

SPIE
Student Chapter
International School of Photonics
Bi-Annual Report: December, 2007

The year 2007 was a beautiful year, as the chapter was very active and saw maximum participation from the chapter members to blossom its activities to its maximum splendour. Social outreach programmes like ‘Optics to school’ and ‘Optics fair’ were conducted. Special lecture series by eminent professors like Prof Ajoy Ghatak, Dr. Sajeed John and Prof. Rajaram Nithyananda were conducted. Many other seminars by invited speakers and also by the chapter members were held. All these talks and seminars concluded with a discussion session where the audience could ask questions related to the talk and clarify any doubts.



The annual GBM was held on 18th January, 2007. Office bearers for the academic year 2007 were elected.

The chapter advisor [second left], president, vice president, and the secretary at the first meeting

President	: Mr. Praveen Cherian Ashok	[praveencashok@ gmail.com] {Mem # 03031331}
Vice President	: Mr. Nitish Kumar	[nitish@cusat.ac.in] {Mem # 03031326}
Secretary	: Mr. Jemy James	[jemyjames@cusat.ac.in] {Mem # 03031208}
Treasurer	: Ms.Parvathi M.R.	[parvathi82@cusat.ac.in] { Mem # 03080876}

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

Mr. Thomas K.J.	[former president]
Mr. Lyjo K Joseph	[former secretary]
Ms. Jayasree V.K.	[former treasurer]
Ms. Gopika Ramanandan	[Semester V]
Mr. Yedhu Krishna	[Semester III]
Mr. Vineeth Benyamin	[Semester I]

The present staff advisor Prof V.P.N Nampoori was appointed as the director of International School of Photonics and Prof V.M Nandakumaran took over as the new chapter advisor.

The different committees were formed to execute the activities of the chapter in an easier way

Publicity Committee : 1. Jenu Varghese Chacko
2. Vinneeth Benyamin

Programme committee: 1. Nitish Kumar
2. Varun Kas
3. Yedhu Krishna

Membership committee 1. Sreeparvathi Warriar
2. Gopika Ramanandan

Placement Committee 1. Praveen Cherian Ashok
2. Adil Masood
3. ThomasK.J.

Amendment of the by law

One of the most important decisions taken was the amendment of the by law of the Chapter: The by law is as follows

“Membership shall be limited to the students and staff of International school of Photonics herein after known as ISP, and Centre of Excellence in Lasers and Optoelectronic Sciences herein after known as the CELOS. The ISP-SPIE student chapter can give provisional membership to pre-college students to encourage the optics activity in Schools”

FINANCIAL STATEMENT

Accounts for the year 2007

(As on 23/11/2007)

Income

Particulars	Amount
Balance Brought Forward	23151.88
Annual Grant from SPIE	59021.00
From Outreach Programs	25666.00
Interest	1213.00
Total	<u>109051.88</u>

Expenditure

Particulars	Amount
For seminars	4712.60
GBM	869.06
Invited Talk	16637.50
Stationery/ Printout/ Photostat	1213.84
Social Outreach Programme	3652.24
Membership Reduction	7846.00
Placement Cell	1000.00
Petrol	60.00
Furniture	5000.00
SPIE website	4000.00
SPIE customs duty	1983.00
Optics to school	2546.50
Suvarnakeralam	1461.00
Optics Fair	22271.90
Total	<u>73253.64</u>

Balance

Particulars	Amount
FD in Union Bank	15000.00
SB in Union Bank	12917.07
SB in Federal Bank	6953.00
In Hand	928.00
Total	<u>35798.07</u>

The chapter would like to present its activities

1. Annual Photonics Workshop

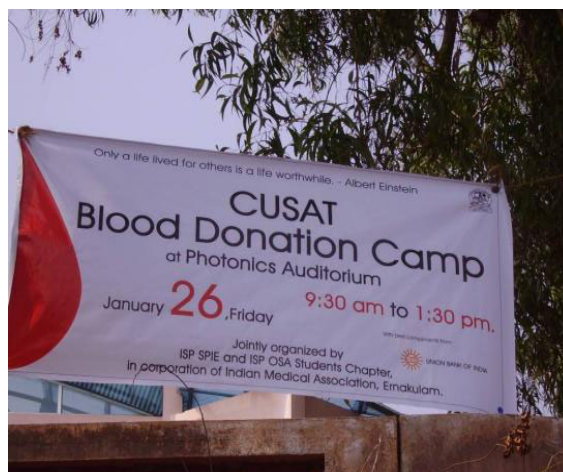
The chapter joined hands with the International School of Photonics and ISP-OSA student chapter in organizing a two day National 'Annual Photonics Workshop' on 27th and 28th of February, 2007. About 50 participants comprising of University and college teachers, researchers, scientists took part in the workshop which had its focal theme as Nonlinear optics.



