



OPEN Optics and Photonics Education News

Newsletter of the Optics and Photonics College Network

October 2017

From the Executive Director



Congratulations to three OPCN colleges that received NSF/ATE projects in 2017:

- Baker College, MI [Advancing Photonics and Laser Technician Education in Michigan](#)
- Monroe CC, NY [Optics & Photonics INnovation \(OPT IN\)](#)
- Westchester CC, MA [Photonics and Laser Project](#)

Click the project titles above to learn more information about these grants. If your college would like to apply for an NSF or technical society grant in this coming year, OPCN coordinators are welcome to request advice and assistance from Gordon Snyder, Greg Kepner, Chrys Panayiotou or me. [Mentor-Connect](#) is another organization funded by NSF/ATE to assist colleges in preparing and submitting NSF/ATE grants.

We were greatly relieved that the Puerto Rico Photonics Institute survived Hurricane Maria and is reopening classes. Read more about their situation and needs in the PRPI article below.

All of us benefit greatly from professional development and technical updates but time and resources prevent us from the travel that is frequently required. One of the most effective and efficient strategies for receiving updates is through online webinars. An excellent example is the OSA webinar on developments and applications of high power fiber lasers described in the article below. The slides and an archived video of the presentation are linked in the article.

Dan Hull

Puerto Rico Photonics Institute Survives Maria



Jonathan Friedman, Director of PRPI, called OP-TEC this week to tell us all that they have survived Hurricane Maria and will resume classes October 18. Faculty from our OPCN colleges have been remembering Jonathan, Andrés Díaz, Francisco Rivera, Elsa Trujillo and the staff at Universidad Metropolitana, and wishing them hope and comfort during this very devastating experience.

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Upcoming Events

10/16/17 - 10/19/17

SPIE Optifab
Rochester, NY

10/19/17 - 10/20/17

National Coalition of Advanced
Technology Centers (NCATC) Fall
Conference 2017
Portland, OR

10/23/17 - 10/25/17

ATE PI Conference
Washington, DC

10/26/17 - 10/27/17

National Career Pathways Network
(NCPN) Annual Conference
Saint Louis, MO

12/6/17 - 12/09/17

ACTE CareerTech
VISION 2017
Nashville, TN

1/27/18 - 2/1/18

SPIE Photonics West
San Francisco, CA

3/12/18 - 3/15/18

Innovations Conference 2018
San Francisco, CA

4/28/18 - 5/1/18

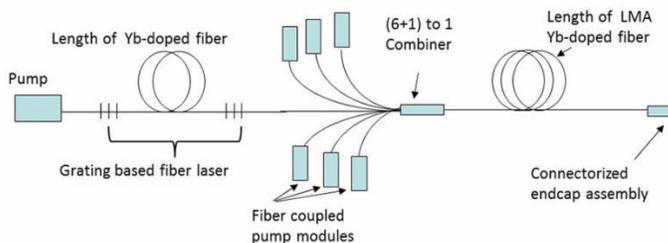
The institution survived without great damage but, like most of the island, they have little water or electrical power for at least the remainder of this year. Their photonics labs and equipment are intact, but will not be operational for several months until utilities are active.

To supplement the work at PRPI and to keep the photonics students actively engaged, Jonathan is looking for eight-week internship opportunities in other parts of the U.S.

Dan Hull and Chrys Panayiotou are working with NSF and employers on opportunities for possible internship placements. Interested persons should contact Jonathan Friedman at jsfriedman@suagm.edu or Dan Hull at dan37hull@gmail.com.



OSA Webinar on Applications of Fiber Lasers



OSA has a newly produced webinar entitled "Recent Developments and Potential Challenges in High-Power Fiber Lasers". All photonics college faculty should view this enlightening presentation, and use the information and graphics to enhance their teaching of fiber lasers.

Fiber laser has been revolutionizing material processing and manufacturing in the past decade; the commercial fiber laser market currently exceeds \$1 billion in commercial applications such as marking, engraving, glass cutting and machining in smart phones, wafer dicing in semiconductor (especially solar cel) manufacturing, cutting and welding in automotive manufacturing, and 3D printing. Applications are also emerging in satellite launching, particle accelerators, well drilling/tunneling, and military/defense equipment including direct energy weapons.

American Association of
Community Colleges (AACC)
Annual Convention
Dallas, TX

[View Events Webpage](#)

SPIE Education Outreach Grant Applications

SPIE.

