

Photonics Finland

# Annual Report 2025

19.3.2026

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# ACTIVITY REPORT FOR THE PERIOD 01.01.– 31.12.2025

## 1. Operating Principles of the Association

The Finnish Optical Society was founded on March 21, 1996. The purpose of the society was to act as a link between people interested in optics and related fields, and to promote research, teaching, hobby, and industrial application of optics in Finland. The society also aimed to maintain international relations and connections. The society was registered in an association on 16 December 1996 after minor rule revisions.

In June 2014, the association changed its name to the Suomen fotoniiikan seura, more commonly called as Photonics Finland, and revised its rules. The goal of the association is to build a company-oriented technology network alongside with the academic community, which promotes the operating conditions of the Finnish photonics industry.

In 2016, Photonics Finland took over the functions of the National Committee for Optics. Photonics Finland's board of directors act as Finland's national committee for optics.

Photonics Finland and the photonics flagship PREIN cooperate closely in supporting the impact of photonics.

At Photonics Finland's autumn meeting, the targets which are aimed to be achieved for 2024 were named. Those are:

- Develop of the Academic Advisory Board
- Photonics Finland events in Finland and abroad
- To handle the tasks and operations of existing projects in an exemplary manner.
- Seeking out new projects

Finnish Pavilion was organized by Photonics Finland at two of the largest events in the photonics industry (Photonics West and Laser World of Photonics). A wide range of the association's individual members and member companies participated in these. The photonics industry and Photonics Finland received a lot of attention in both the national and regional media. Internationally, the association's social media attention grew strongly. A photonics industry survey was conducted reporting growth in all aspects of photonics.

Photonics Finland's services to its business members are part of the membership benefits: Discount on events organized by the association, such as the exhibitor price at the OPD event, a one-page ad in Foton magazine once a year, the option to send one A4-sized bulletin with Foton free of charge once a year, and the company's contact information or a link to the company's website from the association's website. Services offered by Photonics Finland to both member companies and individual members were, for example, Jobboard and various visits. In addition, the association's projects provided members with targeted services such as Cluster Exchange (matchmaking and networking), innovation support through Photon Hub Europe and Photonics4Industry, and specialized training in spectral color imaging.

## 2. Photonics Business in Finland

In 2025, the Finnish photonics industry demonstrated strong and sustained growth, as confirmed by the national Photonics Industry in Finland 2025 survey conducted by Photonics Finland, PREIN and Business

Finland. The sector has expanded significantly since the previous 2023 survey, reflecting both increased market demand and the broader adoption of photonics technologies across industries.

According to the 2025 survey, the total annual revenue of Finland's photonics companies now exceeds €2.5 billion, and the industry directly employs more than 7,500 people nationwide.

The number of companies operating in the field has risen to approximately 340, representing a 13% increase since 2023 and supported by an annual rate of new company formation of around 7%.

Between 2023 and 2025, the sector's total business volume grew by about 25%, making photonics one of Finland's fastest-expanding high-technology domains.

Companies report strong expectations for the future: on average, Finnish photonics firms anticipate 48% business growth over the next three years, driven by increasing international market demand and expanding application areas.

The 2025 survey also mapped the sector's engagement in semiconductor technologies and quantum applications. A notable share of companies reported active involvement in these areas—highlighting the convergence between photonics and other strategic deep-tech fields.

This reflects a broader global trend, where optics, sensing, imaging, lasers and advanced manufacturing play an increasingly critical role in next-generation semiconductor and quantum technologies.

Despite the challenging global economic environment—including high interest rates, inflationary pressures and geopolitical uncertainty—the Finnish photonics industry continued to grow, demonstrating strong resilience and competitiveness. The 2025 survey results indicate that companies are expanding internationally, increasing their personnel, and investing in new capabilities and market opportunities.

Overall, the 2025 findings show that photonics has firmly established itself as a key growth engine in Finland's high-tech landscape. With a broad industrial base, strong export orientation and deep scientific expertise, photonics continues to strengthen Finland's reputation as one of Europe's most dynamic and innovative photonics hubs.

The report can be found here: <https://www.photonics.fi/wp-content/uploads/2025/06/2025-05-30-Photonics-Industry-in-Finland-2025.pdf>

### 3. Photonics research in Finland

Photonics (Photonics Research and Innovation, PREIN) is one of six centers of excellence selected in 2018, funded by the Academy of Finland's Flagship Program until the end of 2026. The Flagship Program supports high-level research and its extensive impact, fostering future expertise and sustainable solutions to societal challenges while promoting economic growth through the development of new business opportunities. Photonics Finland is a significant collaboration partner, especially in strengthening the impact of photonics. <https://prein.fi/>

Photonics research is conducted in several universities and research institutes in Finland.

At **Aalto University**, top experts are trained with a strong theoretical foundation and competitive, high-level technical skills in various key areas of photonics. Aalto's research groups offer unique opportunities for optical and photonic research, ranging from understanding the basic principles of optics to photonics applications, which are significant in fields such as ICT, healthcare, and energy applications. Current fundamental research topics include quantum photonics, nanophotonics, ultrafast photonics, sensors,

plasmonics, metamaterials, fiber optics, lighting technology (LEDs and lasers), thermophotonics, and photovoltaics. Aalto University is a partner in the PREIN Flagship.

