INTRODUCTION

The SPIE Student Chapter at the Medical University of Vienna received its certification this year, in March 2018. At the same time, an OSA student chapter was founded, and the two groups share a common executive committee. In the remaining months of 2018, our membership rose from 10 founding members to 18, representing almost all of the optics-focused PhD students in our department. During 2018, we held six major events: two to build connections with industry, two outreach-based events, an educational visit and a networking event. In this report, we summarize the events of 2018, present a budget report for the year, and give a short outlook on the planned events of 2019.

EVENT TIMETABLE

A timeline of events is provided below in tabular form. In the following sections, a summary of each event can be found in chronological order.

<table>
<thead>
<tr>
<th>Dates</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>11th April</td>
<td>Chapter Opening Ceremony</td>
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<tr>
<td>12th June</td>
<td>Trip to InVision</td>
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<tr>
<td>16th July</td>
<td>KinderUni</td>
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<tr>
<td>26th July</td>
<td>Kuffner Observatory Visit</td>
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<tr>
<td>15th November</td>
<td>RECENDT/Linz Trip</td>
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<tr>
<td>11th December</td>
<td>Vienna Student Chapters Xmas Meeting</td>
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President: Danielle J. Harper
Vice President: Daniela Bovenkamp
Secretary: Elisabet Rank
Treasurer: Laurin Ginner
Chapter Advisor: Wolfgang Drexler
CHAPTER OPENING CEREMONY

As the concept of the Student Chapter was new to our University, we held an outreach event for the scientists within the Center for Medical Physics and Biomedical Engineering, to inform them of the planned activities of the Chapter. The “Opening Ceremony” took place as part of our regular “Let’s Talk Science” program which occurs on a Wednesday afternoon. All researchers within the department were invited to participate in the event.

The newly-formed student chapters of SPIE and OSA are delighted to invite you to their opening ceremony. This will take place at 2pm on Wednesday 11th April in the seminar room as part of the Science Board “Let’s talk science” initiative. We will begin with a presentation which explores the world of optics given by Matthias Salas, and then we will give an introduction to the chapter and announce our first events (which are for everyone – not only optics students!) Following the event, there will be a small celebration in the MakerSpace, including party pretzels and homemade cakes in addition to coffee. We look forward to seeing you there!

The event began with a presentation from Matthias Salas, entitled “My Experience with Optics”, where he took us on a journey from astronomy and telescopes in Chile to his current field of optics, optical coherence tomography. The Chapter president then followed, giving a detailed description of SPIE, OSA and the planned activities of the Student Chapter for the rest of 2018. The event concluded with snacks and drinks in the MakerSpace of our department. There were upwards of 40 people at the event.
TRIP TO INVISION

InVision is a digital imaging company based in Guntramsdorf, a short tram-ride away from Vienna. InVision started out as a company which designed projection lenses for cinemas. Today, they offer engineering and manufacturing services ranging from optics and electronics design to prototyping and serial production. This company already employs some alumni of the Medical University of Vienna, therefore it was of great interest to our students to be able to visit the facilities there. Following a series of introductory lectures from company employees, the attendees were split up into groups to tour the premises. InVision was then kind enough to provide pizza and drinks for the trip attendees, allowing conversations to continue and further questions from students to be answered. 18 people attended this trip, and the Chapter are very grateful to all those at InVision for their hospitality.

Student Chapter Members and InVision employees during the trip.

KINDERUNI

At the “KinderUni Wien”, or “Vienna Children’s University”, children aged between 7 and 12 get the opportunity to meet scientists at lectures in large lecture halls or participate in workshops in small groups. In Vienna, seven universities participate in the program, allowing the children to become university students for two weeks with everything that goes with it: from the study planner to graduation. The motto of the KinderUni is “We turn the university upside down”.

The KinderUni logo
For KinderUni 2018, the Student Chapter hosted 20 children aged 10-12 for an afternoon workshop entitled “Light Games”. The goal of the workshop was to understand some optical phenomena, the human eye in particular. During the workshop, the children were rotated around five workstations, which are summarized here:

Station 1: The human eye - an introduction to the human eye anatomy and how the eye works
Station 2: Eye diseases - a summary of some of the most common eye diseases and how they occur
Station 3: Optical illusions - explanation of some basic optical illusions
Station 4: Colour and filters – use of a spectrometer to explain white light, and then understanding the meaning of “color” by use of color filters
Station 5: Laser alignment – use of mirrors and apertures to align a (low power!) laser beam onto a target

All stations were interactive and hands-on for the children. We also prepared stickers to collect for each station, and a certificate for each child when the workshop was complete. It would definitely be fair to say that not only did the children learn about optics at KinderUni, but the students in the Student Chapter also gained valuable experience in outreach that day!

