Elected officers for September 2015 – August 2016

President
Alex Sincore
asincore@knights.ucf.edu
SPIE ID: 3428979

Treasurer
Steffen Wittek
swittek@knights.ucf.edu
SPIE ID: 3467460

Vice President
Naman Mehta
namanmehta@knights.ucf.edu
SPIE ID: 3710890

Webmaster
Colin Constant
colin_constant@knights.ucf.edu
SPIE ID: 3631685

Secretary
Roman Grigorev
roman.grigorev@ucf.edu
SPIE ID: 3641641
Student Chapter Members (34)

Sepehr Ahmadzadeh Benis
Yousef Alahmadi
Parinaz Aleahmad
Sarmad Alhasan
Sara Bakhshi
Ricardo Bustos Ramirez
Andrew Chew
Burdley Colas
Colin Constant
Justin Cook
Jennifer Digaum
Roman Grigorev
Evan Hale
Yuge Huang
Kumel Kagalwala
Fedor Kompan
Chatdanai Lumdee
Naman Mehta
Wilfredo Ortiz
Fenglin Peng
Lorelle Pye
Larry Schneider
Hamilton Shinto
Alex Sincore
Evan Smith
Sidhardha Sreeram
John Szilagyi
Thamer Tabbakh
Felix Tan
Daniel Thul
Amy Van Newkirk
Benjamin Webb
Steffen Wittek
Ruidong Zhu

Alumni Members (34)

Jeremy Ellis
Charles Middleton
Brian Monacelli
Sarper Ozharar
Chaim Schwartz
Yi-Hsin Lin
Catheryn Logan
Ryan Brumback
Ozan Cakmakci
Zhbing Ge
Leonard Kisimbi
Christopher Middlebrook
Alessandro Salandrino
Leo Siiman
Italo Toselli
Panomsak Meemon
Timothy McComb
David Wayne
Christopher Brown
Jiyeon Choi
Philip Marraccini
Mark Conlon
Ryan Boutwell
Mark Ramme
Jie Sun
Matthew Weed
Alexander Dillard
Clemence Jollivet
Andreas Vaupel
Charles Williams
Christina Willis
Brian Anderson
Ying Zhou
Kristopher Davis
Chapter Activities from February 2015 – January 2016

Educational Outreach

- **Science Day**
  - February 27, 2015
  - The Women in Lasers and Optics student organization at University of Central Florida joined with the Physics Women’s Society to host 140 middle school students for a day full of science. SPIE Vice President Naman Mehta was among one of three SPIE student members who volunteered. The students watched a photonics video, saw demonstrations in both CREOL and the Physics building, and played a game using lasers and mirrors. The theme of the event was “Science in your Life”, so each demonstration had a direct application to something used in our everyday lives.

- **SWEet College Day**
  - April 18, 2015
  - WiLO assisted the Society of Women Engineers with their SWEet College Day for high school girls. Two SPIE student members volunteered to help. Fifty girls came to CREOL and participated in optics demonstrations as well as the ‘Hit the Target’ laser and mirror game. The girls were also introduced to life in college and CREOL’s various degree programs.
• **Optics Day**
  • April 24, 2015
  • Optics Day is an annual event in which CREOL, The College of Optics & Photonics, opens its doors to the public. This year there were optics demos, lab tours, and talks from faculty members. 50 elementary school students came to experience the demos and tours in the morning, followed by over 50 public in the afternoon. An electrical engineering local start-up company **wearality** came to demo their virtual reality glasses, as well.

• **Wonders of Light: Family Science Fun**
  • September 12, 2015
  • The UCF SPIE Student Chapter’s officers were invited to participate in an International Year of Light event held at the Smithsonian National Museum of the American Indian. This event provided educational activities demonstrating the science of light for more than 500 school-age children and parents. The officers of our chapter brought an open cavity HeNe laser, home-built three-dimensional hologram of a nickel, and a fun mirage game.
• **Introduce a Girl to Photonics Day**
  - October 10, 2015
  - IEEE sponsored a national Introduce a Girl to Photonics Day in celebration of the International Year of Light. While events were happening all around the country, CREOL held its own event with 30 middle school girls from various local Girl Scout Troops. Two of the four volunteers were SPIE student members, including Vice President Naman Mehta. The girls were introduced to photonics with demonstrations and games, explaining basic optics concepts.