At the **University of Helsinki**, photonics research is conducted extensively as part of the research in physics, chemistry, as well as pharmacy and medicine. The Department of Physics focuses particularly on the development of microscopy and X-ray spectroscopy/tomography. Additionally, the department has world-class expertise in scattering research, especially related to aerosol optics and astrophysics applications. The Department of Chemistry conducts fundamental research in photonics (nonlinear optics, photoacoustics) and develops new spectroscopy and microscopy methods. These are applied in air quality measurements, as well as in pharmaceutical and medical research in collaboration with experts in those fields. Other key research areas include photosynthesis, light-controlled drug delivery, and the use of plasmonic nanoparticles for chemical analysis and catalysis (renewable energy sources).

The **Finnish Meteorological Institute** develops atmospheric and weather observation methods and systems utilizing photonics.

The **University of Eastern Finland's (UEF)** photonics research ( <https://sites.uef.fi/photonics/> ) is organized under the Center for Photonics Sciences and the Photonics Research Community (RC), one of UEF's strategic top research areas. Multidisciplinary photonics research is conducted in the Departments of Physics and Mathematics, Computer Science, Environmental and Biological Sciences, Chemistry, and Applied Physics. The research focuses on areas such as fundamental classical and quantum photonics, nanophotonics, integrated optics, biophotonics, spectral color research, optical material research, modern optical manufacturing methods, and optical imaging. UEF has excellent nanophotonics manufacturing and characterization equipment and a unique 3D printer for optics. UEF is a partner in the national PREIN Flagship, the national research infrastructure for photonics FinnLight, as well as the national quantum network InstituteQ. UEF collaborates with leading universities and research organizations to advance expertise, infrastructure, and innovations that strengthen the nation's photonics and quantum competitiveness.

At the **University of Jyväskylä**, photonics-related research includes quantum optics (optomechanical structures and spin-photon emitters), the study of polaritonic phenomena (strong light-matter interactions), and the development and utilization of time-resolved laser methods (from nanoseconds to femtoseconds). Femtosecond lasers are also used to modify two-dimensional materials. Additionally, optical confocal and near-field microscopy are widely used, with a near-field microscope acquired in 2022 enabling nanoscale imaging and spectroscopy. Research subjects include carbon nanostructures, such as graphene, gold nanoparticles, light-sensitive proteins, ultrafast proton transfer reactions of photoacids, surface plasmons in customized nanostructures, polaritonic chemistry, spin-photon interfaces, and their quantum information applications, imaging of cell transport phenomena, and studying surface material distributions (metal coatings and ores). <https://www.jyu.fi/science/en/nanoscience-center/research/infrastructures/laser-laboratory>

The photonics research at **Lappeenranta University of Technology's** Department of Physics focuses on optical measurement techniques, particularly nonlinear laser spectroscopy (mainly CARS and SFG spectroscopy). Photonics-related research is also conducted in the Department of Mechanical Engineering, where various laser welding and laser processing methods are studied.

At the **University of Oulu's** Optoelectronics and Measurement Techniques Laboratory, research and development focus on measurement methods for highly scattering materials such as paper, pulp, and biological samples, with key technologies including optical coherence tomography, photon migration, photoacoustics, and directly optically readable biometrics methods. Other methods include spectrophotometric sample characterization and the use of optical tweezers to study light-matter

interactions. The laboratory also models photon-material interactions. Additionally, organic light-emitting components such as LEDs and transistors (OLED) and solar cells are researched and developed.

The University of Oulu's Measurement Technology Research Unit in Kajaani focuses on developing optical measurement methods, particularly for the needs of the bioeconomy, mining industry, process industry, environmental monitoring, and sports technology. Key technologies include reflectance measurement methods, surface plasmon resonance (SPR) methods, multivariate methods-based UV-VIS-NIR spectroscopy, and imaging measurement methods. The research unit has increasingly focused on developing non-optical measurement methods (electrochemical sensors and biosensors), but optical measurement methods will continue to be part of its research activities.

The **Finnish Defence Research Agency's** research area of optronics and acoustics involves studying and developing optronic sensors for the needs of the Finnish Defence Forces and their suitability for the Finnish operational environment.

**Tampere University** hosts one of the leading photonics research hubs in Europe, with light-based technologies identified as a strategic focus area of the university. Photonics research at TAU spans the entire innovation chain, from fundamental science to advanced technology development and applications. Researchers develop new light sources, advanced photonic materials, and methods for controlling the spatial, temporal, and spectral properties of light, enabling innovative solutions across diverse fields including sensing, imaging, communications, environmental monitoring, security, and health technologies. Key research areas include light-activated functionalities in materials, photonic and functional glasses, photovoltaic materials and solar cells, molecular beam epitaxy-based semiconductor technologies, nanostructured photonic materials, nonlinear and ultrafast optics, semiconductor and fiber lasers, surface science, optical spectroscopy, experimental quantum optics, and computational photonics. These activities are supported by world-class experimental and fabrication facilities, enabling both fundamental discoveries and the development of next-generation photonic technologies.

