2019 SPIE Student Chapter Annual Report

Prepared by:
Teresa Cerdà Astorga
President

Ana Elizabeth Espinosa Mómx
Vice-president

Alberto Ascencio Rodríguez
Treasurer

José Antonio Cisneros Martínez
Secretary
Executive Summary:

The Instituto Nacional de Astrofísica, Óptica y Electrónica (INAOE) Chapter was established in August of 2005 with the main goal of optics divulgation. We work in constant collaboration with the OSA chapter and the Science Communication department of INAOE, and a few times with the IEEE chapter of our institution.

The main purpose of our chapter is to raise awareness among the members about the importance of bringing the knowledge of optics to all people. We do this through outreach activities that take place around our entire state. In this matter, this year has been a very busy one for us. At least once a month we have participated in outreach activities, visiting different schools and being invited by several organizations.

In order for us to teach others, we strongly believe it is important to grant each member the necessary resources for their professional development; we find this resources through the chapter by academic and networking opportunities.

The main challenge we faced this year was the inclusion of all the ideas and proposals of each member in our general project. Sometimes it is difficult to accept different ways of thinking than ours. However, we managed to leave our differences behind and create an atmosphere of camaraderie among all the members.

Contact Information:

For general questions about our chapter, please email our chapter advisor, Rubén Ramos García, at rgarcia@inaoep.mx
Facebook Page: http://www.facebook.com/osa.spie.inaoe
Twitter: https://twitter.com/INAOE_OSA_SPIE

2018 - 2019 Officer Listing:

Joan Manuel Villa-Hernández
President
4th year Ph.D. Student
joan.black3@hotmail.com
Diana Castán-Ricaño
Vice-president
4th year Ph.D. Student
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Treasurer
3rd year Ph.D. Student
edgarbra@gmail.com

Julio César Juárez Ramírez
Secretary
jcgjuarezramirez@gmail.com
2019 – 2020 Officer Listing:

Teresa Cerdà Astorga
President
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Ana Elizabeth Espino
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1st year Master's Student
aneliespinosam@gmail.com

Alberto Ascencio Rodríguez
Treasurer
2nd year Ph.D. Student
j.albertoar10@gmail.com
Student and Community Membership

At the time of this report, there are 19 student members affiliated to the INAOE Chapter.

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
<th>Expected Grad Month/Year</th>
<th>SPIE Membership Expiration Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jorge Alvarado-Martínez</td>
<td><a href="mailto:jorgedejesusalvaradomartinez@gmail.com">jorgedejesusalvaradomartinez@gmail.com</a></td>
<td>January 2021</td>
<td>25 February 2020</td>
</tr>
<tr>
<td>Alberto Ascencio Rodríguez</td>
<td><a href="mailto:j.albertoor10@gmail.com">j.albertoor10@gmail.com</a></td>
<td>August 2022</td>
<td>19 September 2020</td>
</tr>
<tr>
<td>Diana Castán-Ricaño</td>
<td><a href="mailto:diana.ncr@gmail.com">diana.ncr@gmail.com</a></td>
<td>January 2020</td>
<td>5 March 2020</td>
</tr>
<tr>
<td>Teresa Cerda Astorga</td>
<td><a href="mailto:tere_shul@hotmail.com">tere_shul@hotmail.com</a></td>
<td>August 2021</td>
<td>19 July 2020</td>
</tr>
<tr>
<td>Jose Antonio Cisneros-Martínez</td>
<td><a href="mailto:j.antonio.cisneros.mtz@gmail.com">j.antonio.cisneros.mtz@gmail.com</a></td>
<td>August 2023</td>
<td>3 December 2019</td>
</tr>
<tr>
<td>Ana Elizabeth Espinosa Mónox</td>
<td><a href="mailto:aneliespinosasam@gmail.com">aneliespinosasam@gmail.com</a></td>
<td>August 2021</td>
<td>19 September 2020</td>
</tr>
<tr>
<td>Naara González Viveros</td>
<td><a href="mailto:naara.gv@gmail.com">naara.gv@gmail.com</a></td>
<td>January 2021</td>
<td>4 March 2020</td>
</tr>
<tr>
<td>Verónica Hernández Arreola</td>
<td><a href="mailto:veronica.hdez.a@gmail.com">veronica.hdez.a@gmail.com</a></td>
<td>August 2021</td>
<td>15 July 2020</td>
</tr>
<tr>
<td>Julio César Juárez Ramírez</td>
<td><a href="mailto:jcgjuarezramirez@gmail.com">jcgjuarezramirez@gmail.com</a></td>
<td>August 2020</td>
<td>22 January 2020</td>
</tr>
<tr>
<td>Ayubu Mbaga</td>
<td><a href="mailto:ambaga@inaoep.mx">ambaga@inaoep.mx</a></td>
<td></td>
<td>22 November 2020</td>
</tr>
<tr>
<td>Cruz Peréz Corona</td>
<td><a href="mailto:lizpeco@gmail.com">lizpeco@gmail.com</a></td>
<td>January 2020</td>
<td>30 June 2020</td>
</tr>
<tr>
<td>Diana Isabel Martínez López</td>
<td><a href="mailto:isabelml@inaoep.mx">isabelml@inaoep.mx</a></td>
<td>August 2021</td>
<td>19 September 2020</td>
</tr>
<tr>
<td>Guadalupe Nayeli Perez Esquivel</td>
<td><a href="mailto:nayeliperez.mr@gmail.com">nayeliperez.mr@gmail.com</a></td>
<td></td>
<td>3 December 2019</td>
</tr>
<tr>
<td>Berenice Posada-Ramírez</td>
<td></td>
<td>August 2020</td>
<td>2 May 2020</td>
</tr>
<tr>
<td>Leidy Johana Quintero-Rodríguez</td>
<td></td>
<td>August 2021</td>
<td>31 August 2020</td>
</tr>
<tr>
<td>Julián Ramírez Ramírez</td>
<td><a href="mailto:jramirez_r@hotmail.es">jramirez_r@hotmail.es</a></td>
<td>January 2020</td>
<td>29 November 2019</td>
</tr>
<tr>
<td>Elizabeth Saldivia Gómez</td>
<td><a href="mailto:elizabeth.saldivia.7@gmail.com">elizabeth.saldivia.7@gmail.com</a></td>
<td>August 2022</td>
<td>30 January 2020</td>
</tr>
<tr>
<td>Julio Aurelio Sarabia-Alonso</td>
<td><a href="mailto:julio.sarabia@inaoep.mx">julio.sarabia@inaoep.mx</a></td>
<td>January 20</td>
<td>7 June 2020</td>
</tr>
</tbody>
</table>
Activities Report

