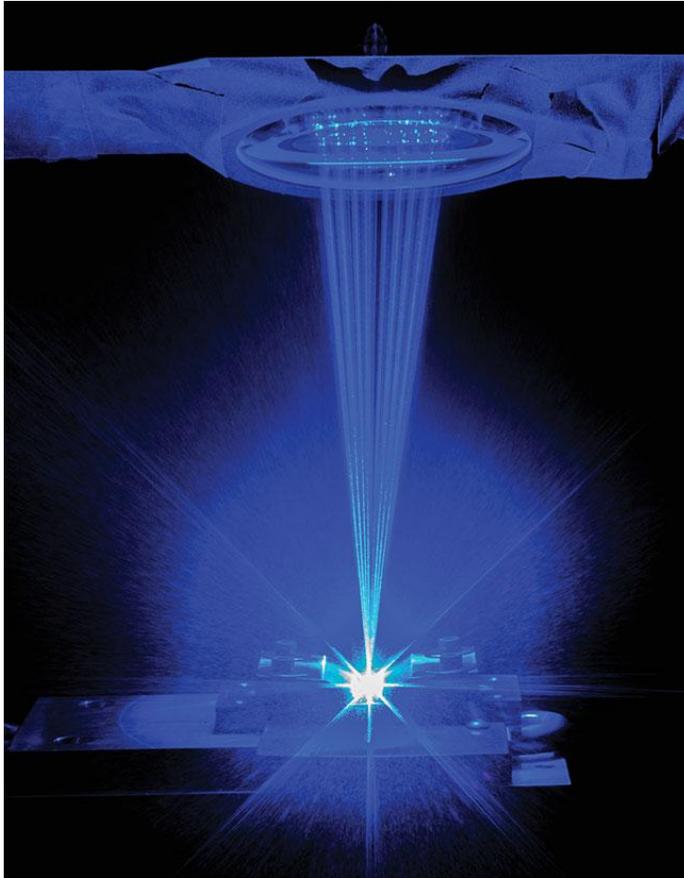


OPEN Optics and Photonics Education News

Newsletter of the Optics and Photonics College Network

February 2019

Welding Metals with Blue Laser Light



Blue wavelengths are highly absorbed by many materials_ leading to qualitative and quantitative advantages to welding metals
www.photonics.com_Article.aspx_AID_63941

From the Executive Director



New breakthroughs and innovations in lasers and optics continue to stimulate the rapid expansion of photonics applications. The first graphic in this issue represents the advantages of welding metals with blue lasers. The first article explains how optical sensors are enabling smart phones to be used effectively in education, food safety, health care and environmental monitoring.

Last week, a large group of Iowa students and faculty were able to learn about some of these applications first-hand when they attended the Photonics West Conference Exhibition and visited several industry sites in the San Francisco bay area. The students

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Upcoming Events

- 2/28/19
Alcon Day at IVC
Tustin, CA
- 03/13/19 - 3/15/19
OPCN Meeting
CREOL Industrial Affiliates
Symposium
Orlando, FL
- 06/10/19 - 6/13/19
Laser Material Processing
Workshop at Indian Hills
Ottumwa, IA
- 06/24/19 - 6/28/19
OP-TEC Online Course
Hands-on Capstone Labs
Indian Hills, Ottumwa, IA
- 07/22/19 - 07/25/19
High Impact Technology
Exchange Conference
St. Louis, MO
- 08/5/19 - 08/6/19
Fundamentals of Photonics
Workshop at Indian Hills
Ottumwa, IA

also had the opportunity to network with college alumni and industry partners at a reception sponsored by the IEEE Photonics Society, MPEC, LASER-TEC, and AIM Photonics.

