2009-2010 Officers:

President: Christopher G. Brown  
Membership: 03055366  
Email: cgbrown@creol.ucf.edu

Vice-President: Apurva Jain  
Membership: 03204208  
Email: ajain@creol.ucf.edu

Treasurer: Matthew Weed  
Membership: 03231501  
Email: mweed@creol.ucf.edu

Secretary: Lauren Rich  
Membership: 03310297  
Email: lrich@creol.ucf.edu

Current Members (46 Total):

Troy Anderson  Timothy McComb
Abhijeet Ardey  Sergiy Mokhov
Janghwan Bae  Cesar Oleas
Alexander Bermudez  Ibrahim Ozdur
Sharad Bhooplapur  Himansu Pattanaik
Nathan Bickel  Shirish Pethe
Raka Biswas  Mohammad Umar Piracha
Ryan Boutwell  Mark Ramme
Christopher Brown  Linghui Rao
Kuan-Ming Chen  Candy Reid
Narak Choi  Lauren Rich
Kristopher Davis  Oleksandr Savchyn
Alexander Dillard  Tobias Schmid
Kyle Douglass  Larry Schneider
Florian Fournier  Hubert Seigneur
Xingbo Gao  Mumtaz Sheikh
Amitabh Ghoshal  Robert Sims
Apurva Jain  Pradeep Srinivasan
Meizi Jiao  David Wayne
Ashwani Kaul  Matthew Weed
Thomas Kohlgraf-Owens  Christina Willis
Peter Krenz  Su Xu
Edwin Leland  Likai Zhu
Financial Information:
Starting Balance: $ 272.02

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Ending Balance: $1,434.51

Chapter Activities:

This year the UCF chapter of SPIE at CREOL, The College of Optics & Photonics took on a focus on educational outreach which will continue into the future. With existing SPIE chapter activity funding, countless member volunteer hours, and now the SPIE Educational Outreach Grant in hand, our chapter has teamed with our fellow professional optical societies (OSA, SID, and IEEE) and set out to make a difference in our local, national, and global communities.

Along with outreach activities this past year, our SPIE chapter has refurbished our website (http://spie.creol.ucf.edu), organized the 2nd Annual CREOL Khet tournament and set the foundation for a Professional Development Series. The following is a recap of all our endeavors in the past year.

Events of Feb 2009 to Feb 2010

Outreach Events:

Seminole County Science Teachers Lab Visit: 1/29/09
Impact: 15 Science Teachers
As the beginning of a training program for teachers of a new research class in Seminole County high schools, 15 new research teachers visited CREOL to make them more aware of the cutting edge work being done in their own backyard. The group visited some active research labs and was shown demonstrations to orient them to the current state of advanced scientific research in hopes of taking current mentalities back into the classroom for the new research course program.
Expanding Your Horizons 2009: 2/28/09
Impact: ~240 Middle School girls

Expanding Your Horizons (EYH) is a day-long program that supports young girls' interest in science, engineering, and mathematics through hands-on demonstrations and lectures. Approximately 240 girls in grades six through eight attended this year's EYH program at the University of Central Florida. CREOL’s SPIE student chapter organized and performed two sections of demonstrations.

One event demonstrated fundamental optical phenomena such as polarization and Rayleigh scattering. Long cords and grill plates were used to explain polarization. The girls were allowed to play with multiple polarizers and see the effect of crossing two or more of them. In addition, red and blue light were generated from milk droplets dissolved in water in order to explain why the sky is blue.

Another event utilized a large number of free telescope kits that SPIE had donated for this specific purpose. After talking about the components in a telescope, the girls were shown how to construct their own and allowed to experiment. After a brief period of experimenting and play, a quick lecture was given on how telescopes worked. The final event showed the girls how to make liquid nitrogen ice cream, which is a good way to blend science and fun.

SECME Awards Ceremony: 3/11/09
Impact: 100 k-12 students, parents and teachers

The SCPS teachers who paid CREOL a visit in January invited a group of CAOS students to make a presentation at the SECME Awards Ceremony. The students ranged from age 6 to 18 and the three CREOL students showed some demonstrations and spoke about how light works in their daily lives and how they became inspired to
study science. The presentation was followed by a Q&A session that lasted nearly an hour.

