

Optics & Photonics in Sweden 2024 (OPS) 5 - 8 November 2024

Chalmers University of Technology, Lindholmen



GENERAL INFORMATION

The Optics & Photonics in Sweden conference (OPS 2024) will be held on 5 - 8 November 2024 at Chalmers University of Technology, Lindholmen in Gothenburg. The conference is organised by PhotonicSweden (PS). More information: photonicsweden.org

LOCAL ORGANIZING COMMITTEE

- Peter Andrekson, Victor Torres Company and Magnus Karlsson

PROGRAMME COMMITTEE

- Peter Andrekson, Chalmers
 - Cord Arnold, Lund University
 - Petra Bindig, PhotonicSweden
 - Joakim Bood, LTH
 - Mohamed Bourenane, SU
 - Åsa Claesson, RISE, Acreo Swedish ICT AB
 - Kenneth Järrendahl, LiU
 - Magnus Karlsson, Chalmers
 - Dietmar Letalick, FOI
 - Sergei Popov, KTH
 - Victor Torres Company Chalmers
 - Laszlo Veisz, Umeå University
-
- Petra Hardtke, Thorlabs AB
 - Per Olof Hedekvist, RISE
 - Ewa Orłowska, Hamamatsu Photonics Norden AB
 - Lars Rymell, Eclipse Optics
 - Carl Sundström, AFRY
 - Fredrik Wikfledt, Laser Components
 - Mikael Winters, Coherent
 - Elisabeth Österlund, Svensk Elektronik
 - Lennart BM Svensson, PhotonicSweden

KEYNOTE SPEAKERS

will highlight European research and developments.

INVITED TALKS

will cover a variety of topics in Optics and Photonics, reflecting current Swedish research and development at universities, institutes and industry.

A POSTER SESSION

will provide an additional opportunity to display to the most recent developments and achievements. It will also give an overview of Optics and Photonics in Sweden and offer a good platform for creating new collaborations.

BEST POSTER AWARDS

The best poster will be awarded with 3,000 SEK
The second and third prize will be awarded with 1,000 SEK. The poster awards are sponsored by:



AN EXHIBITION AND A SESSION WITH COMPANY PRESENTATIONS

will be held in parallel to the technical sessions to provide industry, institutes, and associations an opportunity to display their products and services and bridge the gap between science and industry.

Contact: lennart@photonicsweden.org

ABSTRACT SUBMISSION FOR POSTER PRESENTATIONS

Authors are requested to submit an abstract of a half to one page (font 11, including figures and references). Contributions will be accepted for poster presentation. All authors are requested to register for the meeting separately from abstract submission.

Required poster size: The posters should have a maximum size of DIN A0 (841 x 1189 mm) preferably in a portrait format (not landscape format). Pins and similar pads will be provided by the organizer.

Abstracts shall be sent to petra@photonicsweden.org

Deadline for abstracts: 15 October 2024

SPONSORING OPPORTUNITIES

Please contact Lennart BM Svensson if you are interested in our exhibition and sponsor opportunities:

Contact: lennart@photonicsweden.org

FURTHER INFORMATION

For further information please go to photonicsweden.org

CONFERENCE & EXHIBITION VENUE

Chalmers Conference Lindholmen

Lindholmspiren 5, 417 56 Göteborg

<https://chalmerskonferens.se/en/konferens/lindholmen-conference-centre/>

JOB FAIR AT EXHIBITION

We will arrange a matchmaking between companies and job seekers at the conference Optics and Photonics in Sweden 2023. It will take place on 18 and 19 October in the exhibition area. All exhibiting companies welcome students (graduates, undergraduates and PhD students) to discuss jobs, internships, etc.

APPLICATION FOR STUDENT FREE ADMISSION

Up to 13 students in a Bachelor's degree or Master's degree program can apply for free admission for OPS-2024. 10 are sponsored by ThorLabs Sweden AB, and 3 by Yokogawa Europe B.V.



