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1) Introduction

The SPIE Student Chapter from the Centro de Investigaciones en Optica (CIO), located in the city of Leon, Guanajuato, Mexico, has the purpose of promote outreach events with the local community in different educations levels. The chapter also promotes the interaction and partnership among students from this and other academic institutions.

This year the CIO chapter is full of joy, we celebrate the International year of light, the 35 anniversary of the Centro de Investigaciones en Optica and our 10th year of work and outreach activities.

In this report we show the activities done from January to October 2015. This year the chapter participated in four different meetings organized by CIO, AMO, OSA and SPIE. We use the visiting lecturer program to invite Prof. Joanna Schmit to our institution. Also, we had the visit of the 2015 President of SPIE Prof. Toyohiko Yatagai.

We are very grateful to our Academic Director Dr. Luis Armando Díaz Torres, our Chapter Advisor Dr. Oracio Barbosa and the CIO General Director Dr. Elder de la Rosa for their support to all the activities promoted by the SPIE CIO chapter, thank you to all of you.
2) Elected officers 2015

<table>
<thead>
<tr>
<th>President</th>
<th>Vice-president</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jorge Sanchez Preciado</td>
<td>Jesus Pablo Lauterio Cruz</td>
</tr>
<tr>
<td>SPIE ID#: 3236381</td>
<td>SPIE ID#: 3431147</td>
</tr>
<tr>
<td><a href="mailto:jojoytelas@gmail.com">jojoytelas@gmail.com</a></td>
<td><a href="mailto:jplauterio@cio.mx">jplauterio@cio.mx</a></td>
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<table>
<thead>
<tr>
<th>Treasurer</th>
<th>Secretary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yuliana Mariem Espinosa Sanchez</td>
<td>Goretti Guadalupe Hernández Cardoso</td>
</tr>
<tr>
<td>SPIE ID#: 3437771</td>
<td>SPIE ID#: 3643774</td>
</tr>
<tr>
<td><a href="mailto:essym@cio.mx">essym@cio.mx</a></td>
<td><a href="mailto:goretti.hernandez@cio.mx">goretti.hernandez@cio.mx</a></td>
</tr>
</tbody>
</table>

3) Chapter members

1. Jorge Enrique Alba
2. Armando Álvarez Fernández
3. Abril Arellano-Morales
4. Juan Esteban Betancur
5. Yoshio Eduardo Castillejos
6. Elisa Cepeda-Pérez
7. Yuliana Espinosa Sánchez
8. Francisco Javier Gantes
9. Maribel Juarez Hernandez
10. Jesus Pablo Lauterio-Cruz
11. Yolanda Lopez Dominguez
12. Belem Mancilla
13. Orlando Medina
14. Francisco Mejía-Alanis
15. Jorge Sanchez Preciado
16. Cynthia Santiago-Lona
17. César Tavera
18. Jorge Sanchez Preciado
19. Oscar Naranjo
20. Goretti Hernández
4) Activities 2015

I. Recruitment activity (Pizza Party)

The first activity in the year was a pizza party, where new students met the chapter and had the chance to know the benefits they could get from international societies such as SPIE. We bought pizza, sodas and the students that decided to join the chapter got a T-shirt from the SPIE Chapter. This is one of the two recruitment activities we do in the year.

II. New officers introduction

On February the new officers made their introduction in front of the members of the chapter and talked about their planned activities for the year. In this event we counted with the presence of the Academic Director from CIO, who expressed the support to the new officers.
III. Visiting Lecturer. Prof. Joanna Schmit

Thanks to the visiting lecturer program from SPIE, we had the visit of Prof. Joanna Schmit, from the University of Arizona. She has worked on the academical and industrial fields, so her experience was very valuable for the students of CIO.

First, Prof. Schmit gave a technical talk about her work in metrology using white light interferometry. With an audience of students, researchers and workers from the center, the talk lasted about an hour and after that our visiting lecturer and the students had an informal meeting where members of the chapter had the chance to know more about the personal experience of Prof. Joanna and how she had managed to stand out in the field of optics.

