



ACTIVITIES REPORT

JUNE 12th 2008

The Autonomous University of Nuevo Leon (UANL) SPIE student chapter was officially established in January 2008 by PhD students of the School of Mathematical and Physical Science (FCFM). The purpose of this group is: to promote the optics inside and outside of our university; to establish communication with the regional industry; and to help the professional development of the students of this area.

The first meeting was held in February 2008 at the university. The main purposes were to inform to all members about the acceptance of the chapter and to conduct elections of the chapter officers. The election results are the following:

Chapter Officers:

President: Carlos Adrián Calles Arriaga, e-mail: charlykov@gmail.com

Vice-President: Arturo Alberto Castillo Guzmán, e-mail: acastillog@gmail.com

Secretary: Javier Morales Castillo, e-mail: javier.morales8@gmail.com

Treasurer: Valentín Domínguez Vera, e-mail: vdominguezv@gmail.com

Advisor: Dr. Romeo Selvas Aguilar

The list of the current student chapter members are:

1. Paulina Segovia Olvera
2. Diana Castañeda Rodríguez
3. Valentín Domínguez
4. Francisco Solís
5. Arturo Castillo Guzmán
6. Pablo Toledo
7. Javier Morales Castillo
8. Santos Morales Rodríguez
9. Héctor Leija
10. Carlos A. Calles Arriaga
11. Haroldo Ibarra

In order to promote the optics, one of our first activities was to establish a bimonthly seminar as short 6 hours-course, which are given by well-known Mexican researchers. In the inauguration day, the head of the school gave a speech in which she encouraged the students to get involved and participate in this kind of event. Moreover, we invited the audience mainly students to get know about the optics through these conferences. We also, introduce the SPIE organization and invited the students to join the UANL-SPIE student chapter. The funding for the realization of these events is get from the School of Mathematical and Physical Science, while the student chapter is responsible of the organization.



Fig. 1. SPIE student chapter members with the head of the FCFM at the inauguration of the Optics short courses (bimonthly).

These courses are scheduled in the year and are offered every two months as follows:

Table I. Courses calendar.

Courses	Topic	Date
Dr. René Domínguez (UAT)	Non-linear optics	03/07/08
Dr. Julián Estudillo Ayala (UG)	Polarization and birefringence	06/05/08
Dr. Rubén Ramos (INAOE)	Optical tweezers	07/25/08
Dr. Edgar Alvarado (UG)	Solitons	09/26/08
Dr. Roberto Rojas (UG)	Ramman dispersion	11/28/08

Up to date, we have had two courses. The first one was given by Dr. René Domínguez of the Universidad Autónoma de Tamaulipas (see figure 2). In the first part, he talked about the basis of non-linear optics and explained some phenomena as the Kerr effect. In the second part of his talk, Dr. Domínguez talked about some applications on non-linear optics, such as frequency doubling and amplifiers.



Fig. 2. Course of Non-Linear Optics given by Dr. René Domínguez

The second course was recently given by Dr. Julián Estudillo Ayala from the optoelectronics department at the Universidad de Guanajuato. Among the topics in this course were: sensing techniques based in interferometrics systems, polarization in fiber optics and the Sagnac interferometer.



Fig. 3. Course of Polarization and Birefringence Analysis applied to optical sensors by Dr. Julián Estudillo Ayala.

Another of the purposes of our group is to interact with the regional industry. In June 11th 2008, we visited the laser company known as [Trumpf](#), which is located in Apodaca city in Nuevo León Mexico. The operation manager told us that this company is the world leader in the industry of high power lasers. Trumpf Apodaca facilities have an exhibition room where we could see some of their products. One of them is a laser cutting machine of 4 KW, which is mainly used for cutting metals. This is a CO₂ laser that besides this compose, also use N₂ and He as active laser medium. Other of their products we saw was a laser marking machine, which is also used for processing plastics and metals. This machine is based on the solid-state technology of Nd:YAG laser. One of the main applications of this kind of laser is found in the automotive industry as tool for marking buttons.



Fig. 3. Laser company Trumpf and some of their products:(a)Student chapter members with a laser resonator and (b)with a high power laser.

Other activities, we have done during this semester were the design of a web page¹ and the creation of a group² in internet. In essence, the objective of the web page is that people from outside of the student chapter get know about: our goals as SPIE student

¹ <http://uanl.spie.student.chapter.googlepages.com/home>

² <http://groups.google.com/group/spie-student-chapter>

chapter, the list of chapter members, past and future activities and contact information for those who would like to join us. On the other hand, we found that the created internet group is a fast way for communication between the chapter members. We use this group to notify about next meetings, to inform the main points of past meetings, to vote group decisions, and, in general, as a forum where all of the chapter members can communicate their opinions.

For the second half of 2008, we have planned to continue with the short courses with the topics of optical tweezers, solitons and Ramman dispersion (see table 1). We are also planning the organization of a national congress on fiber optic and lasers from November 5th to 7th of this year. For this event, we also have the support of the school of Mathematical and Physical science (FCFM) at the Universidad Autónoma de Nuevo León (UANL). In this event, the UANL-SPIE student chapter and the UANL-FCFM-OSA student chapter will be in charge of the logistics. We have the following tentative program:

Table II. National congress on fiber optics and lasers

First national congress on lasers and fiber optics				
Hours	Tuesday	Wednesday	Thursday	Friday
09:00 hrs	REGISTER	Inauguration	Dr. Roberto Rojas	Dr. Roberto Rojas
10:30 hrs		Coffee break		
10:45 hrs		Dr. Eric Van Stryland	Dr. Shaoul Ezekiel	Dr. Steve Davies
12:15 hrs		Coffee break		
12:30 hrs		Dr. Romeo Selvas	Dr. Romeo Selvas	Nokia-Siemmens
14:00 hrs		Comida		
16:30 hrs		Dr. Daniel May	Dr. Daniel May	Dr. David Payne
18:00 hrs		Coffee break		
18:15 hrs			Poster sessions	
19:45 hrs				
			Toast	
20:30 hrs				

Future activities include updating the chapter web page, visiting at least another company related with optics and photonics, organizing an informal lecture given by our advisor, and the preparation of a workshop designed for high school students.

We recently received the activity grant funding, so until now our ending balance is \$500 dlls. Notwithstanding, according with the group decision, it will be used for the future activities in the next mode:

Table III. The allocation of funding for the second semester of activities.

Courses	\$150
Companies visits	\$ 50
Informal photonics talks	\$ 100
Socials	\$ 50
Recruiting	\$ 50
Workshop	\$ 100