REGISTRATION FOR PARTICIPANTS

REGISTRATION FEES

| | |
|-----------------------|--|
| 4.100 kr +25% VAT | Non Members |
| 3.100 kr + 25% VAT | Personal Members of PhotonicSweden and/or European Optical Society (EOS) |
| 1.800 kr + 25% VAT | Student Members & Pensioner Members of PhotonicSweden and/or European Optical Society (EOS) |
| 1.800 kr +25% VAT | Invited Speakers |

Observe that all Swedish participants must pay 25% VAT (Moms). The option without VAT is only for VAT-registered companies outside Sweden.

All fees includes one person conference fee and all lunches & coffee breaks and dinner.

Personal annual member fee is 350 SEK/Year and student & pensioner annual member fee is 110 SEK/Year. Personal membership includes membership in PhotonicSweden, Svenska OptikSällskapet and European Optical Society.

*** New EU VAT rules for courses and conferences** In March 2019, the European Court of Justice rejected Sweden's interpretation of the part of the VAT directive relating to access to events. The ruling means that payments to gain physical access to courses and conferences are to be seen as access to events and must therefore always be made in the country where the event is held. The change also means that foreign companies attending courses in Sweden will receive invoices issued with Swedish VAT. Participants from companies and organizations within the EU with a VAT number have the opportunity to claim back the VAT on the participation fee via their local tax authority. The UK left the EU (Brexit) in 2020 and is thus no longer an EU country. Now the same rules regarding VAT apply to the UK as to other countries outside the EU.

REGISTRATION FOR EXHIBITORS

EXHIBITION FEES

| | |
|------------------------|--|
| 19.900 kr + 25% VAT | Non Members (incl. one person participation fee) |
| 15.600 kr + 25% VAT | Company Members of PhotonicSweden (incl. one person participation fee) |
| 3.100 kr + 25% VAT | additional exhibitors colleagues (incl. one person participation fee) |

Observe that all Swedish exhibitors must pay 25% VAT (Moms). The option without VAT is only for VAT-registered companies outside Sweden.

All fees includes one person conference fee and all lunches & coffee breaks and dinner. Exhibition stand will be selected based on registration order. Map of exhibition floor will later be sent out to exhibitors.

HOTELS

Radisson Blu Riverside Hotel (The nearest hotel is Radisson only 30 meters from the premises)
Lindholmospiren 4,
417 56 Gothenburg
The promo code is 682601
Single room SEK 1,690 / Double room SEK 1,890
The prices include VAT and breakfast is included
Direct book your room here: [Rooms \(radissonhotels.com\)](https://www.radissonhotels.com)
Ph: +46 31 383 40 00
E-mail: reservations.riverside.gothenburg@radissonblu.com
Web: <https://www.radissonhotels.com/en-us/hotels/radisson-blu-gothenburg-riverside?cid=a%3Ase+b%3Abng+c%3Aemea+i%3Alocal+e%3Ard+b+d%3Anob+h%3ASEGOTRIV>

Strawberry – Clarion Hotel Karlatornet
(New opens 2024-09-01 is the 2nd nearest hotel behind Radisson also close to the premises)
Cassiopejagatan 14
417 55 Gothenburg
Telefon: +46 31 361 91 10
E-post: cl.karlatornet@strawberry.se
Web: <https://www.strawberry.se/hotell/sverige/goteborg/clarion-hotel-karlatornet/>
Phone: +46 31 30 50 130
E-mail: cl.pier@strawberry.se
Web: <https://www.strawberryhotels.com/hotels/sweden/gothenburg/clarion-hotel-the-pier/>



ANNE L'HUILLIER

Biography

Anne L'Huillier is a Swedish/French researcher in attosecond science. During the first part of her career, she worked at the Commissariat à l'Energie Atomique, in Saclay, France, first as a PhD student until 1986, then as a permanent researcher until 1995. She was postdoc at Chalmers Institute of Technology, Gothenburg, Sweden in 1986, and at the University of Southern California, Los Angeles, USA in 1988. In 1995, she moved to Lund University, Sweden and became full professor in 1997. Her research, both theoretical and experimental, is centered around high-order harmonic generation in gases and its applications, in particular in attosecond science. She was awarded the Nobel Prize in Physics 2023 together with Pierre Agostini and Ferenc Krausz for "for experimental methods that generate attosecond pulses of light for the study of electron dynamics in matter".

