ANNUAL REPORT
(February 2019)

GENERAL INFORMATION

The chapter was established in August 2004 at University of Latvia, Raina Blvd. 19, Riga, LV-1586, Latvia.

Chapter advisor: Professor Janis Spigulis, director of Biophotonics Laboratory, Institute of Atomic Physics and Spectroscopy, janispi@lanet.lv.

LIST OF CURRENT MEMBERS

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Notes</th>
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<tbody>
<tr>
<td>1</td>
<td>Lasma Asare</td>
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<td>2</td>
<td>Artis Brasovs</td>
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<td>3</td>
<td>Inga Brice</td>
<td>Renewal in process</td>
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<td>4</td>
<td>Arturs Bundulis</td>
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<td>5</td>
<td>Raitis Grzibovskis</td>
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<td>6</td>
<td>Matiss Lacis</td>
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<td>7</td>
<td>Marta Lange</td>
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<td>8</td>
<td>Nellija Lace</td>
<td>Renewal in process</td>
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<td>9</td>
<td>Ilze Osina</td>
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<td>10</td>
<td>Karola Panke</td>
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<td>11</td>
<td>Tatjana Pladere</td>
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<td>12</td>
<td>Emilija Plorina</td>
<td>Renewal in process</td>
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<td>13</td>
<td>Martins Zeidaks</td>
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<td>14</td>
<td>Karlis Zuters</td>
<td>Renewal in process</td>
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<tr>
<td>15</td>
<td>Armands Ruduss</td>
<td>New member</td>
</tr>
<tr>
<td>16</td>
<td>Sabine Teifurova</td>
<td>New member</td>
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<tr>
<td>17</td>
<td>Viktorija Andriksone</td>
<td>New member</td>
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<td>18</td>
<td>Vals Liepins</td>
<td>New member</td>
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<tr>
<td>19</td>
<td>Andris Pavils Stikuts</td>
<td>New member</td>
</tr>
<tr>
<td>20</td>
<td>Priya Karthikeyan</td>
<td>New member</td>
</tr>
<tr>
<td>21</td>
<td>Kristine Misina</td>
<td>New member</td>
</tr>
</tbody>
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OFFICERS

President: Emilija Vija Plorina (SPIE ID: 4010343, evplorina@gmail.com);
Vice-President: Tatjana Pladere (SPIE ID: 3575657, tatjana.pladere@gmail.com);
Secretary: NelliJa Lace (SPIE ID: 4010340, lace.nelliJa@gmail.com);
Treasurer: Ilze Osina (SPIE ID: 3680218, osina.ilze@gmail.com).

From the left: Former officers: Matiss and Marta, and current officers: Tatjana, Emilija and Ilze
CHAPTER ACTIVITIES

International Young Scientists Conference “Developments in Optics and Communications 2018”

One of the biggest events in Latvian photonics and optics research life successfully took place in the middle of April, 2018. It was the 14th international young scientists conference “Developments in Optics and Communications 2018” (DOC Riga 2018). This conference was jointly organized by the University of Latvia SPIE student chapter and OSA Latvian student chapter.

Guest lecturers, students and organizers in the second Conference day

The purpose of this conference is to bring together students and young scientists working experimentally and theoretically in the fields of optics and photonics to share and exchange new ideas and to establish contacts for future collaboration. During two intense conference days, numerous oral and poster presentation were given about different topics in Laser Physics and Spectroscopy, Biophotonics, Optical Materials and Phenomena, Optics in Communications, and Vision Science.
The best oral presentation winner Sandhra Mirella Valdma from Estonia telling about single-shot fiber dispersion characterization with white light interferometry.

It was a pleasure to welcome more than 40 students and invited speakers from many countries: Sweden, Finland, Russia, Ukraine, Belarus, Estonia, Lithuania, Latvia and Poland. In DOC Riga conferences, the organizers make sure that not only the academic skills are being developed, but also a nice social event programme was being offered. Thus, we facilitated a great opportunity to get to know each other and other cultures, different countries that were represented in the conference.

Assoc. prof. Linda Lundström from the KTH Royal Institute of Technology (Sweden) gives an invited talk about peripheral correction for myopia control and macular degeneration.
Traditionally, the conference organizing team celebrates the high quality of research done by young scientists. This year, Sandhra Mirella Valdma from Estonia was awarded the prize for the best oral presentation and Mindaugas Juodenas from Lithuania – for the best poster presentation. Thanks to the SPIE Visiting Lecturer Program, the conference participants had an ultimate opportunity to enjoy the talk given by Professor Igor Meglinski from the University of Oulu. It should be added that the Conference was supported by the organizations SPIE, OSA as well as the University of Latvia.

