1. Chapter members

Similar to last year, our chapter counts 24 members. This was achieved by an active recruiting campaign, reaching out to different departments at our university. In comparison to last year, 10 members left the chapter, while 9 new ones joined us. We now have active participants from many different departments, including chemistry, physics, metallurgy, biology and biosystems.

Chapter officers

**President:** Ward Brullot ([ward.brullot@fys.kuleuven.be](mailto:ward.brullot@fys.kuleuven.be)), ID3381062

**Vice-President:** Pieter-Jan Demeyer ([pieterjan.demeyer@fys.kuleuven.be](mailto:pieterjan.demeyer@fys.kuleuven.be)), ID3382895

**Secretary:** Stefaan Vandendriessche ([stefaan.vandendriessche@fys.kuleuven.be](mailto:stefaan.vandendriessche@fys.kuleuven.be)), ID3380927

**Treasurer:** Maarten Bloemen ([maarten.bloemen@fys.kuleuven.be](mailto:maarten.bloemen@fys.kuleuven.be)), ID3381506

Full member list

Yannick Baeten  
Maarten Bloemen  
Ward Brullot  
Arvid Cloet  
Steven Deckers  
Jochem Deen  
Pieter-Jan Demeyer  
Denizta Denkova  
Griet Depotter  
Wouter Fannes  
Luis González-Urbina  
Bart Kenens  
Janos Keresztes  
Buvana Lefevre  
Koen Nuyts  
Wouter Sempels  
Niraj Singh  
Alessandro Vaglio Pret  
Maarten Vanbel  
Stefaan Vandendriessche  
Brecht Verstraete  
Rodrigo Watté  
Xuezhi Zheng  
Kuo Zhong
2. Activities

We organized activities on a regular basis. Our aim was to do at least one activity each month. All these events were announced via regular emails and via our website (www.spiekul.be). A more elaborate description of the events can be found below. These activities were included in the funding request.

Election of the board (23-09-2011)

Goal of this meeting was to elect the new board by voting.

As written in the voting rules, the old board was not allowed to vote. All votes were collected and counted by the voting supervisor, consisting of Javier Perez Moreno.

11 voting members were present and elected the following new board:

- Ward Brullot as president
- Pieter-Jan Demeyer as vice-president
- Maarten Bloemen as treasurer
- Stefaan Vandendriessche as secretary

After counting of the votes, the following results were obtained:

<table>
<thead>
<tr>
<th>Name</th>
<th>Votes in favor</th>
<th>Abstinence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward Brullot</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>Pieter-Jan Demeyer</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Maarten Bloemen</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>Stefaan Vandendriessche</td>
<td>11</td>
<td>0</td>
</tr>
</tbody>
</table>

After the official part, a small discussion about ideas for the next year was started. Multiple suggestions were discussed including possible speakers and company visits.

The old board transferred its paperwork and information to the next board on a meeting on October 5th 2011.

Financial: 94.00 euros for catering

Board meeting (05-10-2011)

Present: Ward Brullot, Stefaan Vandendriessche, Pieter-Jan Demeyer, Maarten Bloemen, Kurt Demey, Luis Gonzalez Urbina

Goal of this meeting was the transfer of information and financial details between the old and new board of the student chapter. Several possible new activities were also discussed.
An extra separate meeting was held by the new board to discuss several new opportunities regarding company visits and activities throughout the next year.

**Bowling (27-10-2012)**

The chapter organized an evening activity: bowling. It was the introductory activity to get to know the new members. The invitation was sent to everyone possibly interested in joining the student chapter!

*Financial: 80.40 euros for bowling*

**SPIEzza meeting (25-11-2011)**

Present: Ward Brullot, Stefaan Vandendriessche, Pieter-Jan Demeyer, Maarten Bloemen, Luis Gonzalez Urbina, Maarten Vanbel, Wouter Sempels, Arvid Cloet, Denitza Denkova, Griet Depotter, Bart Kenens, Koen Nuyts, Steven Deckers

During this meeting 2 members presented their latest work and future experiments. The future meetings, lecture and company visit were also discussed.

*Wouters Sempels* presented his work about building and optimizing a STED microscope setup. He also shared various tips and tricks for working with optics.

![STIMulated Emission Depletion Microscopy](image_url)

*Bart Kenens* introduced his work about growing gold nanoparticles controlled by light and its possible use in sensing applications.
The lecture about ‘how to make the most of your presentations’ in auditorium Jean Monnet on Dec 5\textsuperscript{th} 2011 was mentioned to the present members.

Financial: 75.97 euros for catering

SPIE Invited Lecture (05-12-2011)

Present: 285 master & PhD students and professors

We invited all scientific departments and their students of our university by emails and by distributing posters and flyers.

During this lecture, Dr Jean-Luc Doumont explained the best ways to give a successful presentation. Special points of interest were the content of the slides, as well as slide build-up. The importance of the voice and use of hand gestures was also explained.