Abstract

The route to attosecond light pulses

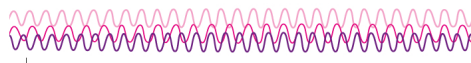
When an intense laser interacts with a gas of atoms, high-order harmonics are generated. In the time domain, this radiation forms a train of extremely short light pulses, of the order of 100 attoseconds. Attosecond pulses allow the study of the dynamics of electrons in atoms and molecules, using pump-probe techniques. This presentation will highlight some of the key steps of the field of attosecond science.

The world of electrons is explored with the shortest of light pulses

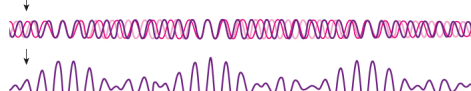
When laser light is transmitted through a gas, ultraviolet overtones arise from the atoms in the gas. In the right conditions, these overtones may be in phase. When their cycles coincide, concentrated attosecond pulses are formed.



OVERTONES ARE SUPERIMPOSED



REINFORCE OR CANCEL EACH OTHER



ATTOSECOND PULSES



FRANCESCO POLETTI

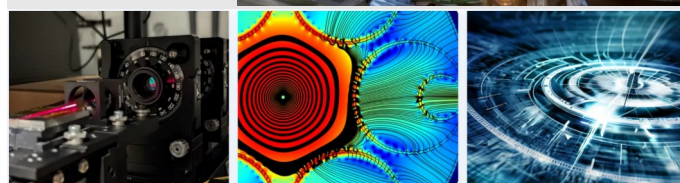
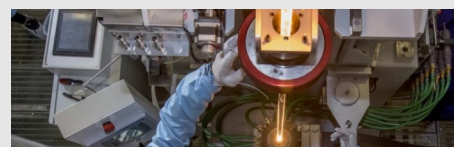
Biography

Prof Francesco Poletti is one of the pioneers of hollow core fibre technology. He leads the Hollow Core Fibre (HCF) group at the ORC, University of Southampton, as well as the research activities on HCFs for optical data communications at Microsoft Azure Fiber. He has co-authored more than 500 peer-reviewed publications and over 20 patents in the area of fiber optics, amongst which seminal works introducing the nested antiresonant nodeless HCF concept (NANF) and using it to demonstrate lower loss than fundamentally possible with silica fibres in the near-infrared. He held research fellowships from the Royal Society and the ERC. His pioneering work on HCFs led to the creation of the ORC startup Lumenicity, which in 2022 was acquired by Microsoft Azure, where he is currently Partner Researcher.

Abstract

Hollow core fibres: when less is more

For decades, hollow core fibres have been a fascinating tool for scientists, enabling long distance light guidance in any gas, as well as innovative experiments exploiting the long light:gas interaction length. Recently though, thanks to nested antiresonant designs, the loss of these fibres has reached lower values than fundamentally achievable in conventional glass-guiding telecoms fibres, opening exploitation opportunities in data-transmission systems. This, added to negligible nonlinearity, very high damage threshold and ultimately low latency, has dramatically increased global interest in the technology for numerous applications involving the transmission and delivery of light.





PER NORDLUND

Biography

Per Nordlund is Lead Optical Designer at Hasselblad with several decades in optical design at Hasselblad, and will present the history of Hasselblad lenses, and development process today in modern optics.

Abstract

Victor Hasselblad AB is a Swedish manufacturer of medium format cameras, and photographic equipment based in Gothenburg, Sweden. The company originally became known for its classic analog medium-format cameras that used a waist-level viewfinder. In 1948, Victor Hasselblad travelled to New York and presented at a press conference the very first Hasselblad camera for civilian use. It was the world's first single lens mirror reflex camera in the medium format (6×6 cm) with interchangeable lenses, film magazines and viewfinders. In 1957, the Hasselblad 500C entered the market. This was a model of exceptional quality. It was also the camera that astronaut Wally Schirra, on his own initiative, introduced to NASA and took in the Mercury capsule Sigma 7 in 1962. NASA would later use a modified Hasselblad 500C on five space missions, before the Hasselblad company noticed.