Prof. Igor Meglinski from the University of Oulu (Finland) explains how optical tweezers can be used for examination of mutual interaction of red blood cells with nano-materials

Visit to OPTICS 2018 in Povo-Trento, Italy

The University of Trento SPIE Student chapter hosted the 6th International Symposium on Optics and Its Applications (OPTICS 2018) at the end of the February, 2018. UL SPIE Chapter members Marta and Brigita attended this event in Povo-Trento, Italy.
The goal of the symposium was to bring together experienced and young researchers from various countries working in the field of optics, and to provide a perfect setting for their discussions of the most recent developments in that area. Participants spent four days full of impressive talks and interesting discussions.

Marta presented her research on portable optical device for diagnostics of skin malformations. She shares her experience: “The conference was really valuable for me both professionally and personally. I really enjoyed the invited speakers, as well as the talks of young scientists and other PhD students from all over the world, as well as got valuable feedback on my research from our international colleagues.”
Brigita was glad to learn about the latest advancements in research on optics fields and there her friends: “Thanks to non-formal education and leadership skills I got while being a part of the SPIE, I had grown as a personality.” Both, Brigita and Marta actively participated in the poster session dedicated to the facilitation of collaboration between different SPIE Student chapters.

Visit to SPIE Structured Light 2018 in Yokohama, Japan

In the end of April, UL SPIE member Tatjana took part in the international conference “SPIE Structured Light 2018” in Yokohama, Japan.

SPIE Structured Light is the meeting on novel technology for next-generation biomedical imaging. It is a part of the huge Optics and Photonics International Congress (OPIC), which is annually organized in Yokohama, a lovely port city.

In the poster session, Tatjana presented the results of her research work on studying visual perception of volumetric images on a multi-planar display. She was glad to discuss the future technologies of biomedical imaging with conference participants who develop varying innovative devices.
International Day of Light 2018 – Shine with us in Cesis!

On 16th of May, which is the International day of Light (IDL), UL SPIE Chapter representatives Marta and Tatjana went to Cesis – a town in the northern part of the central Vidzeme upland, Latvia. The aim was to celebrate the miracle of light, organize few outreach events, promote the use of light in technologies and raise the awareness of this astonishing phenomenon.
On IDL, Marta and Tatjana educated young enthusiasts from the 5th and 6th grade about light and its application in Cesis Town Pastarina Elementary school. For the afternoon class, they prepared an interactive overview about light applications, asking kids to name the most amazing examples, tell stories on they use the light in the everyday lives.

Tatjana demonstrating the diffraction effect to students

Moreover, this year UL SPIE Chapter and the local LED light solutions company “LEDENES” from Cesis made a wonderful cooperation whilst jointly organizing a photo contest “Capture the LED light” for promoting the awareness of light-based technologies. The best photos were put out in an art exhibition at the local mall where visitors could enjoy it.

Visiting the art exhibition “Capture the LED light” in the mall “Solo” in Cesis, Latvia
Visit to IUPESM 2018 in Prague, Czech Republic

The team of UL SPIE Chapter members “DERMA” participated in the World Congress on Medical Physics & Biomedical Engineering (IUPESM 2018), which was held in the beginning of June in Prague, Czech Republic. In the result, “DERMA” won the Golden Award in the Student Design Competition (WC 2018) organized by International Federation of Medical and Biological Engineering during the Congress.

The focus of the competition was on the design appropriate technology to improve healthcare in resource-scarce communities. The designs were judged according four criteria – innovativeness, potential benefit to the healthcare, low cost and viability of the design. The idea of Marta, Matiss, Martins, Emilija and Karola was highly evaluated by the international committee. What is more, Karola presented her research about eye accommodation response after sustained work with volumetric image and Ilze talked about human iris diagnostics using double-snapshot method and spectral line imaging in the Congress.

From the left: Matiss, Marta, Karola, Martins and Emilija showing the received Golden Award diploma for their presentation about the Mobile Device for Skin Screening

Visit to SPIE Optics + Photonics in San Diego, USA

This year Emilija and Tatjana travelled to the United States in the middle of August 2018 to gain new experience and discuss their research with peers and experts in the Optics + Photonics 2018 conference. Emilija has received SPIE Officer Travel grant and Tatjana was a facilitator in the Leadership workshop.
Both Emilija and Tatjana actively participated in the Leadership workshop. Afterwards, Tatjana conducted the professional development course “Capturing audience attention” for SPIE students and early career members. “Effective attention getting is one of the crucial skills that each student should develop to deliver a message successfully to other researchers, peers, professors or sponsors” – explained Tatjana. “Active participation of the audience and the received feedback were truly inspiring.”