Tampere University coordinates the PREIN Flagship <https://www.tuni.fi/photonic> a national ecosystem of excellence advancing photonics science, technology and industrial impact in Finland and the national infrastructure for light-based technologies FinnLight <https://finnlight.fi> which provides state-of-the-art facilities and expertise for photonics research, device fabrication, and advanced optical characterization.

At the **University of Turku**, photonics research is conducted in the Quantum Optics Laboratory of the Department of Physics and Astronomy and the Research Group of Digital Manufacturing Techniques in the Department of Mechanical Engineering. The Atomic Quantum Optics Research Group theoretically examines the manipulation of cold atoms with external laser and magnetic fields, focusing on atomic Bose-Einstein condensates and atomic optics. The laboratory also uses a source of polarization-entangled photon pairs for quantum mechanics teaching and testing various quantum tomography methods. The Mechanical Engineering Research Group studies and develops laser-based manufacturing techniques such as laser welding and laser-based metal printing. Academic research focuses on understanding the interaction between laser beams and materials using sensors and imaging techniques. Research also includes product design, new materials, and industrial applications. Additionally, photonics research is conducted in the Department of Biomedical Sciences in the Faculty of Medicine, developing fluorescence-based molecular research methods.

**VTT** conducts photonics research at several locations with over 150 personnel. In Espoo's Micronova, dense photonic integration at the chip and wafer level is developed using silicon and silicon nitride waveguides, graphene, and plasmonics. In connection with quantum technology, low-temperature optoelectronics and

its packaging and single-photon detectors integrated with silicon photonics are developed. Micronova also develops microspectrometers, micromirrors, and other optical MEMS technology. In Oulu, photonics integration and packaging at the module level, optical measurement methods, and prototype measurement devices for demanding conditions, machine vision, optical instrumentation, bio-photonics, and optoelectronics for wearable sensors are developed. In Tampere, the focus is on plasmonics and laser radar applications, and in Kuopio, on optical instrumentation. VTT MIKES in Espoo researches and develops optical realization methods for SI units, traceability and reliability of optical measurements, and optical measurement methods. One focus area is developing and validating optical quality assurance methods for industrial production. VTT is a partner in the PREIN Flagship.

<https://www.vttresearch.com/en/ourservices/photonics>

Photonics research at **Åbo Akademi** University focuses on nanophotonics modeling, next-generation solar cells, materials for passive cooling, and especially imaging and microscopy within Turku BioImaging.

<https://www.bioimaging.fi/>

## 4. Photonics education in Finland

Photonics degree education in Finnish universities is based on top-level research and is closely integrated with the photonics industry and its their needs.

Academic research and education are closely intertwined, with research-informed degree programmes providing workforce with theoretical competences and application skills. There is a constantly growing demand on master's and doctoral graduates in Finnish photonics companies due to the rapid growth of the sector. It is possible to study photonics in several Finnish universities from the bachelor level to the doctoral degree. Finnish photonics education is very international with programs attracting students from around the world, and there are joint and double degrees with renowned international universities.

**Aalto University** Photonics is offered as a specialization in the master's programme in Nano and Radio Sciences. The major in Photonics and Nanotechnology gives the student theoretical and practical skills in electromagnetic radiation, modeling, optics, and in materials-related topics that can be applied from nanoscience to space physics. The programme focuses strongly on researching and building hardware for these technologies, paving the way for a fluent shift towards a career in the industry or an academic postgraduate path. The Doctoral Programme in Electrical Engineering is a broad multidisciplinary programme providing graduates with possibility to specialize in photonics and to work in a variety of application fields ranging from energy production to biomedical applications, robotics, nanotechnology and communications

**University of Eastern Finland** (UEF) offers a variety of photonics programmes at all degree levels. The international Master's degree in Photonics provides expert skills for careers in optics and photonics, covering theory and practical work. Training in diffractive optics and wave optics theory, applications, and manufacturing is world-class, providing a foundation for significant applied industry in Finland. Additionally, two multidisciplinary Erasmus Mundus joint master's degree programmes in photonics applications are offered in collaboration with international partners. In 2023, the university began accepting applications for Finnish Bachelor's and Master's degrees in Photonics (Technology), in response to growing national demand for photonics experts. UEF also participates in PHORTIFY (<https://phortify.eu/>), an EU-funded, Europe-wide photonics education and training network started in 2025. PHORTIFY will create a shared curriculum and mobility across seven Master's programmes in order to strengthen Europe's photonics talent pipeline. UEF is the only Nordic partner in PHORTIFY. Doctoral education in photonics is included in the Doctoral Programme in Science, Forestry and

Technology (LUMETO). In addition, UEF is a partner in the Innovative Doctoral Education Ecosystem for Photonics (I-DEEP), as well as the Quantum Doctoral Pilot Programme (QDOC). These support the training of future experts in both industry and fundamental science, strengthening Finland's standing in both areas.

