



SPIE Student Chapter International School of Photonics

SPIE Students Chapter International School of Photonics Annual Report, December 2008

It has been this chapter's endeavour to constantly ameliorate what has been done in the previous years. With an extreme sense of contentment and achievement this report is being prepared. The year 2008 was hectic, livening and extremely satisfying. The chapter's efforts to introduce the world of Optics to students in the form of experiments were highly successful. Programmes like Optics Fair, our annual student outreach program saw the participation of almost 1,300 students from different schools of the nearby districts. The Optics Talent Search Examination (OTSE), a novel effort of the chapter was held, and its success has motivated us to continue this venture in the coming years. The chapter president for the year 2008 Mr. Jemy James represented the chapter in the annual SPIE leadership meet held in San Diego, USA in the month of August. The chapter also won the second position in the website designing competition. Optics kit, a novel conception on the part of the chapter received an outreach grant of \$1300.

The annual GBM was held on December 6th 2007. It was presided over by the chapter president Mr. Praveen Cherian Ashok. The chapter Vice-president, Mr. Nitish Kumar welcomed all the chapter members to the GBM. Annual report was presented by the chapter secretary Mr. Jemy James. And Mrs. Parvathi M.R., the chapter treasurer, presented the financial report. The reports were approved by the chapter members.

Elected Office Bearers

The Annual General Body meeting held on elected the following as office bearers who led the chapter in the academic year of 2008.

- President** : Mr. Jemy James (jamesjemy@gmail.com)
- Vice-President** : Mr. Jenu Varghese Chacko (jenuvchacko@gmail.com)
- Secretary** : Miss. Sreeparvathy Warriar (sreeparvathi@gmail.com)
- Treasurer** : Miss. Tintu (tintu.tilla@gmail.com)
- Joint Secretary** : Mr. Niraj Kumar Singh (nrj.sng@gmail.com)
- Staff Advisor** : Prof.V.P.N.Nampoori

The **executive members** were elected as follows:

- Mr. Thomas K.J. [former president]
- Mr. Lyjo K Joseph [former secretary]
- Ms. Parvathi M.R.[former treasurer]
- Ms. Gopika Ramanandan[Semester VII]
- Mr. Yadunath T.R. [Semester V]
- Mr. Yogehwar Mishra[Semester I]

The Office Bearers of OSA Student chapters as well as IEEE-LEOS student chapter are also executive members.

FINANCIAL REPORT (As on 31/12/2008)

Chapter bank account	:	A/c No: SB 684 at Union Bank of India Kalamassery, Ernakulam
Balance brought forward	:	35798.29
Annual grant from SPIE	:	62641.911
Optics kit	:	55871.90
Prize money received from SPIE for the website	:	10440.32
Contribution from OSA for Optics fair	:	13981.5
Membership fee for students Contribution to ISP SPIE student chapter Expense for membership	:	1395
Total	:	1, 80,128.921 Rupees (3720.134 USD approx.)

Expenditure (Indian Rupees)

Seminar	:	4685.75
GBM	:	1500
MATLAB Training Programme	:	3000
Invited Talk	:	14196.9
Raman day celebration	:	7159.5
Optics kit (30 No:s)	:	34500
Optics fair	:	33064
Stationary/Printout/Photostat	:	13301.50
Concession given for SPIE Members for taking part in Academic and other activities	:	11100.00
Miscellaneous	:	800
Total	:	123307.65 Rupees (2546.626 USD approx)
Balance	:	56821.271Rupees (1173.508 USD approx)

(expected expenditure for the next set of optics kit -Rs. 25000)

Activities

I. Annual Photonics Workshop

The Annual photonics workshop was held in February 2008 in which the chapter co-organised the event with help from the ISP-OSA student chapter and the International School of Photonics. Being a two day affair, it witnessed the participation of professors and teachers, research scholars and scientists. Interaction sessions between the students and teachers were a highlight of this workshop. It also saw the launching of Optics kit. The Topic of Workshop was 'Ultra fast processes and Applications' and it was Organized on *Feb 27-28, 2008*.



During the inauguration of Annual Photonics Workshop

II. Blood Donation Camp

Held for the third successive year, this has become an annual affair for which the chapter has received praises from the Indian Medical Association (IMA). It was held on 26th April 2008 with in association with IMA and ISP-OSA Student chapter. More than 50 students voluntarily donated blood, some with rare blood groups. The chapter wishes to stress on the importance of such camps and is determined to pursue similar such noble activities in the future.



