28 October, 2016 – Present

Chapter Annual Report

2016-2017
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CHAPTER OFFICERS
2016-2017

Advisor

Lorenzo Pavesi

President

Tatevik Chalyan

Vice-President

Claudi Castellan

Secretary

Zahra Bisadi

Treasurer

Fabio Turri

Vice-Treasurer

Alessandro Trenti
2017-2018

Advisor

Lorenzo Pavesi

Co-Advisor

Massimo Borghi

President

Claudi Castellan

Vice-President

Stefano Signorini

Secretary

Sara Piccione

Treasurer

Alessandro Trenti

Past President

Tatevik Chalyan
# CHAPTER MEMBERS

**2016-2017**

**Total Student Members: 20**

<table>
<thead>
<tr>
<th>1.</th>
<th>Alessio Bucciarelli</th>
<th>11.</th>
<th>Damiano Lodi</th>
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<tr>
<td>2.</td>
<td>Zahra Bisadi</td>
<td>12.</td>
<td>Mohammad Hosein Nateq</td>
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<td>5.</td>
<td>Claudio Castellan</td>
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<td>Sara Piccione</td>
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<td>7.</td>
<td>Tatevik Chalyan</td>
<td>17.</td>
<td>Stefano Signorini</td>
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<td>8.</td>
<td>Mattia Cominelli</td>
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<td>Stefano Tondini</td>
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<td>9.</td>
<td>Aravind Harikumar</td>
<td>19.</td>
<td>Alessandro Trenti</td>
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<td>10.</td>
<td>Nicolò Leone</td>
<td>20.</td>
<td>Fabio Turri</td>
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# 2017-2018

**Total Student Members: 22**

<table>
<thead>
<tr>
<th></th>
<th>Name</th>
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<tbody>
<tr>
<td>1</td>
<td>Bazzanella, Davide</td>
<td>12. López Moreira Mazacotte, Gregorio</td>
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<tr>
<td>2</td>
<td>Bucciarelli, Alessio</td>
<td>13. Nateq, Mohammad Hossein</td>
</tr>
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<td>3</td>
<td>Biasi, Stefano</td>
<td>14. Nioumand-Jadidi, Milad</td>
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<td>Caporaletti, Federico</td>
<td>15. Pasini, Matteo</td>
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<td>5</td>
<td>Capuano, Andrea</td>
<td>16. Piccione, Sara</td>
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<td>6</td>
<td>Castellan, Claudio</td>
<td>17. Piccoli, Gioele</td>
</tr>
<tr>
<td>7</td>
<td>Chalyan, Tatevik</td>
<td>18. Rotariu, Mihai</td>
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<tr>
<td>8</td>
<td>Ficorella, Andrea</td>
<td>19. Signorini, Stefano</td>
</tr>
<tr>
<td>9</td>
<td>Harikumar, Aravind</td>
<td>20. Tondini, Stefano</td>
</tr>
<tr>
<td>10</td>
<td>Leone, Nicolò</td>
<td>21. Trenti, Alessandro</td>
</tr>
<tr>
<td>11</td>
<td>Lodi, Damiano</td>
<td>22. Vecchi, Chiara</td>
</tr>
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CHAPTER FIRST ELECTIONS AND OFFICIAL MEETING

SPIE Student Chapter of the University of Trento was established by a group of PhD students, supported by the head of the Department of Physics professor Lorenzo Pavesi, in October, 2016 and was officially recognized by SPIE Board Of Directors on October 28th, 2016. Since then the members of the chapter have organized numerous big, public and academic events.

The first official meeting of the chapter was held on November 17th, 2016. During the meeting the first officers of the chapter were elected. Democratic and open elections gave a possibility to create a real friendly atmosphere among members, which helped us to start a fruitful chapter-life with different events. For the first official meeting there were 14 members present. The following people were elected as the chapter officers:

- Lorenzo Pavesi: Advisor
- Tatevik Chalyan: President
- Claudio Castellan: Vice-President
- Zahra Bisadi: Secretary
- Fabio Turri: Treasurer
- Alessandro Trenti: Vice-Treasurer

We decided that Alessandro Trenti would substitute Fabio Turri around the end of March based on an agreement between the two candidates and approved by members since the result of the election was a tie between them.

We discussed the allocation of the activity grant of the chapter for 2016-2017 A.Y. and the events we were going to organize, as well as the application for the Optics Outreach Kit.
SPIE UNITN STUDENT CHAPTER

First group photo after successful elections
The Day of Photonics is a biennial event born with the aim to promote photonics beyond the academic institutions. Photonics can be considered the art of mastering light, with the set of theories, the techniques and the technologies, which allows us to control light and to use it to our benefit. Photonics is everywhere in our daily life, and led to the most striking innovations throughout the history.