![Image of Introduce a Girl to Photonics Day event]

• **227th American Astronomical Society EPO Program**
  - January 6, 2016
  - Our chapter volunteered at the American Astronomical Society’s meeting for the Student Education & Public Outreach program. Several groups of middle to high school students visited booths at the meeting for demos and live demonstrations. SPIE President Alex Sincore and Webmaster Colin Constant explained diffraction and spectroscopy using color-changing LED bulbs and gas discharge tubes. Students left with an activity sheet, diffraction glasses, and prizes such as posters and bookmarks for engaging in the demonstration.

![Image of 227th American Astronomical Society EPO Program]

• **Tuskawilla Montessori Academy Science Fair**
  - January 20, 2016
  - CREOL Association of Optics Students (CAOS) was invited for the second year to judge a science fair at Tuskawilla Montessori Academy. SPIE Vice-President Naman Mehta was one of the four judges from CREOL. There were a total of 35 students from 4th to 8th grade who participated in the science fair.
Chapter Activities from February 2015 – January 2016

SPIE Student Chapter Faculty Talk Series

The faculty talk series is a new bimonthly seminar at CREOL, The College of Optics & Photonics which is organized and sponsored by the SPIE student chapter at the University of Central Florida. In this series, faculty members give a non-technical talk geared around professional development, soft skills, broader perspectives, etc. These talks provide an intimate setting to better know the CREOL faculty, while simultaneously passing down knowledge from career experts. Every Faculty Talk has required both of CREOL’s two largest rooms. The attendance is well over 50 people at each lecture.

• **Dr. Kathleen Richardson**
  • April 24, 2015
  • “Living the interdisciplinary dream – in a discipline-specific world”
  • **Abstract:** Ever wonder how we’re supposed to be prepared for the ever-changing workplace? Do you question if your University experience and that recently minted, high price-tag degree gives you what you really need to know to survive the demands of the ‘real world’? Isn’t the University supposed to be the place where we are taught all the things we need to know to be able to land that dream job, balance our work and home life time demands, and at the same time, be intellectually challenged in a way that keeps us loving the opportunity to come to work each day? What skills might I try to find and acquire now, that could help me in my future jobs – since current grads will likely hold multiple positions over the course of their careers? This talk gives a few examples of my perspective on these questions and how the ‘non-traditional’ way of getting there (with a variety of previously unseen peaks and valleys they don’t teach you about in school) is neither the route that is typically taken nor the stuff that your discipline-specific title on your diploma prepares you for.

• **Dr. M. J. Soileau**
  • June 11, 2015
  • “A Creole boy goes to CREOL: Many hands make light work”
  • **Abstract:** In this talk I will share my life’s journey indeed! The first part of the title is a bit of word play relating to my ancestry (9th generation in this country, but first in my family to speak English as my primary language) and the myth about how the name CREOL came about. The sub title is meant to emphasize that the story I have to tell is about collaboration, mentorship, and friendship. Anything that I have been able to accomplish in optics is due to the helping hands of many people. The other meaning intended by the sub title is that the many hands of the people at CREOL are putting light to work to develop Florida’s innovation economy.
• Dr. Michael Bass
• August 21, 2015
• "The Modern World – We Owe It To Physics"

Abstract: In the 1990's, together with a colleague from the Philosophy department and having read James Burke's book “Connections”, we put together an honors college course called “The Culture of Science”. That course was very successful. I gave a shortened version of it as a lunchtime series at CREOL, and it morphed into the course I now give at CREOL called the “History of Science”. It seems some other department has dibs on the word ‘culture’. As the course evolved, as do all things, I realized that physics was responsible for the modern world in ways that are only obvious when someone explains the connections. I will try to do that in this talk.