ÖD GÄRD ANDERSSON

Biography

Ödgård Andersson is CEO at Zenseact AB and global leader and change driver, specifically focused on transformations powered by software, data and AI. Domain knowledge in autonomous vehicles, software defined vehicles, connected vehicles, AI, complex embedded SW systems, scaled software development, SaaS, Telecom, IoT and data. Passion for creating positive change via collaboration and for building strong diverse teams.

Abstract

“The quickest path to road safety is through high-performing AI. As cars become robots, we create software to make sure they behave”. Zenseact is an applied automotive AI company developing world-leading safety software for AD and ADAS. Our technology encompasses every aspect of automation, from sensor fusion, computer vision, and object detection to positioning and actuation, using a combination of rule-based code and deep learning algorithms. Our ultimate vision is to help make car accidents a thing of the past – to create a day when all roads are safe, and lives are no longer lost to preventable accidents.



TUESDAY, 05 NOVEMBER 2024

15:00-20:00

Exhibition set-up

Room: **Foajén**

13:00-18:00

Nordic Photonics Forum Meeting

Room: **Konferens Hallen**

13:00 - 13:30

Registration

13:30 - 13:45

Opening of the 17th Nordic Photonics Forum - Short introduction and background

Lennart BM Svensson, PhototonicSweden

13:45 - 14:05

Why is Gothenburg a Hotspot for Innovation, Master of Collaboration and a Frontrunner in Sustainability?

Kent Jellmund, Investment advisor ICT, Business Region Göteborg,

14:05 - 14:50

Photonics Excellence in Finland: Research, Infrastructure and Education

Goery Genty, Professor and leader of the Ultrafast Photonics research group

14:50 - 15:20

The new face for Grafen Flagship - twelve new projects and one including Photonics

Lilei Ye, PhD, Business developer, Chalmers Industriteknik

15:20 - 15:40

Coffee break

15:40 - 16:10

Chips JU and Sweden's status in the semiconductor issue & how can photonics get involved?

Elisabet Österlund, President, Svensk Elektronik

16:10 - 16:30

Advancing Optics and Photonics Worldwide

Claus Roll, Director, Europe, OPTICA (formerly OSA)

16:30 - 16:50

Women in Technology

Ellen Andreasson, Co-founder & CEO, Envue Technologies AB

16:50 - 17:20

PhotonHub Europe - Extension and new funding rate for SMEs

Lennart BM Svensson, PhototonicSweden

17:20 - 17:40

PhotonHub Europe - training and innovation support in photonics

Åsa Claesson, Senior Scientist, Business Development Fiber Optics

17:40 - 18:00

PhotonHub Success Story - Experience in applying for and participating in a PhotonHub project

Zoran Popovic, Founder & Chief Scientific Officer, Profundus AB

18:00-19:00

Networking with refreshments and finger food

Room: **Foajén**

WEDNESDAY, 06 NOVEMBER 2024

09:00 - 10:00 Room: **Foajén**
On-side registration and welcome coffee

10:00-10:15 Room: **Konferens Hallen**
Opening Remarks
Åsa Claesson, PhotonicSweden RISE, and Magnus Karlsson, Chalmers Technical University

10:15-10:45 Room: **Konferens Hallen**
Keynote Talk Session Chair: *Lennart BM Svensson*
Per Nordlund, Lead Optical Designer, Victor Hasselblad AB
 The history of Hasselblad lenses, and development process today in modern optics

10:45-12:00 Room: **Konferens Hallen**
Exhibitor presentations Session Chair: *Lennart BM Svensson*

12:00-13:30 Room: **Foajén**
Lunch & Poster Session & Exhibition Conference Restaurant L's Resto