The members of newly formed SPIE UNITN Student Chapter organized an event for public visitors in the Trento city center. Chapter hosted more than 150 visitors, who came to follow a series of interactive talks in an absolutely informal atmosphere, which step-by-step introduced the beauties that photonics could offer. Our guests were from different fields and most of them far from physics.

The Flyers of the event in both English and Italian versions were attached in different parts of the city. By local radio, television and newspapers the event announcement was distributed as well ([https://www.cultura.trentino.it/content/view/full/573332](https://www.cultura.trentino.it/content/view/full/573332)).
To make the event more attractive we invited **ALBORADA TRIO** to open the evening with a classical concert.

From the activity grant of the chapter we offered snacks and drinks to all attendees. In the entrance of the event hall all visitors were given **Drink tickets** in order to get a free drink during the experimental session.

All those not-scientific activities prepared the audience for the most interesting part of the event.

Professor Lorenzo Pavesi, who is the advisor of the chapter, welcomed everyone and congratulated chapter members on its birthday and first event. Then, the founder and the first president of the chapter introduced the meaning of Day of Photonics, presented SPIE as the international society of optics and photonics and the chapter’s upcoming activities.
Doctor Massimo Borghi and chapter’s Vice-Treasurer Alessandro Trenti continued the evening with interactive presentations.

Massimo presented Photonics as the art of manipulating light. With simple and nice examples he showed the importance of photonics in our daily lives. We were glad to notice that not only students from physics department, but also everyone in the event hall was involved in the topic. Active discussions continued also after the presentation. And since among the participants there were also potential students who might choose to study photonics, we decided describe the ongoing research activities in the department of Physics, as well. Alessandro presented the research projects of NanoScience Laboratory that is mainly occupied with (integrated) silicon photonics.

The last and the most exciting part of the event was the demonstration of optical experiments performed by everyone under the supervision of chapter members. The goal of this outreach activity was to make everyone, independent of age, gender, profession, curious in simple and evident photonics phenomena that we see every day but do not pay attention to understand how they occur. The experiments we performed were based on light refraction and reflection phenomenon, as well as solar cells and lasers. We also presented a poster on Quantum Random Number Generation which is a fundamental element in information security.
SPIE Student Chapter of the University of Trento was a co-organizer for Kick Off Meeting 2016: The annual meeting of NanoScience Laboratory that was held on 25th of November, 2016 at the Department of Physics. The majority of the chapter members are from NanoScience Laboratory. The meeting aims at making the point of the research activities and paving the way for the future research programs. At the end of each year, we assemble for a day of seminars, when all group members show their activities and results achieved during the preceding year. Usually the meeting hosts two invited speakers from different institutions as well as from different departments of the University of Trento. Students from Bachelor and Master Courses attend the meeting to get to know the research projects of photonics group at the university. The day is full of nice presentations, active discussions, questions, and answers.

More than 30 attendees participated in the 2016 Kick Off Meeting. Two speakers from collaborating institutions and four research teams, formed by the scientists of Nanoscience Laboratory, presented the state of the art of the research in nanoscience and photonics.

Invited speakers were Nicola Pugno from the University of Trento, Department of Civil, Environmental and mechanical Engineering who presented “Nano and bio-inspired extreme mechanics” and Giuseppe Vallone from the University of Padova, Department of Information Engineering, who gave a talk about “Satellite quantum communication and secure random number generators”. Four teams with four main research fields of NanoScience Laboratory are in the following:

1. Interactive talk by the NanoBiotechnology team
   Cecilia A. Maestri, Chiara Piotto, Niccolò Carlino

2. Interactive talk by the Applied Silicon Photonics team
   Zahra Bisadi, Tatevik Chalyan, Stefano Tondini, Giorgio Fontana, Foroogh Sarbishe Khozeymeh, Sara Piccione

3. Interactive talk by the Integrated Quantum Photonics team
   Alessandro Trenti, Massimo Borghi, Fernando Ramiro Manzano, Stefano Biasi, Fabio Turri

4. Interactive talk by the Nonlinear Silicon Photonics team
   Mattia Mancinelli, Mattia Cominelli, Alessandro Marchesini, Stefano Signorini, Claudio Castellan, Astghik Chalyan

*SPIE members are underlined
NanoScience Laboratory 2016

Meeting organized by
Within the following research projects
In collaboration with
From March 26th to April 1st, 2017 the 9th Optoelectronics & Photonics Winter School on Integrated Quantum Photonics was held in Folgaria, Italy. SPIE Student Chapter of the University of Trento was a co-sponsor of the event. Chapter advisor Prof. Lorenzo Pavesi was one of directors of the school. 9 members of the chapter (Claudio Castellan, Zahra Bisadi, Alessandro Trenti, Stefano Signorini, Mattia Cominelli, Nicolò Leone, Damiano Lodi, Matteo Pasini and Stefano Biasi) as well as the current co-advisor Massimo Borghi participated in the school.