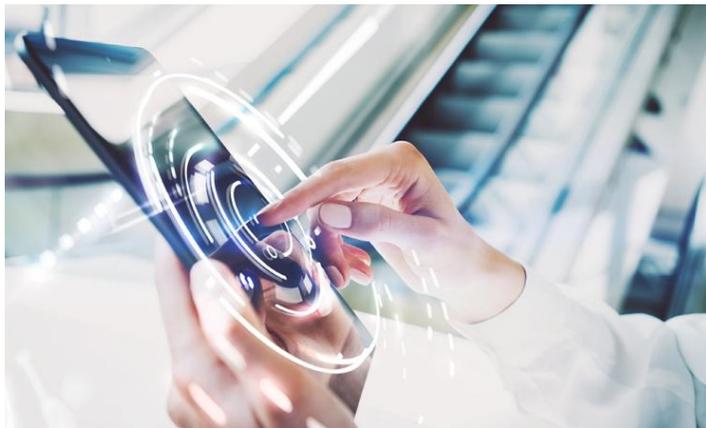
It is the time of year for your 2019 graduates to be applying for work! This month's faculty resource, "Successful Job Placement for Technician Students," provides examples of how some Optics and Photonics College Network members help prepare their students for the world of work. You may also get some ideas from LASER-TEC's article about Indian River State College's annual job search workshop for students.

Photonics faculty attending OPCN meetings at the CREOL Industrial Affiliates Symposium, March 13-15, will learn about employer interest and recent SPIE considerations for supporting photonics technician education.

Dan Hull

Smartphone Optical Sensors

Optical add-ons and apps that take advantage of smartphones' connectivity and computing power are opening up opportunities in education, food safety, health care and environmental monitoring.



Smartphones and wearable devices empower much of our everyday lives, providing driving directions, offering organizational help and facilitating social connections. The integrated sensors in these devices allow tens of millions of people to use them for monitoring their health by tracking physical activity, heart rate and sleep. The optical sensing of the phone's high-resolution camera offers a link to GPS tagging for in-situ mapping, and to cloud-based computational power to run complex analysis.

These are examples of the potential of the smartphone as an optical platform, for education, health and science. Some of the applications that smartphone optical sensors are enabling-both via the phone's onboard camera, and through the addition of new sensors to the platform, include the following:

- Using the smartphone camera directly as the optical sensor allows for rapid prototyping.
- A "lensless microscope", based on holographic digital imaging, using light scattering.
- A mobile microscopy system, that uses the phone camera as the imaging device for health applications including detection of tuberculosis, malaria, parasitic worms and ocular diseases.
- Optical mobile platforms are being used in education.
- Testing for water safety

OP-TEC Offers Final Online Faculty Courses



This will be the last offering of these courses by OP-TEC! If you've been thinking about taking one of them, now is your last chance!

Spring is a great time to complete one of OP-TEC's online courses developed to prepare faculty and laboratory staff to teach with OP-TEC's Fundamentals of Light and Lasers (Course 1) or Laser Systems and Applications (Course 2).

The open entry/open exit courses are available through the Canvas online learning management system 24/7 through May 31. Participants gain access to course syllabus, end of module tests, video links, and other resources that support teaching with these textbooks. Participants who successfully complete their online course will be invited to a hands-on laboratory capstone experience during the week of June 24-28 at Indian Hills Community College in Ottumwa, Iowa.

For more information or to enroll in Course 1, visit www.op-tec.org/faculty.

For Course 2, please email cdossey@op-tec.org.

Alcon Day at Irvine Valley College



Click [here](#) to read the article in Optics & Photonics News.

OPCN Meeting Planned for Orlando, Florida March 13-15, 2019



OP-TEC will host in-person meetings of the Optics and Photonics College Network in conjunction with the CREOL Advances in Optics and Photonics Industrial Affiliates Symposium which will be held March 14-15 at the University of Central Florida in Orlando.

Complimentary registration and hotel (nights of March 13 and 14) is included for OPCN Coordinators or college lead faculty who reserve by February 1st! OP-TEC is also offering reimbursement of eligible airfare or mileage for travel to Orlando on March 13 and return March 15. Depending on availability, our hotel will also honor our discounted rate for up to five days before or after these dates if you care to extend your trip at your own expense.

Tentative Agenda:

Wednesday, March 13

Travel to Orlando
OPCN/SPIE dinner meeting at our host hotel

Thursday, March 14

9:00-12:15 90-minute short courses (choose 2 of 4)
12:15-1:00 Lunch break
1:00-2:15 OPCN Meeting
2:30-4:30 Student posters, exhibits, CREOL lab tours
4:30 Tribute to Boris Zeldovich

Friday, March 15

Continental Breakfast
Welcome to CREOL
Technical Speakers & exhibits
Product Reviews
Lunch
Technical Speakers & exhibits
Travel home (or extend your stay at our discounted hotel rate)

Please contact [Christine Dossey](#) at OP-TEC for information and reservations.