**International Day of Women and Girls in Science**  
Organizer: Communications department BUAP  
Date/time/location: February 11th 2019, from 10 am- 2pm, Ciudad Universitaria, Puebla  
Participants: 100 people approx.  
Cost: N/A

Returning from the leadership workshop at Photonics West, we participated in the celebration event of The international day of Women and Girls in Science held at the BUAP facilities in Puebla. The main goal of this event was to encourage female students to pursue science careers and to show the importance of having more women in this field.

**Mathematical Science Fair in Atlixco**  
Organizer: Communications department of INAOE  
Date/time/location: March 22th 2019, all day, Atlixco, Puebla  
Participants: 80 people approx.  
Cost: N/A

In this event we attended to a local science fair where we showed different experiments related to light. In this event we had a younger audience and we were able to explain basic concepts of optics. Organizers were very happy with the students response to our activities, so we were selected for an interview for the local radio.
Exhibition in a local congress
Organizer: Communications department of INAOE
Date/time/location: March 23th 2019, from 10 am- 2pm, Tonanzintla, Puebla
Participants: 80 persons approx.
Cost: N/A
Our institute hosted a small high school students congress. We participated showing experiments during the poster sessions.
Congreso de Tópicos Avanzados de Óptica y Electrónica CTAOE (Advanced Topics in Optics and Electronics Congress)
Organizer: All the chapter officers from the SPIE chapter and OSA chapter
Date/time/location: April 23th - 26th 2019, all day, Tonanzintla, Puebla
Participants: Over 100 people
Cost: $227.08

As a chapter tradition, a small event is held to which chapters from all over the country are invited. On this occasion we collaborated with members of other student chapters (IEEE and OSA), to increase the impact, turning the event into a small congress. We had the economic support of the state government and our institute.
Book Fair in Tonantzintla
Organizer: Communications department of INAOE
Date/time/location: April 26th 2019, all day, Tonantzintla, Puebla
Participants: 40 people approx.
Cost: N/A.

We attended to the book fair in the city where our institute is located, to participate with experiments and activities for young people where basic concepts of optics were explained.
Science in the Market
Organizer: Communications department of INAOE
Date/time/location: Abril 27th 2019, from 10 am- 4pm, Zapata Market, Puebla
Participants: 50 people approx.
Cost: N/A.

The communications department of INAOE invited us to participate in a new program called "Ciencia en el Mercado" that aims to bring science to different types of public. We prepared simple workshops and talks given in two of the largest markets in Puebla; in this occasion we worked in collaboration with the OSA chapter and the Astrophysics department.
Visit to Azumiatla
Organizer: Communications department of INAOE
Date/time/location: May 03th 2019, from 12 am- 3pm, Azumiatla, Puebla
Participants: 50 people approx.
Cost: N/A.