At the **University of Helsinki**, the fundamentals of photonics and optics are taught in the Faculty of Science, primarily in the Department of Physics. Additionally, we offer several courses related to photonics applications to master's and doctoral students, not only in the Faculty of Science but also in the Faculties of Pharmacy and Medicine. These courses cover the latest methods for generating light (lasers, synchrotron radiation, X-rays), as well as its use in imaging (microscopy, bioimaging, X-ray tomography), spectroscopy (molecular spectroscopy, optical analytics, laser spectroscopy), aerosol optics, and nanoplasmonics. The courses are practical and include laboratory and project work.

**University of Jyväskylä** The master's degree in Nanoscience combines physics, chemistry and biology in multidisciplinary way allowing students to select either chemistry, physics or cell and molecular biology as their major. University of Jyväskylä is also involved in the Erasmus University of Helsinki The master's programme in Materials Research is based on physics, chemistry, biology and medical sciences, mathematics and computer science, all taught in a cohesive, and selfcontained way and one study track in optics and photonics. Mundus join master's programme in Radiation and its Effects on Micro Electronics and Photonics Technologies.

**University of Oulu** Photonics education at the University of Oulu is related to the Electrical Engineering master's degree programme where students may select the specialization module on Photonics and measurement technology to get acquainted with advanced optical and electrical measurement techniques in the application fields of biomedical measurements, photonics, and printed electronics.

**Tampere University** offers the opportunity to study photonics at the master's and doctoral levels. Photonics is one of the focus areas in the Finnish Master's in Technology Engineering and Natural Sciences degree programme. The International master's programme in Photonics Technologies provides students with in-depth knowledge ranging from fundamental light-matter interactions, laser physics and nonlinear dynamics to the design of optical systems, semiconductor technologies, advanced nanofabrication methods and measurement techniques. Tampere University is also involved in the EuroPhotonics Erasmus Mundus joint master's programme and has a double degree programme in photonics with Bordeaux University in France. In addition, students can enroll in the international bachelor's programme in Science and Engineering offering direct access to masters' studies in the Photonics Technologies programme.

The doctoral programme in Engineering and Natural Sciences offers the profiling area of light-based technologies to doctoral researchers. Tampere University coordinates the doctoral pilot in Innovative Doctoral Education Ecosystem for Photonics – I-DEEP launched in 2024. The I-DEEP consortium was established based on the activities of the Flagship for Photonics Research and Innovation PREIN, the photonics national research infrastructure FinnLight and Photonics Finland, and extends its reach to all Finnish universities with research activities in light-based technologies. Besides Tampere University, University of Eastern Finland, Aalto University, Åbo Akademi, University of Oulu, University of Jyväskylä, and University of Turku are part of the I-DEEP consortium. Photonics Finland and VTT are I-DEEP associate members that offer possibilities for collaboration with the industry. [prein.fi/home/studies](http://prein.fi/home/studies)

**University of Turku** in the master’s programme in Physical and Chemical Sciences, photonics is a theme of one of the specialization tracks. The programme aims at training graduates for research and development of new materials in biomedical or electronic applications.

## 5. Members

Members leader end of December 2025

Individual	Student	Societal	Societal side	Corporate	Corporate side	Honorary
200	37	13	2	115	22	6
175	44	13	3	113	21	0

At the end of 2025, Photonics Finland had 128 corporate and community members:



### 5.1. Member register keeper

Tuukka Pakarinen has been responsible for maintaining the member register.

## 6. Publications and communication activities

In 2025 the Photonics Finland team grew as the new communications manager **Anne-Maria Kankaisto** started 18.8.2025. The added resources will further develop effective communications, bringing more visibility for the whole industry and our members. **Tuukka Pakarinen**, who was previously in charge of both communications and events, will focus more on producing and developing events, continue producing Photonics Finland Pavilion to global exhibitions, and managing the membership issues as Events and Membership Manager of Photonics Finland.

## 6.1. Fotoni-magazine

Photonics Finland's member magazine is Fotoni-magazine. It was published twice in 2025. Jouko Korppi-Tommola, from the University of Jyväskylä, is the editor-in-chief of Fotoni magazine. The Editorial Board consists of Lasse Orsila and Jouko Korppi-Tommola. Eero Sundvall was responsible for the magazine's high-quality visuals.

The themes of the 2025 FOTONI magazines were: e.g. OPD2025 in Oulu, Dispelix waveguide technology; Fotoniikan näkymiä vuonna 2025, Photonics Finland new honorary members; Photonics company of the year 2024: Specim Spectral Imaging Oy Ltd; ALD to meet AR waveguide performance; Photonics Finland team is growing.

Fotoni 2025 / 1: <https://www.photonics.fi/fotoni/fotoni-1-2025-2/>

Fotoni 2025 / 2: <https://www.photonics.fi/fotoni/fotoni-2-2025/>

## 6.2. Web pages

The association's web pages (<https://www.photonics.fi>) have been constantly developing to improve the structure and accessibility of content. New material is being continuously added and old content updated. Some changes to the navigation and site map were implemented in 2025.

