

Alex Fong

From: Florida Photonics Cluster [alexandre@floridaphotonicscluster.ccsend.com] on behalf of Florida Photonics Cluster [alex.fong@cirrusphotonics.com]
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Florida Photonics Quarterly

The Florida Photonics Cluster Newsletter

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July 2010

FROM THE PRESIDENT -- Alex Fong



I wanted to begin this newsletter with a special birthday wish: the laser marks its 50th year since its first successful demonstration. The laser is likely the embodiment of the the photonics industry due to its sheer ubiquity and incredible utility. Like so many of photonics innovations it has quickly become a part of our everyday lives touching almost every aspect of what we do. It enables the development and production of other technologies such as semiconductors and even other photonics! Photonics is known as an 'enabling technology' and few contributions are as indispensable.

Yet it's important to remember that Maiman considered the laser "a solution looking for a problem." I think there is a lesson in that for us working in photonics today.

At events across the world, the laser and its inventors are being recognized and celebrated and at one event at the Smithsonian in Washington, DC featuring Steven Chu, Nobel Laureate and Secretary of the DOE, one could not help but be moved and feel a sense of both humility and pride simply to be amongst such seminal contributors to mankind's body of knowledge.

There is much for us in photonics to be proud about. As I said

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the laser has begat a tremendous legacy of technologies that are now intrinsic to everything we do and our performance as an industry during the current challenging economic period is evidence of that. In fact, industry analysts OEM Capital recently noted that:

"Photonics Market Index handily beat the S&P500 Index of stocks for the first quarter. The Index was up 15.3% against the S&P500 return of 5.6%. In fact, the Photonics Market Index beat most of the technology indexes for Q1. We have a great industry with a bright future to invest in. Public companies in our industry are now trading at 3.5 times revenues (Total Enterprise Value / Total Revenue). This is up from 2.9 times revenues at the end of 2008 and 2.6 times revenues at the end of 2009. For other statistics please see the report..."

So while there are still challenges ahead, there is plenty to celebrate about!

Interview with Nathan Cohen of Imperx

We recently had an opportunity to spend some time with Nathan Cohen, Sales Manager at Imperx, Inc. A world-wide leader in imaging solutions. Imperx has had impressive performance even during these challenging economic times. I hope they could share some of what has made them such consistent performers.



Nathan, tell me a little bit about how your company started?

NC: Imperx began its operations in 2001 in Boca Raton, Florida. The CEO/President of Imperx, Dr. Dinev, is a visionary in the imaging field. One of his early concepts was a portable brain scanning device. At that time, nobody in the world developed a video capture card (frame grabber) for laptops, therefore, Dr. Dinev created the laptop video capture card. The concept was an absolute success as the prices of laptops were beginning to become reasonable. Utilizing the sales from this product, organic growth began at Imperx with the development of 2 more capture cards (another analog and a digital version).

Dr. Dinev's true passion is in camera technology. His history includes designing sensors at Sarnoff, being part of NASA Imaging Labs camera development team and designing cameras for mobile phones and the consumer market. With this experience, he felt he could bring imaging to the next level. The first Imperx cameras were shipping in 2003. The

Imperx digital cameras began with the highest picture quality that the machine vision and military market could find with the most features. Within 1 year, Imperx managed to manufacture 10 models of cameras with 5 different Kodak based progressive scan Interline Transfer sensors.

Moving forward, newer FPGAs were being manufactured. Each FPGA had more speed, more capacity and less power consumption than the previous. Imperx then became interested in manufacturing a camera with more features and be prepared for the development of the latest digital camera output, Gigabit Ethernet. Imperx streamlined the camera process by building a platform in which the cameras shared the feature set and internal boards. As the company grew, this became extremely important in both speed of manufacturing and inventory control for a dozen different camera models.

What were the main obstacles experienced?

NC: Imperx almost had no obstacles selling frame grabbers into industrial companies. We soon learned that sole-source suppliers were not accepted very well with military customers. In 2002-2003 a couple more companies came into the market with video capture products for laptops, however, mostly consumer grade. After 2003, the frame grabber market grew dramatically quickly for Imperx. Meanwhile, the camera sales began slowly. Major industrial manufacturers wanted history on the cameras. Obviously, it could be detrimental to a company's business if a camera stops working. A production line that is stopped can cause revenue losses, sometimes extremely significant. Many OEMs who utilize cameras in their equipment preferred to utilize companies that had a brand-name or long history for the same reason. One of our largest competitors at the time was a 'spin-off' directly from Kodak. Unfortunately, that was widely known. The military customers and military contractors inspired a wave of procedures, internal manuals, documentation of product, process handling, clean room hoods for camera assembly and more. These steps were extremely time consuming but worth every minute to achieve our long term plans of working with military customers. Imperx's products are engineered and manufactured in the United States has had a big role in having military accounts.

