Annual Report

SPIE CIO student Chapter
November 2017

Centro de Investigaciones en Óptica, A.C.
Loma del Bosque #115, Lomas del Campestre. 37150
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1. Introduction

The SPIE Student Chapter from the Centro de Investigaciones en Óptica, A.C. (CIO), is located in the city of León, Guanajuato, Mexico. This Chapter has the purpose of create outreach activities for students for encourage them to pursue a carrier in optics and photonics. Also the chapter does several outreach activities for the local community directed to students of different school levels (primary, junior high school, high school and university).

The Student chapter also promotes the interaction between bachelor, high school students and postgraduate students from our institution and other institutions and universities.

In this annual report we present the activities carried out during the period of December 2016 to November 2017. Some of the most representative activities were: Photography contest 2017, Homemade outreach kit contest 2017, among several other activities involving bachelor and high school students.

We acknowledge 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 the support provided to carry out all the activities promoted by the SPIE CIO student chapter.
2. Student chapter officers 2017

<table>
<thead>
<tr>
<th>President</th>
<th>Vice-President</th>
</tr>
</thead>
<tbody>
<tr>
<td>MARIBEL JUAREZ HERNANDEZ</td>
<td>FRANCISCO JAVIER GANTES</td>
</tr>
<tr>
<td>SPIE ID: #3611500</td>
<td>NUÑEZ</td>
</tr>
<tr>
<td><a href="mailto:mjuarez@cio.mx">mjuarez@cio.mx</a></td>
<td><a href="mailto:gantes@cio.mx">gantes@cio.mx</a></td>
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<table>
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<tr>
<th>Treasurer</th>
<th>Secretary</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSCAR ANDRES NARANJO MONTOYA</td>
<td>JORGE EDUARDO AGUIRRE</td>
</tr>
<tr>
<td>SPIE ID: #3643775</td>
<td>ROCHA</td>
</tr>
<tr>
<td><a href="mailto:oscarnaranjo@cio.mx">oscarnaranjo@cio.mx</a></td>
<td><a href="mailto:eduaguirre@cio.mx">eduaguirre@cio.mx</a></td>
</tr>
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</table>

3. Elected officers 2018

<table>
<thead>
<tr>
<th>President</th>
<th>Vice-President</th>
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<tbody>
<tr>
<td>IOSVANI MORÉ QUINTERO</td>
<td>ERICK IPUS BADOS</td>
</tr>
<tr>
<td>SPIE ID: #4081261</td>
<td>SPIE ID: #3520792</td>
</tr>
<tr>
<td><a href="mailto:imore@cio.mx">imore@cio.mx</a></td>
<td><a href="mailto:eripus@cio.mx">eripus@cio.mx</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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<th>Secretary</th>
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<tr>
<td>TAKAWIRA JOSEPH MUMANGA</td>
<td>CLARA VALENTINA RUIZ</td>
</tr>
<tr>
<td>SPIE ID: #3643775</td>
<td>MOLINA</td>
</tr>
<tr>
<td><a href="mailto:takah@cio.mx">takah@cio.mx</a></td>
<td><a href="mailto:clararumo@cio.mx">clararumo@cio.mx</a></td>
</tr>
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<tr>
<th>Second- Secretary</th>
</tr>
</thead>
<tbody>
<tr>
<td>JOSE LUIS SILVA ACOSTA</td>
</tr>
<tr>
<td>SPIE ID: #4062062</td>
</tr>
<tr>
<td><a href="mailto:luissilva@cio.mx">luissilva@cio.mx</a></td>
</tr>
</tbody>
</table>
4. Chapter members 2017

During this year the chapter recruited the quantity of 24 new members. Most of our new members are students of our Institution, but several other members are from other institutions. Many students will receive their grade as Master in Science or PhD Degree. This is the current list of members:

