



**Report of Activities of SPIE The Penn State Univ. Chapter  
(September 2014 through August 2015)**

Corey Janisch, Chapter President

**Name of Chapter**  
 SPIE The Pennsylvania State University Chapter  
<http://spie.ee.psu.edu/>

**Chapter Leadership:**

<b>Name</b>	<b>Position</b>	<b>Contact Information</b>
Corey Janisch	President	<a href="mailto:ctj119@psu.edu">ctj119@psu.edu</a>
Chenji Zhang	Vice-President	<a href="mailto:cxz167@psu.edu">cxz167@psu.edu</a>
Ju-Hung Chao	Secretary	<a href="mailto:joc5336@psu.edu">joc5336@psu.edu</a>
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Tony	Publicity Coordinator	
Prof. Zhiwen Liu	Chapter Advisor	<a href="mailto:zliu@engr.psu.edu">zliu@engr.psu.edu</a>

**Member Count:** 21 (As of 8/25/2015)

**Abbreviated SPIE-PSU Expense/Income Report**

<b>Description</b>	<b>Date</b>	<b>Amount</b>
Current Chapter Balance	September 2015	\$2200
O+P 2015 Trip Expenses	August 2015	\$(5500)
SPIE Officer Travel Grant	August 2015	\$1100
Travel Subsidy from University	August 2015	\$4000

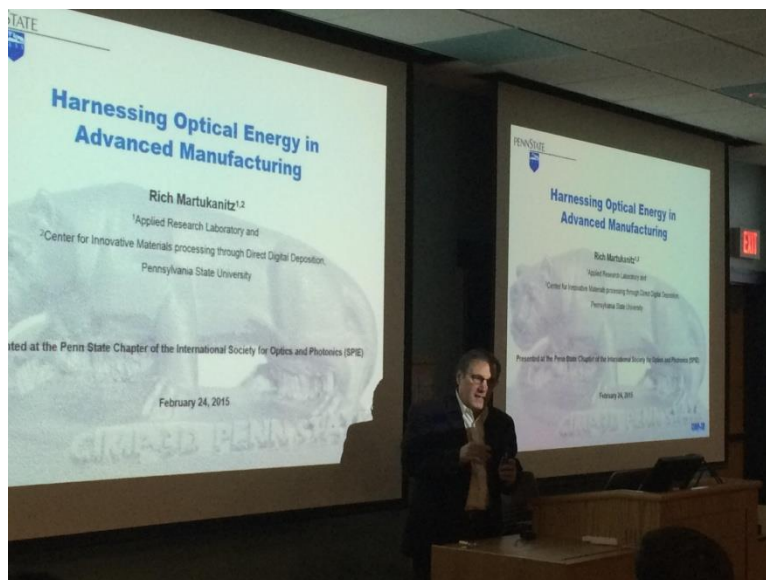
Expenses of printing poster for exhibitions or advertising, treat for regular SPIE member and preparatory meetings, and team building activities are not listed above.

## **Chapter Activities From September 1<sup>st</sup> 2014 - August 31<sup>st</sup> 2015**

The events listed here are in chronological order. Regular, officer only, and event meetings are not listed.

### **February 24<sup>th</sup>, 2015: Invited Talk: Harnessing Optical Energy in Advanced Manufacturing**

Dr. Richard Martukanitz, the Head of Laser Processing Division at the Applied Research Laboratory at Penn State discussed the status of laser manufacturing in the basis of additive manufacturing. He discussed the wide range of applications for laser additive manufacturing, the current research projects developing new process technologies, and the new research efforts of the Direct Digital Deposition initiative and its drive towards advancing manufacturing. Over thirty members and people of the community attended this event.



### **March 24<sup>th</sup>, 2015: Exploration-U Outreach Activity**

Ten students from the chapter participated at the local science event for local elementary and middle schoolers. Event was designed for young local students to learn about science and to demonstrate why learning science is important to understand their environment. Our chapter booth had a wide variety of demonstrations to instruct the children about optical effects in their life, and the young students were drawn in by our wide variety of demonstrations. Over 600 students participated at this event, making it by far our largest outreach activity of the year.