The school addressed specific topics of high importance within the international scientific community of Optoelectronics and Photonics. It aimed to bring together a large number of PhD students and young researchers from all parts of the world who followed a series of lectures on selected topics through a one-week intense schedule. The lectures were delivered by internationally recognized experts in the field. At the same time, the students were encouraged to enjoy the beautiful location where the school was organized.

9th edition of the school aimed at introducing students and post-docs with an optics background to the concepts of integrated quantum photonics. It started from the general concepts of quantum optics, quantum information, quantum simulation and computing and moved to the main building blocks of an integrated photonic quantum circuits (single photon sources, entangled photon sources, single photon detectors, linear optical devices, quantum interference devices, and materials and processing to manufacture integrated quantum devices). The last part of the school included discussions on integrated quantum circuits and their applications in security, communication, computing, sensing-measurements and quantum key distribution. The lecturers were the main scientists who have pioneered in photonic technologies.

In addition to standard classes, laboratory sessions were organized to facilitate the development of a proper design of integrated circuits according to the students’ request. Rump evening sessions on hot topics in the field were organized to stimulate discussions among students and lecturers as well.

Poster session was also organized in order to create an opportunity for the students to present and discuss their research with specialists in the field.

Chapter members were in charge of ice-breaking activities for the school participants. They organized scientific games that made the school atmosphere very friendly from the very first day. Interesting and informative crossword puzzle was created to warm-up the students for the productive week.
Crossword puzzle for the ice-breaking activities

1. Disproved the existence of the ether, together with Morley
2. Two-state quantum-mechanical system
3. Light Amplification by Stimulated Emission of Radiation
4. Made fundamental contributions to the theory of far-field diffraction
5. Height of a wave
6. Famous for his double-slit experiment and deciphering the Rosetta stone
7. Stimulated emission, photoelectric effect, relativity
8. The ability of waves to oscillate in more than one direction
9. $mc^2 = ?$
10. Seven colors of visible light
11. Nucleus + one or more electrons
12. Phenomenon in the Wollaston prism
13. Wave/particle
14. The redistribution of atomic energy levels that takes place in a system so that laser action can occur
15. \(1s^2 \ 2s^2 \ 2p^6 \ 3s^2 \ 3p^2\)
16. Top of a wave
The SPIE Optical Metrology 2017 took place on 25-29 June, 2017 in Munich, Germany. It was co-located with SPIE Digital Optical Technologies, ECBO and CLEO within Laser World of Photonics Congress. The Vice-Treasurer of SPIE Student Chapter of the University of Trento Alessandro Trenti and member of the chapter Sara Piccione participated in CLEO. Alessandro presented a paper titled “Towards MIR SPDC generation in strained silicon waveguides”, where he showed recent results regarding the strain-induced second order nonlinearity and a possibility of single-photon detection in the MIR by two up-converter modules. Moreover, the conferences were followed by the SPIE Leadership Workshop on 24th of June within SPIE Optical Metrology 2017. Alessandro took part in leadership workshop as well. Approximately 36 SPIE Student Chapter leaders from around the world gathered for a full day of leadership training. The Student Chapter Leadership Workshop, moderated by Jean-luc Doumont, Principiae, focused on the qualities of good leaders and how to apply those in leading their chapters. Students had the opportunity to problem-solve real-life chapter problems and network with other students from 16 countries and 21 different chapters. Chapters’ poster session gave an additional chance to different chapter leaders show their chapter’s activities and share with ideas with colleagues from the entire world. Alessandro also presented our chapter’s already realized activities and introduced upcoming events for the next year. It is important to note that it was the first time that the University of Trento chapter was presented to the world during an international event.
On 3-7 July, 2017 the 39th Max Born Symposium and 5th International Symposium on Optics & its applications held in Wroclaw, Poland. OPTICS-2017 was the 5th edition of the OPTICS SYMPOSIA series http://e-ico.org/node/363. This time it was organized by

- University of Wroclaw, Poland
- Wroclaw University of Technology, Poland
- Russian-Armenian University, Armenia
- OSA & SPIE Wroclaw Univ. of Technology student chapters, Poland
- SPIE Russian-Armenian Univ. and National Academy of Sciences chapter, Armenia