The inaugural meeting of the Annual Photonics Workshop 2007

2. Blood Donation Camp

Blood is precious these days and voluntary blood donation camp has increased the awareness among the student community to donate blood. The ISP-SPIE student chapter in association with the Indian Medical Association Ernakulam branch and ISP-OSA Student Chapter organized the voluntary blood donation camp on 26th January 2007. This was done as part of the social out reach programme of the chapter. This invoked a sense of commitment to our society among the chapter members.



3. World Environment Day.

The chapter members celebrated the world environment day on June 5th by planting a tree, by Prof.V.M.Nandakumaran, in the campus and thereby arousing a sense of care and passion for Mother Nature.



4. 'Optics Fair 2007'

ISP-SPIE students chapter along with ISP-OSA student chapter, CELOS and ISP conducted 'Optics Fair 2007', an exhibition for school students with optics and light as the central theme, from 18 – 19 October 2007. The program was intended for the school students from class 3 to 10+2 level. It was convened by the president of the chapter, Mr. Praveen Cherian Ashok, the vice president, Mr. Nitish Kumar & secretary, Mr. Jemy James.



The main highlights of the program were an exhibition programme for higher secondary (10+2) students and high school students. There was also film screening and a poster section. 1200 students from various schools attended this event. This event was a huge success and the feedbacks proved it.

5. Optics to School

Two optics to school programme were conducted. The first one was to Bhavan's Vidya Mandir, Girinagar, Kochi and the second one was to Rural High School, Thumpur P.O, Thrissur.. The team comprised of 20 student members of the chapter. Live demonstrations to explain various phenomenon which the children study in their respective classes were made.



The aim of this programme is to arouse interest in optics and photonics among school children. We encouraged questions from them and discussed their answers. Our staff advisor, Prof V M Nandakumaran was also present. He interacted with the students and teachers and clarified various doubts. Bhavans Girinagar School also participated in the Optics Fair programme conducted in our department in October.

6. Raman Day Celebration

To commemorate the birthday of Sir.C.V.Raman (November 7th) a small celebration was conducted at International School of Photonics. Statue of Sir C.V Raman at Raman Square, ISP was garlanded. Cakes were cut and distributed. A special lecture by Prof. Rajaram Nithyananda on 'Radiative Transfer from Clouds to Galaxies' was held at ISP auditorium.



7. Teacher's Day Celebration

Indian culture bestows great respect to elders especially teachers. September 5th is celebrated as teacher's day in the memory of Dr.S.Radhakrishnan (the first Vice-President of India). 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.



8.Evening Seminar

In order to increase the scientific discussion in the chapter, the evening seminar series has been introduced in the chapter, in which the chapter member get a venue to present Seminars on any topic related to physics. It is held on every second and fourth Tuesdays of the month and starts at 5.30 pm in the evening. The list is as follows.

1. Yedhu Krishna Spatial Light filters 24/04/2007
2. Nishant Kumar Crystal Optics 08/05/2007
3. Sanjay Priyadarshi Solid State Lasers. 12/06/2007
4. Jenu Varghese Chacko : Mystism in Physics .26/06/2007
5. Praveen Cherian Ashok : Micro Optical Manipulation using Optical Tweezers. 7th August 2007
6. Rose mary : Cherenkov Radiation. 10 July 2007
7. Jemy James: Study of colour changes in Hibiscus Mutabilis.4/12/ 2007
8. Sanjay Priyadarshi: Fabrication and loss characterization of Rhodamine-B doped polymer optical fibre. 4th December 2007

8. Theodore Maiman Memorial Lecture

To remember the Father of Laser, Theodore Maiman who passed away on May 5th 2007, the commemorative talk was held on the 22nd May Tuesday, evening lecture, by Prof. V. P. N. Nampoori, Director, International School of Photonics and, former staff advisor of the chapter.



