

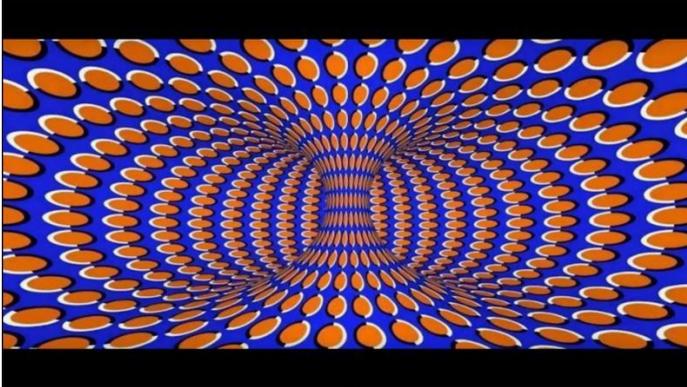


OPEN Optics and Photonics Education News

Newsletter of the Optics and Photonics College Network

November 2018

Optical Illusions



From the Executive Director



As OP-TEC completes its 13th year, a major effort of the center staff is to assure that the resources, best practices and networks OP-TEC has developed are well-established and sustained to continue producing the photonics technician workforce that supports our nation's employers for the foreseeable future.

Resources include skill standards, curriculum designs, program planning guidelines, student text materials, remedial tutorials, and faculty teaching tools. *Best practices* include monographs on successful student recruitment, retention and placement strategies. *Networks* include the Photonics Alumni Council for Technicians (PACT) and Optics and Photonics College Network (OPEN) of 30+ colleges, whose faculty support professional development, as well as establishment of new programs.

The Center's effort to update its resources is highlighted this month through the release of the 3rd edition of the popular introductory text, *Fundamentals of Light and Lasers (FL&L)*. Current faculty are encouraged to request a review copy of FL&L, which will be available December 1. OP-TEC will host faculty to attend two sessions of the OPEN in 2019. The first session (described in this newsletter) will be held at University of Central Florida (Orlando) in March. The second session will be held prior to the July HI-TEC Conference in St Louis.

Dan Hull

Using Lasers for Bird Control by Gordon Snyder

Fresh picked blueberries are a treat during the late summer. In New England, we had a large crop of blueberry plants. As the berries ripened there was always a battle to keep wild birds from eating them. My Dad built a frame around our patch of

In This Issue

[From the Executive Director](#)
[Using Lasers for Bird Control](#)
[IHCC Students in DC](#)
[Outreach for Diversity](#)
[New 3rd Edition Course 1](#)
[OPCN Meeting in March](#)
[OPCN LinkedIn Group](#)
[PACT Alumni Spotlight](#)

Upcoming Events

2/2/19 - 2/7/19
SPIE Photonics West
Conference
San Francisco, CA

03/14/19 - 3/15/19
OPCN Meeting
CREOL Industrial Affiliates
Symposium
Orlando, FL

07/22/19 - 07/25/19
High Impact Technology
Exchange Conference
St. Louis, MO

[View Events Webpage](#)

**OPCN Meeting Planned
in Orlando, Florida,
March 14-15, 2019**

SAVE THE DATE!

OP-TEC will host an in-person meeting of the Optics and Photonics College Network in conjunction with the CREOL Industrial Affiliates Symposium March 14-15 at the University of Central Florida in Orlando, FL.

Complimentary registration and travel assistance is available for

blueberries, and covered the frame with tobacco cloth. Occasionally, a bird would sneak in; I was always amazed at the amount of berries one small bird could eat!

Imagine an invasion of 2,000 plus starlings and the crop damage a flock that size could cause. A company called Bird Control Group has developed a solution for keeping birds away from fruit groves, using green laser light.

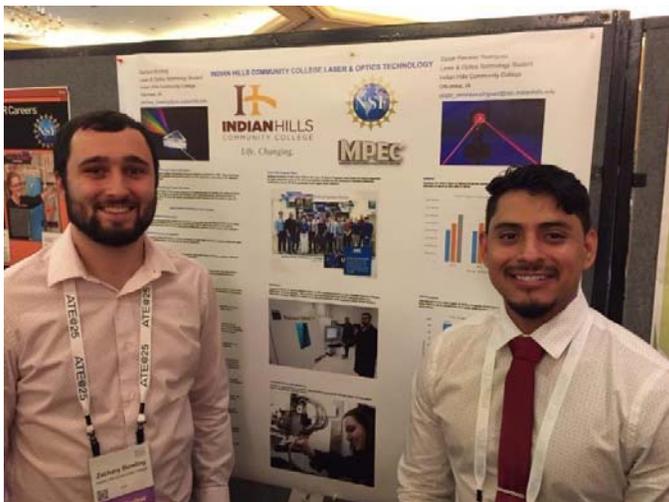


The system projects a laser beam that makes use of the fear reflex of birds for green light. Birds approaching a protected crop perceive the laser beam as a physical object; avoidance of objects appeals to their survival instinct, causing the birds to fly away. Built-in safety methods assure that the laser cannot dazzle aircraft, vehicles or the general public. The continuous presence of the moving laser beam keeps crops free of birds, 24 hours a day. The following video describes the technology: <https://youtu.be/L5fkixXNDVQ>.

