

# The story behind Photonic- Sweden

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## Background

### Swedish Optical Society (SOS)

It started with Klaus Biedermann's profound impact on the field of optics in Sweden, which cannot be overestimated. Arriving from Germany in 1966, he embarked on a scholarly journey as a postdoctoral researcher at the Royal Institute of Technology (KTH). He was appointed as Professor of Optics in 1978, and the following year also Director of the Institute for Optical Research (IOF, now part of RISE). In May 1991, Klaus Biedermann, as a co-founder, played an instrumental role in the establishment of the European Optical Society (EOS). Concurrently, he started the inception of the Swedish Optical Society (SOS) within the same year. This nonprofit entity was envisioned as a hub for individuals, organizations, and enterprises harboring a vested interest in optics and optical technology. Poetically, an inaugural meeting was called on St Lucy's Day. One of the society's greatest achievements was the biennial organization of optics conferences in Sweden, featuring esteemed speakers, poster presentations, and exhibitors. The conferences have been very popular and have developed into an annual tradition now under Photonic Sweden's auspices. Klaus keen interest in optics has also been instrumental in the work of the Swedish Optical Terms Group, which he founded in 1996, an initiative he stayed involved with throughout the years. With his help, the group has defined countless optical terms, facilitating discourse on modern optics in the Swedish language. Sadly, Klaus Biedermann passed away 30<sup>th</sup> March 2024 at the age of 88.



### PhotonicSweden (PS)

On 10 March 2010 a meeting with Dr. Thomas Skordas, Head of the European Union's Photonics Unit (2009-2014) was arranged in Kista, Sweden, with approx. 15-20 representatives from photonics companies, Vinnova, ACREO, and academia to discuss how Sweden can contribute more in the photonics field. Dr. Thomas Skordas gave a presentation about "EU perspectives for Photonics in 2010 and beyond", where he had noted that very few research EU-applications came from Sweden. This meeting inspired Lennart and Pierre-Yves to arrange a meeting in 2010 with Prof. Klaus Biedermann (Laser Physics, KTH) and Roland Jakobsson (CEO Spectrogon AB) in an attempt to convert SOS to PhotonicSweden. But this process was difficult to implement, among other things that SOS was a Learned society and that PhotonicSweden was not considered to be, because it would become an economic association. Lennart, as a board member and the treasurer of SOS, together with Pierre-Yves, decided then to continue the process with a parallel organization. Both Pierre-Yves and Lennart were the driving forces and spent hundreds of unpaid hours in this process to make the new organization possible. The main difference between PS and SOS, is that SOS is a non-profit association that mostly relied on non-profit work, while PS is an economic association subject to Swedish legislation similar to a limited liability company.

To be able to register PhotonicSweden as an economic association, we needed to have a temporary board, an interim board, which functioned until the first general meeting. We were 6 private persons engaged in this process: Lennart BM Svensson (LS Lasertech Innovation KB), Pierre-Yves Fonjallaz (Acreo and NETFIT AB), Fredrik Laurell (KTH), Emil Hällstig

(Optronic and Adopticum), Magnus Burvall and Magnus Engholm (FOV-Fiber Optic Valley). We also had help from Elisabeth Stenman (FOV) helping us write the statutes. An extraordinary general meeting was held on 2010-12-21 which decided to adopt the formation of an economic association and to adopt the proposed statutes, with the six persons involved as members of the new board and Elisabeth as auditor. The Swedish Companies Registration Office (Bolagsverket) acknowledged our application 2010-12-28.

It was also important that we got an approved VAT-number. Our new colleague Petra Bindig had just moved to Sweden from Germany, but still worked part-time remotely for VDI (Verein Deutscher Ingenieure) which is an organization with over 150,000 engineers and natural scientists. With Petra's help, we then got the opportunity to be a co-applicant for the EU project InnoPho21, but only if we had an organization number, why it was important as soon as possible register PhotonicSweden.

The economic association PhotonicSweden was then registered 2011-01-13 with the Swedish Companies Registration Office and aims of promoting the members' interest by representing and being a spokesperson for companies and organizations in the photonics industry and academia in Sweden, as well as to formulate national research and development agendas for growth, and communicate national needs internally in Sweden and internationally. This will create the prerequisites and conditions for the industry to develop positively by e.g. formulate and communicate the photonics industry's needs in education, research and development to universities, authorities and the EU. PhotonicSweden will work for a national network in optics and photonics open to all stakeholders from industry, academia and the public sector.