10. General Seminar

- Polymer optical fiber Bragg Gratings based Fibre Sensors□
by Ms.Sheeba M., Research Scholar 11/01/07
- Diode Pumped solid state lasers□
by Prof P.Radhakrishnan 01/02/07
- Control and Synchronization of Chaos in Various Laser Systems□
by Prof.V.M.Nandakumaran 22/02/07
- Identification of Spectral lines of elements via artificial neural networks□
by Ms.Sarita M., Research Scholar, on 17/05/07
- Nonlinear dynamics of multiple quantum well lasers-chaos and multistability
by Mr.Jijo P.U Research Scholar and ex-president of the Chapter on 24-05-2007
- Laser produced Plasma
by Mr.Dann V.J,Research Scholar and ex vice president of the chapter on 31/05/07
- Photonic materials from biological systems
by Prof. V.P.N.Nampoori on 05/07/07
- Non-linear dynamics of two mode intracavity doubled Nd:YAG Laser
by Ms Parvathy M.R on 12/07/07
- Photoluminescence and photoacoustic studies on rare earth titanates prepared by self propagating high temperature synthesis method
by Lyjo.K.Joseph on 26/07/07
- Raman Scattering in PMMA optical fiber
by Thomas K.J on 09/08/07
- Polymer optical Fibers : A Material Perspective
by Muralidharan M.N on 25/10/07

- Thermal characterization of dye doped clay based ceramics using photoacoustic techniques
by Lyjo K Joseph on 22/11/07
- Fluorescence resonance energy transfer
by Mr.M Kailasnath on 29/11/07

11. Special Seminar

- Laser based technologies for detection of traces
by Dr.Jaipul Dudeja-Laser Science and Technology Centre
New Delhi on 19/01/207
- Optical Network
by Mr.George Mathew Deputy General Manager Southern
Telecom Region, BSNL, Ernakulam on 02/02/07
- Fibre Optic Sensors for Structural applications
by Dr.P.A.M.Basheer, on 04/04/07
- Neuro Linguistic Programming
by Prof.Thomas Ninan on 07/06/07
- Imaging advances in radiation therapy
by Ms Geetha Menon, Medical Physicist, Cross Cancer
Institute and University of Albertia, Edmonton, Canada
on 19/07/07
- Elements in Image Processing
by Dr.T.P.Sasikumar, Scientist, ADRIN, Dept of
Space, Secundarabad on 16/08/07
- Laser Speckle Imaging and Analysis for Functional and Anatomical
Imaging of Brain
by Dr. Suresh Paul Joseph, ToCH Institute of
Technology on 06/12/07
- Structural, Electrical, Thermal and Spectroscopic Characterization of
 LiMn_2O_4
by Dr.Thomas Lee, Dept De Fisca Universidad
Concepcion Casilla, Chile on 10/12/07
- Photothermal Radiometry : A Tool for Subsurface Studies
by Dr Jyotsna R on 10/12/07
- Nanoelectronic Devices : Technology Limitations and Research
Challenges
by Dr.M K Radhakrishnan, President and CIO, Nano
Rel on 11/12/07.

12. Special Lectures

Apart from evening seminars and and general seminars, lecture series by eminent personalities were arranged to enhance the knowledge of the chapter members in certain specialised topics.



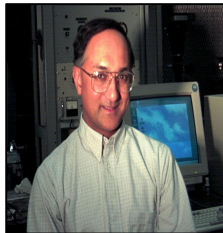
Prof M.Lakshmanan

Centre for Nonlinear Dynamics,
Bharatidasan University, Thiruchirappaly.
13/03/07-Linear & Nonlinear Dispersive Waves, Solitary waves
14/03/07-Theory of Solitons and Optical Solitons
15/03/07-Computing via Optical Solitons.



Prof. Ajoy Ghatak,

Emeritus Professor, IIT Delhi
Topic: Optics and Quantum Mechanics
On 24th to 26th September 2007.



Dr.Sajeev John

Topic : Photonic Band Gap
Materials: Semiconductor of light on 29/10/07

Prof. Rajaram Nithyananda

A lecture series on polarization optics,
adaptive optics and radiative transfer
from clouds to galaxies
on 5th, 6th and 7th November 07.



13.Yoga Session

The chapter took keen interest in organising a yoga session for the chapter members during the time when our state Kerala was affected by a special kind of fever called the chikun guniya. Yoga helps in raising the immunity of our body and helps us stay fit.

14.Motivational Talks

Morale boosters are highly essential to all. To increase the confidence and inner strength of the students a motivational talk by Dr.Sasikumar was held at ISP. All the chapter members attended the programme.

