Sunday), 3:00pm – 21:00pm

To cover the theme on 100GbE, we have invited distinguished speakers with backgrounds varying from academic research to marketing watching and business development, from chip & component standardization to system integration & carrier deployment. We will also issue the 2008 Bor-Ue Chen Memorial Scholarship Award to three outstanding graduated students, Zhensheng Jia of Georgia Institute of Technology, Bo Zhang of University of Southern California and Xiaoxue Zhao of UC Berkeley.

My term as PSC president will end on PSC 2008 annual meeting. I would like to take this chance and express my appreciations to everyone who supported my work in the past year, and also to everyone who have ever supported PSC since it was founded more than 20 years.

Best wishes to all of you and looking forward to seeing you in San Diego.

Shan Zhong  
President, PSC  
szhong@ciena.com

**Acknowledgement:**

***Sponsorship List***

AnDevices, INC. [www.andevices.com](http://www.andevices.com)  
AOC Technologies, Inc. [www.aoctech.com](http://www.aoctech.com)  
Arasor Ltd. [www.arasor.com.au](http://www.arasor.com.au)  
BroWave Corp. [www.browave.com](http://www.browave.com)  
CoAdna Photonics, Inc. [www.coadna.com](http://www.coadna.com)  
DuPont Photonics Technologies [www.photonics.dupont.com](http://www.photonics.dupont.com)  
EOSPACE Inc. [www.eospace.com](http://www.eospace.com)  
General Photonics Corp. [www.generalphotonics.com](http://www.generalphotonics.com)  
Multiwave Digital Solutions, Inc. [www.mutiwaveds.com](http://www.mutiwaveds.com)  
PSC-EOA (PSC-NC), [www.eoa-psc.org](http://www.eoa-psc.org)  
Wuxi Zhongxing Optoelectronics Technology Co.,Ltd. [www.wxzte.com](http://www.wxzte.com)  
YY Labs, Inc. [www.yylabs.com](http://www.yylabs.com)

***PSC 2008 Annual Meeting Organizing Committee***

Dr. Shan Zhong,  
Dr. Xiaohui Yang ,  
Mr. Zhonghua Zhu  
Dr. Liyan Zhang  
Dr. Kai Song  
Dr. Yunfeng Shen  
Dr. Norman Wang,  
Dr. Yan Yin

## ***PSC 2008 Annual Meeting Agenda***

### ***100GbE and Its Impact to the Industry of Optical Networking***

#### ***Agenda***

- 12:30-1:00**            **Registration and networking**
- 1:00-1:10**            **Welcome and Registration**
- 1:10-3:15**            **Workshop Session I**
- 1:10-1:35**        **“Building the Road For 100Gbit/s And Beyond”**  
    Speaker: Dr. Xiangdong Cao, RuLight Corp
- 1:35-2:00**        **“Moving standards to next-gen Ethernet: physical-layer architectures and interfaces in LAN and WAN.”**  
    Speaker: Dr. Frank Chang, Vitesse
- 2:00-2:25**        **“Technologic Challenges in 100Gb/s Optical Transport”**  
    Speaker: Dr. Xiang Liu, Bell Labs
- 2:25-2:50**        **“Modulation formats for 100GE: A technology perspective”**  
    Speaker: Dr. Thomas Lee, SHF
- 2:50-3:15**        **“Welcome to the 40Gbps Reality”**  
    Speaker: Dr. Fenghai Liu, Mintera
- 3:15-3:25**            **Break**
- 3:25-5:45**            **Workshop Session II**
- 3:25-3:50**        **“40 G network deployment- an update with projections for 100G migration.”**  
    Speaker: Dr. Michael Choy, Comcast
- 3:50-4:15**        **“Are we ready for 100G?”**  
    Speaker: Dr. Tjejun\_Xia, Verizon
- 4:15-4:40**        **“Impact of 100GbE on Optical Communications Technology”**  
    Speaker: Dr. Karen Liu, Ovum-RHK
- 4:40-5:05**        **“Market Realities and Investment Opportunities from VCs Perspectives”**

Speaker: Mr. Shoakai Liu, Rustic Canyon Partners

**5:05-5:35 Panel Discussion and Q&A**

**5:35-6:05 Scholarship Award and Speeches**

**6:05-6:30 Executive Officers Election and Announcement**

**6:30-8:30 Reception & Networking**

## ***PSC 2008 Officer Candidates***

**Dr. Norman Kwong, president candidate**  
BinOptics. [norman.kwong@binoptics.com](mailto:norman.kwong@binoptics.com)

**Mr. Rensue Wong, first VP candidate**  
Agilent, [RSW2311@comcast.net](mailto:RSW2311@comcast.net)

**Dr. Liyan Zhang, second VP candidate**  
Cogent Communications, [zhang\\_liyan@yahoo.com](mailto:zhang_liyan@yahoo.com)

## ***Speech Titles, Abstracts and Biographies***

**Title:** Building the Road for 100Gbit/s And Beyond

**Presenter:** Dr. Xiangdong Cao, RuLight Corp

### **ABSTRACT:**

Internet is migrating from text based network to video based network, which is manifested by the accelerated internet traffic growth. Among many key network technologies, rapid adoption of broadband technologies especially fiber-to-the home and IPTV have made video based applications possible. The core networks are pressured to adopt more efficient transport technologies to keep with the demand fueled by a new wave of broadband applications, 100 Gbit/s transmission technologies are becoming the center of interest. However, the emphasis is mainly focused on transmission technologies such as more advanced modulation format and more tolerant receiving technologies. Although successful demonstrations have been announced, the question of economical feasibility is still remained unanswered. In this paper, we want to point out that the current approach suffers from the fact that the system providers lack information of optical transmission line, therefore are forced to take the so-called worst-case approach. This approach may work for lower speed (10Gbit/s or less) transmission system, it can be cost prohibitive for 100Gbit/s systems. We show that significant system/network cost saving can be obtained by building and classifying the optical transmission line, and consequently reducing transmission complexity.

