I. Introduction

It was a great start for the University of Rochester SPIE student chapter. A much needed student organization that brings together graduate students with common interests in optics and/or imaging across the University. Inspired on the interdisciplinary nature of SPIE we have reached to students from optics, biomedical engineering, physics, medical center, chemical engineering and computer science. Our chapter currently has 40 members.

We kicked off this academic year, shortly after officer elections, with a student summer colloquium where graduate students presented the latest of their research. Arranged visits to Melles Griot and Optimax, local companies in Rochester with a global reach. Our officers attended Optics & Photonics 2009 and the student chapter leadership meeting. Many of our members were involved in outreach activities including a successful proposal for Laser Fest. A nice evening of wine tasting at a local winery was the highlight of our social activities.

Elected Officers
President: Nathan Clark
Vice-president: Daniel Christensen
Secretary: Florian Fournier
Treasurer: Manuel Guizar-Sicairos
Web-administrator: Kathleen Adelsberger

Faculty Advisor
Prof. Jannick P. Rolland

Outreach Committee
Brooke Beier, Tim Baran and Amber Beckley

Summer Colloquium Committee
Manuel Guizar-Sicairos, Joe Vornehm and Paul Ardis

Department Representatives
Chemical engineering: Chris Evans
Medical center: Tammy Lee
Biomedical engineering: Etana Elegbe
II. Activities

1) **General meetings**
   - General interest and update meeting, November 5, 2009.

2) **Student summer colloquium**
   This weekly series in the summer was a great opportunity for students to practice delivering talks and to foster discussion and collaboration between different groups and departments. The talks were held in a relaxed low-pressure environment. We had four invited speakers and six graduate students presenting their advances in optics and/or imaging. Thanks to The Institute of Optics for partially sponsoring refreshments.


   **Walter O’Dell** – Professor at the departments of Radiation Oncology and Biomedical Engineering, University of Rochester Medical Center. “Computed tomography-based lung nodule detection, growth and treatment.”

   **Mehul Malik** – “Quantum ghost image discrimination with a single pair of photons.”

   **Anand Jha** – “Two-photon fields: coherence, interference, and entanglement.”

   **Jennifer Kruschwitz** – Principal Engineer of JK Consulting. “Optical interference coatings: modern design methods.”

   **Zhimin Shi** – “Slow light interferometry.”

   **Karl A. Kasischke** – Director of the Multiphoton Core Facility, University of Rochester Medical Center. “Multiphoton microscopy overview and application research.”

   **Abbie Tippie** – “Undergraduate summer research highlights.”

   **Xiaoxing Han** – “Second harmonic generation microscopy.”

3) **Outreach**

**U of R Pre-College Program**

Part of our outreach this past year specifically targeted high school students. By becoming involved with the University's Pre-College Program, specifically the Careers in Engineering, we were able to spend an afternoon teaching about light, optics, and imaging. This class runs 6 times a year and contains 10 – 20 students ranging from grade 7 to 12. There were many hands on activities including learning about color, observing the spectrum of different light sources, and measuring the speed of light using chocolate and a microwave. We used chapter funds to purchase materials supporting the lesson plan and lab activities. Also, the students were able to take with them liquid crystal, LED flashlights, and polarizers; all of these found as part of Dr. Steve Jacob's optics suitcase program. We thank him for his support.

**Laser Graffiti**

Inspired by the activities promoted through LaserFest, we put together a laser graffiti system to be used indoors (the daunting task of obtaining permits for outdoor use when we are located near an airport prevented us from making an outdoor version). The setup was used at a family night for the local OSA chapter, as well as taken to two outreach events. “Writing with light” is very popular with children and we will continue to use this system in future outreach events. It also gives us a chance to talk about laser safety.

**Seeds for College**

Around five of our chapter members met twice with students from the *Seeds for College* program to do Optics demonstrations and activities. This program seeks to support middle through high school students on their way to college. Through their participation, they can earn funds to use towards the cost of education, as well as a variety of support services. Lead by Professors Andrew Berger and Miguel Alonso, UR students have met with this group over the past few years, and this year volunteers were pulled from the SPIE chapter.