**Optics Day – A Focus on Green: 3/25/09**
**Impact:** ~200 students, teachers, and community members

Each year SPIE partners with OSA, SID, and IEEE student chapters to organize and host a day-long event called Optics Day. This year’s Optics Day, held on March 25, focused on green technologies and what the optics community was doing to help further sustainable research. The entire campus community, as well as local residents, was invited to learn both about CREOL and optics. Approximately 150 people were in attendance.

All of the existing CREOL demonstrations were tuned up and placed on display in the lobby. CREOL students stood by each demonstration to both explain how the phenomenon worked and to answer any questions visitors had. Other demonstrations specific to our theme were constructed, such as a comparison of heat output from various conventional light bulbs and LED bulbs. In addition to the demonstrations, two speakers were invited to talk. The first speaker was Dr. Bahaa Saleh, the current CREOL dean. He spoke about the history of CREOL and what the optics community has contributed to many modern technologies. The second speaker was Dr. Nicoleta Hickman of the Florida Solar Energy Center. She spoke about her research in photovoltaics and how her work is improving the science
behind solar energy. Optics Day, on average, pulls around 300 visitors to the building during the course of the day.

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**Lectures to Local Girl Scouts Troop: 3/28/09**

**Impact:** ~30 Girl Scouts

A local Girl Scouts troop visited CREOL on a Saturday in March to learn about optics. Approximately twenty girls attended. Utilizing the OSA optics suitcase and the existing CREOL demonstrations, SPIE and OSA students performed a series of short lectures and hands-on demonstrations of optics phenomena and technology, such as LCD displays, diffraction, refraction and lenses, and fiber optics. The day ended with lab tours so that the girls could see the inside of an actual research laboratory dedicated to laser development.

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**Science Café at Oviedo HS: 4/21/09**

**Impact:** ~25 High School students

The SPIE chapter from CREOL was approached to present at the April Science Café program at Oviedo High School. Two CREOL students attended the after school event to speak about why they love science and how they got hooked. They gave presentations on quantum dots and free space laser communication with demonstration of laser signal transmission. Liquid nitrogen demonstrations followed by liquid nitrogen ice cream concluded the visit.

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**Teach for America Optics Introduction: 5/15/09**

**Impact:** 35 High School seniors

Williams H. Turner Technical Arts School teacher, and former CREOL international-REU student, Diane Crenshaw and her senior physics class visited CREOL in order to spark the students’ interest in optics and science. The teacher is part of the Teach for America program in Miami-Dade County that reaches out specifically to underprivileged students. Approximately 40 students were led on a brief campus tour by 3 of CREOL’s former UCF undergraduates. They visited some current CREOL research labs where they learned about nano-scale fabrication, optical fiber studies, and lasers. They also
toured all of the current demonstrations that are listed in the next section that were presented by CREOL students.

**SWE Mystery Design – Middle School Parents and Teachers:**
11/7/09

**Impact:** ~50 parents and teachers of middle school girls

The UCF chapter of the Society of Women Engineers (SWE) hosted an event for middle school girls at the Harris building called Mystery Design. While the students were occupied by the SWE girls’ events, the parents and teachers who came with the students took a tour of campus which ended at CREOL for lab tours (LPL & Random Media) and demonstrations in the Lobby. While showing a little bit about what CREOL does, the event gave parents and teachers a chance to speak with students who have been all the way through science/engineering school. Parents were very interested in ways to continue to excite and encourage their daughters about science and technology. Contacts were made with local teachers as well for future outreach events. All who attended were very interested in coming back (with their daughters) to Optics Day in the Spring.

**AVID Campus Tour: 12/3/09**

**Impact:** 100+ High School and Middle School student

Tom Curry, Executive Director of Educational Services for Citrus County Schools, and a group of 100+ students and teachers from various high schools and middle schools in the Citrus County area toured CREOL and other parts of the UCF campus in an effort to inspire the students to attend college and consider careers in the sciences, engineering and mathematics. All of these students were members of AVID, an organization that encourages middle-performing students to pursue an advanced, college preparatory curriculum and attend four-year colleges. While touring CREOL, the students were shown several optics demonstrations concerning advanced lighting sources, total internal reflection and holography, visited a lab where they learned about high speed optics, and were entertained with liquid nitrogen and marshmallows. The tours were a great success and a valuable experience for all the students, teachers and tour guides involved. The overall UCF tour was hosted by the UCF chapter of the American Society of Civil Engineers.