### **BIOGRAPHY:**

Dr. Cao, currently the founder and CEO of RuLight Corp, has more than 15 years telecom experience covering long-haul, metro and access networks. He has held both R&D and executive positions in high-tech startups and large international companies. Hwe was as a distinguished member of technical staff (DMTS) at Siemens, Chief Scientist at Qtera/Nortel, Chief System Architect at T-Networks. He has played an instrumental role in developing new technology and products. He co-founded Qtera, and designed industry's first commercial ultra-long haul 10Gbit/s DWDM transmission system. He holds 15 technical patents for optical transmission systems, more than 50 peer-reviewed research papers. He has been invited to give technical talks for many international conferences such as IEEE, LEOS, APOC.



**Title:** Moving standards to next-gen Ethernet: physical-layer architectures and interfaces in LAN and WAN.

**Presenter:** Frank Chang, Vitesse

ABSTRACT

Increasing bandwidth demands are driving LAN and carriers' transport networks to higher bit-rate interfaces. Standardization related to 100GbE is a crucial next step for Ethernet to continue its role as a ubiquitous end-to-end protocol. This talk describes recent standard efforts, and activities planned for next-gen Ethernet. The primary focus is on the requirements, physical-layer architectures, and module interfaces discussed for 100GbE (and 40GbE). In addition, the technology options for enabling 100GbE (and 40GbE) transport over the WAN by using the OTN rates are previewed.

BIOGRAPHY

YONGMAO FRANK CHANG obtained his Ph.D. in Optoelectronics from the University of Montreal, Canada for his research thesis on ultrashort optical pulse generation of 1550nm tunable solid-state lasers. He has been principally specializing in optical system engineering and IC product specifications issues for telecom, datacom, and PON markets at Vitesse since 2002. Prior to Vitesse, Dr. Chang worked as individual contributor and project manager roles at JDS Uniphase, Cisco/Pirelli, and Mahi Networks for the development of WDM subsystem, optical transceivers and fiberoptics components. From 1992-1995, he was employed by City University of HK, Hong Kong and Concordia University, Canada as research associates to perform optoelectronics materials research. Dr. Chang has co-authored one book chapter on PON transceivers and published over 52 peer-reviewed journal and conference articles. And he represents Vitesse to actively contribute to standard-setting bodies including IEEE 802.3, OIF/ITU, FSAN etc for the definition of various optical specifications. Dr. Chang has chaired the OFC/NFOEC technical sessions for several years in a row since 2004, and serves as the active reviewer for most OSA journals. He currently servers in IEEE 802.3ba (formerly HSSG) Organization and in the IEEE LEOS Technical Committee on Mitigating Channel Degrading Effects.

**Title:** Technologic Challenges in 100Gb/s Optical Transport

**Presenter:** Dr. Xiang Liu, Bell labs

*ABSTRACT*

We will discuss the technologic challenges in realizing 100Gb/s based optical transport systems. Promising optical transeiver technologies such as coherent/incoherent polraization-multiplexed QPSK/DQPSK and OFDM will be briefly reviewed.

*BIOGRAPHY*

Xiang Liu received the Ph.D. degree in applied physics from Cornell University, Ithaca, NY, in 2000. Since then, Xiang has been working as a Member of Technical Staff in Bell Labs, Alcatel-Lucent on next-generation optical fiber communications technologies, including advanced modulation formats. He has authored and coauthored over 130 journal and conference papers, and holds 14 US patents. Xiang is a senior member of the IEEE.

**Title:** Modulation formats for 100GE: A technology perspective

**Presenter:** Thomas Lee, SHF

*ABSTRACT*

This presentation is intended as an overview on how high speed components technology may impact the development of the next generation system based on 100GE

*BIOGRAPHY*

As VP Marketing and Technology Adviser for SHF, Thomas lee has the responsibility of the marketing and introduction of new products, business development and customer interactions. Additionally, he also has the responsibility of identifying new product areas, future product development and specifications. He has an additional role as consultant on optical system-related product issues, and customer support. Lately, his main thrust as been the introduction of key components for 100G Ethernet system investigations.

Before he joined SHF in 2002, he was a member of technical staff in Nortel's Optical System Research Laboratory in Harlow (previous known as STL), UK. His research activities had covered MMIC circuit designs, optoelectronic IC technology development, circuit designs for optical subsystems, technical requirements of components and optical subsystems for high speed TDM systems, leading to key optical system definition, implementation and testing.