## The new organization PhotonicSweden

During the first financial year 2011, the association's work was focused on bringing together the Swedish Optics Society's personal members and company/organization members as well as Swedoptronic's company members in PhotonicSweden. At Swedoptronic's annual meeting in May, 2011, it was decided to switch to PhotonicSweden. This resulted in 27 full members and 2 associated members being added in 2011.

The intention was to keep the more than 100 SOS members in the new association. Personal members of PhotonicSweden also automatically received membership in the Swedish Optics Society (SOS) and the European Optical Society (EOS).

### OPS-2011

The Optics & Photonics Days 2011 were held 16-17 November in Hudiksvall together with Fiber Optic Valley as the main organizer and sponsor. In connection with this event, Fredrik Laurell as chairman of the Swedish Optics Society governed its Annual General Meeting where it was decided to allow a large part of the Swedish Optics Society's current operations to be run by PhotonicSweden, which through its office will have access to significantly greater resources than has been the case for SOS so far.

### Working groups WG 1-WG7 in 7 different areas

In connection with the Optics & Photonics Days-2011 in Hudiksvall, a start-up of working groups in 7 different areas, WG 1-WG7 was arranged. The purpose of the working groups was to develop common goals, visions and strategies. These strategies could then be starting points for financing future investments in photonics. The working groups should also be a networking and communication tool for the photonics community.

*The first public promotion of PhotonicSweden was held at Photonics West exhibition in San Fransisco, USA during 25-27 Jan, 2011. FiberOpticValley in Hudiksvall had a Vinnova-program 2008-2011, which made it possible for them to have a booth with approx. 6 Swedish companies exhibiting for a low cost. FiberOpticValley sponsored PhotonicSweden in the beginning, and we were invited to exhibit in their booth for free. Both Magnus Burvall CEO, and Susanne Nylén of FiberOpticValley were present at Photonics West, but also Magnus Enholm. Susanne Nylén was the organizer and responsible for the booth arrangement, and supporting Lennart who represented PhotonicSweden at the fair. Prof. Sune Svanberg, Lund University, visited our booth and saw our progress.*

## 1:st public promotion



Photonics West Exhibition at Moscone Center in San Francisco, USA 25-27 Jan, 2011



## 2:nd public promotion



Presentation of PhotonicSweden present status

Photonics21 Stakeholder meeting in Brussels, Belgium 23 Feb, 2011



The second public promotion of PhotonicSweden was at Photonics21 Stakeholder meeting in Brussels, Belgium, 23 Feb, 2011. Lennart attended as an invited speaker to present the status of the new organization PhotonicSweden, where Dr. Thomas Skordas was present and received the good news about our organization. Petra Bindig from PS was also present, co-responsible for organizing the Photonics21 Annual Meeting.

From the start, and even much earlier, PhotonicSweden has got a strong support from the Photonics Unit at the European Commission. In September 2011, a European project called *InnoPho21* had started and involving Photonics21, PhotonicSweden and 5 other national technology platforms in Europe. One of the main activities was to develop our national strategy in photonics and that is how the work behind this *Strategic Research and Innovation Agenda (SRIA)* started.

*PhotonicSweden's 1st newsletter* was published on 22 December 2011. An extraordinary general meeting was planned on 12 January 2012, to elect new members to the board and determine the annual fee and service fee for 2012 for full and associate members.

### Swedoptronics & SOS

In May 2012 Photonic Sweden took over the baton after Swedoptronics and the Swedish Optical Society. The goal was to become a gathering place and opinion maker for Swedish optronics and photonics.

*- We want to be more than a classic industry association; we want to strengthen Swedish industry. The EU has identified photonics as one of five key areas in the next framework program and I am personally convinced that it is a train that you must be on,* says Emil Hällstig chairman of the board of Photonic Sweden.

The activity of Swedoptronics and the Swedish Optical Society had been quite low in recent years, a situation that is not entirely unusual in non-profit associations. The setup for Photonic Sweden is a little different. Right from the start, the organization has the opportunity to pay three people part-time to speed up the activities. To that can of course also be added the non-profit work that the 40 full members (companies and organizations) and about a hundred personal members contribute.