## 6.3. Postal Service

The association has an electronic mailing service. Messages, announcements, inquiries, etc. were sent via the e-mail address list [photonics-list@fos.fi](mailto:photonics-list@fos.fi) to all members who have entered their e-mail address in the member register and have not prohibited sending e-mail via the mailing list. The reply to a message that has entered the list is directed only to the original sender of the message. Email reaches more than 95% of members.

## 6.4. Social Media

The social media activities of Photonics Finland in 2025 were mostly focused on LinkedIn and Facebook, with a presence on X, YouTube and Bluesky as well. The association's LinkedIn audience continued to grow throughout the year, surpassing 5000 followers by December 2025.

Photonics Finland on LinkedIn: <https://www.linkedin.com/company/photonicsfinland/>

# 7. National actions and activities

## 7.1. Annual meeting (Spring)

The 2025 spring meeting of the association was held on June 4 5:05pm as part of the OPD2025 event in Oulu, Madetoja Hall, 1st floor. Kim Grundström was the chairman of the meeting and Juha Purmonen was the secretary.

## 7.2. Optics & Photonics Days 2025 (OPD 2025)

OPD2025 was held at Oulu Music Centre in Oulu 3 – 5 June 2025. Total 380 participants, 106 abstract submissions and 41 exhibiting companies. Participants from 20 countries: Finland, Germany, Lithuania, Switzerland, Belgium, Brazil, France, USA, Denmark, Netherlands, Sweden, Spain, UK, Pakistan, Norway, Poland, Czech Republic, Latvia, Japan, and Austria.

Plenary speakers were:

- **Hannu Talvitie**, Director of Technology Strategy, Vaisala, Vantaa, Finland  
Photonics Company of the Year. **Topic** *Taking every optical measure for the planet*

- *Prof. Dr. **Carsten Rockstuhl***, Institute of Theoretical Solid State Physics, Karlsruhe Institute of Technology, Karlsruhe, Germany. **Topic** *Scattering in Nanophotonic Systems*
- *Professor. Dr. Ir. **Roel Baets***, Ghent University – IMEC Department of Information Technology, Ghent, Belgium. **Topic** *“Silicon Photonics: New Applications, New Challenges”*
- ***Herbert Ernst***, PhD, Fluidics Strategy Capability Lead, Jabil Inc. **Topic** *Bringing Photonics to Life: Navigating the Path from Development to Deployment*

Industrial program themes were:

- Automotive
- Medtech
- Photonics for Sustainability
- Machine Vision

Academic program themes were:

- Integrated Optics
- Fundamental, Classical and Quantum Photonics
- Sensing and Imaging
- Novel Photonics Materials and Devices

Also, there were a lot of other activities such as Networking Dinner, Job Fair, Student meeting, Nordic Photonics Forum PREIN flagship event, Inauguration of VTT’s new medical device pilot line environment, BF SmartLab project meeting, UEF Alumni event and also Poster- and Exhibitor Pitch sessions.

OPD2025 web pages are accessible through the following link: <https://www.photonics.fi/opd2025/>

### 7.3. Annual meeting (Autumn)

The 2025 autumn meeting of the association was held on Friday 28 November 2025 at 14:00 as a Teams meeting. The chairman of the meeting was Göery Genty and the secretary was Juha Purmonen. Jouko Korppi-Tommola and Sanna Aikio were elected as minutes inspectors, who also act as vote counters if necessary. The meeting dealt with the statutory matters of the autumn meeting.

### 7.4. Photonics Finland – Events in Finland

Photonics Finland organized or participated in 2025 in the following events:

January 2025

- Photonics West 2025
- Spectral Imaging and its Applications
- What’s Up Photonics Finland

February 2025

- What’s Up Photonics Finland

March 2025

- Fotoniikka-alan yritysten tarpeet ja kasvun esteet – ratkaisuja ja yhteistyötä
- FICCC at Evertiq Expo
- Webinar: EIfys black silicon photodiode technology and benefits in NIR optimized 4-quadrant detector

- What's Up Photonics Finland

#### April 2025

- Valoa Joensuun tulevaisuuteen
- PhotonHub demo course on Spectral imaging and its applications
- Chip Happens! Virtual Morning Coffee
- Valoa perheille -tapahtuma
- Joint Lab Launch Event
- What's Up Photonics Finland

#### May 2025

- Fotoniikka 55 vuotta Joensuussa
- What's Up Photonics Finland

#### June 2025

- OPD2025, Oulu
- 360 CARLA One-Day Symposium on Photonics in Health: Biotech and Medical Photonics
- SuomiAreena 2025 Photonics Finland & PREIN photonics panel discussion
- What's Up Photonics Finland

#### August 2025

- 12th Markus Pessa International Summer School on New Frontiers in Optical Technologies
- Joensuu Summer School on Optics 2025
- What's Up Photonics Finland