We attended to two local elementary schools in a small town to give small workshops and show different experiments related to light, teaching basic optics concepts to the children.

Science in the Market
Organizer: Communications department of INAOE
Date/time/location: May 11th, from 10 am- 4pm, Hidalgo Market, Puebla
Participants: 50 people approx.
Cost: N/A.

The communications department of INAOE invited us to participate in a new program called "Ciencia en el Mercado" that aims to approach science to a different type of public. We prepared simple workshops and talks given in two of the largest markets, prepared in collaboration with the OSA chapter and the Astrophysics department.
International Day of Light: Cholula
Organizer: All the chapter officers from the SPIE chapter and OSA chapter
Date/time/location: May 18th 2019, from 9 am- 5pm, Cholula, Puebla
Participants: 100 people approx.
Cost: N/A.

This year, an outreach event was held in collaboration with the communications department of INAOE, the OSA chapter, the WIO group and various others scientific groups. Our goal was to celebrate the importance of light through different activities

Visit to CECYTE Guadalupe Victoria
Organizer: All the chapter officers from the SPIE chapter and OSA chapter
Date/time/location: June 20th 2019, from 12 am- 3pm, Guadalupe Victoria, Puebla
Participants: 60 people approx.
Cost: N/A.
As a request of a chapter member, we visited a small high school in his community to give some small talks and show experiments to young people interested in science.
End of period meeting
Organizer: All the chapter officers from the SPIE chapter and OSA chapter
Date/time/location: July 15th, 2019, from 4-6pm, Tonanzintla, Puebla
Participants: 15 students (master and Ph.D. students)
Cost: $30 (For snacks and refreshments.)
Small meeting with snacks and different games before holiday period.
Visit to Nealtican.
Organizer: Communications department of INAOE
Date/time/location: August 30th 2019, from 3 pm- 6pm, Nealtican, Puebla
Participants: 10 people approx.
Cost: N/A.

A visit to a community in a small town. We attended two local elementary schools.
**Visit of Enrique Tajahuerce**
Organizer: All the chapter officers from the SPIE chapter and OSA chapter
Date/time/location: October 1st 2019, from 4-7pm, Tonanzintla, Puebla
Participants: 30 students (master and Ph.D. students from several research areas such as electronics, computational and astrophysics)
Cost: $75.87 (For the meal and coffee)

Our traveler grant of this year was Ph.D. Enrique Tajahuerce, who attended to the RIAO-OPTILAS-MOPM 2019 and also visited INAOE to present a couple of talks in the workshop "Turbid media and imaging in microscopy". Moreover, we had a special meeting with him and the chapter’s members in which he talked about his work and life experiences. Then we share a meal in the archeologic zone of Cholula after a guided tour through the area.

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**Opto-retos**
Organizer: All the chapter officers from the SPIE chapter and OSA chapter
Date/time/location: October 18th 2019, from 4-9pm, Tonanzintla, Puebla
Participants: 30 students (master and Ph.D. students from several research areas such as electronics, computational and astrophysics)
Cost: $88.35 (For hot dogs and refreshments.)
One of our activities is to hold small meetings with our members to have fun, talk and seek support in the other activities. We organized some games and we rewarded the winners of each game with some presents. It was a fun afternoon.

Jornadas del Conocimiento (knowledge days)
Organizer: Communications department from INAOE and chapter officers
Date/time/location: October 23th -24th 2019, 11am-1pm INAOE, Tonanzintla, Puebla
Participants: 200 people approx.
Cost: N/A
The communications department of INAOE asked us to prepare experiments exhibitions for the visit of local schools that want to know the institution's facilities in the event called: Jornadas del Conocimiento. For this occasion, we taught them about reflection, refraction, polarization and diffraction.

Science exhibition in Ciudad Serdán
Organizer: Communications department from INAOE and chapter officers
Date/time/location: October 25th 2019, all day, Ciudad Serdán, Puebla
Participants: 500 people approx.
Cost: N/A

The communications department of INAOE asked us to visit Ciudad Serdán with some other people from the institute to present science activities for kids in a science exhibition.
Visit to a local school
Organizer: Analine Teutle (teacher from Coronango) and Teresa Cerdà Astorga
Date/time/location: October 28th 2019, from 4-6 pm, Zoquiapán, Puebla
Participants: 4 students from the chapter and 30 kids from Zoquiapán
Cost: N/A

The communications department of a local school from Coronango, Puebla, asked us to prepare a talk and carry some science exhibitions to a school in Ocotlán. We taught them about polarization and diffraction and we made a cartoon that describes optical illusions.
Visit to a local school
Organizer: Analine Teutle (teacher from Coronango) and Alberto Ascencio Rodriguez
Date/time/location: October 29th 2019, from 4-6 pm, Ocotlán, Puebla
Participants: 4 students from the chapter and 120 kids from Ocotlán
Cost: N/A.