Co-organizer Student chapters were

- SPIE Yerevan State Univ. student chapter, Armenia
- SPIE Univ. of Trento Chapter, Italy
- SPIE BMSTU chapter, Russia

The symposium aimed to bring together experienced and young scientists from various countries working on optics, and to provide a perfect setting for their discussions of the most recent developments in that area. 60 participants from 12 countries attended the symposium. It combined invited plenary talks and sectional presentations, student presentations, student chapter presentations, professional development lectures, lab tours and social events. There were SPIE CEO Eugene Arthurs, Sir. Michael Berry, David Sampson, Gerd Röpke, as well as the University of Trento SPIE Student chapter’s adviser prof. Lorenzo Pavesi among the invited speakers.

Technical topics of the symposium were followings:

- Optical properties of nanostructures
- Laser spectroscopy
- Singular optics and its applications
- Nonlinear & ultrafast optics
- Strong field optics
- Photonics & fiber optics
- Silicon photonics
- Mathematical methods in optics
- Quantum optics
Delegation from SPIE Student Chapter of the University of Trento consisted of the advisor Prof. Lorenzo Pavesi, the President Tatevik Chalyan and the member Stefano Signorini. Prof. Pavesi presented two talks on “Classical and Quantum integrated silicon photonics” and “Silicon photonics for optical switching in data centers”. Tatevik and Stefano presented their research projects with oral presentations titled “Optical biosensors for Aflatoxin M1 detection in milk” and “Multi-modal Four Wave Mixing for broad wavelength generation and conversion in silicon waveguides”, respectively. Stefano Signorini was awarded the prize for the Best Oral Presentation chosen by the scientific committee of the symposium.

The chapter representatives in OPTICS -2017 presented a chapter poster during the poster session.
On 6-10 August, 2017 the biggest annual meeting of SPIE: SPIE Optics+Photonics 2017 was held as always in beautiful San Diego, USA. Attendance, the number of papers, and the number of exhibitors were all up over in SPIE Optics + Photonics.

SPIE Student Chapter of the University of Trento could not miss the chance to enjoy the week full of conferences, leadership trainings, networking and of course sunny San Diego. Two members of the chapter, President Tatevik Chalyan and Vice-President Claudio Castellan participated in O&P2017. Tatevik Chalyan used the chapter’s Officer Travel Grant for participating in O&P2017. Everything already started on 5th of August from the leadership workshop. Nearly 250 SPIE student chapter leaders from all around the world gathered at the San Diego Marriott Marquis and Marina to kick off SPIE Optics + Photonics. During the highly interactive, all-day event facilitated by Jean-luc Doumont (Louvain and Stanford), students discussed what being a leader is all about (and what it is not about), how to communicate across cultures, and how to go from ideas to achievements. Teams formed to brainstorm what leadership means, drew their ideas on paper, and presented in front of the group.

Students were divided into groups and had the opportunity to problem-solve real-life chapter problems. Jean-luc Doumont proposed three problems with three possible solutions. During the discussions, leaders from different chapters shared their own experiences and tried to figure out the best solutions for particular situations. Good networking among students from different countries and nationalities was guaranteed.
Special lectures by Jean-luc Doumont and SPIE President-Elect Maryellen Giger on very important topics as how to prepare a good presentation or a good paper were followed with a big interest. Tatevik, who had a presentation on the last day of the conference, used almost all advices from Jean-luc for her presentation.

The next step to integrate with worldwide chapter networking was a chapter’s poster session, where all participant chapters showed activities done in their countries and institutions. Many of them made new connections and collaborations, as UNITN Chapter did for the next year activities. New ideas and interesting interactive discussions helped chapter leaders to go back to their teams with new projects in their minds. During the poster session, SPIE President Glenn Boreman was present as well and he appreciated the job that UNITN Chapter did in less than one year.
The President of UNITN Chapter Tatevik Chalyan actively participated in discussions about SPIE Career Lab platform creation in San Diego and in fact, during the week of November 11th to 18th, she led discussions on Career Lab Facebook page. During one week, the benefits and responsibilities from the conference participation and organization, as well as the new ideas to organize better conferences were proposed and commented by group members and SPIE.

