Annual Report
(February 2011 - February 2012)

Peng Li
President of SPIE Student Chapter at University of Notre Dame
Notre Dame, IN
February 29, 2012
Personnel

Chapter Advisor
Dr. Debdeep Jena djena@nd.edu
Department of Electrical Engineering

Current Officers
(Appointed March 2011)
President Peng Li pli6@nd.edu
Vice President Jinyang Li jli5@nd.edu
Vice President Yunshan Wang Yunshan.Wang.177@nd.edu
Secretary William O’Brien wobrien1@nd.edu
Treasurer Wenjie Chen wchen1@nd.edu

Previous Officers
(February 2010 - February 2011)
President Wangqing Yuan wyuan@nd.edu
Vice President Jinyang Li jli5@nd.edu
Secretary Peng Li pli6@nd.edu
Treasurer Wenjie Chen wchen1@nd.edu
Current Members

A total of 21 student members are in our chapter. Here is the name list.

Shaddy Abado 31 October 2012
Katherine Butler 15 January 2013
Wenjie Chen 10 March 2012
Himadri Dey 10 August 2012
Guanqi Hang 7 August 2012
Zhenguo Jiang 10 August 2012
Xueming Ju 9 August 2012
Aamir Khan 13 September 2012
Aniruddha Konar 30 May 2012
Jinyang Li 15 March 2012
Peng Li 18 August 2012
William O'Brien 6 January 2013
Victor Patel 31 August 2012
Meng Qi 1 April 2013
Berardi Sensale Rodriguez 19 January 2013
Chad Stephenson 15 April 2012
Yunshan Wang 1 May 2012
Yi Xie 3 April 2012
Wangqing Yuan 22 April 2012
Shiran Zhang 20 August 2012
Mingda Zhu 7 August 2012
About us

SPIE student chapter at University of Notre Dame is a student organization under the umbrella of SPIE and University of Notre Dame. With the tradition of our home football team Fighting Irish, the young engineers and scientists in our group are cooperating together to make the chapter recognized. Through numerous academic talks, career development events and social activities, we helped to promote the development of research in the university, enhanced the degree of awareness in optics and photonics, and provided the graduate community a different experience.

Mission

- Create Learning experiences for students.
- Provide networking opportunities for students.
- Enhance awareness on the latest research highlights of optics and nanoelectronics.
**Events and Activities (February 2011- February 2012)**

**Overview**

We have successfully held four events, including Professor Masud Mansuripur’s visit and talks at Notre Dame student chapter, a lecture on making persuasive presentations by Professor Sondra Byrnes, a joint career development event with campus ministry at Notre Dame and a professional development seminar.

**Activity 1: Professor Masud Mansuripur’s visit**

January 19-21, 2012

A leading scientist of optical data storage Dr. Masud Mansuripur visited the SPIE student chapter at Notre Dame and accepted the invitation as an honorary advisor of the chapter. He gave a talk titled “Solar Sails, Optical Tweezers, and Other Light-Driven Machines”, and directed the chapter’s development. Mansuripur’s talk demonstrated the power of optics and helped support the growing photonics emphasis at ND, while his commitment to be our guide and advocate will help us rise as a distinguished chapter among SPIE student branches around the world.

Mansuripur’s visit also initiated potential collaborations between the University of Notre Dame and University of Arizona. During this visit, Freimann Professor of Electrical Engineering Gary H. Bernstein hosted him, and 10 faculty members from Department of Electrical Engineering and Department of Computer Science and Engineering had meetings with him. The Notre Dame faculty and Mansuripur found common interests and discussed potential collaborative work in the near future.

Dr. Masud Mansuripur is a professor and chair of optical data storage at University of Arizona which has the best optical sciences program in the United States. Dr. Mansuripur is a leading scientist in optical data storage and a fellow of SPIE and OSA.

The SPIE student chapter is an organization under the umbrella of SPIE and the Student Activities Office at the University of Notre Dame. As an academic oriented student group, it has created learning experiences, provided networking opportunities to students and has helped to promote the development of research in optics? at the University.