### Photonics-SRIA

In July 2012 we got a financial support from VINNOVA (Swedish Governmental Agency for Innovation Systems) to develop a common strategy with other constellations in the field of electronics. In spring 2013, VINNOVA also decided to grant our Photonics SRIA. 109 people from academia, organisations, and companies were contributing in the Workgroups WG1 to WG7, which resulted in our SRIA-publication *"Photonics Agenda - Photonics, A Key Enabling Technology for Sweden"*. The photonics agenda was established at a meeting 2013-09-20.

Two years after the foundation of PhotonicSweden, there was no doubt that our association has fully succeeded in gathering the main actors in photonics, managed to represent the Swedish photonics and coordinated the work underlying the creation of this SRIA. Still, the Swedish photonics continues the process which will make it reach the level it deserves!

PhotonicSweden's first chairman was Emil Hällstig (Optronic), followed by Magnus Breidne (IVA), and then at this writing Åsa Claesson (RISE).



2011-11-16 SOS-conference OPS and SOS-Annual meeting in Hudiksvall.







This event is the most important activity for PhotonicSweden, by trying to bring all Swedish photonics stakeholders together once a year.

### Optics & Photonics conference in Sweden

The Swedish Optical Society started the annual conferences with exhibition and poster sessions, which then was taken over by PhotonicSweden. The annual meeting today has 2 conference days now with parallel academic and industrial sessions. We introduced pitch-talks for our exhibitors at OPS-2013 in Uppsala. The day before the conference, we now arrange a half day Nordic Photonics Forum, which is more aim for presentations of funding and collaboration possibilities. This event is the most important activity for PhotonicSweden, by trying to bring all Swedish photonics stakeholders together once a year.

### Photonics21 & EU-projects

From the start PhotonicSweden has been a member of Photonics21, and we have participated in 13 different EU-projects, and expanding our network in the European photonics community. PhotonicSweden participates in Photonics21 AM every year and also has a member representative present in the Photonics21 Board of Stakeholder (BoS) currently through our colleague Staffan Tjörnhömmar. EU has approved PhotonicSweden as a non-profit organisation.

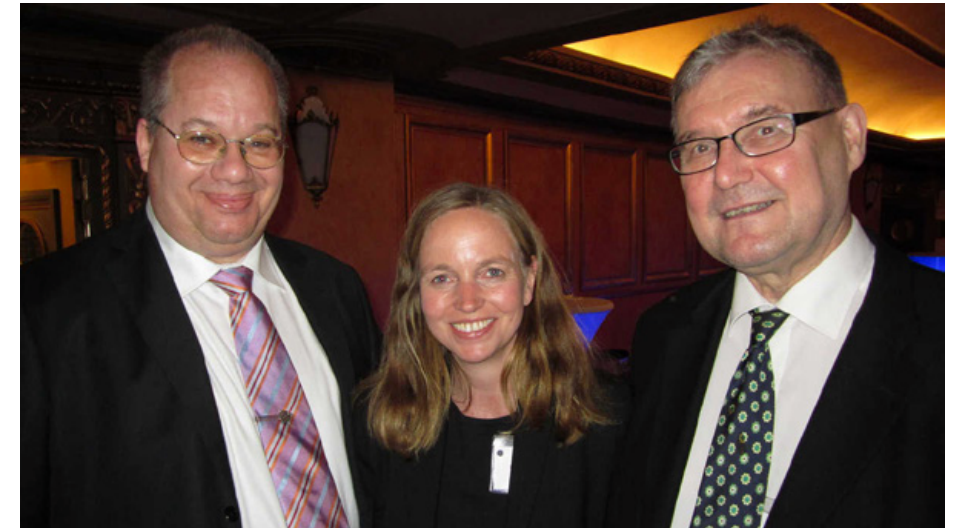
### Smarter Electronics System

2014-05-19 VINNOVA said YES to our (7 organisations) innovation program Smarter Electronics System! Vinnova, the Swe-

dish Energy Agency and Formas finance seventeen strategic innovation programs (SIP). Through cooperation in areas that are strategically important for Sweden, conditions are created for sustainable solutions to global societal challenges and increased international competitiveness. Within the programs, companies, academia and organizations jointly develop the sustainable products and services of the future. The aim is to maintain and develop Swedish cutting-edge areas: Micro- & nanoelectronics, Printed electronics, Power electronics, Photonics, Antenna, microwave and terahertz, Sensors, Embedded systems, Construction method, Reliability, and Advanced production technology.