What differentiates you from your competitors?

NC: Imperx's cameras have always had the concept of best image quality, lowest noise, most features with the lowest power consumption. Our engineering staff works very hard at selecting the best components. This allows our cameras to have firmware which can be designed to do almost anything without sacrificing image quality or power consumption. We have put hundreds of features into our cameras which makes the camera universally compatible for any application including airborne imaging, medical imaging, particle velocity measurement, machine vision for production lines, film scanning and much more. In the rare event that customers wish to have the camera do something unique, Imperx's design allows us to develop firmware and email it to the customer. Imaging professionals worldwide can then work with our

engineers in their own offices and try the revisions in their application immediately. As we have seen, this reduces time-to-market dramatically in products which require customizations.

We also understand the importance of large temperature variations, product integrity and lifecycle. We have changed the internal components of the cameras to handle a temperature range of -30 to +60 degrees C. We have found that we have become a leading choice in many applications where the temperature cannot be stabilized or where the cameras are in extreme temperatures such as the fuselage of an airplane in high altitudes or in the desert on tanks.

The manufacturing is our best attribute. Each board in every camera is functionally tested before it leaves our ISO9001 board fabrication facility. In our manufacturing labs, each camera is given a minimum of 24 hour lifecycle testing where power is cycled and temperature is changed. The camera is then retested, programmed, balanced both visually and with computer technology. We will generate a complete camera diagnostic on cameras being purchased by request.

How are you coping with the current economic conditions?

NC: Our CFO, Gregory Pangburn, began carefully studying the economics preparing for what could come up. We essentially reduced our labor for manufacturing, reduced company contributions (as all company's had) and pulled back some advertising. In early January 2009, we were prepared and handled the change in economy quite well until Q4, 2009 when orders flooded in. We have since returned back to normal operations and 2010 has been our fastest growing year thus far. Our manufacturing is larger than it has ever been.

Thoughts on where you are headed in the future?

NC: We recently designed a new camera which is based upon the latest generation of components which has the most features on the market and the lowest power consumption CCD camera as well. Imperx has been focused on streamlining our production with common boards and components which makes lead times shorter and component acquisition easier. The benefit to the customer is that once an imaging engineer becomes proficient with a single one of our cameras, they are proficient with all. With that philosophy, we are constantly growing the resolutions, sensors and sensor types. We also have goals to utilize sensors that are even larger and higher frame rates. This would require much more data throughput. We will develop technology to handle the higher bandwidth.

Thanks so much for your time!

NC: Enjoyed it!

THANKS TO IMPERX! -- FPC BRONZE PATRON 2010

A very special thanks to FPC
Member Company, Imperx,

IMPERX  **INCORPORATED**

Inc., who renewed its membership for 2010 at the Bronze level. (<http://www.imperx.com/>). A Bronze level membership helps sponsor the overall activities of the cluster.

Imperx is a leading designer and manufacturer of high-performance, high-quality digital cameras and frame grabbers for various Industrial, Commercial, Military and Aerospace imaging applications including Flat Panel Inspection, Biometrics, Aerial Mapping, Surveillance, Traffic Management, Semiconductors & Electronics, Scientific & Medical Imaging, Printing, Homeland Security, Space Exploration, and other imaging and Machine Vision applications.

Imperx executive and R&D teams are recognized as world leaders in the field of digital imaging. We have quickly gained a reputation among our customers as a company that prides itself on providing technologically superior, high-quality products with a focus on customer service and technical support. We have shipped our products to hundreds of customers worldwide including Fortune 100 companies, Federal and State government agencies, domestic and foreign defense agencies, academic institutions, etc. Our manufacturing facilities are certified for ISO 9002 compliance.

Economic Gardening

Cultivating growth companies across the state is the mission of the Florida Economic Gardening Institute, funded by the Florida Legislature at the University of Central Florida and involving a host of partners committed to local delivery of statewide services to help second-stage companies achieve their potential. At no charge, GrowFL will provide a suite of high-end, high-speed technical assistance and business resources to companies that have grown beyond the startup phase and need access to information and decision-making tools typically only available to larger companies. Check it out at <http://www.growfl.com/>.