Blood donation in ISP auditorium

III. Classes and Lectures

Mr Rajesh S. a former student of this institute was kind enough to agree to take special classes on Matlab Programming. The chapter members were highly pleased by the lucid explanation and it was indeed helpful in the understanding of the subject.

Prof.V.M.Nandakumaran from ISP CUSAT enlightened the chapter members with the knowledge of Quantum Mechanics.

Prof.V.P.N.Nampoori from ISP CUSAT gave the chapter members an enriching series of lectures on Nanophotonics.

Prof R Vijaya from IIT Bombay was invited by the chapter for lectures on Laser Physics. The chapter members were taken to the basic world of physics through her fascinating lectures.

Prof.A.K.Asundi, from N.T.U.Singapore delivered the SPIE visiting lecture address. He took a class on Digital Holography on 5th December 2008

The List of seminars taken by different chapter members as well as visiting dignitaries

1.Dr.Reji Philip	RRI, Bangalore	15/1/08 and 16/1/08
2.Mr.Muralidharan	ISP,CUSAT	17/04/08
3.Mr.Promod R Pretap	University of North Carolina.	12/06/08
4.Mrs.Nityaja Balan	ISP,CUSAT	31/07/08
5.Mr.Jinesh Mathew	ISP,CUSAT	21/08/08
6.Mr.Bejoy Varghese	ISP,CUSAT	10/09/08
7.Dr.S.Rajesh	ISP,CUSAT	18/09/08
8.Dr.Sajeev Kumar	SKKU, South Korea	24/10/08
9.Dr.Jagthap	BARC, Mumbai	24/10/08
10.Prof.C P Girijavallabhan	ISP,CUSAT	25/10/08
11.Mr.Mathew.S	ISP,CUSAT	30/10/08
12.Dr.Reji Philip	RRI, Bangalore	07/11/08
13.Dr.C.Vijayan	IIT, Madras	07/11/08
14.Prof.Porsezian	Pondicherry University	07/11/08
15.Mr.Deepak.V	DTU, Denmark	13/11/08
16.Prof.C.S.Unnikrishnan	TIFR, Mumbai	14/11/08
17.Mr.Sony George	ISP,CUSAT	20/11/08
18.Ms.Priya Rose	Naples, Italy	27/11/08
19.Mr.Linesh J	ISP,CUSAT	04/12/08
19.Dr.A K Asundi	NTS, Singapore	05/12/08

IV. Optics Fair

This fair was held on the 28th and 29th of November and was a tremendous event. It was attended by about 1400 students from various schools. This event was held for the third time and this year saw the maximum participation in terms of number of students. The students were categorised into three sections namely, kids section, High school section and Higher Secondary section so that various age groups can be effectively handled. Various experiments were set up associated with lucid explanations. The schools were introduced to the optics kit and it was enthusiastically received by them.



Our volunteers explaining to the students during Optics Fair

V. Optic Talent Search Examination

This was conducted for the first time this year and was a two level examination. This examination, was taken up by students and teachers with both hands. The first phase which was conducted in the schools was given by around 800 students and out of these 30 students were selected for the second phase. The first 10 students were awarded certificates and were selected for the 'One Week with Optics' program. The first three students were given books and optics kit. The chapter was pleased with the enthusiasm and response from the students and it wishes to continue this further, taking this initiative to more and more number of students and schools.

VI. Optics kit

The optics kit-version 2 was released in the optics fair. It is designed for gaining clear understanding of concepts of the different optical phenomena and will be distributed among different schools. The kit not only provides the equipments like single slit, double slit, polarizer, lenses, mirror, laser, holographic grating etc., but it also comes with a handbook that explains the concepts briefly. Topics like polarization, diffraction and interference are explained. This will be extremely helpful for the students in understanding the theory. The aim is to overcome the shortage of optical components in schools and to popularise optics. The optics kit acts as a practical guide for the student. It was one of the major attractions of the Optics Fair.



Our Optics Kit



SPIE members with Optics Kit

VII. Photography Competition

A photography competition was conducted in the department named “Optics in Nature” The topic was light in nature. There was active participation from the students as well as research scholars. The first and second prizes were given book prizes. Mr. Linesh Nair won the first prize.

