SPIE/OSA of Charles University

Annual report 2016-2017

Officers

Advisor: Prof. Jan Franc  franc@karlov.mff.cuni.cz
President: Vojtěch Vozda  vozda@fzu.cz
Vice President: František Pásztor  frenky.pasztor@gmail.com
Secretary: Zdeněk Kašpar  zde.kaspar@gmail.com
Treasurer: David Wagenknecht  d.wag@dagento.com
Public relations (PR): Lukáš Sedivy  luky.sedivy@gmail.com

Members


Introduction

SPIE Charles University in Prague Chapter (the Chapter) was founded in 2011 to publicize optics among many students of Faculty of Mathematics and Physics of Charles University in Prague (FoMP CUiP) as well as among high school students. Most of the members are master and PhD. students of Quantum Optics and Optoelectronics at FoMP CUiP; in recent years we have also members from the Department of Condensed Matter Physics (the same institute) and from Academy of Science (PhD. students of the FoMP CUiP who work there). In total, the Chapter has twenty members.

Recently, new websites which represents our chapter were created and are available also in English version at http://spie.cz/. To spread inkling of our chapter and its activities we set up a Facebook page which is available at http://facebook.com/SpieOsaCharlesUniversity.

Many activities are organized by the members of the Chapter for different focus groups.
Demonstration of Physics experiments on schools, our largest project, impact more than thousand elementary and high school students every year. For the second time, our chapter announced competition called “Best Paper Award” which motivates master students of optics-related fields to publish scientific papers and posters. Several times per year we take part in events focused on public audience or university students, some of them are organized by our members. Usually five to ten social activities for members of the Chapter take place every year, e.g., trips to interesting places, barbecue or cultural programs.

Chapter activities

Demonstration of Physics experiments on schools

The largest project of the Chapter is called Demonstration of Physics experiments on schools. The members of the Chapter visit at least ten elementary or high schools every academic year and they present popular experiments to five or six classes every time, each of them having usually twenty five to thirty students. Therefore, we address from 1000 to 1500 students every year! Teachers on the schools also get to know that many physical topics may be taught in an enjoyable way.

We offer several kinds of programs depending on the age of audience. We are able to present experiments and topics interesting for wide range of students, e.g., for the third grade not having physics as a subject yet, as well as specialized scientific program for classes at the end of the high school studies. Discussion about university studies is also offered to the schools.

With financial support of SPIE, we can afford to buy tools for demonstrations and experimental materials and we visit the schools for free. (Professional commercial groups offer similar program for several thousand Czech Crowns – hundreds of US Dollars). We also appreciate the possibility to apply for ”Optics outreach kits” provided by SPIE. The diffraction glasses from the last one are great tool for easy explanation of the light composition. Kids at elementary schools as well as university professors really enjoy it! We have about ten schools on a waiting list all the time and we give priority to poorer regions of the Czech Republics where the schools do not have so many opportunities for excursions or similar extension of teaching.

Beside the Czech-speaking state schools we also visited the 1st International School of Ostrava in April 2016. Our talks and experiments were conducted in English there.
Best Master Student Paper/Poster Award

For the second time, the Chapter announced a competition of the best master student scientific paper. As in the previous year, there were two categories: Best Paper (published in impacted scientific journal) and Best Poster (presented at a conference).

From many high-valued contributions, the seven-member committee consisting of professors and students selected two winners: J. Záhlava (best paper) and K. Ridžonová (best poster). The price giving ceremony was held in the vice-dean (prof. V. Baumruk) office who handed over financial rewards (10 000 CZK for the best paper and 5 000 CZK for the best poster). The contest was supported by OSA grant.

May 16th — 20th 2016: Outdoor seminar of Institute of Physics

Members of the Chapter participated on the annual five-day outdoor seminar in National Park Šumava. Several lectures about current research and hot optical topic were given by the members there. We also organized a social evening there in order to introduce activities of the Chapter to younger optical students and the membership was offered to them.

June 23rd 2016: Barbecue

When the summer started we arranged a traditional BBQ. Except of the small refreshment we made a competition on a slack-line. New members were successfully integrated to our social group and from this event they do participate on our activities.

June 29th 2016: Trip to Karlštejn

As the hot summer started, we organized a short trip to the one of the most beautiful castles in the Czech Republic, Karlštejn. The castle was founded in the 14th century by the king Charles IV, the same king whose name carries our university.

We enjoyed the trip in a very nice weather, drank beer and ate ice cream to cool our overheated bodies down.

July 5th — 6th 2016: Festival of fantasy

Our chapter was asked to join the largest festival of fantasy and science fiction in the Czech Republic and one of the largest in Central and Eastern Europe.