East Orlando Chamber of Commerce 2010 Visioning Luncheon

FPC President, Alex Fong
Panelist on Economic Cluster
and Growth Discussion



FPC President Alex Fong represented the Florida optics and photonics industry at the annual "Visioning" luncheon of the East Orlando Chamber of Commerce on May 19. The program

was designed "to hear from some of the biggest Economic Clusters that create innovation and continue to propel our economy forward." The objective was to continue dialogue on community visioning and support the Chamber's re-energized commitment as Central Florida's Innovation Gateway. Attendees enjoyed hearing from representatives from some of the most innovative Economic Clusters that continue to propel our economy forward, despite the recent downturn.

Each industry representative addressed their economic impact to our area, industry trends on the horizon that will impact our community, any expected job growth opportunities, and their greatest needs from local businesses and much more. The panel included:

Simulation & Training: Waymon Armstrong, President of Engineering & Computer Simulations, Inc.

Digital Media: Dustin Clingman, CEO of IMI Labs, LLC

Optics & Photonics: Alex Fong, Sr. Vice President, Life Science & Instrumentation

Bio-Tech & Life Science: Lars Houmann, Chairman of BioOrlando & President of Florida Hospital

Aviation & Space: Percy Luney, Vice President of Space Florida

Moderator: Jim Spaeth, President, Remora Partners

FPC General Meeting held June 23, 2010

Photonics and Medical City: An Innovation Conversation

The meeting was held at the Sanford-Burnham Institute in Lake Nona and was hosted by the Florida Photonics Cluster, Lake Nona, Sanford-Burnham Medical Research Institute, and Metro Orlando EDC/BioOrlando.

The event was designed to begin a partnership dialog about how we can build on our current R&D and commercial strengths in optics and photonics in Florida and accelerate innovation in clinical care and biomedical research in Central Florida. Attendees included members of the Florida Photonics Cluster (FPC) and others from the Florida photonics community, leaders from the Sanford-Burnham Medical Research Institute, UCF College of Medicine, VA Medical Center, and Nemours Children's Hospital. Presentations were made by each of these organizations highlighting their current activities and plans for further development. In addition, a presentation was made on the new GrowFL program at UCF. A tour of the Sanford-Burnham Institute facilities was also part of the program.

Discussions after the presentations and tour identified several opportunities and action items that will be addressed in the coming weeks:

(1) The College of Medicine, and possibly other Lake Nona hospital facilities, can provide opportunities for researchers to make rounds with physicians. This will help define the needs of the physicians and the hospitals that require new research and development work.

- (2) Create forums to promote collaborations where
 - i. Researchers and practitioners define the limitations of their current equipment, procedures, and materials so that companies can tailor their research and development work to overcome the limitations.
 - ii. Companies describe what they can do, and possibly also the things that may be unique to them and not yet commercially available.

(3) The FPC can be a "matchmaker" - a central point of contact - for issues, questions, etc. that need to be transmitted to industry.

(4) The Metro Orlando EDC will get invitations to BioFlorida meetings to the attendees of this meeting and all FPC members.

(5) The FPC will develop a database of contacts at the organizations attending this meeting, and others that were unable to attend.

(6) The FPC and the UCF Incubator will work together to build a collaboration database and network for proposals.

For additional information and to become a participant in this partnership dialog, please contact either Jim Pearson, FPC Executive Director, jpearson@mail.ucf.edu, or Thad Seymour, VP Life Sciences, Lake Nona, tseymour@lakenona.com, or Rob Adams, VP Marketing, Lake Nona, radams@lakenona.com.

SAVE THE DATES: FPC-MACF Joint Meeting - Sept 22 and HI-TEC Conference - July 26-29

The next FPC meeting will be held Wednesday, September 22, 2:00pm-5:00pm followed by a networking reception, and no-host dinner for those interested. The meeting will be at Ocean Optics and will be held jointly with the Manufacturers Association of Central Florida (MACF).

Other Upcoming Events:

HI-TEC Conference - July 26-29 at the Omni Orlando Resort: www.highimpact-tec.org.

50th Anniversary of the first laser demonstration

Fifty years ago, on May 16, 1960, Theodore Maiman built the first functioning laser, demonstrating the operation of a ruby laser at Hughes Research Laboratories.