13:30-14:00 Room : **Konferens Hallen**
Keynote Talk Session Chair: *Lennart BM Svensson*
Ödgård Andersson, Chief Executive Officer Zenseact AB / TRATON Supervisory Board member (a Volvo Cars AB company)
 The quickest path to road safety is through high-performing AI. As cars become robots, we create software to make sure they behave

14:00-14:15 Room: **Foajén**
Coffee break

Room: **Konferens Hallen**

Room: **Pascal**

14:15-15:35
Session A1 | Quantum Technology
 Session Chair: *Magnus Karlsson*

14:15-15:35
Session B1 | Photonics Metrology Applications
 Session Chair:

14:15-14:35
Molding the flow of microwaves, acoustics, and optics at the quantum level
Raphael van Laer, Chalmers Technical University

14:15-14:35
Traceable measurement techniques for characterization of photonic components
Virpi Korpelainen, Senior Scientist, National Metrology Institute - VTT MIKES, Finland

14:35-14:55
Dynamic manipulation of transverse spatial photonic quantum states to experimentally test the connection between Wave-Particle Duality and Entropic Uncertainty
Daniel Spegel-Lexne, Linköping University

14:35-14:55
Evaluation of microlens arrays using UA3P profilometer
Reinhard Windemuth, Sales Director SMT&ME Solutions for EU, Panasonic Connect Europe GmbH, Germany

14:55-15:15
Non-Classical Light Generation in Subwavelength Semiconductor Waveguides
Albert Peralta Amores, Royal Institute of Technology (KTH)

14:55-15:15
Advancing Adaptive Optics - Entering a new universe of retinal diagnostics and retinal imaging technology
Åsa Lindström, Chief Executive Officer, Profundus AB, Sweden

15:15-15:35
Single Photon FMCW LIDAR for Vibrational Sensing and Imaging
Theodor Staffas, Royal Institute of Technology (KTH)

15:15-15:35
Laser diagnostics developments for aerospace propulsion systems
Alexis Bohlin, Principal Research Engineer, Inspection Technologies, GKN Aerospace Sweden AB (former Volvo Aero AB)

CONFERENCE SCHEDULE

WEDNESDAY, 06 NOVEMBER 2024

Room: **Konferens Hallen**

15:40-17:00

Session A2 | Photonics for Medicine Technology

Session Chair: Joakim Bood

15:40-16:00

Medical applications of laser acceleration

Olle Lundh, Lund University

16:00-16:20

Modeling of laser speckles to predict healing potential of diabetic foot ulcers

Ingemar Fredriksson, Linköping University , Perimed

16:20-16:40

RESOLFT Fluorescent Nanoscopy and Adaptive Optics

Ruizhe Lin, SciLifeLab, KTH Royal Institute of Technology (KTH)

17:00-19:00 **Poster Session & Exhibition**

19:00-22:30 **Conference dinner**

Room: **Pascal**

15:40-17:00

Session B2 | Photonics for Automotive

Session Chair:

15:40-16:00

Development of a faster automotive anti-collision system with use of event cameras

Mahan Haddad, Engineering Manager at Driving Product Innovation, Terranet AB, Sweden

16:00-16:20

Human Insight AI, technology that understands, supports and predicts human behavior in complex environments

Jörgen Thaug, Head of the optics lab, Smart Eye AB, Sweden

16:20-16:40

Tyri's progress in sustainability: Recyclable and climate neutral industrial lighting

Stuart Campell, Research And Development Specialist, TYRI Sweden AB

Room: **Foajén**



| | |
|---|--|
| 08:30 Welcome coffee | Room: Foajén |
| 09:30-10:15 Keynote Talk The route to attosecond light pulses Anne l'Huillier, Professor at Lund University | Room: Konferens Hallen Session Chair: Magnus Karlsson |
| 10:30-12:00 PhotonicSweden Awards and Poster Prize Session Chairs: Maria Nilsson Tengelin, RISE, and Peter Strömberg, Acoem AB | Room: Konferens Hallen |
| 12:00-13:30 Lunch break and exhibition | Conference Restaurant L's Resto |
| 13:30-14:00 Keynote Talk Hollow core fibres: when less is more Francesco Poletti , Professor at University of Southampton, Microsoft Azure Fiber | Room: Konferens Hallen Session Chair: Peter Andrekson |
| 14:00-14:20 Break | |