Our president, Ward Brullot, did the introduction.

Following photos give an impression of the lecture.
After the session, multiple people had (very) positive comments and everyone was very pleased with the lecture.

**Financial: 19.00 euros for gift to speaker**

**Company visit (27-01-2012)**

On 27<sup>th</sup> of January our student chapter visited Photovoltech. This company produces solar cells on multi crystalline silicon substrates. We were welcomed by the head of research, who gave a presentation about the market situation and general production. Afterwards we visited the production line, giving a remarkable insight in the production of solar cells.

Following photos give an impression of the visit.
Financial: 40.00 euros for train tickets

SPIEzza meeting (09-03-2012)

Jochem Deen presented his work on the stretching of DNA strands and the use of high-resolution fluorescence techniques to sequence DNA.

Luis Gonzales Urbina, who had almost finished his PhD at the time, gave an overview of his PhD work about the potential of colloidal photonic crystals for organic OLEDs and organic solar cells.

Financial: 72.07 euros for catering
**Board meeting (04-04-2012)**

Present: Ward Brullot, Stefaan Vandendriessche, Pieter-Jan Demeyer, Maarten Bloemen

The financial situation was discussed, including the allocation of our resources for the upcoming events and meetings.

The upcoming photo competition (SPIEKulographic) was scheduled and the tasks were divided.

- Deadline: 19th of June
- Prize ceremony will be on the 27th of June
- Possible prizes (top 3): books, gadgets
- Announcements will be made via Veto, mailing lists, website and via agenda of KULeuven.
- The top 5 pictures will receive a certificate.
- The top 10 pictures will be printed on A2 posters and handed over to the researcher after the prize ceremony.
- Ward will prepare the promotional poster and have it printed on A2 format.
- Possible jury members are Koen Clays, Thierry Verbiest, Javier Moreno, Monique van der Veen, Christoffel Waelkens or a member of the Johan Hofkens lab

A new presentation by *Dr Jean-Luc Doumont* was scheduled and the preferred aula was chosen.

**Attending SPIE Photonics Europe (April 2012)**

Several members of our chapter attended the SPIE Photonics Europe conference in Brussels. They presented several research posters about photonic crystals, plasmonics and SHG on semiconductors.

**SPIEzza meeting (08-06-2012)**

Present: Ward Brullot, Stefaan Vandendriessche, Pieter-Jan Demeyer, Maarten Bloemen, Maarten Vanbel, Wouter Sempels, Arvid Cloet, Denitza Denkova, Griet Depoter, Bart Kenens, Koen Nuyts, Janos Keresztes

During this meeting 2 members presented their latest work and future experiments.

*Stefaan Vandendriessche* presented his work on Faraday rotation and some interesting optical effects and future experiments, including inverse Faraday rotation.
Janos Keresztes presented the research conducted by the MeBioS – Biophotonics group. This includes modeling of scattering properties of different tissues and more application based research.

Our president, Ward Brullot, gave a short talk on the upcoming events of the chapter.
- SPIEKULOGIC\GRAPHIC
- Lecture by Jean-Luc Doumont
- OSA membership advantages
- Board elections of August 2012

Financial: 67.50 euros for catering

SPIEKulographic scientific photo contest (27-06-2012)

The aim of this contest is to show the visualized results of scientific work to the world and to promote the Student Chapter. The competition is open for PhD and Master students of the KU Leuven.
Jury members

- **President**: Prof. Koen Clays, Laboratory for Molecular Electronics and Photonics, Dept. of Chemistry, Faculty of Sciences
- Prof. Ann Gils, Laboratory for Pharmaceutical Biology, Faculty of Pharmaceutical Sciences
- Prof. Ivo Vankelecom, Centre for Surface Chemistry and Catalysis, Faculty of Bioengineering
- Prof. Thierry Verbiest, Laboratory for Molecular Electronics and Photonics, Dept. of Chemistry, Faculty of Sciences
- Prof. Hideaki Mizuno, Biochemistry, Molecular and Structural Biology Section, Faculty of Sciences
- Dr. Bart Vandenbussche, Institute of Astronomy, Dept. of Physics, Faculty of Sciences

The organizing committee received 69 valid submissions from 32 contestants. 47% of the submissions originate from contestants from the Faculty of Sciences, 25% from Engineering, 19% from Medicines and 10% from Bioscience Engineering. Master students submitted 16% of the images, while PhD students accounted for 84% of the submissions. On average 2.3 images were submitted per contestant. These statistics are visualized below.

The jury members have graded and ranked the valid submissions received by the organizing committee. After adding up all the scores, no ex aequo scores were present for the top 10 after ranking the submission on total score, then on image score and as last on text score.