Indian Hills Alumni & Friends and Workforce Development Reception at Photonics West

Indian Hills Community College held an Alumni & Friends Reception in conjunction with an IEEE Photonics Workforce Development Meet & Greet on February 6, 2019 while at the Photonics West Exposition in San Francisco. The event was sponsored by the IEEE Photonics Society (Institute of Electrical and Electronics Engineers) with additional partners including MPEC (Midwest Photonics Education Center), OP-TEC (National Center for Optics and Photonics), LASER-TEC (Southeast Regional Center for Laser and Fiber Optics Education), and AIM

Irvine Valley College's new School of Integrated Design, Engineering and Automation (IDEA) is partnering with Alcon, the trusted leader in eye care, to provide an opportunity for students to experience new technology in education.

Students will experience a day in IDEA laboratories with IVC faculty to learn how the college's curriculum can prepare students to manufacture and maintain Alcon's cutting-edge products and breakthrough technologies.

Demonstrations will be conducted by faculty from Laser, Electronics, Manufacturing and Engineering technology departments.

February 28, 2019
8:30 am - 1:00 pm
IDEA Building at ATEP
1624 Valencia Ave.
Tustin, CA 92782

For more information, contact Neda Arab, Vital Link Career Exploration Program Coordinator, at 949-646-2520 or neda@vitallinkoc.org.



Puerto Rico Photonics Institute to Host Zemax Optical System Design Course



The Puerto Rico Photonics Institute of the Ana G. Mendez University and Zemax will be holding a 5-day Optical System Design course using OpticStudio. This is an introductory course to the use of OpticStudio sequential design environment emphasizing design, optimization and tolerating of imaging systems through hands-on exercises.

Photonics (American Institute for Manufacturing Integrated Photonics).

The event was held at the Tabletop Tap House, a popular gathering place near the Moscone Center which is the home of Photonics West, North America's largest photonics focused exposition and conference. Photonics West was a perfect venue for these partners to meet and discuss photonics workforce development. IHCC President Dr. Marlene Sprouse welcomed and thanked everyone for coming and for their continued support of IHCC through hiring program graduates, donating equipment, funding scholarships, partnering in events, and providing company tours.



The 120 attendees included alumni, students, and instructors from IHCC, IEEE members, representatives from MPEC, OP-TEC, LASER-TEC, and AIM Photonics, as well as friends from companies such as TRUMPF Inc., Thorlabs, RPMC Lasers Inc., LightPath Technologies, NUBURU, Amplitude, BAE Systems, Kentek, Photonic Cleaning Technologies, the Lawrence Livermore National Laboratory (LLNL), as well as SPIE, San Francisco Exploratorium, Florida Photonics Cluster, and others. Attendees enjoyed refreshments while making new friends, renewing old friendships, reliving past times, and discussing new opportunities. IHCC alumni in attendance are now working in a wide range of careers including Program Managers, Business Development Managers, Vice Presidents, Sales Managers, Product Managers, Applications Engineers, Sales Engineers, and Engineering Technicians.

Seventeen IHCC students traveled to California for the event and to attend Photonics West, tour the National Ignition Facility at the Lawrence Livermore National Laboratory, Spectra Physics, and the Lick Observatory. The students raised funds throughout the year by selling barbecued pork and chicken sandwiches at basketball games, holding raffles, and other fundraising activities. The National Science Foundation supported a portion of the student's travel expenses through MPEC.



LASER-TEC Workshop Prepares Degree Candidates for Job Search and Application

Register by clicking [here](#).

The course will be held at the facilities of the Puerto Rico Science, Technology and Research Trust in San Juan, Puerto Rico, March 13-17, 2019.

Please contact Jonathan Friedman jsfriedman@suagm.edu for recommendations for accommodation or other questions.

