

Rose-Hulman Institute of Technology
SPIE Student Chapter
Annual Report 2015/2016



Authored by Matthew Hughes, President,
Kelly Farner, Vice President
James Beil, Treasurer

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I. Membership

| Position | Name | Contact | Member # |
|-----------------------|---------------------|--|-----------------|
| President | Matthew Hughes | hughesmd@rose-hulman.edu | 3651911 |
| Vice President | Kelly Farner | farnerkr@rose-hulman.edu | 3636084 |
| Treasurer | James Beil | beilja@rose-hulman.edu | 3651890 |
| Secretary | Jack Wassom | wassomjs@rose-hulman.edu | |
| | Stephen Misak | | |
| | Casey Troccoli | | |
| | Juliana Richter | | |
| | Serang Park | | |
| | Jacob Tyler | | |
| | Hunter Reynolds | | |
| | Lisa Shimomoto | | |
| | Mel Groenewold | | |
| | Tayler Evans | | |
| | Travis Koontz | | |
| | John Koopal | | |
| | Jenni Kilduff | | |
| | Kevin Cao | | |
| | Audrey Brand | | |
| Advisor | Dr. Sergio Granieri | granieri@rose-hulman.edu | |

II. Official Meetings

Rose-Hulman is on a ten week, four quarter schedule, summer being the fourth quarter. Due to conflicting schedules with classes, the chapter attempted to have five meetings per quarter. Each member was held accountable to attend at least two meetings per quarter. This allowed the meetings to be brief as attendance was spread out through the five meetings in each quarter. In meetings, we discuss future events, such as attending STEM fairs or hosting visiting speakers, or work on club projects. Meetings usually lasted 30 minutes to an hour. Our goal as a chapter is to spread awareness of optics as a field of study. In order to accomplish this, at our meetings we created demonstrations to display at STEM fairs and hopefully in the future, at local schools. These activities will be described in the “Completed Activities” section of the report. At selected meetings, we had pizza to entertain and reward our members. This worked well as members later asked to keep this as a tradition.

Recruiting new members

In order to recruit new members to SPIE, the current members have been very vocal to fellow optical engineering majors and physics majors who are not part of SPIE. Also, our SPIE chapter has talked with the astronomy club about future collaboration plans. The astronomy club is a club that has been on campus longer than SPIE and has built a good reputation in the Physics and Optics department at Rose-Hulman. We hope that these plans can help SPIE grow on campus. Also, this past year, three officers attended the activities fair on campus to recruit incoming freshmen. We know that getting a strong, young team will help improve the presence of SPIE on campus. SPIE further plans on attending future activity fairs at the school.

III. Completed Activities

Blue Key STEM Fair (04/2015)

At the end of the last school year, SPIE had the good fortune to be invited to attend the Blue Key STEM Fair. Blue Key is an honors society on campus who organizes the STEM fair for younger students. Our current President, Vice-President and Treasurer were recently elected before the event and were eager to attend the short, two hour event. Elementary to high school aged students visited, asking many questions about our displays. On display, we had the SPIE Light Blox kit, simple holograms created by previous students, light fibers and low powered lasers. The Physics and Optics Department made neon yellow acrylic rulers to hand out at the fair. Students that came to our table could answer a simple question to receive one of the rulers. These were a huge hit and there was very little down time for the officers manning the booth.



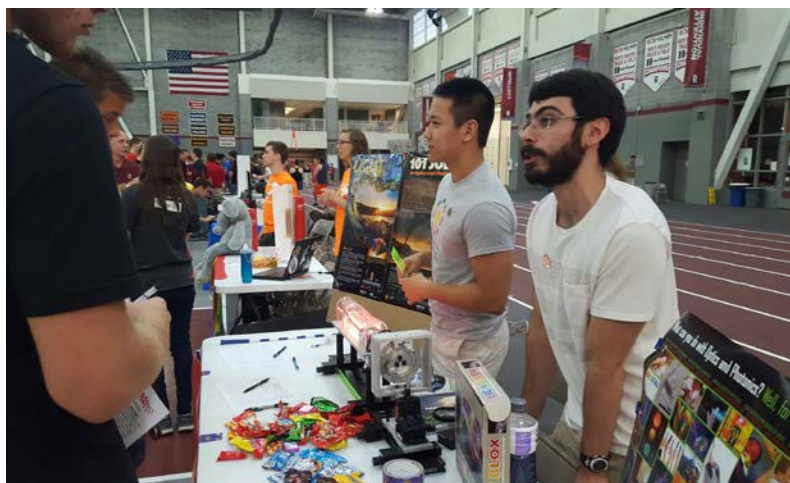
Kelly and Matt explaining the basics behind solar powered lights.



Demonstrating fiber optics to a group of visiting students.

Rose-Hulman Activities Fair (08/2015)

The Activities Fair is held every year during freshmen orientation. As a result, the officers came to campus early to set up and recruit new members. At this event, clubs, chapter, fraternities and sororities show up to recruit new members. Our booth had official SPIE posters, an open cavity HeNe laser, candy, rulers, light blox kit and our SPIE banner to attract the freshmen. Fortunately for SPIE, this event also attracts other students who arrived on campus early. At the fair, interested students could sign up to an email list to further explore the club. After, the email list consisted of at least 30 new potential members. There were a few non-physics department students on the list, however; one of which became our secretary for the new school year.



Matt and James convincing students to join SPIE.



Kelly and James setting up the booth at the Fair.