UNITN Chapter’s Vice-President Claudio Castellan attended O&P2017 by SPIE Optics and Photonics Education Scholarship that he had won. He used scholarship amount of 2500 USD for travel, accommodation, and conference registration expenses. SPIE President Glenn Boreman officially awarded all Education Scholarship winners their certificates during the Lunch with Experts.
Tatevik and Claudio participated in all student meetings and in particular, they had a great success in Optics Outreach Games 2017. Elegant, ingenious, and fun SPIE Student Chapter outreach projects were evaluated by judges and enjoyed by all, in an evening capped by recognition of three top entries selected by judges and a people's choice award. The People’s Choice was the project from University of Trento Chapter. Tatevik and Claudio showed simple and easy realized experiment named Magic Water, without special equipment demonstrating physical laws of light reflection and absorption, the idea of critical angle, and internal reflection in water. Thanks to easy realization, that people can do at home or school, using common materials they may already have or can easily acquire, Magic Water will be one of the 3 projects included in worksheets developed by the SPIE Education department dedicated to the International Day of Light (IDL).
Besides all chapter activities, Tatevik and Claudio attended plenary sessions, lectures and presented their research projects during the Nanoscience + Engineering conference. Claudio had a presentation on “From SHG to mid-infrared SPDC generation in strained silicon waveguides” in Quantum Photonic Devices session, where he showed perspectives on the reverse process, the Spontaneous Parametric Down Conversion (SPDC), through which it is possible to generate mid-infrared entangled photon pairs. While Tatevik presented Microring Resonators based photonic biosensors for molecular interaction studies with a presentation titled “Use of Microring Resonators for Biospecific Interaction Analysis” during Optical Sensing, Imaging, and Photon Counting: Nanostructured Devices and Applications 2017. Both papers are published in SPIE Conference proceedings.
On 11-15 September, 2017 Trento became a city of physics within the 103rd Italian National Congress. The Annual National Congress, which gathers about 600 Italian physicists for a whole week, represents the meeting point of Italy's scientific community. In spite of the various cultural and scientific facets of contemporary physics, the world of Italian researchers and physicists found here its common background. The Congress was composed of Plenary Sessions and 7 Parallel Sessions.

During the Congress, a special accent was put on outreach activities for public in order to make physics closer to everyone. SPIE Student Chapter of the University of Trento took part in the outreach activities as well. On 13th of September within PHYSICS2NIGHT event, in Circolo Culturale Don Quixote during so-called “Appuntamento (non) al buio” evening chapter members (Tatevik Chalyan, Claudio Castellan, Stefano Signorini, Sara Piccione and Federico Caporaletti) by using SPIE Outreach Kit content amazed event visitors with beauties of light and optics. Lasers (green, red and violet), SPIE diffraction glasses, monochromatic light sources, 3D hologram, optical cloaking and Magic Water were demonstrated in front of Trento.
Remote sensing is a fast-growing technology using highly sophisticated sensors on satellites and other elevated platforms as well as on the ground, together with adaptive signal and image processing, to deliver many practical applications. SPIE Remote Sensing has become a well-attended annual international meeting on this subject in Europe. With more than 450 attendees each year, and over 550 papers, it sees comprehensive coverage of scientific topics, applications, sensors, systems, and satellite platforms where more than 25 countries are represented.

SPIE Student Chapter of the University of Trento member Milad Niroumand-Jadidi, SPIE Education Scholarship winner, double award winner of the best paper and best presentation of the SPIE remote sensing conference 2015, Toulouse France and SPIE remote sensing 2016 Edinburgh U.K., and SPIE grant winner for "potential long range contribution to the field of optics and photonics" 2016 was invited to present his work titled "Grain size mapping in shallow rivers using spectral information: a lab spectrometradiometry perspective" in the SPIE Remote Sensing 2017 conference, 11-14 September 2017, Warsaw, Poland where for the third successive year he won the Best Paper and Presentation Award.
Tatevik Chalyan was featured as part of SPIE’s #FacesofPhotonics campaign the week of 16-23 October, 2017. This campaign highlights individuals in the optics and photonics community around the world. Each week, one person is featured across SPIE social channels, where they share, among other things, the story of how they became involved in this field.

"I think it is important to share experiences, information, and adventures with others. I would be happy if even one person was inspired by my example of a satisfied woman in science, and decided to follow my path."

TATEVIK CHALYAN

#FaceofPhotonics
SPIE Student Chapter of the University of Trento is already one year old. The goal of the Chapter has revolved around creating a strong community of young researchers from various fields concerning photonics. On 17th November, 2017 we concluded chapter’s first year of active and productive life and celebrated its 1st anniversary. In honor of this anniversary, we put together a workshop called "Photonics as a Key Enabling Technology". The workshop aimed to connect different fields where photonics was the key enabling technology. Photonics-the "Science-and-Technology-to-Harness-Light"-is a discipline that involves fundamental research of photons, of light-matter interactions, and the development of novel technologies and applications based on the unique properties of light. Photonics plays the role of a chain among biology, chemistry, microelectronics and microsystems for various life-important applications as biosensing, telecommunication, and security.