**Title:** Welcome to the 40Gbps Reality

**Presenter:** Dr. Fenghai Liu, Mintera Corporation

ABSTRACT

As early as 2000, people were expecting 40Gbps to emerge in order to meet the exponentially increasing bandwidth demand based on perceptions of all kinds of dot com applications. Very soon, the telecom market took a deep dive and even 10Gbps installations significantly slowed down. Eight years later, we are seeing the real deployment of 40Gbps and people started talking about 100Gbps demands.

The talk will try to explore the following topics:

- · Why do we need 40Gbps?
- · What are the technology challenges?
- · What are the solutions available on the market?

BIOGRAPHY

Dr. Fenghai Liu graduated from Dept. of Electronics Engineering Dept., Tsinghua University and received Ph.D degree from Technical University of Denmark. He joined Mintera Corporation in 2001, and is currently Director of Product Line Management.

**Title:** 40 G network deployment- an update with projections for 100G migration.  
**Presenter:** Dr. Michael M. Choy, Comcast

ABSTRACT

Triple play with multi-media video has accelerated bandwidth demands leading to 40G system deployment by key service providers. We outline key business drivers especially on router to transport interface demands. To be compatible with existing network infrastructure without forklift modifications, overlay of 10G channels with 40G is essential. This co-existence of 10G with 40G necessitates that a careful balance of the different technical requirements and impairment mitigation. This includes new subsystem technologies such as TDCM for 40G pre-compensation, advanced modulation formats, nonlinearities mitigations, optical amplifiers with low NF, strong FEC and PMDC for older generation fiber spans.

Emerging standards for both Long Haul and metro Short Reach will be summarized. With maturing 40G deployment, we conclude with an exploration of the essential ingredients for migration to 100G networks

BIOGRAPHY

Michael M. Choy has been a telecom/datacom technology veteran from Bell Lab., IBM Watson Research and startups for 20 + years.

With a background in hardware physics optoelectronics, his diverse expertise includes system integration/ test in Bell Lab, Holmdel NJ and triple play video networks. He has made key system contributions to the new product introduction of the Allwave fiber in Lucent Technologies. His startup experience includes novel APD receivers in Nova Crystals with the lowest excess noise, optical wireless in Sorrento Networks with ultra high sensitivity, and video triple play in H264 with Luma-Tech. His latest 40 G network experience is from Comcast Cables, where he successfully merged backbone router traffic with DWDM transport using 40G duobinary as alien wavelength overlay with 10 G channels.

His PhD is from Stanford in applied physics and his BS is from Cal Berkeley.

**Title:** Are we ready for 100G?

**Presenter:** Tiejun (TJ) Xia, Verizon

ABSTRACT

100G technology, which represents optical transmission around 100 Gb/s (85 – 111 Gb/s), has become a soon-to-be-deployable practical solution for carriers. It is not whether but when 100G will be deployed. 100GbE, as a natural step after 10GbE, will be a new standard soon. The main issues around the 100G thrust include how to transport 100GbE data streams across backbone networks efficiently, what the promising 100G technologies are, and when those 100G technologies will be available. In this talk we will report the first 100G field trial with live traffic in Verizon ULH network and discuss the opportunities 100G technology can bring to carriers and the challenges carriers may face.

BIOGRAPHY

Dr. Tiejun (TJ) Xia is an expert in photonic technologies and optical communications with many years of experience in research, development, and technical innovation. He is Distinguished Member of Technical Staff with Verizon Communications where his responsibility is network technology development. In 2007 Dr. Xia led the industry's first 100G field trial with live traffic. Dr. Xia is also an adjunct professor in the School of Engineering and Computer Science at University of Texas at Dallas and Mentor Advisor at STARTech Early Ventures. Most recently he was a senior technical consultant at Samsung Telecommunications America for ultra-long haul fiber networks and FTTX solutions. Before that he served as Director for Network Technology Development at Chorum Technologies, where he managed advanced R&D activities for photonic subsystem development. Prior to Chorum, he worked with MCI Communications as a senior engineer for next generation optical transmission technologies. Before joining MCI he was a research faculty member in Department of Electrical Engineering, University of Michigan, where, as a team leader, he accomplished the nation's first 100G test bed with all-optical technologies. Dr. Xia holds his Ph.D. degree in Physics from University of Central Florida. He has published more than 90 technical papers and holds more than 30 granted or pending US patents.

**Title:** Market Realities and Investment Opportunities from VCs Perspectives  
**Presenter:** Shoa-Kai Liu, Rustic Canyon Partners

ABSTRACT

The recently resurgence of telecom related start-up IPOs and M&A activities have cautiously regained the investors' confidence on the healthy market growth since the \$6 trillion telecom bubble burst seven years ago.

Does this landscaping change present new investment opportunities for the VCs in the emerging Telecom 2.0 era or the euphoria is an echo of pre-bubble champagne toast again? What are the risk profiles and reward will be? Where are and will be the center of investment activities? By learning the mistakes in the past by spending billions dollars in the inflated markets, is the VCs investment reviving again will be the center piece of the talk.

BIOGRAPHY

Shoa-Kai Liu joined the Rustic Canyon Partners' team on 2004 with 25 years of diverse technical and management experience in telecommunication networks and services, data and optical networking, and semiconductors. Most recently, Shoa-Kai served as the Director of Network Technology Development at MCI, where he and his team evaluated emerging telecommunication technology. After he joined MCI in 1982, he spent 22 years focused on networking technology development and deployment for networks that today provide the backbone of the Internet. He played a central role in MCI's strategic network planning, large system integration, services, and products rollout on a global scale.