#### September 2025

- What's Up Photonics Finland

#### October 2025

- 2025 Industry Connect: Matchmaking event
- What's Up Photonics Finland
- 360 CARLA Hands-on Training on Spectral Imaging for Medical and Health Applications
- Spectral Imaging for Medical and Health Applications – Dental Focus
- Optics & Photonics Sweden, Kista
- PhotonQBoost Matching Mission in Poland: Focus on Agrifood & Biotech

#### November 2025

- PIC Summit Europe 2025
- Light for Families – Valoa Perheille
- Nordic Chip Summit 2025
- Photonics & Quantum Delegation Visit to Colorado
- Chips & Beyond – Slush Side Event
- What's Up Photonics Finland

#### December 2025

- Nordic-Baltic CCC Meeting, Lund

- What's Up Photonics Finland

Photonics Finland events are listed and promoted at the association's website. They can be found at the following link: <https://www.photonics.fi/events/>

### 6.5. Scholarship activity in the field of photonics

The Best Doctoral Thesis award was given to PhD Markus Hiekkämäki, Tampere University for the thesis "Quantum Interference in Transverse Spatial Modes of Photons". The thesis can be accessed at the following link: <https://trepo.tuni.fi/handle/10024/149997>

### 7.5. Photonics Company of the year award

The Photonics company of the year award was given now for the ninth year in a row. Photonics Finland board rewarded Specim Spectral Imaging Oy Ltd. the photonics company of the year award for 2024. More about the company at the following link: <https://www.specim.com/>

Previous winners: in 2016 Gasera Oy, in 2017 OptoFidelity Oy, in 2018 Oplatek Group Oy, in 2019 Modulight Oyj, in 2020 Varjo Technologies Oy, Dispelix Oy in 2021 and Senop Oy 2022, Vaisala 2023.

### 7.6. National Photonics Survey

During 2025 Photonics Finland conducted a national photonics industry and research survey together with the Flagship for Photonics Research (PREIN) and Business Finland. The survey received 143 company responses and provides an updated overview of the current size, structure and development needs of the Finnish photonics sector. The results of the survey can be found at the following link:

<https://www.photonics.fi/media-2/surveys-brochures/>

According to the 2025 survey, the total annual revenue of Finnish photonics companies now exceeds €2.5 billion, and the sector directly employs more than 7,500 people. The number of companies has increased to around 340, representing a 13% increase since 2023 and a steady annual founding rate of approximately 7%.

The survey highlights strong and sustained business growth: between 2023 and 2025 the total business volume increased by approximately 25%, and companies expect on average 48% growth over the next three years. The expansion is driven by an increased demand in sensing, imaging, lasers, semiconductor-related technologies and quantum applications.

At the same time, the results clearly indicate structural needs. Companies report a growing demand for skilled professionals, increased production capacity, and greater investment in equipment and infrastructure to support scaling. The need for new talent spans all education levels, from vocational training to universities, and the survey underlines the importance of strengthening Finland's photonics education pipeline.

The survey also mapped the role of photonics in semiconductor and quantum technologies. A significant number of companies reported activity in these areas, confirming a strong convergence between photonics and other deep-tech domains. This highlights the strategic importance of photonics in Finland's wider high-technology landscape.

The research survey aimed at universities and research centres shows that Finnish photonics research remains broad and multidisciplinary. Key thematic areas include material science, metrology, sensing, and imaging—mirroring the needs of the industry. Collaboration with companies continues to play a central

role, and research organisations emphasise the need for long-term partnerships, access to infrastructure and coordinated national support.

The role of the PREIN Flagship remains visible: more than half of the industry respondents recognise its impact, although some companies are still not fully aware of its activities. Companies see joint events, collaborative research and visibility in national and international media as the most valuable forms of cooperation. They also express a strong interest in deepening collaboration with research institutes and in improving national outreach and awareness of photonics.

Overall, the 2025 survey confirms that photonics is one of Finland's fastest-growing technology sectors. Despite global economic uncertainties, the Finnish photonics industry is expanding in scale, strengthening its international competitiveness, and playing an increasingly strategic role in sectors such as health technologies, automation, defence, semiconductor technologies and quantum research

### 7.7. Photonics Finland and photonics flagship PREIN cooperation

Photonics Finland continues as an official partner of the PREIN flagship in supporting the effectiveness of photonics. Cooperation with the PREIN organization is carried out on many fronts, such as communication, innovation activities, business cooperation, recruitment activities, numerous events, and encouraging young people to enter the field. The cooperation has grown over the years and brought significant benefits to both parties.

### 7.8. Photonics Finland job board

In the field of photonics, the demand for skilled workers is high, from secondary school to university graduates. Photonics Finland responded to that need by creating a unified platform, the Photonics jobs in Finland job site, where experts, companies and open jobs meet. The job board website collects the entire photonics job offer in one place, through which it is easy for companies to announce and edit their previous announcements. The jobboard has been running smoothly in 2023 as well. It can be accessed through the following link: <https://www.photonics.fi/jobboard/>

## 8. International cooperations

Photonics Finland is a member of the following organizations: EPIC (European Photonics Industry Consortium) - <https://epic-assoc.com/> , SPIE (the international society for optics and photonics) - <https://spie.org/> , and EOS (European Optics Society) - <https://www.europeanoptics.org/> .