Some impressions of KinderUni 2018
KUFFNER OBSERVATORY VISIT

The Kuffner Observatory has stood in Vienna since 1886. Once known as one of the most important astronomy sites in the Austro-Hungarian Empire, it was there that Karl Schwarzschild developed the formula to calculate the optical density of photographic material. Nowadays, the observatory is mainly used for public education and preservation of the historical equipment that lies within. 11 students of the Student Chapter took a trip to the Kuffner observatory, and were shown around the historical optical equipment. We learned how the equipment worked and had a great discussion on how difficult it is to find replacement parts for the telescopes when anything goes wrong! We had hoped to do some observing, but it was too humid to open the dome. Nevertheless, it was a great experience for all attendees and the chapter will simply have to return on another evening when the weather is a little better!

Inside the dome of the Kuffner Observatory

TRIP TO RECENTD

Following the success of our first industry trip to InVision, we decided to visit another company, a little further afield. RECENTD, or the Research Center for Non-Destructive Testing, is an independent research facility based in Linz, Austria. Work done at RECENTD uses similar techniques to those used in the research of many of the students in the Student Chapter, but for different applications. 18 students took the train together to Linz, where the employees of RECENTD had put together a great program which can be found here:

12:15 – 12:25 Introduction to RECENTD
12:25 – 12:55 Presentation OCT
12:55 – 13:25 Presentation Spectroscopy
13:25 – 13:40 Presentation Photoacoustic
13:40 – 13:55 Presentation THz
13:55 – 14:15 Introduction to the work of the students at the Medical University of Vienna
14:15 – 14:30 Coffee break
14:30 – 15:50 20 min lab tours of OCT, Spectroscopy, THz and Photoacoustic labs, respectively.

All attendees found the trip very interesting and informative, and we would like to extend our thanks to all those at RECENTD who took time out of their day to give presentations and lead tours.

The day concluded with the students having dinner together in Linz, before taking the train back to Vienna.
VIENNA STUDENT CHAPTERS CHRISTMAS MEETING

The Student Chapter at the Medical University of Vienna is currently the only SPIE Student Chapter in Austria. There is, however, another OSA Student Chapter in Austria, which is based at the Technical University of Vienna (TU Wien). We therefore decided to host a Christmas-themed meeting with mulled wine and pizza in our MakerSpace, and we invited the TU Wien OSA Student Chapter members to attend. Four TU students joined our meeting, and we discussed many ways in which our chapters can collaborate in the following years, particularly inviting each other to travelling lecturer events and having joint trips in the future.
BUDGET REPORT

The income and expenditure for the Student Chapter in the year 2018 can be found below:

<table>
<thead>
<tr>
<th>Description</th>
<th>Income</th>
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<tbody>
<tr>
<td>SPIE Student Chapter Management Grant</td>
<td>395.23 EUR</td>
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<tr>
<td>OSA Student Chapter Management Grant</td>
<td>287.26 EUR</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>682.49 EUR</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter Opening Ceremony</td>
<td>92.41 EUR</td>
</tr>
<tr>
<td>Trip to InVision</td>
<td>75.60 EUR</td>
</tr>
<tr>
<td>KinderUni</td>
<td>82.07 EUR</td>
</tr>
<tr>
<td>Trip to Recendt</td>
<td>346.40 EUR</td>
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<tr>
<td>Chapter Christmas Event</td>
<td>78.05 EUR</td>
</tr>
<tr>
<td>Transaction Fees</td>
<td>3.00 EUR</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>677.53 EUR</strong></td>
</tr>
</tbody>
</table>

This leaves a total of 4.96 EUR to be carried over to the next year.

AN OUTLOOK TO 2019

In 2019, we plan to mainly focus on building outreach events. As KinderUni is an annual event, we plan to participate in this again next year. We also wish to apply for an International Association of Physics Students (IAPS) Light Grant to host an International Day of Light event on 16th May. We will also make use of the SPIE outreach light kit for these purposes. Furthermore, we have been awarded an OSA Special Program Grant to participate in the “Lange Nacht der Museen”, or “Long Night of the Museums”, where we plan to see upwards of 1000 members of the public in one night.

This year, our secretary Elisabet Rank attended the OSA Student Leadership Conference in Washington D.C. to present the activities of the student chapter. In early 2019, current Vice President Daniela Bovenkamp will receive the SPIE Officer Travel Grant to attend Photonics
West, and will present our Chapter Activities to date. Following the success of this year’s industry trips, we also hope to plan more trips (to other Universities as well as industry) and make use of the Travelling Lecturer program.

CONCLUDING REMARKS FROM THE CHAPTER PRESIDENT

The founding of the SPIE/OSA Student Chapter of the Medical University of Vienna and its management for its first year has been a challenging yet incredibly rewarding experience. I would particularly like to thank the executive committee for their hard work – it really has been a pleasure to work with you. In general, our chapter members attended almost all of the events we hosted this year, and the feedback I have received from our members has all been positive. These events would not have been possible without the financial support of SPIE and OSA, and the moral support of our chapter advisors (Wolfgang Drexler, SPIE and Christoph K. Hitzenberger, OSA). I would therefore, on behalf of the chapter, like to say thank you.