Annual Report 2009, Osaka University Student Chapter of SPIE
Members

Elected officers

Jun Ando (President) E-mail: ando@ap.eng.osaka-u.ac.jp, #3233027
Takeo Minamikawa (Vice President) E-mail: minamikawa@sml.me.es.osaka-u.ac.jp, 3253622
Yasuaki Kumamoto (Vice President) E-mail: kumamoto@ap.eng.osaka-u.ac.jp, 3251948
Masahito Yamanaka (Treasurer) E-mail: yamanaka@ap.eng.osaka-u.ac.jp, 3231516
Kazumasa Uetsuki (Secretary) E-mail: uetsuki@ap.eng.osaka-u.ac.jp, 3253124

Current members

Shogo Kawano
Meiling Zheng
Kyoko Masui
Yasuhito Sugano
Masaki Michihata
Masaya Okada
Mitsuhito Honda
Hiroyuki Morimura
Hiroshi Kasai
Yoshito Okuno
Yasuo Yonemaru

Activities

SPIE Visiting lecturer

Visiting lecture of SPIE, which is one part of agreement of collaborative event between SPIE and PARC, was realized on June 15th. Professor David Andrews, University of East Anglia, UK, gave talk on light harvesting molecular nanomaterials. Seminar room was almost occupied with attendee. After brief introduction of SPIE and benefits of SPIE membership especially for students, his lecture was started from natural photosynthesis which gives hint in the research field of light harvesting. Toward the realization of energy harvesting material, basic theory, operating principles and calculation methods were explained with many beautiful figures and diagram, with auspicious example materials such as dendrimeric polymer and nanoparticles. After giving his lecture on light harvesting materials, David and SPIE student chapter members held scientific meeting that is more like frankly talking in details of research, and also discussions of the activity of Osaka Univ. student chapter.

Visiting of Professor David L. Andrews through SPIE visiting lecture also gave impact on student research at Osaka University. A student, who is focusing on the research in theory of super resolution micro-
scope, has calculated response of molecule to photons under exposure of laser light. His calculation was based on Jablon-
ski diagram, which simply represents interaction between molecules and photons, and thus widely used, however, includes
some approximation instead. Since Prof. David has a great knowledge of fundamental molecular photonics including quan-
tum electrodynamics, he brought him an idea of model of a high order, associated with the quantum theory. He even kindly
explained the basic of quantum electrodynamics, so that he easily find that this theory will be included in his calculation. His
new way of calculation including this new idea finally realized calculation based on more precise model.

After all of this events, David and student chapter members went dinner together at "OKONOMIYAKI" restaurant, which is
one of the most discriminative food in Osaka. Through this event, not only scientific connection between lecturer and stu-
dent, but also plenty of international communication of scientific research and also their culture was realized. Since student in
Japan usually does not have enough communication with international researchers. SPIE visiting lecture program gave
Japanese students chance to experience and interact with them, and gave more possibility of becoming globally outstanding
researcher.

**Gallery**

![Visiting Lecture](image1)
![Discussion with Prof. Andrews and chapter members](image2)
![Lab Tour](image3)
![White board lecture](image4)

**Feature Article in SPIE Professional**

Our activity was featured in a SPIE magazine “SPIE Professional, January 2010”, in Extracurricular Optics, edited by Kathy Sheehan,
Managing Editor. Yasuhiro Sugano, a member of our chapter, is explaining his research to Prof. Andrews during lab tour.

Please visit [http://spie.org/x39750.xml](http://spie.org/x39750.xml) for details.
Photonics Student Club (PSC)

We held Photonics Student Club (PSC) that was a student seminar organized by the SPIE/OSA student chapter of Osaka University. Speakers and attendees are also students and young scientists. The purposes of the PSC are as follows:

1. To encourage communications with students and young scientists beyond their research fields.
2. To advertise the SPIE/OSA student chapter of Osaka University.
3. To establish a relationship of trust between students and young scientists.

To facilitate communication with students and young scientists who do not study optics and photonics related topics, the speaker reviewed from fundamental to applied research. The seminar were carried out in Japanese for presentation and in English for presentation slides for Japanese and non-native speakers. Besides scientific presentation, we also had short presentation to introduce our chapter activity, and encourage attendee to join us!

1st Photonics Student Club
Date: 16/Sept/2009
Time: 17:00-18:30 Seminar
     18:30- Banquet
Place: Center for Advanced Science and Innovation building, 2F meeting room, Suita campus, Osaka University
2nd Photonics Student Club
Date: 8/Dec/2009
Time: 17:00-18:30 Seminar
     18:30-   Banquet
Place: Center for Advanced Science and Innovation building, 2F meeting room, Suita campus, Osaka University

We spent $127 for the preparation and display of posters for the student seminar.

International communications with students from Twente Univ. (Netherlands)

We had an intercommunication with students from Twente University (Netherlands). On Nov. 20th, the thirty students from Twente Univ. visited our university. They have been master students and majored in biomedical technology and technical medicine. We introduced our researches and our university to them. For the introduction of our researches, we explained and demonstrated our researches, for example, 3D nanofabrication, near-field optics, and super-resolution microscopy. Besides research introduction, we had a chance to introduced our chapter activity. Many of them got interested in our activities. We also held workshop using research posters with hot coffees. The workshop really excited us due to the active scientific discussion, and we made a good relationship each other.
Chapter members visited SPring-8, a large synchrotron radiation facility, located in Harima Science Park City, Hyogo Pref., Japan. The name “SPring-8” is derived from “Super Photon ring-8 GeV”. 8 GeV is the power output of the ring. We attended site tour, and had lecture of general overview of SPring-8.
Monthly meeting
We have been holding monthly chapter meeting.

Poster presentation at university festival
Poster presentation was held at Osaka university festival, called "Icho festival".

Future Activities

Photonics Student Club (PSC)
We are planning to hold PSC for three times a year. 1st seminar in 2010 will be held on April. Focus topic is as follows.

Topic: Frontier in Scanning Probe Microscopy
Besides having a scientific seminar, we will continue to have introduction of our activity to encourage people to join our chapter.

Monthly meeting
We are planning to hold chapter meeting once a month.

Visitting lecture program
We are planning to apply for visitting lecture program.

Financial information

Beginning balance: $475 from annual SPIE grant for 2009 (reduced from $500 due to the remittance)
Total: $475

Expense: $127 for activities as explained above.

Ending balance: $475 - $127 = $348