Executive Summary:
The Univ. Nacional de Colombia - Medellin Chapter, “Capítulo Estudiantil de Óptica (CEO)” was established on 19 April 2007 and includes student members from SPIE, OSA, other undergrad students that take part in the activities. We hold weekly meetings and most activities on the main campus of National University of Colombia, Medellín Campus.

The purpose of our chapter is to support students, at all the different levels, in their professional careers, in optics, photonics and related fields by providing valuable academic resources, facilitating career development through networking opportunities, and representing the study of light to the public. We also thrive to bring new human resources to the fields of science and engineering through our outreach programs to the different schools we visit.

This year we had some of our already established events, such as the celebration of the international day of light, photography contest, among others. During IDL we filled the whole day with events, from a 5 kilometers run which had its results shared as refractive indexes, to plenary talks and experiments showcase.

One of the biggest challenges we face right now comes from generalized protests going on in the whole country, which in general have an impact in the daily life of students in our university, being a public institution. The academic calendar has been rearranged, extended and modified for several months and in general there is a concern about safety. Some of our activities where suspended or postponed awaiting an improvement of the conditions, and the reinstatement of classes.
Contact Information:
For general questions about our chapter, please contact us at out chapter email ceomede@gmail.com

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SPIE Website: https://spie.org/membership/student-services/student-chapters/student-chapter?chapter_id=1028825&SSO=1
Facebook Page: https://www.facebook.com/CEOUNALMED/
Instagram Page: https://www.instagram.com/ceounalmed

2018 - 2019 Officer Listing:

Maria Alejandra Ruiz Soto
Secretary
Engineering Physics Student
maaruizso@unal.edu.co

Sebastián Ocampo Gutiérrez
Treasurer
Master of Engineering Student
socampo@unal.edu.co

Samuel Ignacio Zapata Valencia
President
Engineering Physics Student
sizapatav@unal.edu.co
2019 – 2020 Officer Listing:
The application process is open at the moment, and election will take place during January 2020.

Student and Community Membership
At the time of this report, there are 18 student members affiliated to the Univ. Nacional de Colombia - Medellin Chapter and there are currently about 30 students involved in the activities throughout the year which are not yet part of

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<tr>
<th>Name</th>
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<tr>
<td>Juan Arango</td>
<td><a href="mailto:jujarangour@unal.edu.co">jujarangour@unal.edu.co</a></td>
<td>29-Jun-20</td>
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<tr>
<td>Juan Carlos Briñez de León</td>
<td><a href="mailto:jcbrinezl@unal.edu.co">jcbrinezl@unal.edu.co</a></td>
<td>31-Jul-20</td>
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<tr>
<td>Carlos Andrés Buitrago Duque</td>
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<td>20-Feb-20</td>
</tr>
<tr>
<td>Carlos Andrés Cabrera Anaya</td>
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<tr>
<td>Rafael Angel Casalins Hernandez</td>
<td><a href="mailto:rcasalins@unal.edu.co">rcasalins@unal.edu.co</a></td>
<td>27-Jun-20</td>
</tr>
<tr>
<td>Esteban Gonzalez Valencia</td>
<td><a href="mailto:egonzalv@gmail.com">egonzalv@gmail.com</a></td>
<td>23-Feb-20</td>
</tr>
<tr>
<td>Julián Laverde</td>
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<td>9-Sep-20</td>
</tr>
<tr>
<td>Diana Isabel López Chacón</td>
<td><a href="mailto:dilopezc@unal.edu.co">dilopezc@unal.edu.co</a></td>
<td>14-Dec-19</td>
</tr>
<tr>
<td>José Marrugo</td>
<td><a href="mailto:jlmarrugom@unal.edu.co">jlmarrugom@unal.edu.co</a></td>
<td>29-Jan-20</td>
</tr>
<tr>
<td>Silvia Melo</td>
<td><a href="mailto:scmelor@unal.edu.co">scmelor@unal.edu.co</a></td>
<td>4-Feb-20</td>
</tr>
<tr>
<td>Tatiana Muñoz</td>
<td><a href="mailto:tcmunoz@unal.edu.co">tcmunoz@unal.edu.co</a></td>
<td>2-Mar-20</td>
</tr>
<tr>
<td>Maria Julia Nieto Callejas</td>
<td><a href="mailto:mnietoc@unal.edu.co">mnietoc@unal.edu.co</a></td>
<td>7-Mar-20</td>
</tr>
<tr>
<td>Sebastián Ocampo Gutiérrez</td>
<td><a href="mailto:socampog8@gmail.com">socampog8@gmail.com</a></td>
<td>20-Feb-20</td>
</tr>
<tr>
<td>Estefanía Orrego Restrepo</td>
<td><a href="mailto:eorregor@unal.edu.co">eorregor@unal.edu.co</a></td>
<td>3-Aug-20</td>
</tr>
<tr>
<td>Heberley Tobón</td>
<td><a href="mailto:htobonm@unal.edu.co">htobonm@unal.edu.co</a></td>
<td>12-Mar-20</td>
</tr>
<tr>
<td>Sebastián Vergara Palacio</td>
<td><a href="mailto:severgarapa@unal.edu.co">severgarapa@unal.edu.co</a></td>
<td>30-Jun-20</td>
</tr>
<tr>
<td>Samuel Ignacio Zapata Valencia</td>
<td><a href="mailto:sizapatav@unal.edu.co">sizapatav@unal.edu.co</a></td>
<td>2-Mar-20</td>
</tr>
<tr>
<td>Erick Zora Guzmán</td>
<td><a href="mailto:ezorag@unal.edu.co">ezorag@unal.edu.co</a></td>
<td>21-Aug-20</td>
</tr>
</tbody>
</table>