### Optopubs

OptopuOptopubs are seminars series where we normally invite 2 speakers, one academic presentation and one industrial application presentation, followed by food & beer. The Optopubs are very appreciated, since it's a way of networking and meet old and new friends. Optopubs are also arranged by visiting companies. Optopubs are arranged in Stockholm, Gothenburg, Lund and Hudiksvall. Participation varies between 25-70 people. Lennart is responsible for Optopubs in Stockholm, where most Optopubs have been arranged (6-8/year) through financial support from ADOPT (Advanced Optics and Photonics) by Prof. Gunnar Björk at Dept. of Applied Physics at KTH. Lennart has arranged Optopubs for more than 20 years.



2013-04-29 Lennart BM Svensson, Petra Bindig, and Ari Friberg at Photonics21 AM in Brussels



2013-04-29 Henrik Ludwigs, Petra Bindig, and Pierre-Yves Fonjallaz at Photonics21 AM in Brussels



Photo from 1st Nordic Photonics Forum 2017-05-28 in Oulu the day before OPD2017.





Interesting was at this time the majority of the Finnish speakers gave their presentations in Finnish, and not as we did in English. We had no clue what they were saying and could only guess from the slides.



**2015-05-28** Lennart BM Svensson and Juha Purmonen at Photonics21 Annual Meeting in Brussels



Photo from Nordic Photonics Forum 2023-04-21 at NOP-2023 in Riga, Latvia.

### Nordic Photonics Forum

Photonics Finland, which started 1 February 2012, had Juha Laiho appointed as Chief Coordinating Officer of Photonics Finland at Optoelectronics Research Centre, Tampere University of Technology. Juha Laiho contacted PhotonicSweden for a meeting to discuss how we handled both organizations SOS and PhotonicSweden. The meeting took place in Kista, Sweden, between Juha Laiho, Pierre-Yves Fonjalaz, and Lennart BM Svensson.

Lennart was then invited by Juha Laiho (PF) and Lasse Orsila, Chairman of Finnish Optical Society (FOS), at a meeting held 8 October 2013 at Helsinki-Vantaa Airport. There were 10 people present, all but one of the boards of Finnish Optical Society (FOS) and 3 active Photonics Finland (PF) people, Jyrki Saarinen and Juha Purmonen included. The agenda was that they wanted to hear about our firsthand experience on how the SOS and Photonics Sweden were merged and what kind of benefits this resulted in. In Finland, there was the Finnish Optical Society (FOS) that

mainly was an academic society, and Photonics Finland (FP) an industry driven organization. The discussion was about merging these into one, and different forms of co-operation or level of merger. In 2014 Finnish Optical Society (FOS) merged into Photonics Finland (Suomen fotonikan seura ry), with companies, universities and individuals all together..

Lennart and Henrik Ludwigs (SAAB AB) participated in Photonics Finland's OPD in Tammerfors 14 June 2013, where Lennart presented PhotonicSweden's activities and Henrik presented SAAB's military projects and business with Finnish military. Interesting was at this time the majority of the Finnish speakers gave their presentations in Finnish, and not as we did in English. We had no clue what they were saying and could only guess from the slides. But that was about to change.

Today PhotonicSweden and Photonics Finland have a strong collaboration. We visit each others conferences and participate in the Nordic Photonics Forum, but also take part in our common EU-projects.



**Lennart B. M. Svensson** received his PhD degree 1988 in Industrial Metrology at KTH in Stockholm. He has a background in holography and laser measurement technologies. He started his first company 1986 as an optronics consultant. Lennarts experiences are from industrial R&D and manufacturing at CelsiusTech AB, SaabTech AB, Linus AB, FLIR AB, and Mycronic AB. Has promoted photonics within Vinnova's strategic innovation program "Smarter Electronic Systems" for increasing competitiveness and growth in Swedish industry. He is co-founder of PhotonicSweden started in 2011, and responsible for industrial applications and exhibitions at yearly conferences Optics & Photonics in Sweden together with his colleague Petra Bindig. In 2017 he started Nordic Photonics Forum (NPF) during OPD2017 in Oulu in collaboration with Juha Purmonen at Photonics Finland, and has arranged 17 NFP-meetings during conferences in Sweden, Finland, Latvia, and Belgium. Since 2011 he has participated in 13 EU-funded photonics projects.