

**International School of Photonics SPIE Student Chapter
Cochin University of Science & Technology
Cochin 682 022, INDIA
Bi-Annual Report: December, 2006**

The year 2006 has been remarkable for the chapter especially since the chapter has been successful in organizing several events both academic and social to generate enthusiasm amongst its members as well as the public. The chapter looks forward to the next year to organize more events apart from refining and fine tuning the regular activities.

The former vice-president of the chapter, Mr. Rajesh M Nair represented the chapter in the 51st Annual Meeting of the SPIE at San Diego and presented the chapter activities there. The website of this chapter won the best website award for SPIE Student chapter in the year 2006.

The chapter conducted three general body meetings and five executive committee meetings including the annual GBM. The annual GBM was held on January 18th. A memento was given to Mr. Rajesh Kumar who got scholarship from the Indian Physics Association. The GBM elected the new office bearers for 2006-2007. The GBM gave recognition to various plans for the working of the chapter and constituted various committees to organize and/or assist in organizing various activities of the chapter. The GBM sanctioned partial payment for the membership of the first year M Sc. Students to encourage their active participation in the chapter activities. The new office bearers were selected in this meeting.

The second GBM was on 23rd August in which the chapter felicitated Mr. Jijo P U and Mr. Anish Krishnan, the designers of the chapter website for securing the first prize in the chapter website competition.

In the third GBM on 10th October, the chapter discussed the Optics to School Programme and the Spectra 2006. It was decided in this meeting that an open house should be conducted along with the Spectra 2006 due to the overwhelming response from the schools for the Optics to School Programme.

During the Photonics 2006, on 13th December 2006, the chapter members had a fruitful discussion with Dr. Brian Culshaw, the SPIE president designate for the year 2007. The chapter members along with other student chapter members from various part of India discussed the future of Photonics and Optics in India. The office bearers were able to present this year's activities and Prof Culshaw gave suggestions to improve the chapter activities. The chapter members have also met and discussed the various activities of the chapter with the former SPIE president Ms. Kujawinska during the conference.

Office Bearers for 2006:

Prof. V. P. N. Nampoori – Staff Advisor
Mr. Thomas K. J. – President
Mr. Dann V J – Vice – President
Mr. Lyjo K Joseph– Secretary
Ms. Jayasree V K – Treasurer

The following members were also selected to the executive committee to represent students from all categories:

Mr. Jijo P U
Mr. Rajesh M
Mr. Harish Natarajan
Mr. Praveen Cherian Ashok
Mr. Jemy James
Ms. Rose Mary
Mr. Tanuj

Various Committees and Members under the Chapter**1. Programme Committee**

Mr. Dann V. J. (Chair)
Mr. Rajesh M.
Mr. Harish Natarajan S. K.
Mr. Praveen Cherian Ashok
Mr. Varun K A S

2. Publicity Committee

Mr. Lyjo K Joseph (Chair)
Mr. Vinu V Namboodiri
Mr. Jithin Jose
Mr. Aneesh Krishnan
Mr. Jemy James

3. Membership Committee

Ms. Jayasree V K (Chair)
Ms. Sheeba M
Mr. Tanuj
Ms. Santhi A
Ms. Rose Mary

4. Placement Cell

Mr. Jijo P. U. (Chair)
Mr. Deepak V
Mr. Mathew
Mr. Dhaneesh
Ms. Priya Rose T.

5. Production Committee

Prof V P N Nampoori (Chair)
Mr. Praveen Cherian Ashok
Mr. Adil Masood
Mr. Aneesh Krishnan
Mr. Sibilathulla
Mr. Jijo P U
Mr. Ahamed Thasleem
Mr. Jemy James
Ms. Sreeparvathy Warriar
Ms. Gopika
Ms. Deepa Kamath

Current Strength: 50 members including Ph. D, M. Phil, M. Tech, and M. Sc students of ISP.