Activities Report

Student Groups Fair
Exhibitors: Francisco Londoño, Samuel I. Zapata
Date/Time/Location: February 22, 2019 from 9-2 pm in Agora Building.
Participants: 50 students (Mostly Undergraduate Students)

As student chapter of National University of Colombia, we were invited to participate in the Student Groups Fair. There we prepared experiment displays to display our work to people and we gave them a short talk about what is our student chapter and what type of activities we organize. To this presentation attended approximately 50 people. It was a great chance to meet other groups doing all kinds of things in the University.
Discovering the World of Light with Teenagers: Liceo M.J. Caicedo
Organizer: Samuel I. Zapata, Andrés Jaramillo.
Exhibitors: Andrés Jaramillo, Sebastián Ocampo, José Luís Marrugo
Date/Time/Location: April 22, 2019 from 9-2 pm at Liceo Manuel José Caicedo in Barbosa municipality.
Participants: 40 last-school-year-students.

We went to a school called Liceo Manuel José Caicedo in Barbosa municipality where we divided some experiments in two different classrooms, the ones that require brightness: diffraction, colour theory, and polarization, and the ones that require darkness: phosphorescence vs fluorescence, geometric optics and prisms; one hour per classroom for a total amount of two hours. Finally, we talked about the University and answered questions about different physics topics, like quantum mechanics, special relativity and the wave-particle nature of light.
First semester Member Recruitment 2019-I
Organizer: Jane Doe, Communications Chair
Speaker: Samuel I. Zapata
Date/Time/Location: April 22, 2019 from 2:00-2:30 pm in 21-317.
Participants: 40 students.

We recruited some new members in the induction day of first semester students, we assisted to the physics engineering introduction talk and talked about the activities our student chapter develops, our objective to promote optics and photonics studies and research in the academic and social environment.

International Day of Light: ¡A la velocidad de la Luz! 5k Run
Organizer: Francisco Londoño, Samuel I. Zapata, Diana López, Sebastián Ocampo.
Date/Time/Location: May 16, 2019 from 8:30-11:00 am at National University of Colombia, Medellín campus.
Participants: 32 runners

In celebration of International Day of Light, we organized a 5 kilometers race around the University campus called “At the speed of light”. This was a typical run, with a twist: At the end of the race we gave to every runner their relative refractive index and what was their corresponding material, the scores where n values, as if they were photons running through a material. According to their performance, the first person of each category was given the speed of light in vacuum, and subsequent runner were given a relative speed to this reference.
International Day of Light: Astronomy for the Blind
Organizer: Camila Melo, Samuel I. Zapata
Speaker: Andrés Ruíz
Date/Time/Location: May 16, 2019 from 10:00-12:00 pm at 19-202.
Participants: 10 students

We invited Andrés Ruíz, Astrobiologist and Head of Cultural Management at Explora Park and Planetary of Medellín to direct this activity, exploring the sizes of the universe without using the sense of sight. This workshop is called "astronomy for the blind", because it is aimed to blind populations and is dedicated to interpreting the scales of the universe interactively, but for this workshop there were no people in disability condition, so it was a one hour talk and then it was a blindfolded session. Andrés Ruíz brought his suitcase which contained the solar system at scale, galaxies made with sugar grains and constellations in a helmet that represented the celestial sphere, among others.