Shoa-Kai is also a proven entrepreneur. From 1998 to 1999, he was the co-founder and VP of Market Development at Avanex, where he helped the company grow into one of the largest optical component suppliers worldwide. Prior to MCI, his experiences also included working in various government projects such as the OTH Radar System, the SDI, the NASA Space Telescope ground data network system, and the USAF Consolidated Space Operation Center Communication System Modernization, while he worked at SAI, Inc., CSC, and the Aerospace Corporation.

Shoa-Kai graduated from Northern Illinois University with MSCS, earned MSEE, majored in Communication at George Washington University, and earned an M.B.A. with International Management track from the University of Dallas. He served as the MCI Fellow of Technology Leadership Council from 1993 to 1995 and has chaired various industry conference committees and been a frequent speaker at OFC, Supercom, WOCC, SATEC, and METS conferences. Shoa-Kai is active with the Chinese Institute of Engineer Association and Photonic Society of Chinese-Americans. He has been awarded four patents. Now, he serves three companies' Board member and Technical Advisory Board in various companies.

**Title:** Impact of 100GbE on Optical Communications Technology

**Presenter:** Karen Liu, Ovum-RHK

ABSTRACT

Just as consumer electronics and services now lead enterprise technologists, the roadmaps between enterprise and transport are inverted. Transport speeds achieved 10 Gbps well before enterprise adopted this rate. At 40 Gbps there was a more equal contest. 100 Gbps is an Ethernet or enterprise speed that is pulling transport to support it. In another inversion, anticipation of 100GbE deployments in a few years is already affecting the direction of fiber optics development even at lower speeds. Parallel approaches at 10 and 40 Gbps, whether using multiple fibers or multiple wavelengths, have gained importance because they may be extendable to 100 GbE. Similarly, complex modulation schemes with high spectral efficiency for 40 Gbps are being viewed more favourably because of their relevance to 100 and 160 Gbps. This talk will use a market research perspective to look at how 100GbE fits into trends in enterprise and transport communications.

BIOGRAPHY

Karen Liu has been a contributor to the optical components field and fiber optic communications since 1981. Her industry experience encompasses both the technical and marketing aspects of the DWDM transition in optical networks. She is currently an industry analyst with Ovum RHK, where she has contributed to syndicated market research and worked on a number of market advisory projects on disruptive technology introduction. She was also the author of the first detailed forecast for ATCA platforms. Prior to joining Ovum RHK, Karen worked at Tellabs as a Senior Product Planner, with responsibility for optical architecture and product definition of a metropolitan DWDM product. Before Tellabs, Karen was a Research Staff Member at the IBM Research Division, responsible for the optical design of one of the earliest commercial DWDM system products. Karen received a Ph.D. in applied physics from Stanford University with a thesis on Neodymium doped fiber devices for fiber gyroscopes and a B.S.E. in mechanical and aerospace engineering from Princeton University with a thesis on tunable lasers for spectroscopy.

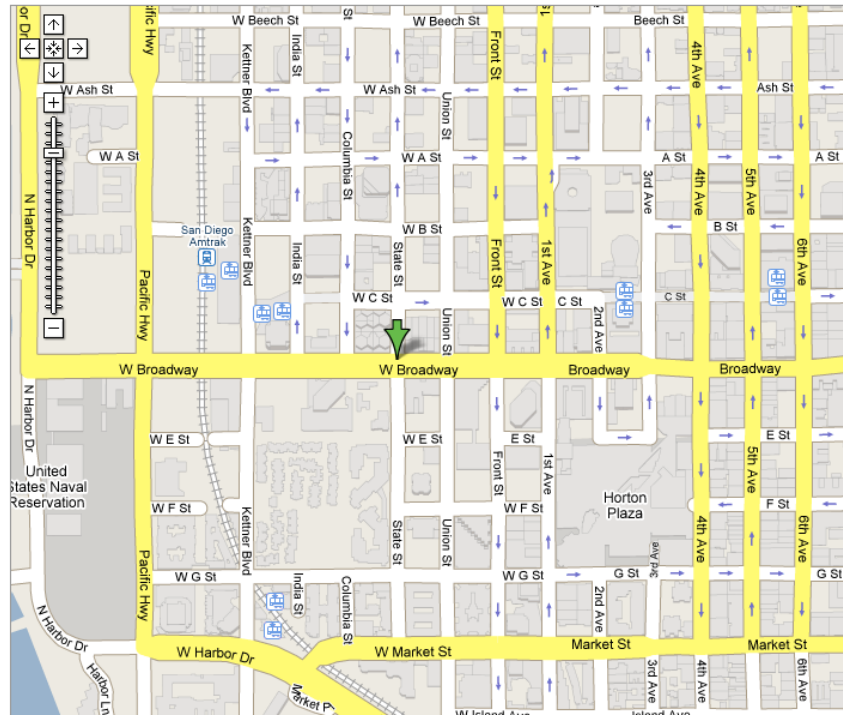


## *PSC 2008 Annual Meeting Location*

Crystal II ballroom

Westin San Diego, 400 West Broadway, San Diego, California 92101

<http://www.starwoodhotels.com/westin/property/overview/index.html?propertyID=1762>



## ***Introduction of Photonics Society of Chinese-Americans***

### **Objectives**

The objectives of PSC are to promote friendship and collaborations among Chinese-American engineers and scientists in the field of photonics so that they can enhance their professional and business contributions for better quality of life in this fast changing world.