<table>
<thead>
<tr>
<th>No.</th>
<th>NAME</th>
<th>No.</th>
<th>NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Alejandro Arredondo-Santos</td>
<td>22.</td>
<td>Josue Miguela Gallardo</td>
</tr>
<tr>
<td>7.</td>
<td>Gabriel Correa Chavez</td>
<td>27.</td>
<td>Monica Ortiz Martinez</td>
</tr>
<tr>
<td>10.</td>
<td>Mario Flores-Bustamante</td>
<td>30.</td>
<td>Teresa Porraz Culebro</td>
</tr>
<tr>
<td>12.</td>
<td>Maria Fernanda Gonzalez-Rodriguez</td>
<td>32.</td>
<td>José De Jesús Robles Pérez</td>
</tr>
<tr>
<td>13.</td>
<td>Brenda Guzman Valdivia</td>
<td>33.</td>
<td>Pedro Pablo Rocha Garcia</td>
</tr>
<tr>
<td>14.</td>
<td>Axel Herrera Cabrera</td>
<td>34.</td>
<td>Osvaldo Rodríguez Quiroz</td>
</tr>
<tr>
<td>15.</td>
<td>Julio Andres Inglesias Martinez</td>
<td>35.</td>
<td>Clara Valentina Ruiz Molina</td>
</tr>
<tr>
<td>16.</td>
<td>Erick Ipus Bados</td>
<td>36.</td>
<td>Amanda Salas-Caridad</td>
</tr>
<tr>
<td>17.</td>
<td>Laura Alejandra Ireta Muñoz</td>
<td>37.</td>
<td>Jose Luis Silva Acosta</td>
</tr>
<tr>
<td>18.</td>
<td>Takawira Joseph Mumanga</td>
<td>38.</td>
<td>Juan Vicente Sosa Balderas</td>
</tr>
<tr>
<td>20.</td>
<td>Jesus Pablo Lauterio-Cruz</td>
<td>40.</td>
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</table>
5. Activities 2017


Prof. Robert A. Lieberman (2017 elected president of SPIE) visited our institution, Centro de Investigaciones en Óptica, A.C., (CIO) and gave a conference about his work in optical sensing and monitoring.

He also had a nice time with the SPIE members, where he talked to them and encouraged them to pursue a carrier in optics and photonics. He also talked about the benefits of being part of SPIE chapter and to create links between researchers around the globe. We offered him a tour to show him the CIO facilities and laboratories.

Photograph 1. Jorge Sanchez, Maribel Juárez, Robert Lieberman, Jonathan Ávalos and Javier Gantes (left to right).
II. Photography contest 2017 (February 16, 2017)

We organized the 2017 photography contest where about 30 participants competed in the scientific category and artistic category with 50 photographs (25 in the scientific category and 25 in the artistic category).

The winners were elected by a group of judges composed by two researchers of CIO and two professional photographers. They evaluated the technical work of the participants in both categories. They received awards (pen drives, books and notebooks).

In order to host the event we offered soft drinks and snacks to people who came to see the pictures (around 60 people assisted to the event).

The winners were:

Scientific category: Paula Cutiva Inti (first place)  
José Hernández Delgado (second place)  
Sergio Calixto (third place)  
Artistic category: Guadalupe López Morales (first place)  
Belem Mancilla Éscobar (second place)  
Maria Fernanda González (third place).
Photograph 3. Photography contest II

Photograph 4. Photography contest III.

Photograph 5. Artistic photograph contestant.
III. Khet tournament for CIO’s 37th anniversary, March to April, 2017

The CIO-SPIE student chapter organized the “khet: laser game” tournament for the 37th anniversary of CIO. Were six participants faced each other to win the first and second place in the tournament.

The tournament last one month and a half. (Awards were given to the contestants, such t-shirts, pen drives, notebooks and laser pointers).

Photograph 6 Khet tournament II.

Photograph 7. Khet tournament awards.
IV. Table Tennis tournament 2017, March to April, 2017.