Our topics this year included color (visible spectrum and beyond), polarization, and assorted “cool” optical effects. We relate our demonstrations as much as possible to things they have seen/experienced. Our goal is to get them excited about science so they can stay motivated in their science and math classes.
**LaserFest**

Our chapter partnered with the Optics Road Show group to present an outreach event April 10, 2010 at the Rochester Museum and Science Center, thanks in part to a Laser Days grant. As part of the LaserFest festivities, we built a three dimensional Laser Maze and had hands-on activities demonstrating optical concepts, including fluorescence, polarization, fiber optics and black body radiation. We were ideally located for crowds exiting the planetarium, so we were able to have more than 75 young participants along with their accompanying adults. We will be presenting our Laser Maze setup and outreach materials at the Frontiers in Optics conference, October 2010.

4) **Company visits**

One of the primary objectives of our student chapter has been to connect students with industry. In line with this objective, we have taken advantage of our location in Rochester and taken tours of multiple optical manufacturing facilities. We were privileged to be given access to the manufacturing floors of both CVI-Melles Griot and Optimax. During both experiences, we received instruction on the tools of the trade and given insight on how the companies operate from a business perspective. We were also given access to the leadership of each company and the opportunity to ask questions.

Special thanks to Chuck Synborski and Todd Parker at CVI-Melles Griot and Jessica Nelson, Stacy DiMora, and Rick Plympton at Optimax for all of their generous hospitality and assistance with these tours.

5) **Student chapter leadership meeting (Optics & Photonics 2009)**

Two of our officers attended the 2009 Student Leadership Workshop at the Optics & Photonics conference in San Diego. The workshop provided us the opportunity to introduce ourselves to the rest of the SPIE community as a new chapter and also allowed us to bring back ideas from other established chapters. What we learned was very helpful in consolidating our chapter. We got some great ideas for outreach activities, many of which we incorporated into our events during the year. We also talked with a few nearby chapters about possibly hosting a joint symposium. While we
were not able to set that up this year, it is still a future goal for our chapter. All in all, the leadership workshop was a fantastic event for networking with students from chapters across the world. The workshop prompted many continuing collaborations and friendships and helped us stay in touch with events and programs at other universities.

6) Wine tasting

Our social event of the year was a wine and hors d'oeuvres party held at a local winery in Williamson NY. It served both as a great way for the new chapter members to meet each other as well as encourage students to join. Approximately 20 people were able to attend and all enjoyed the winery tour, food, and new friendship. This event supported our goal as a chapter to promote inter-disciplinary interaction and we are looking to repeat and build on this success next year.

7) Web-Presence

We initially developed a blog on the free website www.blogspot.com as a way to get the word out about our first events as a chapter. We found it effective in announcing upcoming talks for the summer lecture series that we initiated in June-August 2009. We ran into some difficulties securing a permanent site during the year as the University of Rochester developed a new system to host websites associated with graduate student clubs and organizations (the only system in place at the time was primarily for undergraduate groups). However, our new webmaster, Cristina Canavesi was recently able to move our blog permanently to a university-hosted location. The blog is now located at http://blogs.rochester.edu/spie/ and will be a great tool to keep our members connected and informed of upcoming activities.
III. Financial Information

*Starting balance* $ 0.00

*Income*
- The Institute of Optics – Donation $ 575.44
- SPIE Activity funds $ 1,300.00
- OSA Laser Fest $ 800.00

Total $ 2,675.44

*Expenses*
- Outreach material $ 940.61
- Food, snacks and refreshments $ 581.53
- Social $ 148.57

Total $ 1,670.71

*Ending balance* $ 1,004.73

IV. Future activities

Looking towards the future and in line with the missions of both SPIE and our individual chapter, we plan on continuing to host activities and meetings which bring together students with other students and with industry, as well as develop a culture of interdepartmental collaboration and awareness. Towards these goals, we are:

+ Hosting a summer colloquium series bringing together student researchers across departments.
+ Continuing to expand our community outreach efforts.
+ Organizing tours with optics and photonics-related local companies.
+ Organizing field trips to regional sights of interest and other social activities.
+ Continuing to foster an environment of academic collaboration across departments.
+ Coordinating and sponsoring activities for Women in Engineering.