### **Tasks:**

1. Expand memberships to all individuals interested to promote profession and business in the field of photonics.
2. Enhancing communication within the society by organizing technical seminars and publishing newsletters and membership directory.
3. Conducting technical and dinner meetings during major international conferences including SPIE, OFC/NFOEC and CLEO/IQEC for reporting and reviewing new photonics technologies and business/product developments in different parts of the world and for establishing business contacts and technical exchanges.
4. Organizing annual conferences to promote photonics education, report new progress in photonics, address future photonics marketing directions, and present Achievement Awards to key individuals in the field of photonics.

### **2007 to 2008 PSC executive officers:**

**President: Dr. Shan Zhong,**  
CIENA Corp.  
SZhong@ciena.com

**First Vice President: Dr. Norman Kwong,**  
BinOptics.  
norman.kwong@binoptics.com

**Second Vice President: Rensue Wong,**  
Agilent, CA,  
RSW2311@comcast.net

**Treasurer: Yan Yin,**  
YY Labs, Inc.  
yanyin@yylabs.com

### **Board Members:**

PSC 2008 Annual Meeting: 2008: 100GbE and its impact to the industry of optical networking  
2/24/2008

Chairman: Y.S. Liu

Board Directors: Yan Yin, Dr. Gordon Li, Dr. Owen Wu, Dr. Haifeng Li

**Advisory Board Members:**

Milton Chang, H.K.Liu, R.L.Chao, Haifeng Li, Pochi Yeh, Arthur Chiou, C.C.Shih, Tingye Li, Shi-Kay Yao, Jane Yang, Gordon Li, Peter Shih, Pamela Hsiao, Raymond Wang, Jia-Ming Liu, Chang, Gee-Kung, Chang-Hasnain, Connie, Ray Y.J.' Chen, Shun-Lien Chuang, Hsing Kung, Yang, Yang, ,J.Z Zhou, A.C.Yang, Yue liu, Jinzhong zhang, S.Y lin, Ching Ho, Rangchen Yu, C.H Lin, Mary Fong, CC Lee, James zhou, T.P.Lee

**Southern California Chapter**

President: Norman Kwong

Secretary: Jane Xiao

Treasurer: Janice Shen

**Northern California Chapter (EOA)**

President: Steve Sheng

Public Relation: Dean Wu

Treasurer: Yuan Ho

**Atlantic Chapter**

President: Shan Zhong

Secretary: Liyan Zhang

Treasurer: Xiaohui Yang

**Photonics Link Editor:**

Zhonghua Zhu; Shan Zhong

Contact: [Jashua.Zhu@gmail.com](mailto:Jashua.Zhu@gmail.com), [SZhong@ciena.com](mailto:SZhong@ciena.com)

Published on Websites: [www.psc-a.org](http://www.psc-a.org), [www.psc-sc.org](http://www.psc-sc.org) and [www.eoa-psc.org](http://www.eoa-psc.org). since 1990.



# MULTIWAVE

Digital Solutions

Multiwave Digital Solutions is the number one source for the latest in optical components & modules and Test Equipment. Multiwave provides vital solutions to the top telecommunications manufacturers covering all the major markets within the United States and Canada. We represent many optical component vendors and Test Equipment ranging across three continents!

Multiwave is the exclusive representative for O-Net Communications, which is one of the leading suppliers in the global optical networking industry for OEM's & ODM's. O-Net offers cost effective solutions through their constant technology innovations.

In addition, Multiwave also represents Xtellus in the USA. Xtellus' scalable family of liquid crystal based Wavelength Selective Switches provide unparalleled performance, reliability, and flexibility for state-of-the-art ROADM subsystems.

Both O-Net & Xtellus make it the highest priority to offer a cost effective, high performance, and top quality products. Their technology innovations only improve their customers operational goals!