• Dr. Michael Bass
• October 23, 2015
• "Tiny neutral ones – neutrinos"

Abstract: The idea that there had to be a particle that was very small, did not carry charge, could be massless, had spin ½, and took part in beta decay was introduced by Wolfgang Pauli and elaborated on by Enrico Fermi in the early 1930s. They needed such a particle to save energy, linear and angular momentum conservation in beta decay. It was found experimentally in 1955. These neutrinos were associated with electrons. Then things became more complicated and there seemed to be neutrinos associated with the newly discovered muon and tau particles. Theorists speculated that perhaps these different neutrinos were different eigenstates of one particle (sometimes called different flavors) and therefore the neutrino would have to have mass. It would be very little mass but still some mass. Experiments discovered the muon and tau neutrinos. Nobel prizes were awarded and still the question of neutrino mass remained unanswered. If the neutrino had mass it would change type or flavor and it would not move at the speed of light. The work led by Takaaki Kajita and Arthur B. McDonald demonstrated clearly that neutrinos did change flavor and hence had mass. For that they won the 2015 Nobel Prize in Physics. An interesting aside: From their work and careful analysis it is clear that the total mass of the three neutrinos cannot exceed 10⁻⁶ of an electron mass or 10⁻⁹ of a proton mass. This is what it must be if stars are to experience nuclear fusion and beta decay to evolve and live long enough to produce the higher atomic number atoms that make up us.

• Dr. Leonid Glebov
• December 11, 2015
• "Long and Sinuous Way in Optics Research"

Abstract: I will tell about long (almost half century) path in optics that went through basic and applied research, administrative and business involvement, different countries and economic systems. I will try to show importance of understanding not only your scientific field but principles of interaction with people and communities of different scale from laboratory to country.
Chapter Activities from February 2015 – January 2016

Professional Development and Invited Speakers

- **OSA/SPIE/IEEE-PS Joint Seminar: Jean-luc Doumont**
  - February 23, 2015
  - “The Three Laws of Communication”
  - The OSA, SPIE, and IEEE-PS student chapters at UCF combined a joint effort to invite Jean-luc Doumont to present a seminar. In this presentation, Jean-luc Doumont gave his perspective on effective communications. His talk proposes and illustrates three simple yet solid ideas that lead to more effective communication and that underpin every other guideline: easy to remember, readily applicable, and always relevant—in short, valuable for the rest of your life.

- **SPIE Student Chapter Invited Speaker: Dr. Chris A. Mack**
  - November 9, 2015
  - “The End of the Semiconductor Industry as We Know It”
  - **Abstract:** Continued migration down the path predicted by Moore’s Law must eventual come to an end. The goal of this presentation is to discuss the technical and economic drivers of Moore’s Law, with special emphasis on their interdependence. These drivers can be classified as "push" (technology improvements push us down the Moore’s Law path) and "pull" (the economic incentives create increasing chip production volumes which drive the technology learning curve). In fact, Moore's Law can be considered as an instance of general learning curve theory, which places a special importance on the role of increasing chip volumes on the slope of Moore's Law. After a general discussion of the macro-trends of the semiconductor industry, developments in optical lithography are described in relation to the growth of the semiconductor industry. The economics of the semiconductor industry, and thus optical lithography, is discussed and its impact on technology development explained. When, if ever, will optical lithography be supplanted by the next leap in lithography technology? What are the economic impacts of the end of Moore’s Law? When will the author's career come to a crashing halt? All of these questions and more will be answered.
Chapter Activities from February 2015 – January 2016

Social Events

• Fall Picnic
  • November 7, 2015
  • The CREOL annual Fall Picnic is a big event put on by the various student chapters at CREOL. Outdoor games, grilling food, and enjoying the fall weather! Undergraduate students, graduate students, faculty, and staff all came out for a great time with the CREOL family.

• KHET Tournament
  • August 28, 2015
  • The SPIE student chapter’s annual KHET tournament! Students battle it out in a tournament bracket to determine the KHET champion. This event was combined with a social hour with other games, as well.

• CREOL Social Hours
  • February 23, 2015
  • September 4, 2015 [Elections for new student officers]
  • October 6, 2015 [Back to school social hour]
  • November 13, 2015
  • January 15, 2016 [Mantra Meditation led by SPIE Vice-President: Naman Mehta]

  The SPIE Student Chapter, along with collaboration from other CREOL student chapters, host social hours throughout the year to bring students together. These include snacks, beverages, board/card/video games, and a relaxed atmosphere. We also utilize these social hours to inform students of SPIE’s activities and garner new members or volunteers for events. The CREOL/SPIE Social Hours are a long-standing favorite for the close-knit graduate student community at CREOL, with well over 40 attendees at each event.

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