Activities Report

Univ. Autonoma de Nuevo Leon SPIE Student Chapter

Av. Universidad s/n, Cd. Universitaria, San Nicolas de los Garza, N.L, Mexico.

+52 (81) 8329 4030 ext. 6139

+52 (81) 8352 2954 FAX

12/15/2008

CC

We report the main activities of the Universidad Autonoma de Nuevo Leon SPIE Student Chapter during 2008. During this year, we organized several short courses in the field of optics. Moreover, we collaborate with the organization of the first national congress on lasers and fiber optics. Additionally, we visited some local companies which based their work in optics.

The Universidad Autonoma de Nuevo Leon SPIE Student Chapter was officially established in January 2008. The purposes of this chapter are:

- The diffusion at different levels of optics and photonics inside and outside of our university.
- To establish communication with regional optical industry.
- To help the professional development of the students in the optics field.

In order to accomplish these goals, the first meeting was held at February 2008. In this reunion, the chapter members agreed to start the following activities:

1. The creation of the chapter web page.
2. The construction of the chapter group in internet.
3. The organization of short courses every two months.

In March 2008, we finished the first version of our web page. In this page, we described clearly the purposes of the chapter and some of the planned activities. Besides, we invited students to join us. In addition during this month, we created a group in internet. The main goal of this was to establish communication with other members of our chapter. We often use this group to post and add some messages of our future reunions, to post the minutes of every meeting, to vote for new activities, etc.

In this month, we organized the first short course. This was held by the Dr. Rene Dominguez Cruz from the Universidad Autonoma de Tamaulipas. This course was divided in two parts: the first one corresponded to the non-linear optics basis. In this session, Dr. Dominguez explained us some phenomena such as the Kerr effect; in the second part of the course, he talked about some applications of non-linear optics such as frequency-doubling and amplifiers.

In June 2008, we organized the second short course. This was given by Dr. Julian Estudillo from the optoelectronics department at the Universidad de Guanajuato. In this course, Dr. Estudillo talked us about sensing techniques based in interferometrics systems, polarization in fiber optics and some applications of the Sagnac interferometer.

In this month, we also had a visit to the laser company named Trumpf. This company constructs high power laser machines for material processing. In this visit, we could see a 4 kW CO_2 laser in operation. This device is mainly used for cutting steel. We also look at a laser machine for steel marking. The laser used for this process is a Nd:YAG with 50 W of output power. One of the main applications of these devices is in the automotive industry.

In July 2008, we received in our university to Dr. Ruben Ramos from the National Institute for Astrophysics Optics and Electronics (INAOE). Dr. Ramos dictates us the short course about optical tweezers. In his talk, Dr. Ramos shows us his work about manipulation of particles using lasers and possible applications to biotechnology. He also explained the physics principles involved in the process of the interaction between light and matter.

In August 2008, two of our chapter officers had the opportunity to assist to the Optics and Photonics meeting. In this reunion, we presented posters in which we explained our past and future activities. We also attended to the leadership workshop where we joined and interacted with other leader chapter students. We also take courses about improving writing skills, effective technical presentations, chapter management, etc.

In September 2008, we held our fourth short course, which was given by Dr. Edgar Alvarado from the optoelectronic department of the Universidad de Guanajuato. This talk was about the physics nature of the solitons and their possible

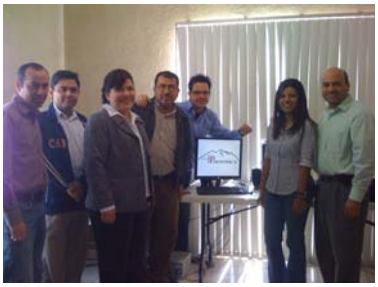
applications in long haul communication systems.

In October 2008, we visited Alestra. This is a telecommunication company whose purpose is to offer telephone and internet services to our country. In this visit, we had access to zone called the bunker in which are made all the interconnections for their clients. There, the supervisor explained us the main technologies that their use, among which are DWDM systems based in fiber optics, fiber amplifiers, fiber connectors, etc.

In November, our student chapter collaborated in the organization of the first national congress of lasers and fiber optics. This congress was held at our university from November 5-7. In this event we invited Dr. Robert Fisher from the SPIE visiting lecturer program. The total list of participants and their talks are as follows:

1. Dr. Eric Van Stryland (College of Optics and Photonics, CREOL, University of Central Florida) - Development of Non-Linear Optics Spectroscopic Techniques.
2. Dr. Romeo Selvas Aguilar (Universidad Autonoma de Nuevo Leon) – Development of fiber lasers in Mexico.
3. Dr. Daniel May Arrioja (Instituto Nacional de Astrofisica Optica y Electronica, INAOE) – Integrated Optics.
4. Dr. Roberto Rojas (Universidad de Guanajuato) – Raman dispersion and their applications.
5. Dr. Alejandro Martinez (Centro de Investigaciones en Optica) – Long period grattings
6. Dr. Yanick Keith Lize (Strata Light) – Optical fibers: from network transmission, telecom devices to high power fiber lasers and amplifiers.
7. Dr. Robert Fisher (RA Fisher Asociates) – Introduction to lasers.
8. Dr. Johan Nilsson (Optical Research Center, University of Southampton) – High power fiber lasers.

In December 2008, we visited the company Monterrey Photonics. They work with a 30W CO_2 laser for cutting or engraving materials such as acrylic, plastics, glass, wood, etc. In the first part of the visit the supervisor explained us how the laser machine works. In the second part, we could see some final products such as laser engraved pens, rubber stamps and acrylic awards marked with laser.



In order to plan all these activities, we have held in total 6 official meetings this year.

Financial report

Beginning balance	$ 500 dls
Short courses (4)	$80 dls
Companies' visits (3)	$20 dls
Chapter poster	$30 dls
Recruiting	$25 dls
Beginning of year meeting	$12 dls
Ending balance	$333 dls

Future activities

- Informal photonics talks
- Optics workshop
- Socials
- Short courses
- Companies visits

List of current chapter members

1. Samuel Almaguer

2. Diana Castaneda
3. Luis Cortez
4. Valentin Dominguez vdominguezv@gmail.com 3180134
5. Valentín Guzmán vguzram61@yahoo.es 3244990
6. Haroldo Ibarra
7. Armando Méndez cabo_iii@hotmail.com 3253022
8. Rogelio Padilla
9. Paulina Segovia paulinaseol@gmail.com 3148187
10. Jeane Vargas

Advisor: Dr. Romeo Selvas Aguilar

On December 15th we held our last meeting of this year, in which we presented our activities report to all the chapter members. Moreover, we elected the chapter officers that will lead the chapter activities during this coming year 2009.

On January 6, we celebrated the beginning of the New Year with chocolate drinks and special bread commemorative to the meeting date

On January 12 th we held our first meeting of this year and we presented our plan for this new year to promote the SPIE Student Chapter and the Optic Sciences. In order to accomplish these goals, the chapter members discussed different things to do, and we will start with the following activities:

1. - The creation of a new chapter web page.

2.-The organization of "The Optics Day" in our University to promote the SPIE Student Chapter and the Optics Sciences.

3. - To organize an optics demonstration for kids every three months.

4.-To organize a Workshop on Optics.

On January 30th we promoted the SPIE Student Chapter organizing “The Optics Day” in our University, in which we presented our posters about past and future activities and we showed some experiments in the laboratory, also we gave some freebies to recruit new students.