

**From the President**



Greetings OSSC Members!

We are coming into the home stretch. We had a great meeting at Cal Poly Pomona concerning imaging of Zebra Fish, and we had a few new guests.

Our program year is finalized, and we have some great speakers interested in joining us next year. We have a good mix to finish the year including a panel on quantum computing, discussion on coating measurement, and a tour of the Facebook connectivity labs. We also have a tour of LIGO planned for next year along with the JWST that was delayed from this year.

Next month, we will not be offering a meal, but we will have a tour and a talk from an excellent speaker, Dr. Hemmati from Facebook in Northridge about their connectivity solutions. There is an NDA required, and we will submit our list on April 2<sup>nd</sup>, so register early, plan your meal, and come early to best enjoy the tour and talk.

We may not have an Outreach Chair, but we are still participating in the STEAM Leadership Conference from April 12<sup>th</sup> to 14<sup>th</sup>, at the OC

Fairgrounds thanks to Bo Wang. But we need more volunteers for all three days. Please contact Bo Wang if you can volunteer a few hours. Contact me if you want to take over as Outreach Chair after participating in this great event.

The past Presidents and BOD are looking for next year's volunteers and candidates for the elected positions of President, Vice President, Treasurer and Secretary. The Nominations Committee will be meeting soon so let us know if you want to take a new role with the OSSC next year. Additionally, we have several meetings coming up in the near future including those concerning Mirror Tech Days 2019, Fellows Board, 2019/2020 Elections, and Memorials. Let me know if you want to participate in any of them.

Sincerely,

Nicholas J. Croglio Jr.  
OSSC President 2018/19

<b><u>In This Issue:</u></b>	<b><u>Page</u></b>
From the President	1
From the Editor	2
Meetings	3
Around the OSSC, Outreach Corner	4-6
Events Calendar, OSSC Corporate Members & Sponsors	7

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## OSSC Leaders

(See [www.osscc.org](http://www.osscc.org)  
for contact info)

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Newsletter Editor: Shankar Baliga  
Newsletter Assistant: Michael Gordon  
Outreach Chair: **OPEN**  
Student Chapters: Alex Small  
Website Content: Charles Gaugh

## From the Editor

Welcome to the March 2019 Images Newsletter!



Several volunteer positions remain open for those who wish to contribute to OSSC while developing their leadership skills and getting to know the local optics community better. Please reach out to any of the BOD members to find out more about the open positions and responsibilities entailed. And if one of the filled positions interests you, the current person holding the role will likely be glad to have the help.

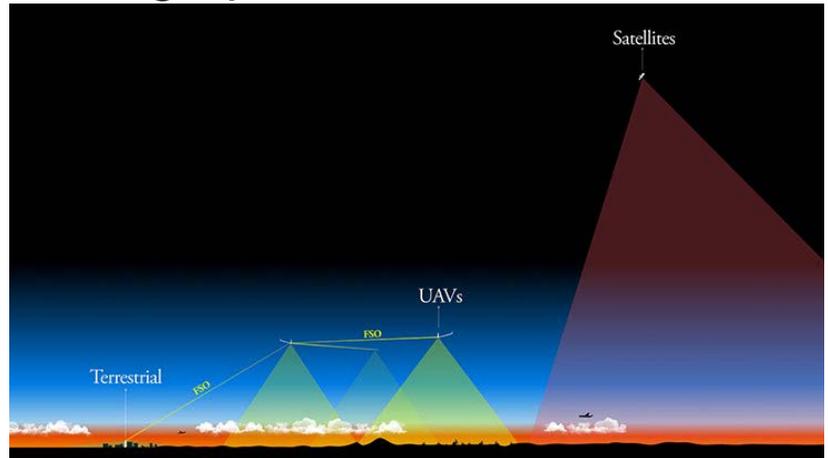
As a reminder, photographs and albums of OSSC events can be viewed at [OSSC Photo Album List](#). Photographs from the recent monthly meetings and Mirror Tech Days can be found at this weblink. If you have recent event photos or photos from years past, please send to any BOD member or OSSC leader for posting on the website.

This month we welcome to OSSC a new Corporate Member and Website Sponsor, Laser Components USA who have provided the Images Newsletter with a brief writeup. Quite a few OSSC members including the President and Newsletter Editor have relations with this company going back many years.

## Connecting the Unconnected

Dr. Hamid Hemmati, Director of Engineering – Telecom Infra, Facebook  
OSSC Monthly Meeting, April 10<sup>th</sup> 2019

**Abstract:** Nearly half the world population, greater than three billion in total, has either no access or fairly poor access to the Internet. Facebook, through its Internet.org partnership intends to provide Internet access to the developing countries of the world. The required data-rate to provide Internet service in those online simultaneously in these countries is estimated at over 1 Tbps. This is a staggering data-rate. Cost effective means are required to make the service possible and that requires significant advancements of the state-of-the-art in technology.



### About our speaker:



Dr. Hemmati is a Director of Engineering Facebook Inc. Prior to that he was with the NASA/JPL/Caltech for 28 years as a researcher, Principal Member of Technical Staff, and as the Supervisor of the Optical Communications Group. Most of his career has been focused primarily on laser satellite communications technology development. Dr. Hemmati is the editor and author of two books: “Deep Space Optical Communications” and “Near-Earth Laser Communications” and author of six other book chapters. Dr. Hemmati received NASA’s Exceptional Service Medal for his work on Deep Space Optical Communications. He has also received 3 NASA Space Act Board Awards, and 36 NASA certificates of appreciation. Dr. Hemmati is a Fellow member of the OSA (Optical Society of America) and the SPIE (Society of Optical Engineers). Dr. Hemmati has authored and co-authored of nearly 200 publications and 11 patents.



