

Air Force Institute of Technology (AFIT)

SPIE Student Chapter Annual Report for 2015

AFIT SPIE Student Chapter
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Introduction

In this annual chapter report, we highlight the accomplishments that our chapter made over the past year. This year our chapter held four quarterly meetings as well as two community outreach events. Meeting topics varied from SPIE recruitment, to outreach, to educational lab tours. Our outreach coordinator was successful in expanding our current program with the addition of the *Laser Effects Demonstration*. Overall, the chapter continues to do well, and looks forward to continued success 2016.

Members

Leadership

Our chapter officials for 2015 were elected on 9 Apr 2015 and are listed below:

- Ashley Gonzales, ashley.gonzales@afit.edu, President
- Ben Eshel, ben.eshel@afit.edu, Vice President/Outreach coordinator
- Nicholas Herr, nicholas.herr@afit.edu, Treasurer
- Daniel O'Keefe, daniel.okeefe@afit.edu, Secretary

Current members

As of Dec 2015, our chapter has 13 Student Members and 16 Alumni Members. Current members and their membership expiration/graduation dates are listed in the Table 1. Alumni members are listed in Table 2. The AFIT SPIE Student Chapter maintains two chapter advisers, one military faculty member for continuity and one civilian faculty member for longevity. Our military advisor is Major Milo Hyde, Ph.D., and our civilian advisor is Dr. Michael Marciniak. Both advisers are regular members of SPIE and have written consent from their respective department heads (as required by the chapter constitution). The AFIT SPIE student chapter also elicits the participation of AFIT faculty members who are current members of SPIE or show desire in becoming members of SPIE. Their continued involvement increases chapter support and longevity.

Table 1: Current members of the AFIT SPIE Student Chapter

Student Members:	Membership Expiration Date
Kenneth Burgi	2 March 2016
Samuel Butler	11 April 2015
Thomas Dickinson	30 May 2016
Ben Eshel	7 May 2015
Ashley Gonzales	13 April 2016
Nicholas Herr	9 April 2016
Kevin Horn	4 February 2016
Gordon Lott	17 August 2016
Daniel O'Keefe	12 April 2016
Ashley Smith	27 February 2016
Noah Van Zandt	20 February 2016
Sandra Vaughan	29 March 2016
Pamela Wheeler	23 August 2016

Table 2: Alumni members of the AFIT SPIE Student Chapter

Alumni Members:	Graduation Date
Christopher Lenyk	May 2009
Michael Marciniak	September 1995
Salvatore Cusumano	(not available)
Steven Harbour	December 2014
Edward Hurd	March 2011
James Harris	(not available)
Brian Neff	Sep 2013
Glenn Perram	Aug 1966
Ronald Coutu	(not available)
Victor Gamiz	May 1995
Derrick Langley	Jun 2012
Michael Seal	Sep 2013
Mark Spencer	Mar 2014
Seth Swift	September 2015
Matthew Gridley	Mar 2015
Michael Steinbock	Sep 2015

Chapter Activities

Community Outreach

This year, our outreach coordinator Ben Eshel has done an excellent job expanding our outreach program. In addition to participating in two outreach events reaching 600+ students, the chapter was able to complete the *Laser Effects Demonstration(LED)*, which has been an excellent addition to the *Laser Propagation Demonstration (LPD)*.

The *LED* consists of a 1.2 W GaN direct-diode laser at 455 nm that is encased in a capped 3" PVC pipe. Business cards are inserted through a slit in the pipe and into the beam path, burning a hole on the card. This demonstration was designed with a dual purpose. The first was to show people that lasers can be dangerous and discuss all the safety precautions necessary for working with lasers. Second, as students and officers working for the USAF, we want to demonstrate why lasers are of interest to the DoD for the modern weapons system.

In May 2015, we presented the LPD and LED to over 600 students at Baker Middle School. The Baker event was our largest scale demonstration to date, with 3 groups of 200 students. A video camera was purchased using chapter funds to allow for the demonstrations to be live projected, allowing the demonstrations to be used on larger audiences. The demonstration went extremely well, with Baker wanting to set up an annual session. In November 2015, we presented our demos to a group of 24 students at Belle Haven Elementary. This is our 2nd year presenting to this group, and are establishing an annual session with them as well.

In addition to our local outreach events, the demonstrations were featured at the Optics and Photonics conference in San Diego, Ca, placing third at the 2015 Outreach Games.



Figure 1: Samuel Butler (center) and Daniel O'Keefe (right) accepting 3rd place at 2015 Optics Outreach Games

Travel Grants

In August 2015, Daniel O'Keefe, our chapter secretary, applied for and received a SPIE Student Chapter Travel Grant to attend the 2015 Student Chapter Leadership Workshop at Optics + Photonics in San Diego, California. Daniel was incredibly grateful for the opportunity to attend and greatly enjoyed the

Student Leadership Workshop. This year, the travel grant was immensely valuable to due to the limited conference travel funds approval for government employees, which prevented most students from conference travel in 2015. We greatly appreciate SPIE's support through travel grants, which provide these unique opportunities to our members.



Figure 2: Daniel O'Keefe (right) at our 2015 poster display at the Student Chapter Exhibition session of Optics + Photonics in San Diego, California

Best Light-Based Master's Thesis

Our fourth annual *Best Light Based Master's Thesis* award was presented to Mr. Noah Van Zandt. The award is presented to the masters student with the strongest thesis based on the ranking of our PhD student members. Mr. Van Zandt was chosen from a pool of 8 applicants to receive the commemorative plaque and \$50 award. The number of applicants doubled from the four received in 2014, and we hope to expand the program farther in the coming year.

Future Activities

Moving on to the next year, our chapter has several ideas to increase involvement, relevance, and outreach. We highlight these ideas in bullet format below.

- Outreach - increase the number of schools and public demonstrations with the dual demos
- Invited speaker – use invited speaker grant to bring Jean-Luc Doumont to speak at AFIT
- Lab tours – expand quarterly meetings to include laboratory tours/talks from local labs

Financial Information

Our financial records for May through December 2015 are shown below in Table 3.

Table 3: Financial records for the AFIT SPIE Student Chapter

2015 Financial Records (Through 7 Dec 2015)	
Balance as of 29 May 2015	\$542.82
Outreach Events	(\$549.49)
- Supplies for Laser Burn Demonstrator	(\$23.63)
- Camera Equipment for large audience demo	(\$362.79)
- Replacement Laser Diode	(\$163.07)
Food & Supplies	(\$159.26)
- Food/ drinks/supplies for 2 Quarterly Meetings	(\$159.26)
2015 SPIE Activity Grant	\$1100.00
Balance as of 15 Dec 2015	\$ 934.07

Summary

In closing, we feel like this has been a successful year, particularly with the expansion of our outreach program. We greatly appreciate your continued support, and we look forward to continued success in 2016. Thank you!

Ashley E. Gonzales
President
SPIE Student Chapter
Air Force Institute of Technology (AFIT)
30 December 2015

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