**Social Events:**

**Khet board game tournament: 11/13/09**

**Impact:** 16 student players and 5 spectators

This event has become an annual tradition at CREOL was made up of a 16 participant bracket where students from CREOL, EE, Phys, etc came to our building to play, socialize, and win!
Visiting Lector Series:
Dr. Dahv Kliner:
Impact: 60 CREOL Students and Faculty

Dr. Dahv Kliner was invited to CREOL as a part of the SPIE visiting lecturer program. His talk on "Power Scaling of Diffraction Limited Fiber Laser Sources" generated a lot of interest and drew a large audience of about 60 CREOL students and faculty. After the talk, Dr. Kliner spent the rest of the day visiting CREOL laboratories and meeting with students and faculty. This event was a huge success and we believe both CREOL and our speaker benefitted from it.

Professional Development:
Professional Development Workshop Series: 11/20/09
Impact: 26 CREOL Graduate Students
The beginning of a new series for us at CREOL. Talk was delivered by our new Dean Dr. Baha Saleh on the Importance of Involvement in Professional Societies, and Why Students Should Join Them.
Proposed Events for the Coming Year:

CREOL Laserfest and Optics Day (April 2\(^{nd}\) and April 3\(^{rd}\)):
CREOL LaserFest will be a two day event co-hosted by the CREOL Association for Optics Students (CAOS), the UCF SPIE student chapter and the UNCC SPIE student chapter.

April 2nd 2010 will be the Optics Day - an event to promote optics to the outside world. The main goal of this day is to reach out to people of diverse age groups and academic backgrounds and generate interest in and increase awareness of optics through interactive demos, lab tours, and seminars.

April 3rd 2010 will be the Optics Symposium targeted to graduate students of southeast region in optics related fields. The attendees will benefit from a series of professional development workshops, technical seminars, share their research, and network with fellow students, professors and professionals.

General Future Educational Outreach Efforts:
In an attempt to foster progressive creativity, our chapter has begun to interface with local educators about how to make greater, and more widely reaching impact on young science students. An example goal is the development of Optics and Nanophotonic curricula for insertion into existing High School programs that, through interdisciplinary targeting and interactive demonstration materials, will cover a wide range of Florida’s Sunshine State Standards while creating sparks of curiosity in the future generation.

Expanding Your Horizons 2010
This is a joint event managed by an external organization that features science and technology departments from UCF. CREOL students are traditionally a focus during the event and provide demonstrations, and other fun teaching and scientifically exciting experiences to the middle school aged girls in attendance. The UCF SPIE chapter has taken CREOL’s part of this event over in recent years.

Professional Development Workshop Series:
We plan to continue this series with topics such as...

- Knowing your worth when entering the job market
- Making job transitions to academia
- Making job transitions to industry (see below in Industrial Affiliates Tours)
- Making job transitions ‘away from the bench’
- Entrepreneurship and spin-offs
- Intellectual Property and the Patent process
- Giving impressive technical talks
Undergraduate programs about Graduate School
We plan to hold a round table or panel event in the Spring in which we host UCF undergraduates to a panel discussion about graduate school, we would like to offer refreshments. Discussion topics will aim at providing answers to the questions…
- Do I want to go to graduate school, or straight into the working world?
- How do I make myself an attractive applicant to graduate school?
- What things make a graduate program a good one?

Optics and Donuts series
The Optics and Donuts Series will bring together all the student professional societies to hold informal, students only, monthly (or bi-weekly) sessions for approachable technical talks and student networking. Funding will be split between SPIE, OSA, SID, and IEEE Photonics Society student chapters here at CREOL to provide refreshments. The goal of this is multifaceted. First year students will gain exposure to a variety of topics within our field. The students who speak will gain experience in presentation and fielding questions. All students will have access to learning, from an expert peer, about tangential work. This series could also stand as a point of collaboration in the department.

Industrial Affiliates Tours:
Every year during the SPIE Defense and Security Symposium that is held in Orlando, FL, the student chapter hosts tours of CREOL’s research facilities. For the upcoming conference, we plan on continuing this tradition. In addition, if time allots we plan on hosting a panel discussion with invited panelists. The discussion will focus on the transition from academia to industry, and will be considered part of our professional development series.