International Day of Light: Physics Experiments Display
Organizer: José Marrugo, Samuel I. Zapata
Exhibitors: Francisco Londoño, Rafael Casalins, Sophia Blanco, José Builes.
Date/Time/Location: May 16, 2019 from 12-2 pm at The Chess Square.
Participants: Approximately 30 people.

We organized a display of physics experiments for everyone that were passing by; these experiments included diffraction grids, polarizers, slinkys, and hydrogels immerse in water, in such a way that the refraction index of the spheres would become comparable to the refraction index of water.
International Day of Light: Cosmic Telescopes Conference
Organizer: Samuel I. Zapata
Speaker: Prof. Carlos Molina Velásquez
Date/Time/Location: May 16, 2019 from 6 to 8 pm at Samuel Melguiso Auditorium.
Participants: 120 people

The closure of our celebration of the International Day of Light was a talk about cosmic telescopes, how nature itself can be used to look at other phenomena, in this case, using gravitational lensing to explore further out the universe. This conference was given by professor Carlos Augusto Molina Velásquez of the National University of Colombia in the Samuel Melguizo auditorium with a capacity for 167 people, starting at 6:00 pm. The conference discussed the history and origin of gravitational lenses and how they helped in the predictions of Einstein’s general relativity 100 years later, discussing what was believed to be true at different stages in human history.

18th SPIE’s Annual Student Leadership Workshop
Date/Time/Location: August 10, 2019 in Marriott Hotel, San Diego (CA)
Participant: Samuel I. Zapata

During the 2019 SPIE Student Leadership Workshop & Optics + Photonics Conference our 2019 president Samuel Ignacio Zapata Valencia assisted using the Officer Travel Grant. He enjoyed all the activities, bringing back knowledge, tons of networking experience and new ideas. He had the opportunity to meet other chapter from all over the world and share experiences and ideas on how to encourage outreach and career development locally. At right there is a photo in Student Leadership with Samuel’s first team and their poster and at left he got a photo with Meg in the Student Chapter poster exhibition.
**Niños Científicos Program**
Organizer: José Pablo Montoya, José Luís Marrugo, Sebastián Vergara, Heberley Tobón.
**Date/Time/Location:** Every Friday since September 27, 2019 to now, from 2-4 pm in La Iguaná neighborhood
**Participants:** 20 school students.

"Niños Científicos" It is a social impact program, designed in response to the need for support and dissemination of science in children's communities in areas marked by social and economic conflicts. The student chapter with the help of state entities reaches these areas and gives workshops and support to help the youngest see the world through science.

**Discovering the World of Light with Teenagers: Universidad Pontificia Bolivariana**
Organizer: Samuel I. Zapata, Julián Laverde.
**Exhibitors:** Sophia Blanco, Sebastián Ocampo, José Luís Marrugo, Camila Melo, Isabel Puerta, Julián Orozco, Julián Laverde, Samuel I. Zapata.
**Date/Time/Location:** September 26, 2019 from 10-1 pm in Universidad Pontificia Bolivariana
**Participants:** 50 last-school-year-students.

We divided the experiments in bases around a classroom, diffraction, colour theory, and polarization, phosphorescence vs fluorescence, geometric optics and prisms; one hour per classroom for a total amount of two hours. Finally, we talked about the University and answered questions about different physics topics, like quantum mechanics, special relativity and the wave-particle nature of light.
Scavenger Hunt
Organizer: Sebastián Ocampa, Carlos Buitrago, Samuel I. Zapata
Date/Time/Location: June 2019 National University of Colombia, Medellin campus
Participants: 8 teams, 24 people

This was a competition where each team consisting of 3 people will have a month to complete as many challenges as possible, out of a list of challenges aimed at getting to know better the university, the campus, the cultural agenda of the campus, the chapter activities and other members of the community. The proposal was aimed primarily at students of engineering physics as a first pilot, hoping to do many more, but everyone is always invited to join.
First semester Member Recruitment 2019-II

Speaker: Carlos A. Buitrago
Date/Time/Location: October 1, 2019 from 10:00-11:00 pm at 24-101.
Participants: 40 students.