Achievements

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 Ms. Rose Mary Abraham



Best Poster award

The chapter member Mr. Jinesh Mathew was awarded the Best Poster award for the paper

“Agarose based Humidity sensor” by Jinesh Mathew and Prof P. Radhakrishnan at the National Conference on smart Electro ceramics 2007 held at C-MET Thrissur, Kerala

Papers presented

1. Laser Emission from dye mixture doped polymer optical fiber
By Sheeba M, Thomas K.J ,Rajesh M, Nitish K, Praveen C Ashok, VPN Nampoori, Radhakrishnan P at the SPIE conference **Optics + Photonics 2007 San Diego**
2. Speckle metrology based study on the effect of chatter on machined surface
By Praveen Cherian Ashok, Usha Nair, Varun K.A.S, V.N.N.Nampoothiri and Prof.V.P.N.Nampoori at the SPIE conference at **Optics + Photonics 2007 San Diego**

3. A Comparative Study of Fiber Optic Humidity Sensors based on Chitosan and Agarose
By Jinesh Mathew , Thomas K J , and Radhakrishnan P at the 7th Pacific Rim Conference on Lasers and Electro-Optics (CLEO/Pacific Rim 2007), Seoul, Korea
4. Fabrication and Loss Characterization of Rhodamine B doped Polymer optical fiber
By Gopika Ramanandan, Sanjay Priyadarshi, Nitish Kumar, VPN Nampoori, C P Girjavallabhan, P Radhakrishnan, at National Laser Symposium 2007
5. Fluorescence Lifetime Calculation of Rhodamine 6G Dye using Femto Second Laser
By M Sheeba, K.J Thomas, K.T Mathew, V.P.N Nampoori, C.P.Girjavallabhan, P.Radhakrishnan at National Laser Symposium 2007
6. Studies on the Time Dependence of Nonlinear Optical Properties of Deoxyribonucleic Acid (DNA) using Z-Scan Technique
By B.Nithyaja,V.K.Jayasree, Lyjo.K.Joseph, V.P.N.Nampoori at National Laser Symposium 2007
7. Optic Fiber Based Sensor to Study Clay Consolidation
By J.Linesh, V.K.Jayasree, K.S.Beena, V.P.N.Nampoori at National Laser Symposium 2007
8. Analysis of the Surface Texture of Lathed Workpiece using Speckle Pattern
By Praveen C Ashok, Varun.K.A.S, Usha Nair, V.N.N.Nampoothiri, V.P.N.Nampoori at National Laser Symposium 2007
9. Fiber Optic Sensor for the Study of Vegetable Oil
By Jinesh Mathew, P. Radhakrishnan at National Laser Symposium 2007
10. Age Related Index Measurement from Peripheral Pulse Wave Detected using Finger Tip Photoplethysmograph
By Jayasree.V.K, Shaija.P.J, P.Radhakrishnan at National Laser Symposium 2007

11. Fabrication of a Compact Polymer Optical Fiber Drawing Machine
By M.Kailasnath, Rajesh Kumar, P.Radhakrishnan, V.P.N.Nampoori, C.P.G.Vallabhan at National Laser Symposium 2007
12. Studies on X-ray and Ion Emission from a Plane Copper Target Irradiated with Picosecond Laser
By Nitish Kumar, S Chaurasia, D.S.Munda, G.Mishra, C.G.Murali, L.J.Dhareshwar. The project was done at BARC Mumbai and presented at National Laser Symposium 2007.
13. Measurement of Axial Position Spectrum of Trapped Microspheres using Image Correlation Technique
By P.C.Ashok, R.Dasgupta, P.K.Gupta. The project was done at RRCAT, Indore and presented at National Laser Symposium 2007
14. Study of colour change in *Hibiscus mutabilis*.
By Jemy James, Lyjo K. Joseph, C. M. Sreekanth and V. P. N. Nampoori
Presented at XXXIII OSI symposium on Optics and Optoelectronics, 2007

Summer Projects

The Chapter member has shown interest in the summer internship
And following is the list of students who have gone for the summer projects

Rajesh Kumar –Indian Institute of Technology Chennai
Praveen Cherian Ashok - RRCAT Indore
Varun KAS - Institute of Mathematical Science Chennai
Nitish Kumar -BARC Mumbai
Varun Gupta-Indian Institute of Technology Kanpur

Placement cell

The placement cell for the 2003-2008 batch of CELOS has started working to look into the placement of the chapter members

Future Activities

1. Make learning materials for various courses like nonlinear dynamics etc.
2. Conduct an educational tour to research institutes like Indian Institute of Science and Raman Research Institute, Bangalore
3. Provide opportunities for chapter members to do internship in photonics based industries.
4. Conduct an industrial visit to NEST Photonics.
5. Have a collaborative work with other SPIE Student Chapters in India.
6. Design and develop an Optics Kit for the school students of higher secondary level to help them with the experiments on wave optics.
7. To design and distribute posters on Optics to explain various important phenomena's. This has received good response from various schools and colleges all over India now itself.

Word of thanks

The chapter would like to acknowledge all those who helped the chapter to carry out its activities successfully.

*“Light on the move.....
.....Lead Kindly Light”*

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