**XTELLUS**  
DYNAMIC OPTICS



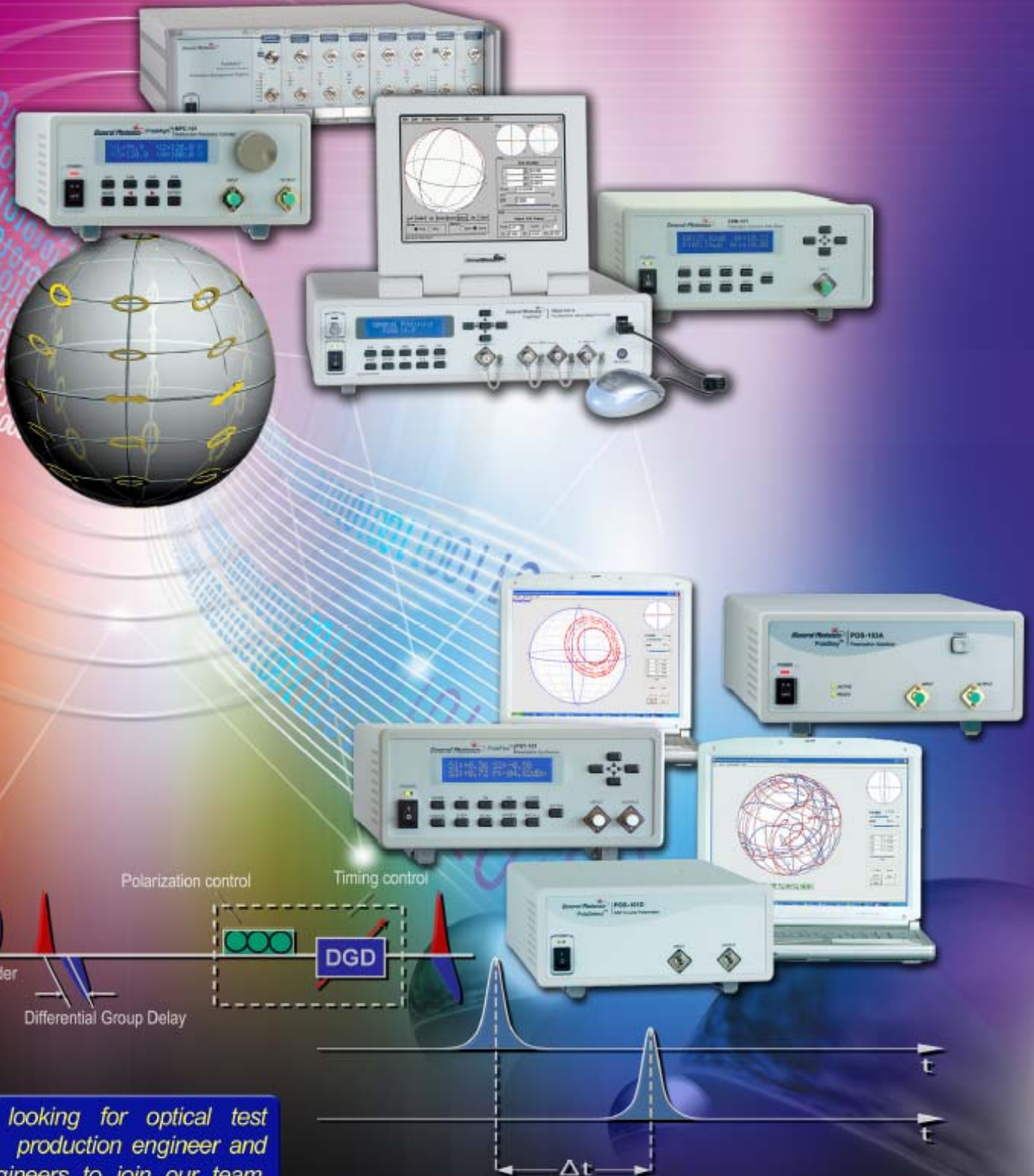
**O-Net**  
Communications



Making Light Work Lighter

**General Photonics**

# Concerned about polarization issues? — General Photonics has solutions.



We are looking for optical test engineer, production engineer and sales engineers to join our team.

General Photonics Corp., 5228 Edison Ave., Chino, CA 91710 USA

Phone: (909)5905473 Fax: (909)9025536 [www.generalphotonics.com](http://www.generalphotonics.com) Email: [info@GeneralPhotonics.com](mailto:info@GeneralPhotonics.com)





# DuPont Photonics Technologies

## **iVOA™** Integrated VOA Arrays

- 4-48 Channels
- Normally Open and Normally Dark Options

## **iOXC™** Optical Crossconnect Matrices

- 4x4, 8x8 Strictly Non-Blocking Switches
- Integrated Channel Balancing Option

## **iSELECT™** Integrated Switch/VOA Arrays

- 4-20 Channels
- Channel Monitoring Option

## **iDOS™** Integrated Switch Solutions

- 8-40 Channels
- OCM application

## **iVMUX™** Integrated VMUX Solutions

- 4-48 Channels
- Integrated Channel Monitoring Option

## **iROAD™** Integrated ROADM Solutions

- 8-40 Channels
- Integrated Channel Monitoring Option



DUPONT PHOTONICS TECHNOLOGIES, LLC  
REGISTERED TO IEC 60825-1:2007  
CERTIFICATE NO. A12127

100 Fordham Road, Wilmington, MA 01887, USA

tel: 978-2031200

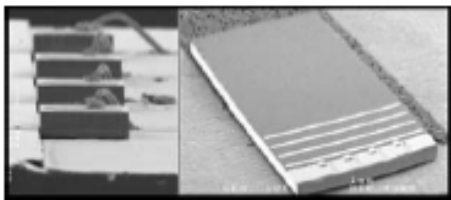
fax: 978-203-1299

[photonics@usa.dupont.com](mailto:photonics@usa.dupont.com)

[www.photonics.dupont.com](http://www.photonics.dupont.com)

## Planar Lightwave Circuits for Communication Networks

Founded in 2003, ANDevices' key staff members have nearly 20 years experience building planar lightwave circuits (PLC) for the communications industry. In 2007, we shipped > 7500 AWG modules and > 15,000 splitter chips. Our products provide critical functionality in long-haul, ROADM (metro), access and enterprise networks. In 2008 our tunable optical dispersion compensation technology will enhance long-haul transport networks, and our silica-on-silicon optical bench technology will provide cost-effective solutions for 10 GbE Tx/Rx enterprise networks and > 100 GbE applications.