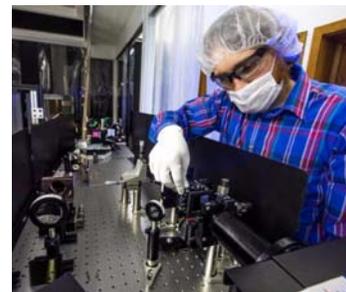
SPIE Education Outreach Grant Applications

SPIE's Education Outreach Grants Program offers small grants twice a year to non-profit organizations and educational institutions for optics or photonics related education outreach activities. The award process is competitive; applications are judged based on their potential to impact students and increase optics and photonics awareness. This is a potential funding source for OPCN colleges planning summer camps, teacher workshops, and similar outreach activities. Proposed activities must take place sometime between April 2018 and March 2019.

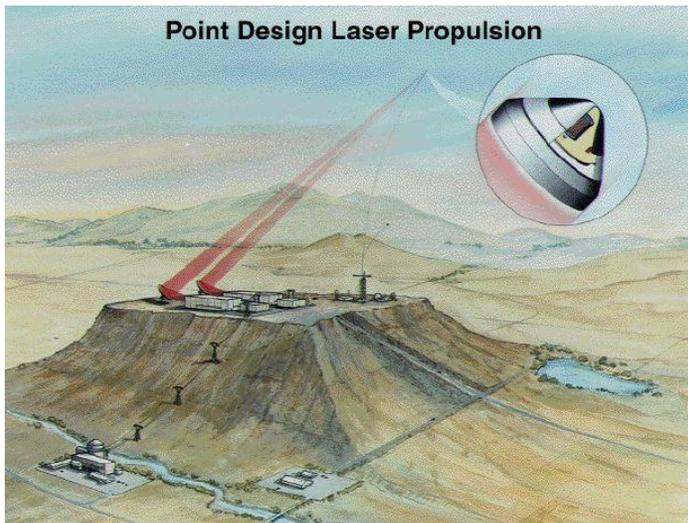
The online application system is now open; proposals are due by January 31, 2018. Please visit the SPIE Education Outreach Grants Program webpage for information.

<http://spie.org/education/education-outreach-resources/education-outreach-grants>

PACT Alumni Spotlight

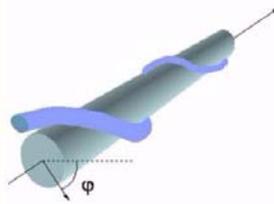


Brandon Hasley decided to pursue a career in photonics because he wanted to work in a hands-on technical field. "Ever since I can remember," he says, "I have always enjoyed taking things

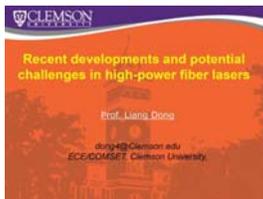


The webinar covered the following topics:

- Basics of fiber lasers and their applications.
- Current research in high-power fiber lasers.
- Challenges and limits in power scaling.
- Potential mitigations with fiber designs and material improvements.



The webinar is being archived by OSA, and can be viewed by selecting 'Recent Developments and Potential Challenges in High-Power Fiber Lasers' under Recordings or by clicking [here](#).



LASER-TEC Expands K-12 Professional Development to CTE

Professional Development for STEM educators has always been an area of emphasis for LASER-TEC. Implemented during the preplanning grant in 2011-2012, the Center continues developing and offering workshops on lasers, fiber optics, and best practices in the technology integration into STEM curriculum.

Traditionally, the workshop has been offered to public, private, and charter or magnet schools. In recent months, a strong partnership with the North Carolina and Florida Career Technical Education (CTE) Departments enabled LASER-TEC to offer the workshop for CTE instructors and expand the awareness about photonics to students not usually impacted by the workshops.

apart and putting them back together." By chance, Brandon came across the Laser and Optics Technology program at Indian Hills Community College (IHCC) advertising that 40% of its course work was spent in the lab with hands-on experiments. He had always been fascinated with lasers and was even more excited when he found out about the huge demand for laser optics technicians in the photonics industry. Brandon enjoyed the hands-on aspects of his associate degree program and took advantage of free tutoring offered at IHCC's learning center to help him complete the math classes that challenged him.

During his last semester at IHCC, Brandon participated in Interview Week, a time when employers visit campus to talk about their companies and interview students interested in their job opportunities. After interviewing with about 25 different companies, Brandon received six offers. After carefully weighing each one, he accepted a position as an engineering laser electro-optics technician for Akima Infrastructure, a contractor company that works with Lawrence Livermore National Laboratory to fulfill government contracts for the Department of Energy and Department of Defense. Brandon says he loves that he is part of a huge team of individuals who are determined to achieve fusion ignition.