The communications department of a local school from Coronango, Puebla, asked us to prepare a talk and carry some science exhibitions to a school in Ocotlán. We taught them about polarization and diffraction and we made a spectroscopy experiment with a piece of broken CD to show the composition of white light. There were the same demonstrations from October 28th, but they were presented by other students.
Recruitment
Organizer: All the chapter officers from the SPIE chapter and OSA chapter
Date/time/location: October 31st, 2019, from 4-9 pm, INAOE, Tonanzintla, Puebla
Participants: 40 students (master and Ph.D. students from several research areas such as electronics, computational and astrophysics)
Cost: $75.82
As a tradition in the chapter, we held an event focused solely on the recruitment of newly admitted students to the institute. Due to the time of the year we decided to make the recruitment with a Halloween theme. We invited potential new members and old members, talked about the different activities of the chapter, prepared a small meal and helped them with everything necessary for their registration. Unlike previous years, interested electronics, biomedical and astrophysics students assisted. We also organized games and a custom contest to increase the fun.
2da reunión de divulgadores
(2nd scientific disseminators meeting)
Organizer: Communications department of INAOE
Date/time/location: November 1st, all day, Puebla
Participants: 40 people
Cost: N/A

We prepared a talk about our chapter to present it in the 2nd scientific disseminators meeting with the purpose of exchanging experiences and new ideas with other scientific dissemination group leaders.

XXI aniversario del Instituto Tecnológico Superior de Poza Rica
(21st anniversary of the Instituto Tecnológico Superior de Poza Rica)
Organizer: Communications department from the Instituto Tecnológico Superior de Poza Rica
Date/time/location: November 12-14th, all day, Poza Rica, Veracruz
Participants: 200 students (bachelor students from STEM careers)
Cost: N/A

On the occasion of the 21st anniversary of the Instituto Tecnológico Superior de Poza Rica, their communication department invited us to present science demonstrations and homemade
experiments to the university students. 8 students from the chapter attended to this; moreover all of them presented a talk about their Ph.D. research projects to encourage the students of the institute to continue with a master or a Ph.D. degree. It was a great experience to all of us because the Instituto Tecnológico Superior de Poza Rica and our Institute supported us to make this trip. Teachers and students enjoyed a lot the science exhibitions and made very good reviews of our activities.
Pictures of the students of the chapter during their talks
7th Photography Contest
Organizer: All the chapter officers from the SPIE chapter and OSA chapter
Date/time/location: November 29th, all day, Cholula, Puebla
Participants: 40 people + 200 attendants to the award ceremony
Cost: $5

As a tradition, our chapter organizes a photography contest within the institute. Unlike other years, the awards were held during the Christmas recital, attending a large public outside the INAOE. All participating photographs were exhibited in the auditorium lobby throughout the week, to achieve the greatest possible impact.
Winner Photos
Noche de las Estrellas (Star Night)
Organizer: Communications department of INAOE
Date/time/location: November 30th, all day, Cholula, Puebla
Participants: more than 1000 people
Cost: $30.75

One of our most traditional activities is to participate in events called star nights. They are big events where all people are invited to visit telescopes, workshops and science exhibitions.
In this part, we show all the expenses that our chapter has made in the mentioned activities. We must remark that while writing this report, we still have programmed activities in which we are planning to use the money. Also, we are preparing new teaching materials to improve our events.

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<th>Date</th>
<th>Description</th>
<th>Notes</th>
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<td>Anticipated End of Year Balance</td>
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**Conclusions and Recommendations**

This year we set the main objective to attend as many outreach events as possible. Big events are super fun, but we found out that even in the smallest ones, where few people came, there were many lessons to learn. We became very conscious of the huge impact that a simple experiment can have in a person. So our desire is to stay humble and to never stop spreading the love for science, in hopes for leading people to be aware of its importance on a daily basis and convincing the one young ones to pursue scientific careers.
We want to remark that this year we accomplished an improvement on our relationships with other student groups, inside and outside our institute. As mentioned, we managed to collaborate with electronics and astrophysics groups to carry out some events. At the same time, we made some new contacts with other chapters to collaborate in future events.

We highly recommend our successors to continue cultivating the relationships that were made and to maintain an optimistic spirit in the activities in which they could take part. Remember that the essence of the student chapter is the growth, not only academically and professionally, but also on a personal level for all the members.