The world's professional societies, including SPIE, OSA, LIA, and the Institute of Physics (IOP), have been celebrating laser technology all year, through programs such as the tribute "Advancing the Laser: 50 Years and Into the Future" and as Founding Partners of LaserFest, a collaboration among the scientific community. Some of the items in this anniversary celebration include the following:

- The laser anniversary has received high-level recognition in the U.S., through a Presidential Message in which President Obama recognized the "intensely creative theoretical work," that led to the development of the laser, "followed by innovative engineering, and a spectacular diversity of applications that have brought economic benefits unimagined at the start of the process." He went on to say he looks forward "with real excitement to further advances in this field and new applications as yet undreamed of today.". In addition, a Congressional resolution passed by the US House of Representatives recognizing the anniversary, as well as the need for continued support of scientific research. The resolution called the laser "one of the ground-breaking scientific achievements of the 20th century," and noted the economic impact of lasers, expected to be nearly \$6 billion in sales globally this year.

- A large historical laser display was organized by SPIE in conjunction with a LaserFest Symposium at CLEO/QELS in San Jose, California, 16-21 May, and will be shown at SPIE Optics + Photonics in San Diego, California, during the first week of August. It can also be seen online in a virtual laser museum.

- OSA has a number of interactive videos, galleries, and open-access articles on the laser on their website at <http://www.osa-opn.org/OpenContent/Feature7.aspx>

- The May issue of IOP's Physics World is a special issue devoted to laser science and technology, and is available for free download at <http://physicsworld.com/cws/download/may2010>.

- The IOP's website at <http://physicsworld.com/cws/channel/multimedia> has a series of video interviews with some leading lights in laser science:

Visit the Advancing the Laser website for complete information and additional links: <http://advancingthelaser.org>.

New Look for the FPC Website!



Thanks to the in-kind contribution of our one of our associates/partner members, On Target Web Solutions, the Florida Photonics Cluster website has a fantastic new look including many Web 2.0 features. If you haven't visited in a while, drop in to check out job and talent postings, events calendar, items on the Blog, or to renew your membership: www.floridaphotonicscluster.com. Let us know your thoughts about the revamped site or better yet 'Tweet' us'.



CHECK OUT THE NEW LOOK OF THE FPC BLOG-SITE!

[Ask Questions, share your thoughts and find out what's happening in Florida Photonics at www.floridaphotonicscluster.blogspot.com!](http://www.floridaphotonicscluster.blogspot.com)



JOIN FPC'S NETWORK ON LINKEDIN!

[Don't miss the new FPC network established on LinkedIn!](#)



A Florida Photonics Cluster Group has been established on "LinkedIn." LinkedIn is a business-oriented social network service, mainly used for professional networking. As of December 2007, its site traffic was 3.2 million visitors per month, growing at an annual growth rate of about 485%. As of March 2008, it had more than 2 million registered users spanning 150 industries. There are other similar sites, but LinkedIn is by far the largest, best known, and most popular.

The way it works is that members post professional information much like an online resume. The site will analyze the data and suggest people you might have met or worked with in the past and start compiling a network of contacts that it can keep you posted on. In turn, others on the network can invite you to join their network, which then connects you to other potential people in your industry that you can draw upon. It automates the networking process allowing you to efficiently make connections through those you know to people and companies/organizations you seek to further a relationship.

Creating a group for the FPC fulfills part of our charter to create opportunities for networking. Several individuals from FPC

member companies have joined the LinkedIn FPC network.

[Join the FPC network on LinkedIn today!](#)

<http://www.linkedin.com/e/gis/89774/0F904052D5CC>

WELCOME NEW FPC MEMBERS!



Bond, Schoeneck, & King, PLLC Attorneys. Bond, Schoeneck & King, PLLC was founded in 1897 and since then the firm has developed a reputation for professional excellence, integrity, and success that lives on more than a century later. BS&K 's business, higher education, intellectual property, and litigation clients come to us from across the Northeast, while our other practice areas are leaders throughout their regional presences in New York and Florida.



In December, 2009, Präzisionsoptik Gera GmbH (POG) of Gera, Germany, announced it formed a US subsidiary, Precision Optics Gera Corp., effective Jan. 1. Buzz Nesti is president of the Florida-based subsidiary; Glen Dunn is sales manager. POG, with its staff of 100, manufactures custom and standard microstructures on glass and ceramics. It also produces custom optical systems and components from the UV through IR for the machine vision, semiconductor, aerospace and defense industries. POG's new sales offices are located in Florida and Colorado.