The event had 50 attendees, 9 invited speakers (including Andrea Armani from the Armani Research Lab, University of Southern California and speakers from the University of Trento and Fondazione Bruno Kessler), 13 posters, and a spectacular SPIE UNITN Chapter cake.

The workshop opened the Advisor of UNITN Chapter, Head of the Department of Physics Professor Lorenzo Pavesi. He welcomed all guests and students.

Workshop’s program

FBK Sala Stringa

9.00-9.15 Lorenzo Pavesi - Welcome

*University of Trento, Department of Physics, NanoScience Laboratory*

9.15-10.00 Andrea Armani - Developing nanotechnology to study biological systems

*University of Southern California, Viterbi School of Engineering, Armani Research Lab*

10.00-10.30 Cristina Potrich - Smart biointerfaces for the detection of circulating biomolecular markers

*Fondazione Bruno Kessler, LABSSAH*

10.30-11.00 Coffee break

11.00-11.30 Andrea Adami - Microsystems for analytical devices

*Fondazione Bruno Kessler, MicroSystems Technology*

11.30-12.00 Gian Franco Dalla Betta/Lucio Pancheri - Silicon integrated photon detectors

*University of Trento, Department of Industrial Engineering*

12.00-12.30 Albrecht Haase - Exploring the physics of the brain with nonlinear fluorescence imaging

*University of Trento, Department of Physics, Neurophysics Group*
12.30-14.00 Lunch
14.00-14.30 Massimo Borghi - Experimental investigation of the optical properties of a material
University of Trento, Department of Physics, NanoScience Laboratory
14.30-15.00 Mher Ghulinyan - Integrated photonics research in FBK
Fondazione Bruno Kessler, Functional Materials and Photonics Structures
15.00-15.30 Andrea Chiappini - Photonic Glasses: advances and perspectives
CNR-IFN Trento
15.30-16.00 Andrea Armani - How to Prepare for an Academic Position
University of Southern California, Viterbi School of Engineering, Armani Research Lab
FBK Open Space EIT Ed. Nord 1st floor
16.00-16.30 Coffee break
16.30-18.00 Poster Session
18.00-19.00 Closing ceremony/Awards/SPIE Cake

In order to invite Professor Andrea Armani, UNITN Chapter used its benefit for the Visiting Lecturer program. Professor Armani presented two talks: one on technical topic and the second one was a professional developing lecturer titled “How to Prepare for an Academic Position”, which arose a big interest among workshop attendees and was followed with questions and discussions afterwards.

All invited speakers presented their research groups and projects within 30 minutes. The target audience was students who attended the workshop to get to know more precisely the activities that University of Trento and Foundation of Bruno Kessler are involved in.
SPEAKERS OF “PHOTONICS AS A KEY ENABLING TECHNOLOGY”
During the talks, we have discussions and speakers answered to the questions from audience.
Coffee breaks offered by SPIE UNITN Chapter refreshed everyone and made a friendly atmosphere for scientific discussions.
The second part of the afternoon program was dedicated to the poster session where students from the University of Trento and Foundation of Bruno Kessler had an opportunity to show the results of their research work. Thirteen posters were presented. During one and a half-hour poster session, very intense and interesting discussions took place. The jury consisted of invited speakers who evaluated the posters and chose 3 best ones. Gregorio Alejandro López Moreira Mazacotte received the third prize with a poster titled “An integrated reduced-complexity model to study the effect of artificial light at night on the metabolic rates of lake ecosystems”. He got an SPIE pen-pointer. Stefano Biasi was awarded the second prize with a poster titled “How is possible to measure the Bogoliubov dispersion in a third order nonlinear Silicon waveguide?”. He received 40 EUR. And Andrea Ficorella won the first prize with a poster titled “Crosstalk characterization of a two-tier pixelated avalanche sensor”. Andrea received 60 EUR. All prizes were sponsored by the SPIE UNITN Chapter’s Activity Grant.
POSTER SESSION

“PHOTONICS AS A KEY ENABLING TECHNOLOGY”
Poster presentation winners got their certificates and prizes from chapter’s current President Claudio Casetllan and Co-advisor Massimo Borghi.

1st Prize Andrea Ficorella
“Crosstalk characterization of a two-tier pixelated avalanche sensor”

2nd Prize Stefano Biasi
“How is possible to measure the Bogoliubov dispersion in a third order nonlinear Silicon waveguide?”