### 8.1. European Optical Society (EOS)

The structure of EOS, the umbrella organization of European photonics societies, is two-layered: local chapters (branches), whose individual members are directly full members of EOS, and sub-chapters (affiliated), whose individual members are directly (associate) members of EOS but with lesser benefits (discounts etc.). The associate members have the opportunity to become full members with voting rights by upgrading their membership. FOS/Photonics Finland has been a full member of EOS since the beginning of 2013. Information about EOS's activities can be found at <https://www.europeanoptics.org/>

#### **Association's EOS-representative**

Elina Koistinen, EOS Executive Director, EOS

#### **EOS Board Member**

Matthieu Roussey, University of Eastern Finland (elected)

Ana Gebejes, University of Eastern Finland (elected, EOS Secretary)

Juha Toivonen, Tampere University (Representative of the Branches of Photonics Finland (Finland), SOS (Sweden) and LOS (Latvia))

#### **Member of EOS Scientific Advisory Committee**

Tero Setälä, University of Eastern Finland

#### **Member of EOS Industrial Advisory Committee**

Jyrki Kimmel

#### **The Journal of the European Optical Society – Rapid Publications (JEOS:RP)**

#### **Associate Editors**

Paolo Vivo, Tampere University

Yuri Svirko, University of Eastern Finland

Matthieu Roussey, University of Eastern Finland

#### **Editorial Advisory Board**

Ari T. Friberg, University of Eastern Finland

#### **National Optical Society Advisory Board**

Zhipei Sun, Photonics Finland, Finland

### **8.2. International Commission for Optics (ICO)**

Photonics Finland represents Finland in the international photonics umbrella organization ICO (International Commission for Optics (ICO)). Current information about ICO can be found on its website: <http://www.ico-optics.org/>. Photonics Finland's ICO representative is Professor Jyrki Saarinen, UEF.

### **8.3. Other international organizations**

The members of Photonics Finland are active in the following international networks:

- Photonics21 - The Technology Platform for Photonics in Europe. The Board of Stakeholders includes Tauno Vähä-Heikkilä, from VTT; Jyrki Saarinen, from UEF; and Juha Purmonen from Photonics Finland. Mircea Guina from Tampere University was elected in 2023. They also participated in the Photonics21 annual meeting. <https://www.photonics21.org/>
- EPIC (European Photonics Industry Consortium). Photonics Finland is also a cooperative member of the consortium. <https://epic-assoc.com/>
- GPA (Global Photonics Alliance). <https://www.linkedin.com/showcase/11689935/admin/>

### **8.4. International Projects**

In 2025, Photonics Finland participated in the following European projects:

- **PhotonHub Europe (January 2021 - April 2026)** - One-Stop-Shop Open Access to Photonics Innovation Support for a Digital Europe. 52 partners across Europe. From Finland, VTT and Photonics Finland participate. PhotonHub Europe aims to accelerate the adoption of photonics by European industry — especially SMEs and mid-sized companies — to drive innovation, new business models, and sustainable growth. By acting as a single-entry point to world-class expertise and infrastructure across Europe, the hub made it easier for companies to test, develop, and scale photonics-based solutions.  
<https://www.photonhub.eu/>

- **PhotonQBoost (December 2024 – November 2028)** - PhotonQBoost empowers European SMEs by leveraging Photonics and Quantum solutions to enhance sustainability, resilience, and global competitiveness. Addressing challenges in technology adoption, the initiative provides advisory support, technology services, sustainability transition activities, and three FSTP funding calls. With over €3.6 million dedicated to direct support, PhotonQBoost will onboard 600 SMEs, improving resource efficiency, productivity, and supply chain resilience. Through matchmaking and delegation visits, it fosters cross-border collaboration and market access. *PF: Leader of the Communication WPs & Support on all other WPs*

**Phorwards21 (January 2024 - December 2026)**- Follow-up project of BestPhorm21 (PF Already partner). Similar actions planned, lobbying of Photonics to decision makers to secure future fundings, but also to showcase Photonics for end-users in Photonics4x workshops. Phorwards21 brings the community together to forge medium and long-term strategies for European photonics. This time *PF is leading a task in one of the WPs*, this allows us to increase our funding, while the whole project funding is decreasing by 25% - 13 countries + UK involved.

**360 CARLA (January 2024 - June 2026)** - 360 CARLA's goal is to connect academia and industry by targeting mostly the students and create opportunities to bring them together through symposiums, experiences in companies and trainings. PF organized a symposium on Health in June 2025 and 1 training (Imaging techniques applied to Health) and 2 experiences will take place during 2026 (half a day visit in a company, Vaisala & Detection Technology confirmed). The consortium is based in 11 countries. The consortium includes research centers, universities, as well as industry and photonics organizations-related clusters.

