

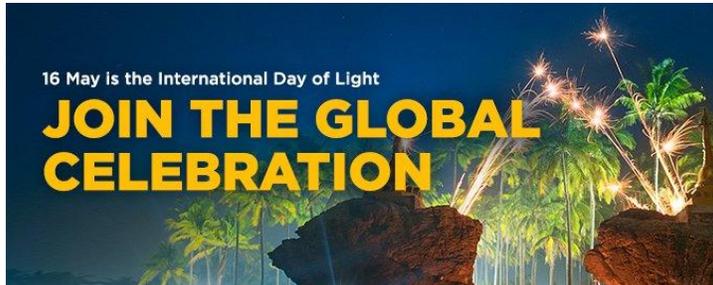


OPEN Optics and Photonics Education News

Newsletter of the Optics and Photonics College Network

May 2019

Celebrate the International Day of Light



On 16 May, the entire global photonics community will celebrate the International Day of Light. IDL is an annual event that consists of coordinated activities on national, regional, and international levels designed to honor lifesaving, life-enhancing light. Please consider a special event at your institution to recognize this celebration.

SPIE will share images of activities all month long in their website at www.spie.org. Be sure to view images of the global celebrations.

Near IR LEDs Enable Mobile Spectroscopy that Allows Consumers to Monitor Ingredients in Food and Validate Medications



Advancements in near-infra-red LED emitters are enabling new applications of mobile spectroscopy in fields for well-being and health monitoring. Consumers will soon be able to use their smart phones to check the freshness of supermarket food, measure the calories in restaurant meals, and verify whether a medication is valid and contains its prescribed contents.

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Upcoming Events

05/16/19
[International Day of Light](#)

06/10/19 - 6/13/19
[Laser Material Processing Workshop at Indian Hills Ottumwa, IA](#)

06/15/19 - 6/19/19
[American Society for Engineering Education \(ASEE\) Annual Conference Tampa, FL](#)

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](#)

MentorLinks Grant Competition

Near-infrared (NIR) spectroscopy detects the light absorption behavior of molecular compounds. Directing a defined spectrum at a sample, makes it possible to determine the presence and quantity of certain ingredients from the wavelength distribution of the reflected light. This method, used in the food and agriculture industries, enables one to measure the water, fat, carbohydrate, sugar, and protein content of food, which is an indication of freshness, quality, and calorie content.

A new generation of devices is emerging that utilizes broadband NIR LEDs and compact spectrometers, and connects to a knowledge database via cloud technology to compare the data with material and reference specifications for analysis. These optoelectronic components are now small enough for smartphone add-ons and similar options.

Read the article in Photonics.com.

From the Executive Director



OP-TEC is releasing PDF copies of all the materials we have developed, as well as digital/video resources, for downloading by faculty and students in optics and photonics technician education programs. Descriptions of these materials/resources are described in the following three articles.

To request copies, visit the website <https://www.optecresources.org>, select the items you wish to receive and follow the instructions for downloading them. Recipients may print and distribute, without charge, copies of these resources. For questions or further information, please contact Christine Dossey at OP-TEC, cdossey@op-tec.org or call 254-751-9000. After September 1st, contact Chrys Panayiotou, cpanayio@irsc.edu at LASER-TEC or Mike McKee at CREOL, mmckee@creol.ucf.edu or call 407-823-6376.

Dan Hull

Program Development & Improvement Materials



Available for downloading from the <https://www.optecresources.org> website.

Skill Standards:

Photonics Systems Technicians (PST),
Precision Optics Technicians

Program Planning Guides:

PST Program Planning Guide,
Photonics High School Planning Guide

Best Practices in Student Recruitment, Retention & Placement:



The American Association of Community Colleges (AACC) is pleased to announce a national grant competition for the MentorLinks: Advancing Technological Education program, developed with the support of the National Science Foundation.

MentorLinks is designed for community colleges seeking to improve technician education programs in the science, technology, engineering, or mathematics fields. Colleges should be interested in working with an experienced community college mentor who has successfully planned and implemented a major change in a high-technology program.

MentorLinks colleges will receive \$20,000 for the 2-year grant period and travel support for the project director to attend three project meetings. The grant's primary emphasis is on valuable networking, and rich opportunities for technical assistance and professional development. The grant period runs October 1, 2019–November 30, 2021. The deadline to apply is June 7, 2019.

For information on the Request for Proposals for MentorLinks Colleges, see the [RFP](#).

AACC is also inviting applications from 2-year college professionals who are interested in serving as mentors to work with a college whose faculty and administration want to develop or strengthen a certificate or degree program for technicians in a science, technology, engineering, and/or mathematics field.