VIII. Raman Day Celebrations

We used to celebrate the birth day of Sir.C.V.Raman as Raman Day in ISP on 07/11/08 ever year. This year there were three fascinating lectures by professors invited from different universities on Raman Day. They gave interesting talks on the same day as a part of Raman Day celebrations. The professors invited and the topic of their talks are given below:

1. Dr.Reji Philip (RRI, Banglore)
2. Dr.C.Vijayan (IIT, Madras)
3. Prof.Porsezian (Pondicherry University)

VIII. INDO-UK-Workshop

This was a workshop on Fibre optics, Photonics and Bio instrumentation from 2nd to 5th September 2008. It was organized by ISP and SPIE. Delegates from different universities of India and UK took lectures in different topics in those days.



A snap from Indo UK Workshop

IX. WEBSITE

The chapter has website of International standards, www.spie.in. The website was developed completely by SPIE chapter student and cordially we thank Siddharth Joshi (webmaster), Jenu Varghese (Manager), Jemy James (Administrator), for embellishing, framing, and putting the Chapter for competition. The chapter website was a team work.

X. Summer Projects:

Chapter has taken initiative in sending the students for the summer projects.

List of students who did summer internships

Industry Internship

Nikhil P.K- 1. Fabrication of White LED

2. Study of color co-ordinates and CIE color chart

3. Testing and classification of White LEDs based on color temperature under the guidance of Mr.Vijaya Kumar Gupta, **Kwality Photonics Pvt.Ltd**, Hyderabad (2008)

IASc-INSANA-Summer Research Fellowship

1. Gopika Ramanandan K.P – ‘ Carbon Nanotubes in an Optical Trap’ under the guidance of Prof. Deepak Mathur, **Tata Institute of Fundamental Sciences**, Mumbai (2008)

2. Sreeparvathi Warriar – ‘ Lanthanide Ions Doped CeF₃ Nanoparticles: Potential Candidates for Solid State Lighting Devices ’ under the guidance of Prof. A.K.Tyagi, **Bhabha Atomic Research Centre**, Mumbai (2008)

3. Rose Mary – “Observation of Nematic Phase in wormlike micellar system”, Under the Guidance of Dr. V.A.Raghunathan, **Raman Research Institute**, Bangalore (2008)

Visiting Students Summer Research Programme-TIFR

Rajesh Kumar- 'Electrochemical Characterization of semiconductor materials' under the guidance of Prof. B. M Arora, **Tata Institute of Fundamental Research**, Mumbai, (2008)

Summer Internship Programme – IITs

1. Jemy James – ' Photonic Crystals – An Introduction' under the guidance of Prof. R.Vijaya, **IIT Bombay** (2008)
2. Niraj Kumar Singh – "Improvement in holographic memory based correlators", Under the Guidance of Dr. Joby Joseph, **IIT Delhi** (2008)
3. Prashant Kumar – " Design of lens based digital holographic system for particulate field characterization" Under the Guidance of Dr. P.K.Panigrahi, **IIT Kanpur** (2008)
4. Abhishek Kumar – "First Principle of high pressure phases of Germanium", Under the Guidance of Dr. R. Prasad, **IIT Kanpur** (2008)
5. Harikrishnan S.B – 'Mueller Imaging in Backscattering Mode to Distinguish between Normal and Displasia States In Cervix Tissue' under the guidance of Dr. Asima Pradhan, **IIT Kanpur**.(2008)

Summer Internships in Other Research Centre's

1. Sanjay Priyadarshi – 'Growth and Second Harmonic Generation Efficiency Measurement of CLBO Crystal' under the guidance of Prof. H.L.Bhat, **Indian Institute of Science** , Bangalore (2008)
2. Nishant Kumar – "Exciton-Plasmon Interaction in CdSe-Gold nanoparticle superstructures", Under the Guidance of Dr. Joydeep Basu, **Indian Institute of Science**, Bangalore (2008)
3. Mohammad Shahid – "Simple and Basic aspects of radiative properties of non-absorbing particles", Under the Guidance of S.K.Sharma, **S.N. Bose National Center for Basic Sciences**, Calcutta (2008)
4. Bikas Ranjan – "Interferometric Two-Dimensional Electron Density Profile Measurement in a Low Current Spark", **Institute for Plasma Research**, Gujarat, (2008)