**Finnish Chips Competence Centre FiCCC (January 2025 – December 2028)** aims to create a gateway for Finnish chips ecosystem to connect with the wider European ecosystem and speed up the growth and competitiveness of Finnish and European semiconductor industry. Photonics Finland is one of FiCCC consortium members together with Kvanttinoa, Business Oulu and Tamlink. Photonics Finland leads the communications work package and contributes to the other work packages.

Submitted in 2025:

SMART FORM – not funded

Duration 36 months, SMART-FORM develops an AI-driven robotic inspection platform based on Laser Ultrasonics for contactless 3D imaging of industrial components. It enables automated, high-resolution inspection of complex structures, improving safety and efficiency in sectors such as hydrogen, aerospace, and wind energy.

PIONEER (Pending) - Duration 60 months, 62 Person-Months. PIONEER is the aftereffect of the one-year preparatory project DeepSupport (2024). It establishes an Interconnected, Interregional Innovation Valley for Photonics and Quantum (P&Q) technologies, strengthening Europe's capacity to innovate, scale and cooperate across regional ecosystems. The project, led by Joanneum Research, addresses fragmentation of innovation ecosystems, disparities in regional performance and the need to reinforce Europe's position in

P&Q - two domains that are recognized as key (enabling) technologies for the green and digital transitions, competitiveness and Europe's strategic autonomy, as highlighted in the New European Innovation Agenda, Chips Act and Quantum Flagship. Total of 24 partners including cities, regions, research institutes, universities, companies and clusters.

*PF: Leader of the Communication WPs & Support on all other WPs*

## 9. Board and officials

### 9.1. Board

Board 1.1.2025 – 4.6.2025

- Chair Kim Grundström
- Vice chair Heidi Piili
- Member Niklas Saxen, deputy Jouko Korppi-Tommola
- Member Sanna Aikio, Harri Lipsanen
- Member Birgit Päivänranta, deputy Jussi Rahomäki
- Member Timo Vuorenpää, deputy Samuli Siitonen
- Member Polina Kuzhir, deputy Antti Isomäki
- Member Juha Toivonen, deputy Göery Genty
- Member Tapio Kallonen, deputy Ana Gebejes

Board 4.6.2025 – 31.12.2025

- Chair Sanna Aikio
- Vice chair Niklas Saxen
- Member Kim Grundström, deputy Heidi Piili
- Member Birgit Päivänranta, deputy Jussi Rahomäki
- Member Paul Verrinder, deputy Jouko Korppi-Tommola
- Member Timo Vuorenpää, deputy Samuli Siitonen
- Member Polina Kuzhir, deputy Antti Isomäki
- Member Juha Toivonen, deputy Göery Genty
- Member Tapio Kallonen, deputy Ana Gebejes

The board has drawn up the 2025 activity report and financial statements and prepared the 2025 action plan. The board met 10 times and one email meeting during 2025.

### 9.2. Executive Director

Since spring 2014, the association has had an executive director. Juha Purmonen from University of Eastern Finland have been appointed to the position.

### 9.3. Scientific Advisory Board

The Scientific Advisory Board operating under Photonics Finland started its activities at the beginning of the year. Representatives from all major photonics research sites and locations in Finland have been invited to it. The composition of the negotiating committee on 31 December 2025 was

1. UEF: Professor Jyrki Saarinen (chair)
2. HY: Professor Markku Vainio
3. JY: Professor Juha Muhonen
4. Karelia: Juha Väyrynen
5. LUT: Associate professor Erik Vartiainen
6. OY Kajaani: Professor Vesa Virtanen
7. OY Oulu: Professor Tapio Fabritius
8. Riveria: Jatta Herranen
9. TAU: Professor Juha Toivonen
10. Aalto: Professor Zhipei Sun
11. UTU: Dr. Kimmo Luoma
12. VTT Espoo: Dr. Timo Aalto
13. VTT Oulu: Professor Jussi Hiltunen
14. ÅA: Associate Professor Nicklas Anttu

### 9.4. Auditor and accounting firm

In 2023, Photonics Finland chose Tilipalvelu Rantalainen Oy (parent company) as its accounting firm.

Sahakuja 4, 05810 Hyvinkää

VAT number: 0362167-0

The accountant is Nina Hurskainen, 040 710 4602, nina.hurskainen@rantalainen.fi

#### **The auditor is Ernst & Young Oy**

Ernst & Young Oy Photonics Finland as contact person

Jonna Sallinen | KHT / Authorized Public Accountant | Assurance Services

+358 50 5911 952 | jonna.sallinen@fi.ey.com

Ernst & Young Oy

## 10. The association's finances

The association receives its primary funding from membership fees and events it organizes. In 2025, the membership fee for corporate and organizational members ranged from €165 to €700, depending on the size of the company. The fee for individual members was €45, and for student members, it was €20.

Photonics Finland has continued to organize its events inclusive of value-added tax (VAT). The net profit for 2025 was +18.518,57€.