### Hybrid Integration of Photodiodes 4 Laser diodes onto a PLC Optical Bench

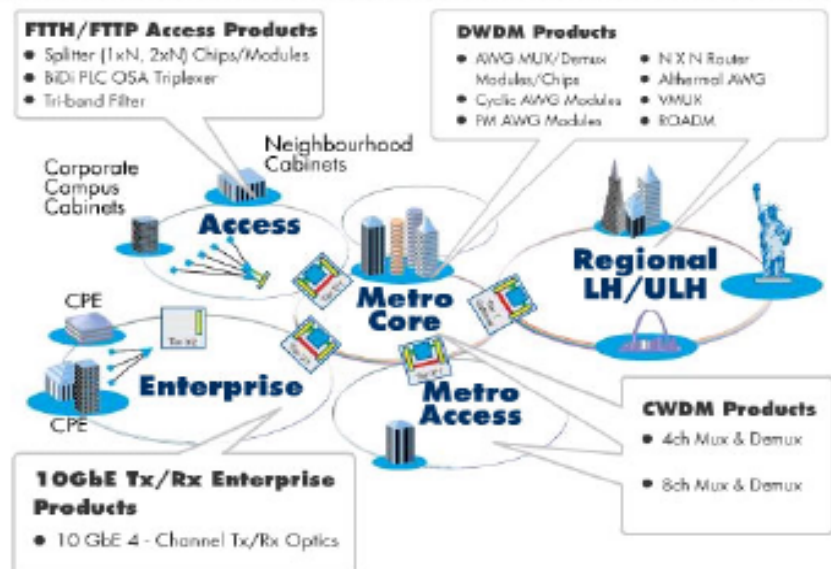


### 40-ch Optical Channel Monitor with Integrated Photodiodes



### Tunable Optical Dispersion Compensator

#### Products Overview



#### Product Lines:

- DWDM mux/demux
- MSA AWGs for ROADM/Wavelength Selective Switch
- VMUX/VDeMUX
- Polarization maintaining AWGs
- Colorless AWGs
- NxN AWGs (routers)
- Athermal AWGs
- CWDM mux/demux
- Splitters (1x4 to 2x32)
- Tunable Optical Dispersion Compensator
- Optical bench for Tx/Rx modules
- Interleavers



Your Best Partner



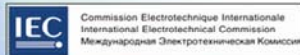
BROWAVE is the leading company in Optical Fiber Communication;  
Combining **Taiwan Management** and **Chinese Low Cost**  
Manufacturing with **High Qualification** Standard.



#### CAPABILITY

#### Business model is all under private labeling

1. Optical Manufacturing Service for Sub-Module/Sub-System (CM Model)
2. O/E Integrated Module; EDFA Integrated Module
3. CWDM/DWDM/OADM/PLC Splitter Module
4. Optical Components (ADF/Coupler/Isolator/Switch...); Elementary Parts



For more information on this product or other products now available from Browave,  
Please contact us at [sales@browave.com](mailto:sales@browave.com)  
Website : [www.browave.com](http://www.browave.com)



3F, No.30, Industry East Road IX, Science- Based Industrial Park,  
Hsin-Chu, T iwan •Tel: 886-3-5630099 • Fax: 886-3-5630022,5789243







**AOC Technologies, Inc.**



Founded in 1999 AOC Technologies, Inc. is one of the leading suppliers of Passive and Active fiber optical components & sub-modules that support CATV, Metro, Long Haul, Access and Government Agencies networks. We specialize in innovative & cost effective design for OEM of optical components including EDFA and sub-modules to expand optical bandwidth and enhance network performance.

With our combined 30 years experience in Fiber Optic industry & our global manufacturing facility, AOC have the capability to provide low cost contract manufacturing services for complex Opto-Electronic assemblies, Vertical Integration and Full Turn Key solutions.

AOC Technologies, Inc. USA  
6690 Amador Plaza Rd. #110  
Dublin, CA 94568 USA  
Tel: 925 875-0808; Fax: 925 -875-0878  
email: sales@aocotech.com

AOC Technologies, Inc. China  
Great Wall Science & Technologies Park,  
Eastlake High-Tech. Development Zone,  
Wuhan, China P.C: 430223  
Tel: 86-27-8792-2086, Fax: 86-27-8792-2089

[www.aocotech.com](http://www.aocotech.com)

**EOSPACE**

*Exceptionally-Low-Loss  $\text{LiNbO}_3$  Devices & Optical ICs*

*Technology originally-developed for most-demanding Aerospace systems*

8711-148th AVE NE, Redmond, WA 98052

[www.EOSpace.com](http://www.EOSpace.com)

[Info@EOSpace.com](mailto:Info@EOSpace.com)

State-of-the-Art, very-low-loss  $\text{LiNbO}_3$  devices & custom electro-optical IC modules for wide-range of  $\lambda = 650, 750, 850, 980, 1060, 1300, 1500, 2000^+$  nm (for Aerospace/Telecom applications)



● **10-40<sup>+</sup> G/s Phase & Intensity Modulators:**

high performance versions available:

- Ultra-Low-Loss <2 dB (custom 1-1.5dB)
- Ultra-Low- $V_{\pi}$  <3 V (custom 1-1.5V)
- Ultra-High-Extinction 30,40,..., <65dB
- Ultra-wide Temperature (-55°C → +100°C)
- 1x2, 2x2 dual-output wideband modulators
- Dual-drive 10/20/40Gb/s
- QPSK 20/40/100Gb/s

● **High-speed (10-100ns) Polarization controller**

for Pol. control / tracking / scrambling (for Pol. Mux, PMD compensation systems)

● **High-speed Optical 1xN, NxN Switches**

including **Polarization Independent** Switches

● **Custom "Application-specific" multi-stage Low-loss  $\text{LiNbO}_3$  electro-optical IC modules**



# WUXI ZHONGXING OPTOELECTRONICS TECHNOLOGY, LTD

## Company Information

### PRODUCTS

- EDFA for SDH C-Band
- EDFA for DWDM C & L-Band
- EDFA for CATV C-Band
- Distributed Fiber Raman Modules
- WZOM TX 2.5Gb/s Transmitter
- WZOM RX 2.5Gb/s Receiver
- SFP & SFF Module

### Business

- Design, manufacture and sales of optical fiber amplifier, transmitter, receiver and optical fiber sub systems.

### Competence

- Cost efficient labor and engineering
- Strong R&D team
- Healthy financial position to continue investment & growth
- World-class production & development facility
- ISO 9001 TUV certified
- ISO 14000 certified

Wuxi Zhongxing Optoelectronics Technology Co.,Ltd.

Tel: 86-510-85347000

Fax: 86-510-85347099

Add: Block 93-C, Science&Technology Industry Park, New District, Wuxi, Jiangsu, P.R.China.

[Http://www.wxzte.com.cn](http://www.wxzte.com.cn)





- 12.5Gb/s Lithium Niobate External modulators:
- 40Gb/s Lithium Niobate External modulators
- Customer Option



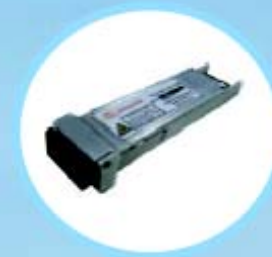
- APD:
- 10Gbps Standard APD
  - 10Gbps APD with VOA
  - 10Gbps High Sensitivity APD



10G TOSA



10G 300-pin MSA Tunable Transponders  
10G 300-pin MSA Fixed Transponders



10G XFP Transceivers



EDFAs



10G DWDM Subsystem  
2.5G CWDM Subsystem



Optical Protection Switch Subsystem



Anyhaul ULS(ultra long span)  
Repeaterless System(300km span)

# Breaking The Light Barrier



**YY Labs, Inc.  
USA**

**For analog signals**

**Mini-MBC-1**

**Mini-MBC-2**

**Ditherless MBC**

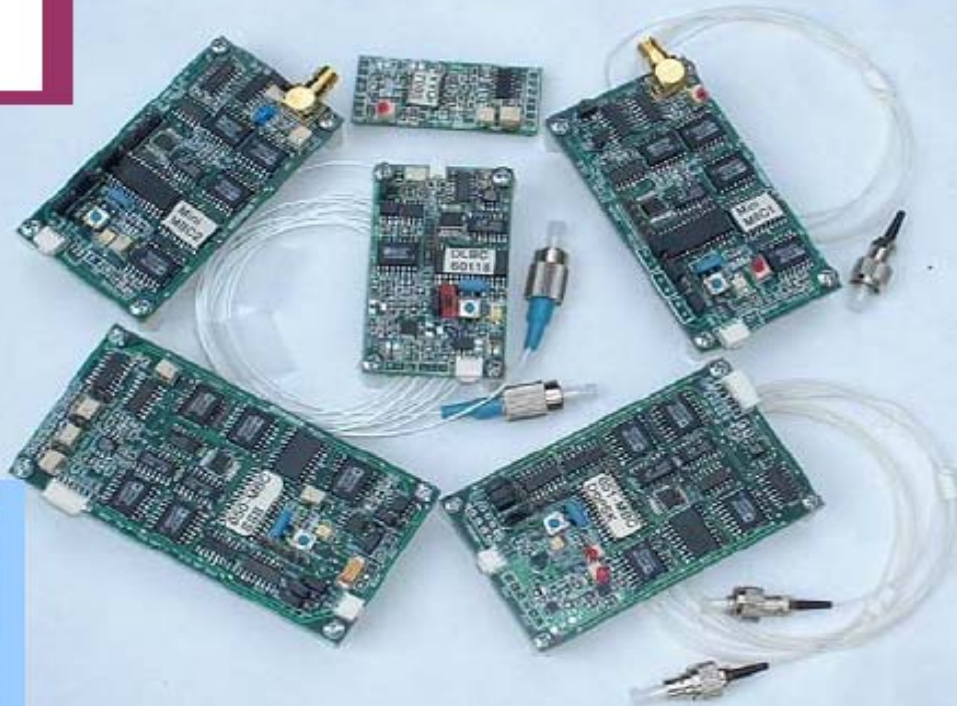
**For digital signals**

**DQPSK MBC**

**SSB MBC**

**Chip-MBC**

**Micro MBC**



**LN Modulator Bias  
Controllers**



# **Electro-Optics Association**

*The Photonics Society of Chinese-Americans Northern California Chapter*