Bird Control Group claims the technology is effective in protecting many different agricultural crops, as well as commercial and industrial warehouses, refineries, feedlots and airports.

IHCC Students Honored at NSF ATE Conference in Washington, DC

Indian Hills Community College photonics students, Zachary Bowling and Cesar Ramirez Rodriguez, were invited to attend the NSF/ATE Conference, October 24-26, representing the Midwest Photonics Education Center. On Wednesday, after attending a Meet and Greet event and exploring sites in Washington, D.C., they participated in an exhibit showcase following the opening plenary session.



Zachary Bowling and Cesar Ramirez Rodriguez with their poster.

eligible OPCN Members who can travel March 13-15.

Please contact [Christine Dossey](#) at OP-TEC for more information and to reserve your spot at this event.

Progress Update on New OPCN LinkedIn Group



The Optics and Photonics College Network LinkedIn Group was formed as a result of conversations during the annual OPCN meetings at the HI-TEC Conference in July.

The LinkedIn Group provides a communication tool for open discussions among members that can be accessed when needed. OP-TEC currently uses email and this newsletter for sharing information with OPCN, and encourages this sustainable platform which allows all OPCN members to easily and spontaneously ask questions, share information, and begin conversations when needed.

OPCN member, Jonathan Friedman (Puerto Rico Photonics Institute), volunteered to set up the new group for OPCN. Since the OPCN Meeting in July, several posts have been added, operating procedures have been drafted, and 26 members have joined the group.

OPCN Committee Chairs will help manage subsets of the group by acting as subject matter experts, monitoring activity and responding to posts and questions related specifically to their committee's focus. Any member with knowledge or experience is

Members of the National Science Board joined the students for breakfast on Thursday to discuss opportunities and challenges facing students as they prepare to enter the technical workforce. During the ATE Student/Alumni Poster Session, the students displayed their poster about the IHCC Laser & Optics program, describing coursework, job placement, enrollment, salary ranges, and pictures of laser club activities and laboratory activities. They also participated in an Industry "Speed Networking" session and enjoyed a visit to the Air and Space Museum, White House, and Washington Memorial.

On Friday morning, Cesar and Zachary were honored with a Student Award for Excellence at the ATE Student and Alumni Recognition Breakfast. After the closing plenary session, MPEC Director Frank Reed accompanied the students to the National Mall to visit the Lincoln Memorial, World War II Memorial, Korean War Memorial, Vietnam War Memorial, and the Martin Luther King, Jr. Memorial.



Zachary Bowling and Cesar Ramirez Rodriguez with their NSF ATE Student Awards for Excellence



Outreach to Extend Diversity in Student Enrollment



Diversity in STEM and the laser and fiber optics workforce pipeline is one of the main goals of LASER-TEC. The Center has partnered with multiple college and community groups and other organizations to build awareness about academic and career opportunities in the ever-growing photonics field.

During the month of October 2018, LASER-TEC hosted five events in collaboration with Indian River State College's Minority Affairs division and College Reach-Out Program (CROP), and the Dasie Bridgewater Hope Center of Wabasso, Florida, for total of 82 students. Discussions and activities were aimed to empower students and remove barriers to help them achieve their full potential.

welcomed to contribute by "Liking" and/or adding comments and suggestions to a post.

Primary Contacts/Managers:

Professional Development:

Anca Sala (Baker College)

Program Assistance:

Gary Beasley (Central Carolina Community College)

Equipment:

Frank Reed (Indian Hills Community College)

Student Recruiting:

Christine Dossey (OP-TEC)

Why you should join:

It's easy and convenient to request and receive information, advice, share expertise, locate equipment, have useful conversations with colleagues, and build relationships with employers.

1. Create an Account:

You will need a LinkedIn account in order to join the OPCN Linked In Group. To get started, watch this video tutorial https://youtu.be/fuy4DjBWN_k.

2. Join the Group:

The OPCN Group has been set up as a Private Group which requires an invitation from a Manager of the group. Jonathan Friedman and Christine Dossey have been locating and messaging OPCN members with LinkedIn accounts; if you have received one of their invitation messages be sure to accept. If you have recently joined LinkedIn, or if you already have a LinkedIn account but haven't received an invitation to the OPCN Group, send a quick message or email to gordonfsnyder@gmail.com or jfriedman@suagm.edu requesting to join.

3. Select Your Notifications:

Change your email notification frequency settings to view posts daily or weekly. For instructions on changing your settings, refer to this LinkedIn Help link, Changing the Frequency of Group Emails: www.linkedin.com/help/linkedin/answer/5273.

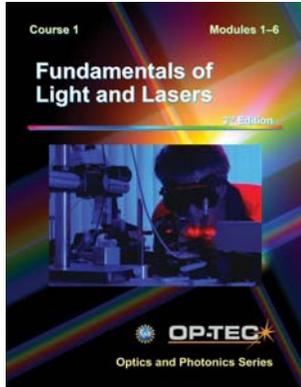
Future issues of the OPEN newsletter will contain updates about using LinkedIn to stay connected with OPCN members and interested employers.