**Wednesday, April 10th, 2019**

**6-7 pm: Tours, Networking,  
Light refreshments**

**7:30 pm: Presentation**

**Venue:**

**Facebook LA Office – Harman Campus  
8500 Balboa Boulevard  
Northridge, CA, 91329**

On-line Registration: [www.osscc.org](http://www.osscc.org) or

Contact: Alex Small

[Events@osscc.org](mailto:Events@osscc.org), 240-672-7639

***Must register by April 2 to ensure  
access to facility.  
Signed NDA and government ID  
required.***

## Corporate Member News



LASER COMPONENTS USA has joined OSSC as a Corporate Member and Website Sponsor. Welcome LC USA!

Part of the SPIE Industry Events at Photonics West, LASER COMPONENTS hosted ten workshop sessions on the essential properties and working principles of a wide variety of optics and optoelectronic components. We would like to highlight one subject matter that focuses on High-Power Laser Optics and Laser Induced Threshold (LIDT). Barbara Herdt, responsible for business development of laser optics at LASER COMPONENTS GmbH in Germany, talked about the importance of creating precision optics with high LIDT, what influences LIDT, and how to measure LIDT. A summary:

## **Importance of Creating Precision Optics with High LiDT**

Many research centers, like those for nuclear fusion and cancer, require high-energy lasers with megawatt and petawatt power capabilities. In order to handle such high power densities and advance scientific breakthroughs, these lasers need optics that are larger in size and homogeneously coated with low absorption levels. In this article we discuss the importance of creating precision optics with high damage thresholds in the high-power lasers of the future:

<https://www.lasercomponents.com/us/news/optics-for-lasers-of-the-future-2/>

## **Different Techniques to Measure LiDT**

The process for finding the laser induced damage threshold (LIDT) for laser optics has become increasingly more complex. Different considerations have to be taken into account for measuring and testing laser optics, including the laser's wavelength, beam size, polarization, and angle of incidence. We have prepared a two-minute video in which Huyen Vu, Director of Sales at Laser Components USA, talks about the different techniques utilized for LIDT measurements, such as one-on-one shot testing and S-on-one testing: <https://www.youtube.com/watch>

## **About the company**

LASER COMPONENTS USA specializes in sales and distribution of cutting-edge photonic components in the laser and optoelectronics industry. We have been serving North American customers for over 15 years with products from our manufacturing sites in Germany, Canada and the US, as well as from well-selected international suppliers.

We provide a wide variety of photonics applications with avalanche photodiodes and modules (Si and InGaAs), IR detectors (InGaAs, PbS, PbSe, pyroelectric), photon counting modules, laser diodes and modules (at different wavelengths and power), pulsed laser diodes (905 and 1550 nm), laser diode drivers, fiber optics, laser optics (standard or custom dielectric coated) and polarizers.

More at: [www.laser-components.com](http://www.laser-components.com)

## OUTREACH CORNER...

An upcoming Outreach event is the Vital Link STEM and Arts Career Showcase which is hosted for three days from April 12<sup>th</sup> through April 14<sup>th</sup> , <http://www.vitalinkoc.org/stem-and-arts-career-showcase>. Last year we had about 15 volunteers over the 3 days. This event is a great way of giving back to the community and getting from young children to college students interested in optics. At such events there are hundreds of children who stop by our booth to learn about optics. These events give high visibility to the OSSC, and they give many young people information about optics, technology, and engineering. We need volunteers! Please contact Bo Wang if you can volunteer a few hours.

We have an opportunity for a new Outreach Chair and are looking for someone to take over this role. Please contact any OSSC BOD member or leader if you are interested in this position.

### **Outreach & Education**

The OSSC is assisting local university students with OSA Student Chapters. Contact OSSC Student Chapter Liaison [Alex Small](#) if you would like to support these efforts. Currently, the following universities have on-going chapters: [UC Irvine](#), [UCLA](#), [UC Riverside](#), [Cal Poly Pomona](#), [UC San Diego](#), [Caltech](#).

### **Aim and Purpose**

It is the aim and purpose of this society to increase and disseminate the knowledge of Optics and closely allied sciences, to promote the mutual interests of investigators, teachers and students in these fields, and of designers, manufacturers and users of optical instruments and allied scientific apparatus as well as those who have optics as a hobby and to encourage cooperation and establish acquaintanceship among these persons.

### **Speakers Bureau**

The OSSC has formed a Speakers Bureau, to create a roster of individuals interested in giving talks for student chapters, OSSC meetings, and similar events. If you have something interesting to share with our local optics community, especially career-related topics of interest to students, please contact a member of the OSSC Board of Directors.

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## Upcoming Meetings & Events (2019)

Date	Location	Speaker	Topic
April 10 (OSSC Monthly Meeting)	Facebook LA Office Northridge	Dr. Hamid Hemmati	Connecting the Unconnected
May 8 (OSSC Monthly Meeting)	<a href="#">The Proud Bird</a> , 11022 Aviation Blvd., Los Angeles	TBD	TBD
June 12 (OSSC Annual Business & Monthly Meeting)	<a href="#">Brea Civic &amp; Cultural Center</a>	Panel	Quantum Computing

*All events subject to change without notice.*

## OSSC Corporate Members & Sponsors

These companies and organizations provide the Optical Society of Southern California with financial resources, time and talent. We are grateful for their generous support.

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