Financial Statement
(From 1st February, 2006 to 29th December, 2006)

Chapter bank account: A/c No. SB 23517 at the Federal Bank Ltd, Edappally,
Cochin 682 024, INDIA

	Income (Indian Rupees)
Balance Brought Forward:	6763.00
Annual Grant Received from SPIE:	58,927.00
Registration fee received from Spectra 2006 Participants:	3329.00
Best students chapter web site award :	\$ 500 @ 1 USD= 44.74 22,370.00
Sponsorship amount received from 1. M/s HOLMARC during Spectra 2006 :	2000.00
2. LENS & FRAMES	3000.00
3.Sabu, Cochin:	1000.00
4. SBT,Cochin(towards printing of banners)	1000.00
5. Pinetra	3000.00
6. Ernakulam district cooperative bank (towards advt in Spectra 2006)	3000.00
Total (as on December 29, 2006):	Rupees.104389 (Rupees one lakh four thousand three hundred and eighty nine only)

	Expenditure (Indian Rupees)
Research Seminars:	2544.00
Expenditure for Invited Lecture Programs:	6951.55
Chapter GBM arrangements:	2598.57
Optics to School Program:	18,003.00
Sponsorship for SPECTRA 2006 :	5000.00

Activities held in 2006

1. Weekly Seminars:

Envisaged to bring various people working in different fields within the department, this seminar series have given a good platform for students to discuss various aspects of research before an open forum. Following seminars were given so far under this activity.

1. Thursday, March 23, 2006: "Quantum Well Lasers: A Dynamical Perspective" by Mr. Jijo P U (Chapter Member and Doctoral Student).
2. Thursday, April 6, 2006: "Spectrum Identification using Artificial Neural Network" by Ms. Saritha M (Doctoral Student).
3. Thursday, April 20, 2006: "Synchronisation of Chaos in Directly Modulated Semiconductor Lasers" by Ms. Parvathi M R (Chapter Member and Doctoral Student).
4. Thursday, May 4, 2006: "Temperature and Density Measurements of Laser Produced Plasma using Spectroscopic Methods" by Mr. Sajeev D (Chapter Member and Doctoral Student).
5. Thursday, May 11, 2006: "Photoplethysmography and its Applications" by Ms. Jayasree V K (Chapter Member and Doctoral Student).
6. Thursday, September 28, 2006: "Optical fiber solitons- their properties and uses" by Mr. Prabhathan P (Chapter Member and Doctoral Student).
7. Thursday, October 19, 2006: "Femtosecond lasers- an introduction" by Mr. Sajeev D Kurup, (Chapter Member and Doctoral Student).

2. Monthly Special Lectures:

The chapter arranges a special talk to be given on selected dates of every month by a Professor or other experienced hands in the fields of research and teaching. The following lectures were given under this activity:

1. Thursday, March 30, 2006: "Solar Saga" by Prof C P Girijavallabhan, Dean of the Faculty of Technology and Professor Emeritus, Cochin University of Science and Technology.
2. Tuesday, April 25, 2006: "Indian Contributions to Mathematics and Astronomy" by Dr V B Panicker, Retired Principal, Palakkad Engineering College.
3. Thursday, June 22, 2006: "FROGS and TADPOLES: their applications in Ultrafast processes" by Dr. V P N Nampoori, Director ISP and Chapter advisor.
4. Tuesday, August 8, 2006: "A. T. P. binding to the sodium pump studies by under graduate students" by Dr. Pramod R Prathap, University of North California, Greensboro.
5. Friday, October 6, 2006: "Fire Safety in Laboratories" by C Mahadevan, Head-Safety, Health and Environmental Department, IC.
6. Friday, 1 December 2006: " Physical fitness for computer users", P Vinod Bhattathiripad, Chartered Systems Analyst & Software Architect

3. Visiting Lecturer Programme:

Aimed to bring the expertise of Professors and Scientists visiting the university, the chapter organizes interactive session for the chapter members and the experts. Talks in this series were given as follows:

1. Monday, May 8, 2006: "Fiber Optic Sensor for Industrial Applications" Dr K T V Grattan and Dr. Tong Sun, School of Engineering and Mathematical Sciences, City University, Northampton Square, London.
2. Monday, May 8, 2006: "Rigorous Design Optimization of Photonic Devices by using the Finite Element Method" Dr B M A Rahman, School of Engineering and Mathematical Sciences, City University, Northampton Square, London.
3. Wednesday, 17 May, 2006: "Holographic Memory Storage techniques" by Dr. Joby Joseph, Department of Physics, IIT Delhi.
4. Thursday, 10 August, 2006: "Astronomical Masers" by Dr. Preeti Pratap, Massachusetts Institute of Technology, USA.
5. Friday, 1 September 2006: "Measuring with qubits", Dr. Anil Shaji, Information Physics Group, Department of Physics and Astronomy, The University of New Mexico.
6. Thursday, 26 October 2006: "A new approach to the mathematical solutions" Dr. R Prathap, Emeritus Professor, ISP, CUSAT.
7. Tuesday, 21 November 2006: "Digital Image Processing" Tomson D George, Lead Consultant, Wipro Technologies.
8. Thursday, 30 November, 2006: " Limitations of automating Grammar and Sentences in a language", P Vinod Bhattathiripad, Chartered Systems Analyst & Software Architect.
9. Tuesday, 5 December 2006: "Plasma wakefield accelerator experiment", Dr. A V. Ravikumar, Institute of Plasma Research, Ahmedmedabad.

4. Project Presentation Competition

The chapter organized a project presentation competition for the senior M.Sc students on 24th February 2006. The overwhelming response of the students was well appreciated. Mr Harish Natarajan and Mr Manulal became the winners for their project "Crystal growth and study of electro-optic effect in KDP crystals". The prizes were distributed during the Annual Photonics Workshop 2006.

5. Annual Photonics Workshop

The chapter has joined hands with the International School of Photonics in organizing a two day National Workshop in Photonics on the 27th and 28th of February, 2006. About 100 participants comprising of University and college teachers, researchers and scientists, and students with various background in science and engineering participated in this workshop with the focal theme: "Ultrafast Processes."

6. Stephen Hawking Film Festival

A series of films on the well known astro physicist Stephen Hawking were screened on 28th February 2006 as a part of the national science day celebrations. The various notions and views of this distinguished scientist were well appreciated by the audience.

7. Photonics News

This annual magazine of the department of photonics was released on 27th February 2006 during the inaugural session of the annual photonics workshop. The magazine focuses on the various activities of the department during the last year. The magazine was a joint venture of the student chapters of ISP.

8. Industrial Visit

A visit to the world famous firm NeST Photonics, Kochi was organized for the M.Tech students of the department in March.

On December 2nd 2006 another industrial visit to Ranjini Eye Care Institute, Kochi and NeST Photonics, Kochi was organized in which the chapter members enthusiastically participated.

9. Indo-UK Workshop on Fiber Optics:

The chapter partially sponsored the Indo-UK workshop on Fiber Optics which was held on August 29-31, 2006. This workshop included the presentations of various eminent scientists in the corresponding fields in India and the United Kingdom. There were time slots for the presentations of the participants too.

10. Raman Day Celebrations & Spectra 2006:

November 7, Sir C. V. Raman's birthday, was celebrated as a part of the '**Spectra 2006**', the annual gathering of the students to remember one of the legendary figures in the field of Indian physics and optics. The event was noted for its competitions such as the Physics Quiz and Colloquium held for college and university students from South India and was conducted on November 4 to 7. Attractive prizes including cash awards, merit certificates and books were presented to the winners. The event also had the **Raman Memorial Lecture** by Prof C Vijayan, Department of Physics, IIT Madras and by Dr Unnikrishnan, NPOL, Kochi along with several video and poster presentations.

Social Outreach & Student Services Programs

1. Optics & Photonics to Schools and Colleges

This is the one of the prime activities of the chapter under the social outreach programme which gives thrust in spreading awareness about the relevance of optics and photonics careers among school and undergraduate college students. The chapter members Jijo P U, Rajesh M and Vinu V Namboodiri eagerly shared their knowledge on fiber optics to the post graduate students on 21st February 2006. The programme included both technical and practical sessions. Mr Jijo Ulahannan talked about "Optical Fibers" and Mr. Vinu V N on "Optical Sources and Detectors". Mr Rajesh M handled a practical session and also talked about "Applications and Future Enhancements" of fiber optics. This programme was conducted as a part of 'Fiber zest 2006'- a one day national level workshop on "Optical Fibre Communication" at Sri Krishna Arts and Science College, Kuniyamuthur, Coimbatore, India. This was a joint venture of the department of electronics and communication systems of SKAC and the ISP-SPIE student chapter.