SAVE-THE-DATE

OPCN Meetings and Industry Site Visits
HI-TEC Conference
July 22-25, 2019
Hyatt Regency
at the Arch, St. Louis



PACT Alumni Spotlight



Dr. **Bruce Brinson** describes his life as "a random walk." At first, photonics was not a driving passion. A coworker told him about a man who worked with lasers and had been educated in Waco, Texas, at Texas State Technical College (TSTC). "I drove over to Waco, talked to some people in the department, and moved into the dormitory that day."

Upon completion of his associate degree, Bruce was

Many graduating community college students will struggle with searching for job openings and putting together a professional, comprehensive, and relative resume and cover letter. This and the lack of interviewing skills become some of the main obstacles for students in securing a first job that can become the basis of a successful career in the photonics industry. To address these challenges, LASER-TEC hosts an annual two-hour training to help prepare its laser and fiber optics students for the job search, application, and interview process.



In January 2019, LASER-TEC Principal Investigator Dr. Chrys Panayiotou presented about the best approaches in job hunting, specific to the field of electronics engineering technology, lasers, and fiber optics. The presentation covered topics including job search methods, resume and cover letter writing, application tracking, interviewing skills, and the importance of phone and email follow-up with potential employers throughout the process. At the end of the training, the students were given an assignment to prepare an application for a currently available position and send it to Dr. Panayiotou for his review. Attendance of this workshop was strongly recommended and was a part of the mid-term grade.

If you would like to learn more about this training and LASER-TEC job application resources, contact Chrys Panayiotou at (772)462 7621 or cpanayio@irsc.edu.



Job Placement for Photonics Student Completers

In three or four months many photonics technician students will complete their education/training and begin to enjoy the benefits of their hard work: Successful Employment in a Desired Job.

Successful employment considerations may include:

- Location
- Type of work assignments
- Salary
- Long term career opportunities

Every year, optics and photonics employers require more new technicians than our college are producing. The opportunities are available; therefore, students need to engage in appropriate job placement strategies. Faculty can empower their students to secure their job expectations.

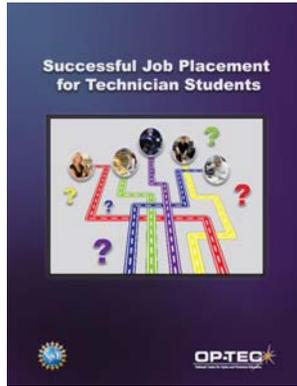
hired by the Department of Electrical and Computer Engineering at Rice University in Houston, Texas. "I was working with lasers and electronics," he says. "I saw systems that people like Jerry Reay (a former TSTC faculty member) said we would learn about but were 'never going to see in the real world.' Well, I saw them and I built them."

Bruce was blessed by circumstance, but he was also blessed by a tenacious patience that slowly but surely sought out the means to further his education. Plenty of encouragement came from mentors and friends as well. Dr. Dial Martin, a retired faculty member of Texas A&M University, said to Bruce, "If you really want to go back to school and you find a way to get in, you'll find a way to stay." He was right. Now TSTC can count Bruce among its alumni as one of today's most promising researchers and developers of new photonics and nano technologies.

Read more about Bruce and other successful technicians in [Success Stories in Photonics Careers](#).

For Previous Issues of the OPEN Newsletter please visit OP-TEC's [News Page](#).

OP-TEC asked experienced photonics faculty to share the strategies, experiences and resources they use to help their students to secure desirable jobs in a timely manner. Their responses have been condensed and organized into a monograph that describes "Seven Steps to Successful Job Placement for Technician Students".



The monograph also includes the following appendices:

- Photonics Systems Technician Skill Standards: to communicate with employers the capabilities of the student completers
- Listings/descriptions of technical areas where photonics technicians work
- Example resume
- Example Letter of Introduction (for students to communicate w/employers)
- Advice from former students who are successful in their careers (PACT members)

Copies of the monograph are available at <https://www.optecstore.org/products/successful-job-placement-for-technician-students/>.

Join the Conversation

We hope you enjoyed this edition of the OPEN newsletter. We would really like to hear from you. If there is some subject that you would like us to discuss or look into, please let us know at prmanager@op-tec.org.

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