Wave Demonstration Model (09/2015)

To start off the new year, the chapter held a meeting to construct a simple wave demonstration. This is a simple project made from sticks and duct tape which provides a visual and hands on explanation of wave propagation. In the long run, we hope to bring these to schools to show the basics of wave mechanics to young students. We knew that these were going to be interactive demos and that they needed to be flexible and cheap. This is also a simple project for future SPIE chapters to do and in case one gets lost or damaged, it can be easily remade. Due to the fact that the meeting had a high attendance, we ended up splitting into two groups to make multiple models.



James leading a group to construct one of the wave demonstrations



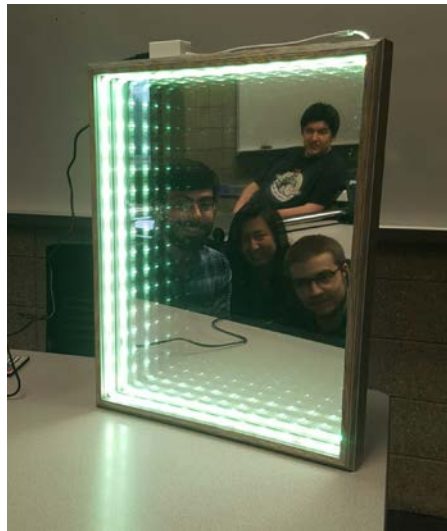
James and Juliana testing out the demo

Homework Help Session (10/2015)

One of our chapter goals is to aid in introducing underclassmen with older students in the department. Because of the course schedules, different years rarely overlap in classes unless they are taken out of the suggested order, so it can be harder to meet the older students who can provide help and guidance. To this end, we reserved a classroom for two hours and hosted a homework night, in which all students were welcome to ask for help from students who had already taken those classes, or just to take advantage of a convenient time and space for work.

Infinity Mirrors (ongoing)

Proposed by a student member, Stephen, the goal was to add a more complex and optics-related demonstration to our future events. The chapter was eager to start the project and construction began in the winter. SPIE activity grant was used to purchase shadow boxes, mirrors, LED strips, and a semi-reflective film to construct an infinity mirror. We currently are trying to get a partially reflective film onto the glass, but the film is introducing minor complications to construction. This may necessitate moving to a thin layer of reflective paint. The project has taken place over multiple work days to ensure all interested members are available to participate.



IV. Leadership Development

Over the summer, our Treasurer attended Optics + Photonics in San Diego through the student officer travel grant. He took classes and attended talks pertaining to leading an SPIE chapter and formed connections with SPIE members from all over the world. This six day trip fostered leadership and professional skills like communication, conflict management, and decision-making. James also got a look at what SPIE members from different chapters are up to at the poster talks.



James was able to meet Joseph Choi, from University of Rochester, presenting his popular cloaking poster talk.

Additionally, our President attended a leadership academy offered by Rose-Hulman. The academy, organized by the Leadership Education & Development Program (LEAD), spent three days on team building exercises and lectures on effective leadership. Throughout the experience, the president studied how to deal with difficult members, provoke good behavior in teammates, and lead without being bossy. We considered this a helpful experience for both president and chapter and may make it a requirement for future officers.



Matthew helping another student climb during an event at the Leadership Academy

V. Future Activities

We have invited Dr. Christopher Middlebrook from Michigan Technological University to come give a lecture. The two topics for his lecture will be “Highly Linear Dual Ring Resonator for Microwave Photonic Links” and “Careers in Optics, Photonics, and Engineering; Graduate School vs. Industry” and we are very excited to hear him speak. Dr. Middlebrook was a perfect choice for Rose-Hulman as he received his MS in Optical Engineering at Rose-Hulman. Not only is he a Rose graduate, he has had a lot of experience in both industry and graduate school. This makes him perfect to give a talk to future engineers of the world. We plan on this event being open to the whole campus as it helps students experience optics while letting the chapter promote SPIE.

Following the success of the Blue Key STEM fair last year, we are looking forward to participating again at the end of this April. We now have more demonstrations to include, and since these were constructed by the chapter, we will be able to give in-depth explanations. Furthermore, with a much larger chapter this year, we hope to include several members in the event.

We also plan on hosting a leadership event with Dr. Jason Winkle. Dr. Winkle is not a physicist or engineer, but a leadership development speaker. The president of SPIE has been fortunate enough to attend his talks multiple times. Also, Dr. Winkle is very fond of Rose-Hulman as he has multiple hour long lectures sponsored by LEAD. In the future, SPIE plans on teaming up with LEAD to host a special Dr. Winkle event. As Dr. Winkle is known throughout campus, this will be an event that attracts a lot of students and will help SPIE be more visible at Rose.

In the autumn of the academic year at Rose-Hulman, all student societies are invited to participate in the Day of Service. This aids in community outreach as clubs are matched with service projects around the city of Terre Haute. Because at the beginning of this year we were a small chapter with few returning members, we were unable to participate. We hope to have enough interest in 2016 to offer our volunteers to the event.

Other events SPIE has planned are to travel to elementary, middle and high schools to demonstrate optics and help the students understand the importance of the field in everyday life. However, we are currently still in the initial contact phase of establishing partnerships with area schools.

VI. Financial Report

| DATE | DESCRIPTION | DEBIT | CREDIT | REMAINING BALANCE |
|------------------|-----------------------------|--------------|---------------|------------------------------|
| 9/1/2015 | Carried over from last year | \$ 680.39 | | \$ 680.39 |
| 1/1/2016 | Chapter Activity Grant 2015 | \$ 900.00 | | \$ 1,580.39 |
| 1/14/2016 | Pizza for Chapter Meeting | | \$ (34.84) | \$ 1,545.55 |
| 1/26/2016 | Infinity Mirror Materials | | \$ (65.74) | \$ 1,479.81 |
| 1/30/2016 | Mirror Supplies | | \$ (124.39) | \$ 1,355.42 |