After the meeting, she visited some of the labs in CIO, where researchers and students presented the work they are doing, in some cases Prof. Schmit gave some technical advices when requested, in order to improve their work.

Once the activities in the center were done, the chapter officers took Prof. Joanna to taste Mexican food and spend the rest of the evening in a tour through the downtown of the city of Leon.
IV. Outreach Activities

This year the student chapter outreach activities were focused on kids under 15. Our members visited a primary school where kids played with chromatography. Using recycled materials, such like coffee filters, kids found what colors are in markers. This activity surprised kids due to its simplicity and the wonderful colors and patterns observed in the filters.

We also visited a secondary school to show how light is present in almost every part of our life. Using the outreach kits from SPIE (Light Blox Science Kit) and OSA (Optics suitcase) we showed how light works and how we can use it in our lives.

Phenomena such as polarization, diffraction and decomposition of light were explained using simple experiments. Kids who demonstrated real interest in learning had the chance to keep some of the material used to encourage them to continue in their way to knowledge.
V. Khet Tournament

In the celebration of the 35th anniversary of Centro de Investigaciones en Optica, we organized a Khet tournament. Participants played to win 2 out of 3 games to beat their opponents.

The final match was played by Luis Escalante and Cristhian Álvarez, where Cristhian won in the 3rd game after almost one hour of play. The winner got a new Khet board and an amazing Khet T-shirt courtesy of the SPIE student Chapter.
VI. **Summer School Students**

Every year, CIO invites 30 bachelor students to visit the labs and to participate in a one month stay working in a research project with one of the professors of the center. This year students from several universities of Mexico and Colombia lived this amazing experience.

In order to improve the experience of these young students, the SPIE student chapter was invited to participate with several activities:

**a) Presentation**

First, the chapter made a short introduction with the students. Explaining what a student chapter is, the benefits of being part of an international society such as SPIE and the activities we do along the year. We encourage them to participate in the chapters of their own universities or to form a new chapter in case there is not one. We also talked with students from Colombia to increase the collaboration between chapters from different countries.
b) Cineclub

We organized the projection of the movie “Interstellar”. With popcorn, sodas and candies, almost 40 people enjoyed the movie and had a great time.

c) Optics games

Using the outreach kits, summer students played with light and learned about some phenomena like polarization, diffraction and color theory.

Using the light blox science kit, they had to obtain the most distinctive image they could get to impress their colleagues.
VII. Optics Experiments Contest

In our third Optics Experiment contest we had the participation of 6 projects under the next specifications: demonstrate an optics basic concept, using accessible or recycled materials, the portability of the experiment and the creativity in the exposition.

The first 3 places were:

**First place: “Imagenes Fantasma” (Ghost images)**
When light receptors in the eye are overexposed for long periods of time to certain stimulus, in the relaxation process an image continue to appear, this phenomena is known as the afterimage effect.

**Second place: “Óptica de Pelos” (Hairy optics)**
Thanks to the diffraction phenomena we can know the width of a hair using a laser pointer and a single rule to measure the diffraction pattern.

**Third place: “Diffraction patterns and images”**
This experiment uses recycled materials to explain the diffraction phenomena and the effect it has on the formation of images.

The winner project received a tablet as a price and the privilege that it will be used in the Optics Outreach Games in the 2016 SPIE Optics and Photonics meeting.
VIII. National and International Meetings

This year there were several national and international meetings organized by CIO and the Academica Mexicana de Optica where the SPIE student chapter took part. In some of this meetings members of the chapter participated as a staff member, helping the activities such like the poster session.

a) “Participacion de la Mujer en la Ciencia” meeting

National meeting hosted in the facilities of CIO in Leon, Gto, where members of the chapter participated as part of the staff, helping in the logistic of the event.
Three of our officers travel to San Diego to attend the 2015 SPIE Optics and Photonics meeting. They participated in the Student Chapter Leadership Workshop, where they could improve their leader capabilities and had the chance to interact with students from all over the world.