### **April 9<sup>th</sup>, 2015: SPIE Officer Election Meeting**

For the next upcoming year, we expanded the roles of some of our officer members, upon request that some more member get the opportunity to lead events held by the student groups. Due to this, we removed one of two outreach coordinator positions because the publicity coordinator worked very closely with the outreach coordinator to publicize our outreach and public activities, removing the need for two outreach coordinators. Two new first-time officer members were elected to new positions and returning officers were

eager to step up for new roles vacated by graduating members. Membership and publicity coordinators were quick to begin their roles, creating several new event ideas for the following semester, demonstrating our new officers commitment to increase the publicity and role of our chapter within our community. Former officers also gave discussions about the importance of their roles and how to create a successful organization going forward.

#### **April 15<sup>th</sup>, 2015: Social Bowling Event**

Twelve members of the chapter participated at a social event a bowling and recreation center. Chapter members and their spouses attended the event to relax and enjoy life outside the classroom and laboratory. Student groups formed teams and had an enjoyable experience forming team activities with other students.

#### **Aug. 9<sup>th</sup> – 13<sup>th</sup>, 2015: SPIE Optics + Photonics, San Diego, Ca**

Five Student members (Corey Janisch, Chenji Zhong, Alex Cocking, Ju-Hung Chao, and Wenbin Zhu) and chapter advisor Zhiwen Liu attended the SPIE Optics + Photonics conference in San Diego, Ca. Support for this conference trip was generously supported by the SPIE Officer Travel Grant (awarded to Chenji Zhang) and the University. Students shared their research with their peers through attending talks and the symposium floor, as well as studied many other interdisciplinary research presentations, expanding their potential in new developing fields.

Students also presented well at the Leadership conference and the SPIE Student Chapter poster session. Activities were well received and attending members expanded their contacts within the SPIE community.

The following is a list of proceeding papers and poster developed by students, post-doctorate scholars, and faculty members affiliated with SPIE PSU chapter.

[Proceeding paper number] authors, title

[9558-12] Akhlesh Lakhtakia, Tom G. Mackay, ‘Scattering from bulk material with surface states.’

[9561-1] Tom H. Anderson, et. al., ‘A combined optical-electrical finite-element simulation of nonhomogeneous thin-film solar cells.’

[9565-5] Chun-Wei Chen, et. al., ‘Studies of the underlying mechanisms for optical nonlinearities of blue phase liquid crystals’

[9565-13] Joanna N Ptasinski, et. al., ‘Nematic and blue phase liquid crystals for temperature stabilization and active optical tuning of silicon photonic devices’ (Invited Paper)

[9565-50] Iam Choon Khoo, et. al. ‘Field induced lattice reorientation, deformation, and optical nonlinearities in blue phase liquid crystals’

[9566-25] Noel C. Giebink, ‘AC quantum efficiency harmonic analysis of exciton annihilation in organic light emitting diodes’ (Invited Paper)

[9579-11] Sawyer D. Campbell, et. al., ‘Advancements in transformation optics-enabled gradient-index lens design’

- [9584-23] Corey Janisch, et. al., ‘Raman sensing in microresonators’  
[9584-25] Chenji Zhang, et. al. ‘G-Fresnel cellphone spectrometer’  
[9584-26] Perry S. Edwards, et. al., ‘Smartphone spectroscopy for non-invasive point-of-care diagnostics’ (Invited Paper)  
[9584-27] Yizhu Chen, et. al., ‘Axial slice light sheet microscopy with micro mirror array’  
[9584-28] Alexander Cocking, et. al., ‘Compressive sensing in CARS holography’  
[9586-28] Shizhuo Yin, et. al., ‘Nanosecond speed KTN beam deflector’  
[9601-11] Zachary R. Prieskorn, et. al., ‘Soft x-ray quantum efficiency and other characteristics of x-ray sensitive Si hybrid CMOS detectors’  
[9603-52] Paul B. Reid, et. al., ‘Development of adjustable x-ray optics with 0.5 arcsec resolution: a status update’  
[9603-53] Ryan Allured, et. al., ‘Improved control and characterization of adjustable x-ray optics’  
[9605-56] Justin R. Crepp, et. al., ‘iLocator: a high-resolution, near-infrared Doppler spectrometer for the large binocular telescope’

**Future Directions:**

Our SPIE chapter is eager to expand our role within the University and local community. We wish to expand our outreach activities and public events such as invited lectures. We are also working hard to increase the experience of chapter members, by providing industry contacts and networks. Our goal is to improve our chapter recognition through events and networking, while developing member communication, knowledge, and opportunities in optical science and technology fields.