**Acknowledgement:**

This event was supported by SPIE visiting lecturer program; the chapter thanks Professor Gary H. Bernstein and Department of Electrical Engineering at University of Notre Dame for hosting our guest.
Attachments 1: Photos

Professor Mansuripur’s meeting with SPIE student members

Professor Bernstein reading the letter of appointment of honorary advisor in representative of SPIE student chapter at Notre Dame
Professor Bernstein presenting the letter of appointment of honorary advisor to Professor Mansuripur

SPIE student chapter presenting the gift to Professor Mansuripur
Group photo, Professor Mansuripur (in the middle) with part of SPIE student members
January 19, 2012
To Professor Masud Mansuripur
College of Optical Sciences,
The University of Arizona

Dear Professor Mansuripur,

It is our great honor to welcome you to be the honorary advisor of the SPIE Student Chapter at The University of Notre Dame. We are very pleased you have decided to join our chapter.

The SPIE Student Chapter at the University of Notre Dame was established in 2004. It is an organization under the umbrella of SPIE and the University of Notre Dame. Our group consists of 21 student members from various backgrounds ranging from electrical engineering to chemistry. Our mission is to create learning experiences, provide networking opportunities, and enhance awareness on the latest research highlights of optics and nanoelectronics.

The University of Arizona has the best optical sciences program in the United States. As a professor of optical sciences and chair of optical data storage, we believe your experience will help us fulfill our mission efficiently.

The SPIE Student Chapter at University of Notre Dame
http://www.nd.edu/~spie
Solar Sails, Optical Tweezers, and Other Light-Driven Machines

Masud Mansuripur

College of Optical Sciences, The University of Arizona, Tucson, Arizona 85721
<masud@optics.arizona.edu>

Abstract: Electromagnetic waves carry energy, linear momentum, and angular momentum. When light (or other electromagnetic radiation) interacts with material media, both energy and momentum are usually exchanged. The force and torque experienced by material bodies in their interactions with the electromagnetic field are such that the energy as well as the linear and angular momenta of the overall system (i.e., the system of field plus matter) are conserved. Radiation forces are now used routinely to trap and manipulate small objects such as glass or plastic micro-beads and biological cells, to drive micro- and nano-machines, and to contemplate interstellar travel with the aid of solar sails. We discuss the properties of the electromagnetic field that enable such wide-ranging applications.

Biography: Masud Mansuripur, Ph.D. is a professor of Optical Sciences and the chairman of Optical Data Storage at University of Arizona, and is a leading scientist in the field of optical data storage. He has authored 4 books, 59 review articles and book chapters, and over 200 papers in peer-reviewed journals. He presented numerous invited talks at international conferences, universities, and major industrial laboratories. His research interests include optical, magnetic, and molecular data storage, near-field optics, and problems associated with radiation pressure. Prof. Mansuripur received his B.S.E.E. from Arya Mehr University and M.S.E.E. and Ph.D. E.E. from Stanford University. He is a Fellow of the SPIE, OSA, and has served as committee members at various international conferences.
Activity 2: Navigating Your Career Path
October 1, 2011

The SPIE Student Chapter at University of Notre Dame, along with the Campus Ministry, CFA club and Career Center of University of Notre Dame, worked together in bringing alumni from graduate and undergraduate programs, professor, and other experts to give the students their experiences and advice on career planning and job applications. SPIE, ISSA (Notre Dame), GSU (Notre Dame), Student Activities (Notre Dame) all contributed financially to make this happen.

All the guests are Notre Dame alumni, including two career center specialists, one Notre Dame Engineering Professor, one Whirlpool Global product sourcing senior manager, one current undergrad with Deloitte summer internship, and two staffs with Deloitte human resource department shared their experience, expertise and advice with 70 students.

Attachment: photos

Taken at the activity venue, Jinyang Li is hosting the event.
Group discussion, Xiu Xing (SPIE student chapter president of last year) leads the discussion.