Comments and suggestions are welcome.

New Third Edition of Fundamentals of Light and Lasers: Available by December 1, 2018

PACT Alumni Spotlight



During the last 12 years, thousands of students (high school, college and employed techs) have benefited from OP-TEC's introductory text on light and lasers. Engineers and scientists have also used this material as they transition into photonics-related assignments. The textbook is enhanced with videos and animated graphic tutorials in mathematics and scientific concepts to improve understanding and retention.



After graduating from high school, **Paul Leech** worked as an auto technician at General Motors before deciding to pursue a photonics degree at Camden County College. When Paul looked into the future, he realized that his chosen career path wouldn't offer him the kind of ongoing challenge that he was looking for. Paul's good friend had completed the photonics program at CCC and "started a nice career that showed a lot of promising success." Wanting the same for himself, Paul decided that his next step would be to earn an associate of applied science degree.

In recent months, OP-TEC has conducted a comprehensive review and completed a **Third Edition of Fundamentals of Light and Lasers**, which includes a new index, glossary of terms, and correction of minor technical and typographic errors. The new edition of FL&L will be available before December 1, 2018. Module page numbers have not been changed so that students and bookstores will be able to continue the use of the second edition, along with the third edition, without confusion. Copies of **Fundamentals of Light and Lasers, 3rd Edition**, as well as tutorials and teaching resources, may be obtained through the OP-TEC Store at www.optecstore.org.

Paul was excited to discover the opportunities and challenges that his education would give him. He went into the photonics program with few expectations other than "learning a lot of science, math, and physics," but soon found an excellent job opportunity. "That good friend helped me obtain a job at ConBio before I even graduated from CCC," Paul explains.

OP-TEC has developed a host of audio/visual aids for instructors teaching with the *Fundamentals of Light and Lasers* textbook. These tools can help struggling students get back on track. Instructors and students can access all of these resources in one convenient **Teaching and Learning Tools Index** available at <http://www.optecvideo.opteccrm.org/fundamentals-of-light-and-lasers>.

After working with ConBio, Paul worked as a urology laser technician for Mackin Medical and then as a field service technician for ICN Pharmaceuticals. Eventually, he and three others cofounded a company called Photonics Service Group, Inc. The recession was as hard on his company, but Paul stuck with it. "I was proud to get through the recession and hit our ten-year anniversary of the company."

Take a look at the chart below to see if you are using these tools to your best advantage.

	<p>Photonics Concept Tutorial Videos (6) Six tutorial videos are available to provide additional instruction for key photonics concepts that students may find difficult to understand. The videos range in length from 7 to 27 minutes. Each module contains one concept tutorial video which is referenced in the textbook with a light bulb icon.</p>
	<p>Mathematics for Photonics Education Videos (11) Eleven math videos are provided to assist students in performing mathematical operations required in the textbook. To help instructors plan their class activities, the preface of each module lists the mathematics concepts to be covered in the module. A calculator icon appears in the textbook in the place where the mathematics topic is first used.</p>

	<p>Lab Activity Videos (23) Lab videos have been created to prepare students for the hands-on laboratories recommended to be conducted at the end of each module. The videos range in length from three to twenty minutes, and are referenced in the textbook with an Erlenmeyer flask icon.</p>
<p>A 5, 8</p>	<p>Interactive Applets (50+) More than 50 external links to additional interactive elements that can help students visualize concepts are noted in the textbook with a large capital letter "A" with the corresponding applet number(s) referenced below it.</p>
<p>eText Videos</p>	<p>Several of the full-length videos referenced above were shortened into smaller, on-demand clips for the eTextbook version of <i>Fundamentals of Light and Lasers</i>. Students can access the clips from the Teaching and Learning Tools Index.</p>
<p>eText Widgets</p>	<p>Interactive widgets created for the eTextbook version of <i>Fundamentals of Light and Lasers</i> allow students to interact with textbook images by adjusting controls with their computer keyboard and mouse to visualize how changes to certain factors can affect the properties of light. Students can access the widgets from the Teaching and Learning Tools Index.</p>
<p>Presentation Images</p>	<p>Enlarged figures and images from <i>Fundamentals of Light and Lasers</i> are available to instructors as downloadable presentation slides (PowerPoint and PDF) by request from the OP-TEC store at www.optecstore.org.</p>

Now, Paul is not only a co-owner and field service technician for his company, but also its vice president.

Paul is proud of how far he has advanced and believes that his story can serve as an inspiration for those just beginning their careers. Paul's three core values are integrity, honesty, and communication, which he believes help him create strong and prosperous relationships with clients, customers, and partners. Paul believes that these three qualities, combined with hard work, will allow anyone to grow and succeed.

Read more about Paul 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
anca.sala@baker.edu

Student Recruiting Committee
Chair TBD

Program Assistance Committee
Gary Beasley, Chair
gbeasley@cccc.edu

Equipment Committee
Frank Reed, Chair
frank.reed@indianhills.edu

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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