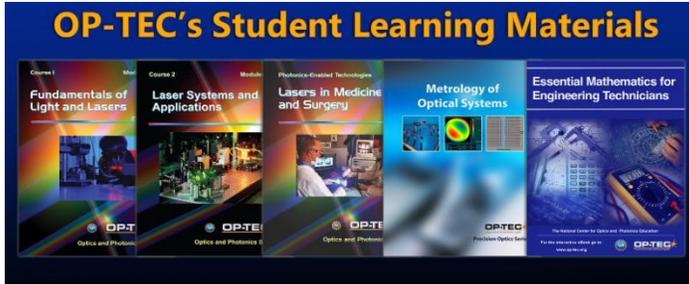
For information on the Request for Applications for MentorLinks Mentors, see the [Application](#).

PACT Alumni Spotlight

Monographs about Student Recruitment, Student Retention and Student Placement
Career Pathways for STEM Technicians (book)
Student Outreach Materials & Brochures: Alumni Council Bios, Student Recruitment Flyers for HS Students, Adults and Veterans



Course Materials for Student Learning



Photonics Text Materials:

Fundamentals of Light & Lasers, Laser Systems & Applications, Integrated Photonics, Introduction to Lasers & Optics (1 credit)

Optics Text Materials:

Quality Assurance of Precision Optics, Metrology of Optical Systems

Math Text Materials:

Mathematics for Photonics Technicians, Essential Math for Engineering Technicians eTextbook

Photonics-Enabled Technologies:

Applications in Manufacturing (4 texts), Applications in Defense & Homeland Security (3 texts), Applications in Biomedicine (3 texts), Applications in Optoelectronics (3 texts), Environmental Applications (3 texts)

Video Tutorials in Math and Technology.

Widgets & Applets in Optical and Technical Concepts

Faculty Teaching Resources



Figures and Images from all of the Student Texts:

Power Point slides for class presentations and lab preparation.

Enhancements & Faculty Tools:

Selected internet videos with student assignment questions, to support lesson preparation and class discussions.

Labs for High Schools:

Trenton Northup was working for his stepfather when he first heard about the Laser and Optics Technology program at Indian Hills Community College (IHCC) in Ottumwa, Iowa from an old high school classmate. Won over by the glowing recommendation, Trenton decided to enroll.

Speaking very highly of one of his professors, Frank Reed, Trenton, found it comforting and heartwarming that someone with Frank's experience was so passionate about the new students. "He would do anything and everything for us," and it was clear to Trenton and the rest of the students that Frank was invested in them and wanted them to succeed.

Trenton graduated in May 2015 and is currently a Laser Research Engineer/Technician Level 4 at Lawrence Livermore National Laboratory. He works in the control room at the National Ignition Facility (NIF), where he is responsible for laser-beam alignment. Trenton is excited to be working at NIF because he is part of groundbreaking research in the laser field. "I wanted to be where the action is, and that's what this job is."

Trenton says the primary goal at the NIF is to achieve ignition, which would provide a new source of sustainable energy. He loves what he does because his work has the potential to change the way people use and think about energy. Since starting at Indian Hills, he says, "I've never looked back." His message to students interested in the Indian Hills program: "I guarantee that you will not regret going into this field. It's awesome, it's challenging, and it's so interesting."

Simplified labs with inexpensive equipment to teach *Fundamentals of Light & Lasers* course in high school, for dual credit.

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

HI-TEC 2019 Conference Plans

The national and regional photonics centers will host the next annual in-person OPCN network meetings and photonics industry site visits at the HI-TEC Conference, July 22-25, 2019 at the Hyatt Regency at the Arch in St. Louis, MO.

The HI-TEC Conference provides a wonderful opportunity for educators to learn, network, give presentations, share best practices, and disseminate project resources with other STEM educators.

OPCN events are being planned for the HI-TEC Preconference on Monday and Tuesday, July 22-23. The general conference keynotes, presentation sessions, and exhibits will take place on Wednesday and Thursday, July 24-25.

As in previous years, OP-TEC will be offering conference registration codes for OPCN representatives to attend. OPCN Coordinators and Members will receive priority for these free registrations. Actively reporting OPCN coordinators may also request reimbursement for airfares following OP-TEC guidelines. Some hotel assistance will also be available.

Interested educators should contact Christine Dossey at cdossey@op-tec.org to request registration codes and travel assistance.

We hope that all OPCN members will be able to attend July 22-25 in St. Louis!

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



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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