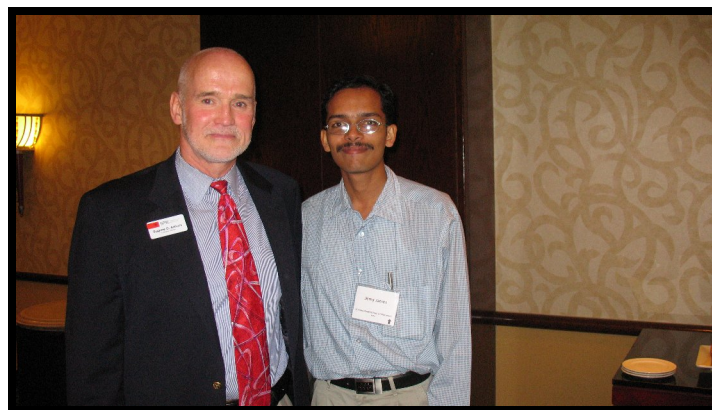
5.Jenu Varghese Chacko, "Failure of OT.,FRAP.,FRET", Dr.Jaffer Ali B.M.**Anna University**, Chennai, Tamilnadu.(2008).

X1. Teacher's Day Celebration

On September 5, Teachers day is being celebrated in India as a mark of respect to the former president Dr.Radhakrishnan.As a note of respect and love, students gave flowers to the teachers of International School of Photonics and Centre of Excellence in Lasers and Optoelectronic Sciences as well as the delegates who had come to attend the Indo-UK workshop.

Optics + Photonics 2008

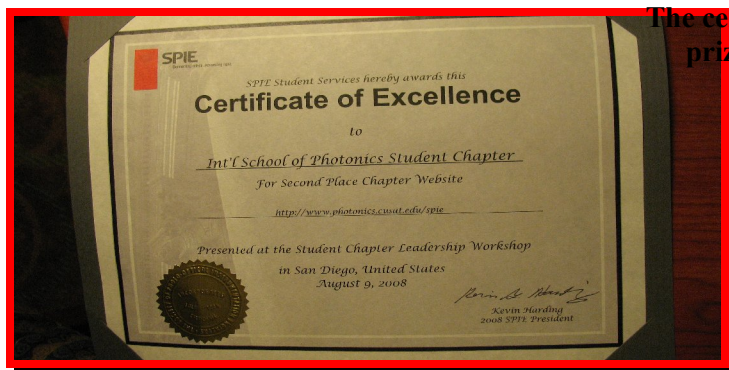
The chapter was represented at the SPIE student leadership workshop at SanDiego by president Jemy James.The president received the prize for the website. He also demonstrated the indigenously developed 'Optics Kit' at the conference. The meet was a grant success as the energy attained from the conference was used for strengthening the chapter activities



**Chapter President Jemy James, with
SPIE CEO Eugene Arthurs**

Achievements

Amidst of hundreds of SPIE chapter websites whole over the world, our chapter was awarded the **second prize** for the **best talented website 2008-09**, at San Diego SPIE International conference, United States. The chapter president Jemy James received the prize.



The certificate received for the second prize in the website competition

The **Nalanda Endowment Award** instituted by Prof. N. G. Devaki for the student who attains highest mark in the first semester of M.Sc Photonics course was awarded to the chapter member Mr. HariKrishnan S.B.

The best project award '**Anweshan 2008**' instituted by association of Indian Universities was won by Mr.Rajesh Kumar.

Future Activities

1. Optics Talent Search Examination:

This year we conducted this examination only for schools coming under the district of Ernakulam. In the coming years we are planning to include more number of schools from all over kerala making more number of students to participate.

2. Personality Development Programme:

A Personality Development Programme will be conducted which will be hosted by Rtd.Colonel.V.S.M.makker.

3. Industrial visit Programme:

An industrial visit programme will be scheduled to the following institutes for the students.

- a) BSNL Gate way to view intercontinental fiber cable connecting underwater cables through Asia, Africa and Europe
- b) NEST Photonics, Cochin.
- c) Eye Hospital, Naval Base, Cochin.

4. Optics Kit:

We are planning to include more elements into the Optics Kit to get the attraction of more and more people all over the world.

5. Optics Fair:

We will expand the boundaries of the most welcomed SPIE programme, Optics Fair, to enlighten more number of students with the basic knowledge of optics.

6. Seminars and Talks:

We will arrange more number of talks and seminars by professors from well known institutes for the students in the coming years.

Conclusion

We thank all the chapter members who made these year's activities a grand success.



Group photo of SPIE members taken during Optics Fair