3rd Prize Gregorio Alejandro López Moreira Mazacotte
“How is possible to measure the Bogoliubov dispersion in a third order nonlinear Silicon waveguide?”
We concluded the workshop with the inauguration of new officers accompanied with SPIE University of Trento chapter’s birthday cake and drinks.

The new officers elected on November 3rd are:

- Lorenzo Pavesi: Advisor
- Claudio Castellan: President
- Stefano Signorini: Vice-President
- Sara Piccione: Secretary
- Alessandro Trenti: Treasurer
- Massimo Borghi: Co-Advisor
- Tatevik Chalyan: Past President
SPIE STUDENT CHAPTER OF THE UNIVERSITY OF TRENTO
“PHOTONICS AS A KEY ENABLING TECHNOLOGY”

HAPPY 1st ANNIVERSARY
SPIE STUDENT CHAPTER OF THE UNIVERSITY OF TRENTO
UPCOMING EVENTS 2017-2018

After the first anniversary of the chapter, all members are more excited to continue chapter’s activities more intensively and enthusiastically and we have already planned a list of events.

Here they are:

1. **Nanoscience Laboratory Kick off Meeting 2017** - 24 November 2017, Trento, Italy
   This year two invited speakers are Prof. Andrea Massa (University of Trento) with a talk “ELEDIA Research Center - Research Trends, Current Activities, and Future Applications” and Prof. Marco Canossa (University of Trento) with a talk “Long-Term Memory Retrieval Requires Synaptic Glia for Protein Recycling”.

2. **SPIE PHOTONICS WEST 2018** - January 27- February 1, 2018, San Francisco, USA
   UNITN chapter’s Secretary Sara Piccione will attend the Leadership Workshop during the PW2018 by using chapter’s Officer Travel Grant. She will present a poster titled “Mid-infrared Coincidence measurements on twin photons at room temperature” during the conference poster session as well.

3. **6th INTERNATIONAL SYMPOSIUM ON OPTICS AND ITS APPLICATION (OPTICS-2018)** - 17-20 February 2018, Trento Italy
   SPIE Student Chapter of the University of Trento will host the 6th International Symposium on Optics and its Applications (OPTICS-2018) on February 17-20, 2018 in Trento, Italy. The goal of this symposium is to bring together experienced and young scientists 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. The Symposium will provide a good opportunity for contacts and information exchange between experts and students. Twelve European Student chapters are involved in the symposium organization. Symposium is sponsored in the scopes of SPIE FOCUS grant. We have
invited speakers from 10 different European institutions. During the Symposium, a special section will be dedicated to the professional development lectures from the academy and industry points of view. Students will have a chance to present their research with oral presentations as well as posters.

Directors:

Lorenzo Pavesi  
NanoScience Laboratory, Department of Physics, University of Trento, Italy

Narine Gevorgyan  
Department of General Physics and Quantum Nanostructures, Institute of Mathematics and High Technologies, Russian-Armenian (Slavonic) University

Head of project:

Tatevik Chalyan  
NanoScience Laboratory, Department of Physics, University of Trento, Italy

Coordinator:

Tatsiana Egorova  
NanoScience Laboratory, Department of Physics, University of Trento, Italy
Main Organizer
University of Trento SPIE Student Chapter, Italy

Co-organizer Student Chapters
Bordeaux Chapter, France
FEMTO-ST Chapter, France
ICFO - The Institute of Photonic Sciences Chapter, Spain
Institute of Radiophysics and Electronics Chapter, Ukraine
Optics Students Karlsruhe (OSKar) Chapter, Germany
Russian-Armenian Univ. and National Academy of Sciences Chapter, Armenia
Univ. degli Studi di Napoli Federico II Chapter, Italy
Univ. do Porto Chapter, Portugal
Univ. of Latvia Chapter, Latvia
Vrije Univ. Brussel Chapter, Belgium
Wroclaw Univ. of Science and Technology OSA Student Chapter, Poland
Yerevan State Univ. Chapter, Armenia

Conference Technical Topics:

- Silicon photonics
- Strong field optics
- Optical properties of nanostructures
- Quantum optics
- Singular optics and its applications
- Laser spectroscopy
- Nonlinear & ultrafast optics
- Photonics & fiber optics
- Mathematical methods in optics