This year the Optics to School Programme was conducted on 7th October at Cardinal Higher Secondary School, Trikkakara. The chapter members helped the students to understand various optics experiments and phenomena. A video presentation on the possibilities of Optics as career was also screened. Due to the overwhelming response from various schools to conduct this programme, we organized an Open House programme for public along with the Spectra 2006, on 6th November 2006.

2. Open Lab Programme for Visiting Students from Schools and Colleges

Chapter members are always enthusiastic to demonstrate various experiments and facilities at the department to the students of schools and colleges visiting the University from time to time. Students from various institutions in the state are welcome to visit the labs throughout the year. On the 4th of May, 2006, half day was reserved for the young school children spending their summer vacation in the University doing many projects in the various fields of science.

On 15th may 2006, Mauritius Vice President, H.E. Abdul Rauf Bundun and his team visited ISP laboratories. The chapter members eagerly explained various research activities and chapter activities.

3. Epidemic Awareness Programme

The chapter organized a chikun gunya (an epidemic) awareness programme for the students and staff of the ISP and CELOS on October 11th and 12th. All the students and staff were actively participated in the campus cleaning programme on 11th. On 12th Dr. Thankamma, a medical practitioner, explained the precaution methods against this epidemic and distributed the preventive medicines.

4. Open House Programme

Due to the overwhelming response from various schools to the optics to school programme, the chapter conducted an open house programme for the school and college students on November 6th 2006, as a part of the Spectra 2006. Over a thousand students came and discussed their doubts regarding various optics experiments. The chapter members eagerly explained the experiments and optical phenomena to the students.

5. Project Consultancy and Guidance

The chapter has an active cell comprising its graduate students to provide consultancy and guidance to graduate and undergraduate students in science and technology to design and develop good projects in the fields of optics, photonics and optoelectronics. The programme is helpful to the students from various science and engineering colleges within the state of Kerala.

6. Placement Cell

To the assist the chapter members to find good industrial and academic placements after their graduation, the chapter has constituted a placement cell under the stewardship of the chapter's former president. The cell through its dedicated

webpage brings out the career profile of aspiring graduates to attract the necessary attention from industries and higher education institutions.

Activities Planned for the Coming Year

Simultaneously with the continuation of regular activities planned in the past, the chapter will be indulging in many more activities in the coming year as listed below.

1. Raman Day Celebrations & Spectra 2007:

In the coming year also, Spectra 2007 and Raman day celebrations are to be celebrated with a variety of programmes like, quiz competitions, project presentations, colloquium etc.

2. Industrial Visits & Study Tour:

The chapter will organize visits to the nearby industries and research labs to get hands on experience for the members in various areas of R&D going on in the field of optics and photonics. These will be organized with study tours and leisure trips for the chapter members for refreshing their minds from the labors of handwork. June is the month fixed by the chapter GBM for the first trip in this programme.

3. SPIE Visiting Lecturer Programme:

Under this programme, the chapter will actively work to bring some best scientists and academicians to interact and deliver lectures on various topics of current and subjective topics to the student community in the University.

4. Optics & Photonics to Schools and Colleges:

This will be the prime activity of the chapter under the social outreach programme which will give thrust in spreading awareness about the relevance of optics and photonics careers among school and undergraduate college students throughout the state of Kerala. To make this a wonderful reality, the chapter has constituted a production unit to design various experiments and demonstrations to be presented to the schools and colleges the chapter team visits. This unit will work in tandem with the programme committee and the publicity committee to launch the activities in the coming academic year starting from June, 2006.

5. Training Programmes:

The chapter will organize various training programmes and workshops in modern trends in optics and photonics for both school and college teachers, students from science and engineering colleges apart from conducting research level workshops in the national level.

6. Problem Solving Sessions:

The chapter is planning to commence a problem solving session for the students by the end of June. A problem will be given to the students on every week and exciting prizes will be given to the winners. The discussion on these problems will be done once in a month.

7. Optics Kit Design:

The chapter has plans to make a kit for school children to demonstrate various optics phenomena. A good kit is useful to schools and a palm let which gives an idea of the basic experiments is to be making true in the near future.

8. Film Production:

The chapter member has decided to produce a film on quantum mechanics, to make that subject more fruitful to students. The chapter members have already started the ground works for this great venture.

9. Optics working model:

The chapter has planned to make a working optics model to make it easier to understand an optics phenomenon. It is planned to work out as a part of the under graduate students project work.