In the poster session, Emilija presented her research “An optical, non-invasive device for skin cancer screening” that is being developed in the Institute of Atomic Physics and Spectroscopy. Additionally, Tatjana outlined the recent results in studying the visual perception for volumetric displays.

At the height of the conference, the SPIE Student Chapter poster exhibition took place. Emilija and Tatjana took an opportunity to tell about the great activities of UL SPIE Chapter and get to know for the representatives of the other SPIE chapters.

**European Researchers’ Night 2018 in Riga**

The European Researchers’ Night is a science outreach event that is annually held in around 300 cities around Europe on the last Friday of September. In Latvia, numerous students, children and adults come to universities, scientific institutes and laboratories to have face-to-face chats with current researchers, enjoy live experiments and spend a lovely evening in a scientific atmosphere. UL SPIE Chapter members Ilze, Inga and Arturs warmly welcomed everyone in their laboratories.

In the Institute of Atomic Physics and Spectroscopy, Ilze presented the concept of thermal imaging. The heat of hands was registered and the resulting thermal images
were projected on the table. In Riga, it became a little bit chilly in the end of September, thus, it could be easily seen among visitors whose hands were cold after a walk to the institute.

Inga invited everyone to experience the magic of microscopic worlds. She demonstrated how everyday life things looked like when using a high magnification. Both children and adults were amazed to see the microscopic structure of salt, sugar, stones, paper, apples and pixels in the mobile phones.
At the University of Latvia, Arturs demonstrated an experiment related to luminescence and its practical applications. The visitors used the opportunity to test large size luminescence plastic films and see how long and intensively they were shining after being illuminated by various light sources (a UV laser, a UV lamp and a flashlight).

Arturs showing the effects of luminescent materials

**Date with SPIE – the introduction event for the new members**

On the warm evening of October 18, UL SPIE Chapter hosted a welcoming event “Date with SPIE” in the Faculty of Physics, Mathematics and Optometry at the University of Latvia. It was intended to give an idea of various opportunities available for SPIE student members.

In the beginning of the meeting, Emilija welcomed everyone and invited to enjoy the evening. As far as the most of attendees met each other for the first time, the evening continued with some nice icebreakers.
Later Tatjana gave a presentation about the SPIE and amazing opportunities to get involved. She described the benefits of joining and becoming an active member of the SPIE community. The evening concluded with food, drinks and playing khet laser game allowing everyone to network, socialize and learn more about the SPIE.

It is a pleasure to mention that the event has been successful and several new members have joined the UL SPIE Chapter. They are already actively involved in the organization of IDL 2019 and DOC 2019.
Participation in Do-Do seminar for young scientists

In the beginning of December in the University of Latvia PhD student seminar "Do-Do", Marta introduced the activities and possibilities that SPIE offers to the young scientists.
Oral and poster presentations:


Konosonoka, V., Pladere, T., Panke, K., & Krumina, G. Accuracy of visual depth perception depending on spatial layout of stimuli on volumetric display. Developments in Optics and Communications. Riga, Latvia, April 12-13, 2018.


**Publications:**


Applied Optics 2018 (3D, AO, AIO, COSI, DH, IS, LACSEA, LC, MATH, pcAOP), OSA Technical Digest, Article No. 3Tu5G.4, doi: 10.1364/3D.2018.3Tu5G.4.


**PLANNED ACTIVITIES FOR 2019**

Organization of the 16th International Young Scientist Conference “Developments in Optics and Communications 2019” in cooperation with University of Latvia OSA Student Chapter;

Organization of School for Young Physicists of Latvia;

Organization of the International Day of Light 2019;

Continued collaboration events with SPIE student chapters in Poland, Lithuania and Estonia;

Outreach activities for school students and public such as European Researchers Night 2019, etc;

Student chapter events for networking with other chapter members, as well as collaboration with University of Latvia OSA Student Chapter – lectures, seminars, meetings, organizing the conference.

**FINANCIAL INFORMATION**

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<td>International Young Scientist Conference “DOC 2018”</td>
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<td>Food and snacks</td>
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<td>Costs for ulspie.lv homepage maintenance</td>
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<td><strong>Balance (1st of February, 2019)</strong></td>
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