Group picture after the dinner at Legends.
**Activity 3: How to Make a persuasive technical presentation**
September 19, 2011

The SPIE student chapter at Notre Dame had a meeting followed by Mendoza College of Business Professor Sondra Byrnes’s talk named "Be successful in making a persuasive technical presentation". Around 60 students (including SPIE student members) attended the talk Professor Byrnes addressed several problem in her talk: 1) Secrets to attract your audience, 2) Strategies for helping the audience understand your presentation and 3) Ideas on how to handle tough questions from the audience.

**Attachment 1: Photos**

![Peng Li hosting the chapter meeting](image1)

Peng Li hosting the chapter meeting

![The event attracted about 60 students.](image2)

The event attracted about 60 students.
Grad Students:
Are you in a panic when it comes to making technical presentations?

Please attend Prof. Sondra Byrnes’ talk

Be successful in making a persuasive technical presentation

Time: 6:00 pm on September 19 (Monday)
Place: Room 356 Fitzpatrick Hall

The following will be addressed

- Secrets to attract your audience.
- Strategies for helping audience understand your presentation.
- Ideas on how to handle tough questions from the audience.

Free food will be offered!

Speaker Biography
Professor Sondra Byrnes teaches courses of business speaking and writing at Mendoza College of Business, University of Notre Dame. She has also taught at the University of Notre Dame Law School. She also worked at Los Alamos National Laboratory as the director of public affairs, and successfully introduced business perspective and methodology to the science and technology regime.
**Activity 4: SPIE Student Leadership Workshop**
San Diego, CA, Week of August 20, 2011

Wenjie Chen and Jinyang Li attended the SPIE Student Leadership Workshop as preventatives from our chapter. The leadership workshop was very informative and benefited both officers in their personal career goals, but more importantly has inspired more outreach and event ideas for our chapter.

**Attachment: Photos**

![Photo at the workshop venue](image1.jpg)

![Jinyang Li showing the poster from our chapter.](image2.jpg)
Activity 5: Professional Development Seminar
May 20, 2011

The SPIE student chapter at Notre Dame held a career development talk+dinner. Dr. Yu Cao, a recent ND alumnus who graduated last August and managed to secure multiple job offers, shared his perspectives on job hunting, the hiring process and offer selection. Around 50 students (including SPIE members) attended this event.

Attachment 1: Photos

Dr. Yu Cao (previous SPIE chapter president) was giving the talk.

Wangqing Yuan presenting the gift to the speaker
He is a scientist at Kopin Corporation (US) and an excellent Notre Dame alumnus.

Graduating from EE department just in last Aug, he has already authored/co-authored 2 books, 3 filed patents, 30+ research papers and 40+ conference proceedings.

Dr. Yu Cao

Friday, May 20th
5:00pm-7:00pm
Fischer, O’Hara-Grace
Graduate Community Center

Panic on career plan and future jobs?
Funding Use

Balance from last year: 989.00
SPIE Activity Grant: 700.00
Grant from Graduate Student Union (Notre Dame): 400.00
SPIE Student Leadership Travel Grant: 1000.00 (not counted in activities fundings)
Total funding: 989.00+700.00+400.00= 2089.00

Expense of Activity 1: Professor Masud Mansuripur’s visit
   1. Guest meals (with other professors): 50
   2. Food for event: 200
   3. Gas expenses (guest was picked in Chicago airport and we drove him to Notre Dame): 100
   4. SPIE member dinner with the guest: 200

Expense of Activity 2: Navigating Your Career Path
   1. Honorarium towards speaker's travel and hotel: 200
   2. Food for event: 200

Expense of Activity 3: How to make a persuasive technical presentation
   1. Gift for the guest: 70
   2. Food for event: 200

Expense of Activity 4: Professional Development Seminar
   1. Honorarium towards speaker's travel and hotel: 200
   2. Food for event: 200

Total activity expense: 50+200+100+200+200+200+70+200+200+200=1620

Balance: 469.00

Activity Plan for 2012-2013
   1. One to two academic talks from professors and professionals of optics and photonics
   2. Optics and photonics outreach in the city library.
   3. Football concession stand.
   4. Joint career development event with OSA and other campus clubs.
   5. Two SPIE chapter member meetings.