An institutional table tennis tournament (Ping-Pong) was organized in which 20 participants faced each other (all of them members of the CIO community). The first 2 places were rewarded the day of the 37th Anniversary of the CIO, (Awards were given to the winners of first and second place, such t-shirts, pen drives, notebooks and laser pointers).
V. **CIO-SPIE-OSA Cinema club 2017**

A CIO-SPIE-OSA cinema club was organized, in conjunction with the CIO's communication department. This cinema club exhibits films related to science and technology, monthly.

Popcorn and soft drinks are offered to the assistants.

At the end of each projection there is a debate about the film in order to involve the viewers to bring the subject to real life.

The cinema club has attracted more than 200 people of all ages, during the year.

[Photograph 10. Cinema club I.]

[Photograph 11. Cinema club II.]
VI. Recruitment activities, pizza parties

In order to celebrate the student's day and welcoming new students, the SPIE-OSA chapters organized pizza parties (twice a year). We offered pizza and soda, to all attendees.

In this kind of activities, new students hang out with senior students, to meet and share academic experiences.

In addition the attendees meet the chapters (SPIE-OSA), and the activities that we organize during the year, and they have the chance to know about the benefits they could get from international societies such SPIE and OSA. People, who are interested in joining the student chapters have a great opportunity to do it. Approximately 40 CIO students attended to this kind of meetings, and more than half are member of the SPIE and/or OSA.
Photograph 14. Recruitment

Photograph 15. SPIE and OSA Members of CIO.
VII. Outreach activities, June- July, 2017.

The student chapters often do outreach activities for bachelor, and high school students.

Students have the opportunity to learn about basic principles of optics such as: polarization, optical fibers, metrology, lasers and lens design.

We often use the outreach kit provided by SPIE and OSA, like the (Light Blox science kit) and (Optics suitcase). These kits are very useful since show very effectively how light works and how we use it in real life. Different light phenomena can be explained using these kits such: polarization, refraction and reflection of light, and diffraction.

We have offered outreach activities for approximately 80 high school and bachelor students.

In addition we organized a scientific cinema projection to students who come to CIO for summer activities.

Photograph 16. Outreach activities I.
Photograph 17 Outreach activities II.

Photograph 18. Outreach activities III.
Photograph 19. Outreach activities IV.

Photograph 20. Outreach activities V.
VIII. **Khet tournament for Bachelor students**  
(Universidad tecnológica de León and Summer school students)

CIO student chapters supported the organization of a Khet tournament, for the Universidad Tecnológica de León (UTL) with the support of the CIO's outreach department.

The agreement between CIO-UTL allows CIO students to become involved in outreach activities and support for extracurricular activities at the University. A total of 20 participants signed up for the tournament. We offered them soft drinks and snacks during the tournament.

Every year CIO invites up to 30 bachelor students to visit our institution laboratories and make a month stay working in a research project. In order to improve the experience of these young students Khet tournaments were organized with the summer school students.
Photograph 22. Khet tournament for Bachelor students II.

Photograph 23. Khet tournament for bachelor students (3).
IX. Participation in SPIE Optics and Photonics 2017

1. One of our officers traveled to San Diego to attend the SPIE Optics and Photonics meeting 2017. He participated in the Student Chapter Leadership Workshop. He learned about some important issues concerning leadership and planning. He had the opportunity to interact and talk with other officers around the globe.
Also contact with other officer chapters in Latin-America, gives to our chapter to have a better contact and interaction, for planning several activities in the future.

This workshop is important because gives us many tools for improve our skills for chapter management.

Photograph 25. Student leadership workshop.

Photograph 26. Student leadership workshop (2).
2. Also our chapter participated in the student chapter poster exhibition show. We had the opportunity to show our chapter activities during the year.

The poster exhibition it is important, since is a great opportunity to get new ideas of activities that our chapter could do in the future.

We can talk to the officers about these activities and ask them about their difficulties and solutions for getting these activities done.
3. We also have the opportunity to participate in the Optics Outreach Games 2017. We presented an original outreach kit made by the CIO officers. This kit was called “Reflection and polarization puzzle”. This activity kit aims students to learn about some basic principles of optics, particularly the laws of reflection and polarization of light.