Manufacturers Association of Central Florida (MACF)
The Manufacturers Association of Central Florida (MACF) is a non-profit organization enhancing the manufacturing industry in Central Florida. For two decades, MACF has worked to elevate the image of local manufacturing and provide its members with a competitive edge in today's business environment through the promotion of information and education. MACF is comprised of a dynamic group of companies and shares the vision of a business climate where both manufacturers and non-manufacturers can expand, prosper, and bring value to our community. www.macf.biz



ER Precision Optical is a diverse manufacturing company located in downtown Orlando. The business was incorporated in March of 1992 and holds over 150 years of industry experience combined. ERPOC specializes in optical fabrication and optical assemblies as well as advanced inspection and testing processes. Applications include but are not limited to Commercial, Military/Defense, Medical and Scientific. www.eroptics.com

JOIN THE FPC TODAY!



[Enjoy the benefits of FPC membership!](#)

[Why Join FPC? To Make Money!](#)

Benefits of FPC Membership:

- Identify common needs and interests
- Leverage to develop opportunities through joint efforts, pooled resources and knowledge
- Regional, Statewide, National and International Reach Small, Medium, Large Corporations, Academe, and Government all Benefit!

FPC Membership Benefits Include:

- The strength of a unified industry voice providing a platform for local and state legislative support
- Visibility for your company through FPC's website, marketing literature, and trade show displays with member spotlight on companies and products and opportunities to participate in state and national sales and marketing efforts
- Liaison opportunity with other international photonics organization such as other photonics clusters (Arizona, Rochester, UK), scientific societies (OSA, SPIE) and industry trade organizations (OIDA).
- Networking opportunities through annual and regional membership meetings
- Discounts (10%) on exhibit space and other special

benefits at SPIE and OSA conferences. Typical benefit per show start from over \$300 (10' X 10' booth) and \$600 (10' X 20' booth).

- Discount of \$300 to the membership rate with the Industrial Affiliates Program of the University of Central Florida's CREOL, The College of Optics and Photonics
- Admission to all Florida Photonics Cluster Events included in membership
- Access to service providers that can assist your company with the actions that are necessary for sustaining your business such as banks, suppliers, and professional marketing, communications and legal services organizations at preferred rates
- An expansive resource base that includes partnerships with Enterprise Florida, area economic development organizations, the Florida High Tech Corridor Council, and CREOL, to provide access to incentives and business development programs and research
- Assisted access to venture capital and opportunities to help develop Florida photonics companies into worldwide participants
- Opportunities to participate in the curriculum development in state universities and community colleges and advanced access to Florida's best and brightest students and the additional ability to recruit nationwide through the FPC website

[Join FPC today and enjoy the benefits of membership!](#)
[For more information, visit \[floridaphotonicscluster.com\]\(http://floridaphotonicscluster.com\).](#)



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[The Florida Photonics Cluster \(FPC\) Website now accepts donations, member dues, and other payments through Card Systems, Inc. \(<http://www.cardsystems.com>\)](#)

Card Systems is a fast, convenient and safe way to make online purchases and transactions via credit card. Note that submission of a membership application is still required for new applicants joining the FPC, and for updating renewing memberships. A link is provided from the new FPC website.

Greetings FPC Members and Friends,

The Florida Photonics Cluster is designed to support the growth and profitability of the Florida photonics industry through the strength of a unified voice to make Florida the place to go for photonics solutions. The FPC is dedicated to enhancing the industry through effective collaboration by bringing together the knowledge, expertise, and service that each of its members organizations has to offer.

FPC Goals

- Foster the expansion and growth of Florida's optics and photonics industry by partnering with economic development organizations, the state universities, and community colleges, and local and state governments.
- Market Florida's optics and photonics companies worldwide.
- Facilitate and provide a means of communication within the business community.
- Partner with the Florida education community to enhance and develop a competent statewide optics and photonics-based workforce.
- The FPC is a 501c(6) not-for-profit corporation, registered with the Florida State Division of Corporations.

[For more information, visit www.floridaphotonicscluster.com today!](http://www.floridaphotonicscluster.com)

Sincerely,

Alexandre Fong, President
Florida Photonics Cluster

Jim Pearson, Executive Director

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