Invited Speakers:
Artur Aleksanyan: Natural adaptive approach towards optical vortex coronagraphy
Laboratoire Photonique Numérique et Nanosciences (LP2N), Institut d’Optique d’Aquitaine, Talence, France
David Andrews: Photons and Nanoscale Forces
University of East Anglia, Norwich, UK
Michael Berry: Superoscillations (faster than Fourier) (p) revisited: vorticulture, noise, fractals
University of Bristol, England
David Blaschke: Dynamical Schwinger effect in strong, time-dependent external fields
Uni. of Wroclaw, Poland; JINR Dubna, Russia; MEPhI, Russia
Massimo Borghi: Integrated quantum photonics
NanoScience Laboratory, Department of Physics, University of Trento, Italy
Iacopo Carusotto: Quantum fluids of light
INO-CNR BEC Center, Trento, Italy

Mher Ghulinyan: Integrated resonators optics
Functional Materials and Photonics Structures, Fondazione Bruno Kessler, Italy

Fernando Ramiro Manzano: Forward and backward photonic routes though integrated devices
Centro de Tecnologías Físicas, Instituto de Tecnología Química (CSIC-UPV, Valencia, Spain

Lorenzo Pavesi: Classical and Quantum integrated Silicon Photonics
NanoScience Laboratory, Department of Physics, University of Trento, Italy

Mauro F. Pereira: GHz-THz-Mid Infrared Devices: From Fundamental Theory and Simulations to Real World Applications
Materials and Engineering Research Institute (MERI), Sheffield Hallam University, United Kingdom

Alessandro Tredicucci: How to control light with light: perfect absorption and transparency through interference
Dipartimento di Fisica, University of Pisa, Italy

Professional development Lectures by:

Rim Cherif: How to write a journal paper and good presentation
University of Carthage, Carthage, Tunis, Tunisia

Henk Leeuwis: Academy-Industry collaboration connection with LioniX International B.V. example
LioniX International B.V., Enschede, The Netherlands

Aram Papoyan: How to prepare an application for international grant program
Institute for Physical Research of National Academy of Sciences of Armenia, Ashtarak, Armenia

Sponsors:

4. SPIE PHOTONICS EUROPE 2018 - 22-26 April 2018, Strasbourg, France
UNITN chapter’s President Claudio Castellan, Vice-President Stefano Signorini, Past-President Tatevik Chalyan and Co-Advisor Massimo Borghi submitted abstracts to the PE2018. Authors will be notified in January.

5. International Day of Light (IDL 2018) – 16 May, 2018
SPIE Student Chapter of the University of Trento will organize a public event on May 16th dedicated to IDL 2018. For that purpose, the chapter will apply for the SPIE IDL Micro Grant.

6. UNITN Chapter plans visits to schools and similar outreach activities for Trento inhabitants.
FINANCIAL REPORT OF UNIVERSITY OF TRENTO CHAPTER

From October 2016 to November 2017, University of Trento Chapter received following grants:

Activity Grant - Twice, each of 900 USD
Optics Outreach - 2 Outreach Kits
Visiting Lecturer Grant - used for inviting Professor Andrea Armani
Officer Travel Grant - Tatevik Chalyan attended Optics+Photonics 2017
SPIE FOCUS Grant - 5000 USD for OPTICS-2018

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<tr>
<th>Activities</th>
<th>USD</th>
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<tr>
<td><strong>Activity Grant 2016</strong></td>
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<tr>
<td>Received on 29/12/2016</td>
<td>900</td>
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<tr>
<td>“Day of Photonics” Facilities for experiments, drinks and food</td>
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<td>Winter School in Folgaria</td>
<td>400</td>
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<td>Leadership Workshop A. Trenti in Munich</td>
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<td>OPTICS-2017 S. Signorini in Wroclaw</td>
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<tr>
<td><strong>Total Remains</strong></td>
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<td>OPTICS-2017 T. Chalyan in Wroclaw</td>
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<tr>
<td>Lasers Green and Violet</td>
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<tr>
<td>Chapter meetings drinks</td>
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<tr>
<td>“Photonics as a key enabling technology” workshop’s cake</td>
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<td>110</td>
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<td>“Photonics as a key enabling technology” workshop’s coffee breaks twice for 50 person</td>
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<td>Drinks, cups for “Photonics as a key enabling technology” workshop’s</td>
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<td>“Photonics as a key enabling technology” workshop’s Best Poster Award</td>
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<td>“Photonics as a key enabling technology” workshop’s Lunch</td>
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<td>Chapter Christmas Gathering</td>
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1st Annual Report of SPIE Student Chapter of the University of Trento submitted on 5th December 2017.

The report has been written by the first President of the chapter Tatevik Chalyan and has been revised by the first Secretary of the chapter Zahra Bisadi.

Special thanks to Tatsiana Egorova for encouraging a supporting all ideas of our members.