In the future, Brandon would like to go back to school and obtain a bachelor's degree, but for now he loves the sense of purpose that his work offers.

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

OPCN Committees

The Committees of the Optics and Photonics College Network are dedicated to sharing expertise, best practices, resources, and advice on issues of importance to photonics technician educators at colleges throughout the United States.

Professional Development



Committee
Anca Sala, Chair
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**Student Recruiting
Committee**
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Program Assistance Committee
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Equipment Committee
Frank Reed, Chair
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LASER-TEC has hosted a total of six workshops for 75 CTE teachers in North Carolina and Florida. The most recent workshop, held by Gary Beasley and Dr. Chrys Panayiotou in Washington, NC on October 6th 2017, brought together 15 teachers from the Beaufort County Schools. According to the county in any given year CTE teachers will teach approximately 4,100 students of the approximately 7,000 students that attend Beaufort County Schools. These numbers indicate that workshops for CTE teachers can be a great mechanism to better prepare middle and high school students for college programs and careers in photonics.

Participants of LASER-TEC's "Laser and Fiber Optics" workshops receive a free kit and detailed lesson plans that support 15 fundamental demonstrations in optics and photonics. These demonstrations are cross-referenced to national and state of Florida science standards. Currently, the Center is working on linking each demonstration to the Next Generation Science Standards.

If you would like to learn more about the workshops, the kits, or the lesson plans, contact LASER-TEC Principal Investigator, Dr. Chrys Panayiotou at 772-462-7621 or cpanayio@irsc.edu.



LLNL Faculty Science Externships



Dr. Desiré Whitmore from Irvine Valley College and Stephanie Bostwick from Lake Washington Institute of Technology spent two (2) and four (4) weeks, respectively at the Lawrence Livermore National Laboratory (LLNL) for a Faculty Science Externship with G. Ron Darbee, in order to best assess the technician needs of the LLNL and determine how they can best adapt their program to provide the lab with the best qualified Laser and Photonics technicians.



Desiré inside a model of the National Ignition Facility (NIF) chamber.

MPEC Hosts Lasers in Manufacturing Symposium



The Midwest Photonics Education Center (MPEC) in partnership with industrial laser company TRUMPF Inc., hosted a "Lasers in Manufacturing Symposium" at Indian Hills Community College. On October 5th the symposium featured seven speakers from across the nation including David Havrilla, Franziska Maschowski, and Bill Holtkamp of TRUMPF Inc. (MI); Bernie Kock of 3M and President, Minnesota Section of the Optical Society of America (MN); Thom Shelow of Superior Joining Technologies; Joseph Hendrickson of Medtronic; and Michael Shay of IHCC. Speakers highlighted topics such as laser sources, applications and integration, laser welding, laser applications in job shops, and advances in 3D metal printing.

The event culminated with a tour of the laser laboratory and a demonstration of stainless steel laser welding with a TRUMPF TruLaser Station 5005. According to MPEC Director Greg Kepner, there were 116 attendees that included representatives from 18 companies, along with faculty and students from 5 educational institutions including William Penn University, University of Northern Iowa, Northeast Iowa Community College, Iowa Western Community College and IHCC.

Attendees remarked that the symposium provided valuable technical information on laser manufacturing processes. The speaker's presentations are available to review at www.midwestphotonics.org



Attendees observe laser welding on the TRUMPF TruLaser Station 5005.

Reach Out to Veterans in November

With Veterans Day coming up next month, your campus or local community may be hosting events to honor active duty military personnel or veterans that might offer an opportunity to share information about your photonics program. You may be able to host or provide materials for an information table-or provide materials for gift bags that will be handed out to service members. If you haven't already customized OP-TEC's veterans outreach brochures for your program, now may be a good time to do so!

OP-TEC and the Photonics Student Recruiters Network have created brochures targeted to military personnel and veterans of the U.S. Army, Navy, Air Force, and Marine Corps. The brochures provide information about college photonics programs and indicate military occupational specialties that are photonics related.

Student recruiters or faculty can customize and distribute these brochures to their college veteran affairs, military bases, and student veteran organizations, as well as career fairs and transitioning classes. Please email op-tec@op-tec.org for access to the customizable source files and step-by-step instructions.

OP-TEC hosts a web page (www.op-tec.org/veterans) for veterans that lists contact information for photonics programs who are actively recruiting veterans and offering specialized support services. If you would like your program to be included, please email your contact information to op-tec@op-tec.org.



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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