During a reception the top 10 posters were shown to the public. The top 10 contestants received following prizes:
- Top 10: A1 poster of their photo
- Top 5: + official certificate
The top 10 submissions are shown below:

- **Top 3**: + student membership SPIE + USB stick
- **3rd place**: book "Optics for dummies"
- **2nd place**: solar panel battery charger
- **1st place**: engraved laser pointer

The remarkable performance of bamboo and bamboo fibres can be explored from the microstructure and how they are integrated into the composite. A bamboo fibre can be seen as a woody artificial fibre reinforced composite with the fibres as the reinforcing phase and the surrounding bamboo tissue as the matrix material. The bamboo fibre is structured in a way that the orientation, shape and number of fibres vary throughout the bamboo nodes. Moreover, the fibres, present in a bundle, are also responsible for inducing the natural fibre-to-fibre contact. The picture shows the cross-section of bamboo fibres surrounding the bamboo node. The fibre bundles are composed of numerous fine cells called elementary fibres. This picture belongs to the greater part of the node whereas the fibres are larger and more widely spread.

Heart-shaped ist of Langersans stained for 2 different markers (in red and green), which are nucellarly expressed.
The Mercator Telescope is visible here with a transparent dome thanks to the long exposure time (15 seconds) and the rotation of the dome, allowing us to see the whole inside, not only a section through narrow opening of the dome. The scenery is lit by the dim moonlight, while the brightest “star-like” light over the observatory building is the track of Venus.

Authors: P. Papics

This image shows an embryonic hippocampal neuron that has been growing on this surface for 3 days before fixation. The substrate consists of 6μm high pillars made up of silicon oxide and fabricated with standard lithography techniques. The neuronal cell body rests on top of the pillars, as do the initial segments of the two main neurites, they seem to jump from one pillar to the next. At the side of the cell body smaller neurites can be observed, these extend further down in between the pillars. In the background there are neurites of other cells crossing one another. Electron microscopy images are crucial in describing the neuronal morphology on top of the pillars in three dimensions.

Authors: L. Micholt, D. Braeken, K. Van Keer and J. Loo

SonADC is a new 3-dimensional ultrasonic assessment tool, which is currently being used to count and measure ovarian follicles in different clinical settings, like in patients receiving fertility treatment or in the current image to evaluate a woman with enlarged ovaries with a typical “PCOS” like appearance, also known as the polycystic ovary.

Authors: J. Kaljser and D. Timmerman
3rd place: The original pacman - Brecht Verstraete

Brecht received a certificate, an SPIE Membership for 1 year, the book 'Optics for Dummies' and a USB stick.
2. Chemists and aliens - Koen Nuyts

Koen received a certificate, an SPIE Membership for 1 year, a solar panel battery charger and a USB stick.
1. The sculpture within - Wouter Fannes

Wouter received a certificate, an SPIE Membership for 1 year, an engraved laser pointer and a USB stick.

The results of the contest were published in various official publications of the KU Leuven.

Financial: 125.00 euros for printing of flyers and posters
172.19 euros for prizes
125.00 euros for posters of winning photos
16.50 euros for frames of certificates
102.63 euros for reception

SPIE Conference San Diego (August 2012)

Vice-president Pieter-Jan Demeyer attended the SPIE conference in San Diego and presented our student chapter. He received an officer travel grant from SPIE.
3. Planned Activities

Company visit
A company visit to Umicore (site Olen) is being planned and is scheduled for the beginning of 2013. Umicore is specialized in the recovery of special metals and the production of electro-optical modulators.

SPIEzza meetings
A monthly meeting will be held to encourage the members to share their scientific results and introduce new techniques.

Jean-Luc Doumont confirms presentation on Monday December 3, 2012!
After the very successful presentation ‘Making the best of your presentation’ last year by Jean-Luc Doumont, the SPIE KU Leuven Student Chapter is delighted to announce that Jean-Luc has confirmed a presentation on Monday December 3, 2012! The title will be 'Structuring your research paper'. All scientific departments will be invited.

Movie evening
A movie night will be organised to get to know the different members. Preferred time is January 2013.

Photo contest
A new edition of the scientific photo contest is scheduled for June 2013.
4. Financial information

A detailed description of the funding and expenses of the student chapter can be found below. The spending and funding is shown separately to provide a clear overview.

<table>
<thead>
<tr>
<th>Spending</th>
<th>Spending in euros</th>
</tr>
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<tr>
<td>SPIEzza Meetings</td>
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<tr>
<td>September</td>
<td>94,00</td>
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<tr>
<td>November</td>
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<tr>
<td>March</td>
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<td>June</td>
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<td></td>
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<tr>
<td>Bowling</td>
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<td>Lecture Jean-Luc Dumont</td>
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<td>Photovoltech Company Visit</td>
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<td>Website</td>
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<td>Promotional Material</td>
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<td>Reception</td>
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<table>
<thead>
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<td>Leftover budget 2011</td>
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<td>2012 SPIE Funding</td>
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<table>
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