The CIO Student Chapter participated in the Poster Exhibition showing the activities the chapter does along the year. The poster exhibition is a great opportunity to get new ideas of activities a chapter could implement that were tested in another chapter, saving time knowing what things should be or shouldn’t be done.

Celebrating the 60th anniversary of SPIE, our officers expressed their prediction on how optics will chance the world in the next 60 years, participating in a contest to win tickets for a dinner. Unfortunately our guys could make it but we hope their predictions become true someday.
In 60 years, optics will revolutionize healthcare with noninvasive and nondestructive diagnostics and treatments.
c) Mexican Optics and Photonics Meeting (MOPM)

This Mexican meeting is organized every two years by the Academia Mexicana de Optica (AMO). This occasion the guest of honor was the 2014 Nobel Prize winner Prof. William Moerner.

The SPIE Student chapter from CIO was invited to participated in the activities, including the reception dinner, where our officer meet Prof. Moerner and many other researchers who work in the field of optics in universities and research centers in Mexico.
d) **Mexican Student Chapter Meeting**

During the MOMP, four Mexican student chapters gather for a talk with representatives of three international scientific societies: OSA, SPIE and RIAO.
IX. Visit from Prof. Yatagai

On August the 2015 SPIE president, Prof. Toyohiko Yatagai visited Mexico and the chapter had the chance to talk to him in an informal chat.

Our members could know his research field, his personal experience working in optics and the great effort the SPIE society is making to reach young people to like science and to encourage them to make a positive change in their lives.
X. New Students Welcome

On September, new students began their way in optics and to give them a warm welcome, our president was invited by our Academic Director, Prof. Luis Armando Diaz Torres, to give a speech to motivate new students to take advantage of all the opportunities to enhance their carriers using the resources the center has for them.

He also invited new students to join the chapter and be part of the SPIE society and get all the benefits from the membership.
XI. Coffee Science

The interaction between chapters in Mexico is constant and rewarding. We share the successful activities to promote science and try to organize national events.

One activity that showed to be really successful was the “Coffee Science”, first executed by the Universidad de Guadalajara Chapter, is a single but effective strategy to bring students and researchers together. The chapter invites a researcher to talk about their personal experience in science and did they manage to get to their current positions.

In this occasion we invited Prof. Ricardo Flores, who talked about his experience working on research and industry projects.
XII. “Dia de Muertos” / Pizza Party

In an effort to preserve our cultural traditions, the SPIE chapter set an “Altar de muertos”, a Mexican tradition to remember friends or family who died. In this case, we remember scientist who change the way we see the world, nature or science, such as Einstein, Edison or Marie Curie.

Once we finish the altar, we ate pizza and "pan de muerto" (Mexican bread of the dead).
5) Future Activities

- **New T-shirts.** As a way to motivate new members we organize a contest to design the new T-shirt for the chapter, the winner was Yoshio Castillejos. The new shirts are been done and will be given for the new members or for those who renew their memberships.

- **Coffee science.** For the second time in this year we will have a researcher to talk about his experience in science. This occasion Prof. Zacarias Malacara will share his time with students.

- **Recruitment activity.** On November we will organize our second recruitment activity to get more people into the chapter. We will have pizza and the new T-Shirts.

- **2016 Officer’s election.** Trying to give more time for planning, the elections for the new officers will be held on November.

- **10th Anniversary party.** We will celebrate our anniversary with a party.

- **Posada (Christmas Party).** To close this year’s activities, we will gather to celebrate the end of another year of work.

- **Photography contest.** Every year we organize a photography contest with two categories: Scientific and artistic.
6) Financial Balance (currency: USD)

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<th>Description</th>
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<td>Khet tournament awards</td>
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Balance 2015

| Total | $1,151.67 | $294.31 | $857.36 |