This outreach kit was made with easy to get and recycled materials. This kit can be made with a minimal cost (around $30USD).

![Photograph 29. Optics outreach kit “Reflection and polarization puzzle”.](image)

![Photograph 30. Optics outreach kit “Reflection and polarization puzzle” (2).](image)
Photograph 31. Optics outreach kit “Reflection and polarization puzzle” (3).

Photograph 32. Optics outreach kit “Reflection and polarization puzzle” (4).
X. **Eclipse observation, August 21th 2017**

With the support of SPIE and the CIO outreach department, we could organize an eclipse observation for students of local high schools and people of all ages.

SPIE provided the eclipse observing glasses (70 pair of glasses were requested).

We had the participation of more than 100 people. Soft drinks and snacks were offered to people who attended to this activity. We gave a little talk about the eclipses and the safe ways to observe the eclipse directly and un-directly.

![Photograph 33. Eclipse observation 2017.](image)

![Photograph 34. Eclipse observation 2017 (2).](image)
Photograph 35. Eclipse observation 2017 (3).


Photograph 37. Eclipse observation 2017 (5).
XI. Visiting lecturer, Prof. Mario Fernando Ferreira (Portugal).

Professor Mario Fernando Ferreira visited CIO through the SPIE visiting lecturer program (September 27 to September 30 2017). He gave a special seminar in our institution about “Non-linear effects in optical fibers”; students and researchers assisted to this seminar.

1. Professor Ferreira gave a special seminar, were about 100 people attended; among the people who attended to the seminar were included students from our institution and others institutions, researchers, and technicians.
2. After Prof. Ferreira’s seminar some students have the opportunity to talk personally with him and ask him questions about his field (as coffee science activity). Students also explained Prof. Ferreira their interests and their research fields, in order to have a professional interaction.
3. We also gave Prof. Ferreira a tour around CIO facilities and laboratories, were students and researchers had the opportunity of show their work.

Photograph 42. Laboratories tour

Photograph 43. CIO Laboratories tour II.
4. We also took Prof. Ferreira to go for Mexican food, and spent the rest of the day in a tour to show him our city and the capital of our State.

I. Recruitment activities

As a way to recruit new SPIE members we organize pizza parties. We explain to new students the benefits of being part of the chapter and having a SPIE or OSA membership.

We give the chapter T-Shirt to new memberships and those who renew their membership. The logo of the T-shirt is renewing every year in order to motivate students to join the student chapter.

II. Coffee science

We invite a researcher (local or foreign) to talk about his/her experience in a science/research area, and to give advice for students who pursue a carrier in optics and photonics.

III. Photography contest 2018

As an annual activity the Student chapter organizes the photography contest which has two main categories: scientific and artistic. In carrying out this activity we intend to involve students in activities to promote their scientific fields.

IV. Home-made Optics outreach kit contest 2018

The student chapter tries to annually organize the Home-made outreach kit contest. This outreach kit must have accessible and easy to get (recycled preferred) materials with the purpose to explain light or optics related phenomena.

V. CIO-SPIE-OSA Cinema club 2018

The student Chapter will project scientific related films and at the end of the film make a short debate about the film´s scientific topic, in order to promote science in a more appealing way.
VI. Optics games activities with Bachelor students

In collaboration with our institution (CIO), the student chapter will participate in activities directed to bachelor students who come to our institution for do research work in our laboratories. During the summer short term stay we get involved with them to encourage them to study a carrier in optics and photonics.

VII. Visiting lecturer

We will use the visiting lecturer program to bring a foreign researcher to our institution to talk about his area of research.

VIII. Contribute to organize the first “Escuela latinoamericana de Óptica” ELO.

We will try to collaborate with other SPIE and OSA chapters in our country and other Latin-American countries to prepare a first Latin-American Optics School.

7. Financial balance 2017

*Currency: USD*

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<th>Description</th>
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<td>Recruitment activities (Twice a year)</td>
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<td>Tournaments (Khet and ping pong)</td>
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*(Conversion: 18 MXN/USD)*