For two of total ten days three members of our chapter presented exciting experiments using liquid nitrogen. During the next days, other students of the Faculty of Mathematics and physics presented their experiments.
August 26th — 31st 2016: San Diego

The statutory PR officer of the Chapter in the academic year 2015–16, Vojtěch Vozda, has participated in the SPIE-organized Student Chapter Leadership Workshop on the 27th of August and the related SPIE Conference OPTICS+PHOTONICS 2016 as a representative of our Chapter via the Officer travel grant in 2016. The Leadership Workshop was very beneficial because many problems which appear also in our chapter were discussed and at least partially solved. New contacts and links between chapters were also established. In addition to the Workshop, Vojtěch Vozda has presented poster, entitled “Imprinting a Focused X-Ray Laser Beam to Measure Its Full Spatial Characteristics”, which caught interest of several scientist due to its relation to near standing SLAC facility. Besides the conference, V. Vozda had participate at experiment which was held just several days after the Optics+Photonics also in California, near to San Francisco at SLAC facility (LCLS). The excess time he and his colleges prof. J. Franc (chapter advisor) and M. Rejhon (member) used for backpacking trip “High Sierra Trail” (60 miles) and climbing Mt. Whitney (14,505 feet).

October 26th 2016: Chapter Officers election

Annual election of the Chapter Officers was held at the beginning of the academic year. The members got together in order not only to elect a new board, but also to summarize the last year and discuss activities for the next one.
The current officers were elected at new additional elections which were held at April 20th 2017.

October 20th 2016: Session for bachelor students

As every year, we have organized an informal meeting which consisted of several short talks and small refreshment. About 30 students the second year of bachelor’s study program General Physics attended. We have offered them participation in student projects and we have informed them also about our SPIE student chapter and its activities. The impact was successful - several of them signed for the projects.

November 11th 2016: Faculty Open Day

This event is being organized by the whole Faculty of Mathematics and Physics and about 800 high school students came to find out important informations about their possible future study on our faculty. Members of the Chapter took part and they were presenting interesting physical experiments and
introducing optical topic that are currently in the focus of scientific community to show, that our research groups have state-of-art devices and that they do publish in highly-impacted journals. In the picture, F. Pásztor is presenting how LCD uses light polarization.

December 14th 2016: Chapter Christmas party

Christmas party of the Chapter was held again in December. Prior to discussion about physics and activities of the Chapter we played laser game which showed us optics from the entertaining side.

March 7th 2017: Theatre

As a culture event of this year we have chosen a theatre play which was held in the Prague National Theatre and called ”Touch the space and continue”. The play was a comedy from an academic life of several researchers who made us laugh many times.

April 4th 2017: Lecture Physics in Experiments

We were asked to make a lecture in Charles University in Prague. Audience numbered about 50 bachelor students could see very impressive experiments such as color mixing (using Optics Outreach Kit), light polarization or changes of colour of LED by cooling them in liquid nitrogen.

April 26th 2017: Meeting with SPIE President-Elect Maryellen Giger

During the conference Optics + Optoelectronics in Prague, on April 26th, representatives of our chapter had meeting with SPIE President-Elect Maryellen Giger and Andrew Brown. Besides interesting discussions on the subject of what brings us SPIE and how to get into the leadership we had lunch in the style of asparagus.
Future plans

- Continuing in *Demonstration of Physics experiments on schools*
- May 2016: Outdoor seminar of Institute of Physics
- June 2017: Announcement of the third year of the ”Best Master Student Paper/Poster Award”
- June 2017: Barbecue
- August: An Officer of the Chapter will take part in SPIE conference in San Diego
- Autumn: Regular events like election of a new board, Christmas party or activities for younger university students
Financial report for period 05/2016 – 04/2017

Incomes:
  Funds from previous period  13 214 CZK
  SPIE Activity Grant – 900 USD (01/2017)  22 019 CZK

  **SUM**  35 233 CZK

Expenses:
  Outdoor seminar of Institute of Physics
    Organization of social evening (05/2016)  4 980 CZK
  BBQ Summer Party (06/2016)  3 549 CZK
  Chapter trips transport tickets (06/2016)  592 CZK
  Chapter Officers Election meeting (10/2016)  4 500 CZK
  Session for bachelor students (10/2016)  3 379 CZK
  Chapter Christmas Party (12/2016)  2 899 CZK
  Web domain hosting (03/2017)  290 CZK
  Experimental equipment for
    Demonstration of Physics experiments on schools  1 482 CZK

  **SUM**  21 671 CZK

Total balance by end of April 2016:  13 562 CZK

Further expected expense by 12/2016:
  BBQ summer party (06/2017)  3 000 CZK
  Election Meeting (10/2017)  4 500 CZK
  Student’s projects meeting (10/2017)  2 500 CZK
  Christmas Party (12/2017)  3 000 CZK

On Chapter members’ behalf  05/24/2017
Zdeněk Kašpar
Treasurer