Like activities described previously we recruited some new members in the induction day of first semester students, for the first semester of 2019, we assisted to the physics engineering introduction talk and had the chance to show the activities our student chapter develops and our objective to promote optics and photonics studies and research in our community.

A tour in the eye with light. OSA Lecturer: María S. Millán
Organizer: Samuel I. Zapata, Heberley Tobón.
Speaker: María S. Millán Professor at Universidad Politecnica de Cataluña (UPC)
Date/Time/Location: September 30, 2019 from 4:30-5:30 pm in 41-102.
Participants: 48 attendees, students and professors.

During the visit of Professor Maria Millan, an open talk was given to the public in which they went through a tour about optical phenomena that happened in the human eye.

Lunch with Professor Maria S. Millan
Organizer: Samuel I. Zapata, Heberley Tobón, Sebastian Ocampo.
Speaker: Maria S. Millán Professor at Universidad Politecnica de Cataluña (UPC)
Date/Time/Location: October 1, 2019 from 4:30-5:30 pm in 41-102.
Participants: 16 attendees, students and professors.

We had a lunch with Professor Millan where were talking about her research, women in the society and science and our expectations in Colombian and world society.
National University in Antioquia Subregions: Gomez Plata
Speaker: Heberley Tobón, Samuel Ignacio Zapata
Date/Time/Location: October 3, 7:00-5:00. Gomez Plata Municipality
Participants: 50 students 4, 5 and 6th grade.

“UN presente en las Subregiones” (UN present in the subregions) is a strategy from the National University of Colombia that aims to bring to the municipalities the knowledge and capabilities that are developed in the institution, while strengthening the cooperative bindings between the university and the far-established localities of Antioquia.

We were in Gomez Plata Municipality were distributed in two teams that spent the day learning by playing with experiments of polarization, color theory and diffraction. Additionally, we delivered toy-polarizers, diffraction grids and optical illusions to the assisting Science Teachers as material for their high-school lectures.

Halloween Student Chapters Integration
Organizer: Samuel Ignacio Zapata, Luisa Cely, Francisco Londoño, Erick Zora
Date/Time/Location: November 1, 2:00pm National University of Colombia, Medellin campus
Participants: University student chapters

It had been a while since the student chapters of National University met simply to pass time and have a relaxed afternoon. We played Chemical bingo and shared some snacks

National University in Antioquia Subregions: Yalí
Speaker: José Pablo Montoya, Heberley Tobon, Samuel Ignacio Zapata
Date/Time/Location: November 14, 7:00-5:00. Yalí Municipality.
Participants: 50 students 4, 5 and 6th grade.

In National University in Antioquia Subregions we also went to Yalí municipality were distributed in teams that spent the day learning by playing with experiments of polarization, color theory and diffraction. Additionally, we delivered toy-polarizers, diffraction grids and optical illusions to the assisting Science Teachers as material for their high-school lectures.
3rd Photography contest
Organizer: Camila Melo, Samuel I. Zapata.
Date/Time/Location: November 22.
Participants: 16 photographers and amateurs

The photography contest which was divided into two categories, "Natural phenomena", and "Devices and elements". An exhibition was made on facebook and instagram. Approximately 600 people were impacted by the contest. At 3:00 p.m the award ceremony was held. There were 3 jurors: Sebastian Vergara – Master in Physics student, Jerónimo Olarte López--Audiovisual and Multimedia Communication student of Universidad de Antioquia and Darío Alexander Lopez Arevalo – Photographer and Publicist at National University. They chose the winner for each category to whom a bonus of 30 USD was granted. In addition to this, the most voted photograph by the public during the exhibition was also given a symbolic prize.
**Treasurer’s Report**

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*Anticipated funding amounts based on chapter budget and last year’s costs/incomes.*