| | |
|------------------------|--------------|
| Room: Konferens Hallen | Room: Pascal |
|------------------------|--------------|

| | |
|--|---|
| 14:20-15:40 Session A3 Photonics Applications Session Chair: Peter Andrekson | 14:20-15:40 Session B3 Photonics Industrial Applications Session Chair: |
|--|---|

| |
|---|
| 14:20-14:40 Ultra-low-power Programmable Silicon Photonic Circuits Leveraging Integrated Nanomechanics Kristinn Gylfason, Royal Institute of Technology (KTH) |
| 14:40-15:00 Optical levitation Dag Hanstorp, University of Gothenburg |
| 15:00-15:20 Periodic shadowing: improving the contrast of streak cameras and spectrometers Andreas Ehn, Lund University |
| 15:20-15:40 Mid-IR Free-Space Optical Communications enabled by Unipolar Quantum Optoelectronics Xiaodan Pang, Royal Institute of Technology (KTH) |

| |
|---|
| 14:20-14:40 SmartQD fiber optic cable with integrated sensors for manufacturing process monitoring Andreas Hessel, Product Line Manager, Optoskand AB (a Coherent company), Sweden |
| 14:40-15:00 Femtosecond Laser Systems for Industry & Science: Precision Micromachining using a Novel Femtosecond Flat-Top UV-Laser Konstantinas Zakalskis, Sales Engineer, Light Conversion, Lithuania |
| 15:00-15:20 Industry-oriented projects at RISE with focus on advanced photonic devices and applications Edoardo Trabaldo, Researcher, Sensor System – Smart Hardware Division – RISE Research Institute of Sweden |
| 15:20-15:40 Laser applications within manufacturing industries Björn Lekander, Marketing Manager, Permanova AB |

THURSDAY, 07 NOVEMBER 2024 STUDY VISITS 16.00-19.00

Lab Visits: 2 groups travels by bus. Participant must choose Groupe 1 or 2,

Group 1: Chalmers Physics Department at main Campus

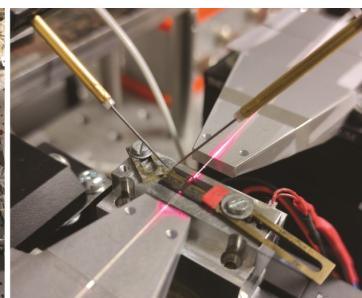
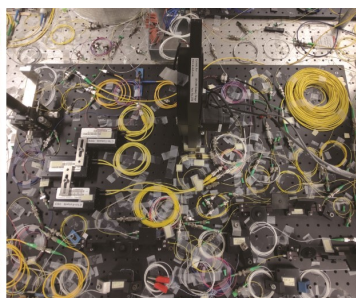
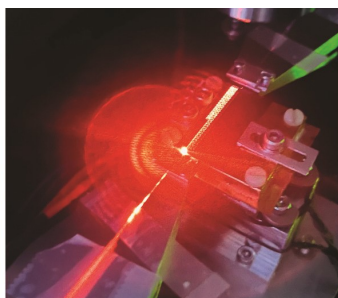
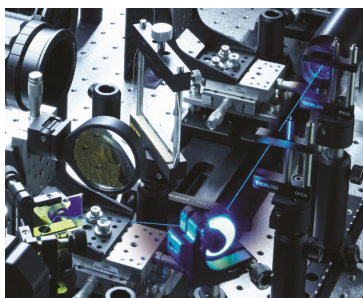
Kemivägen 9, 412 58 Göteborg



CHALMERS
UNIVERSITY OF TECHNOLOGY

Chalmers 4 Lab-stations:

- Station 1: Clean room
- Station 2: Transmission lab
- Station 3: Ultrafast lab
- Station 4: UV emitter lab



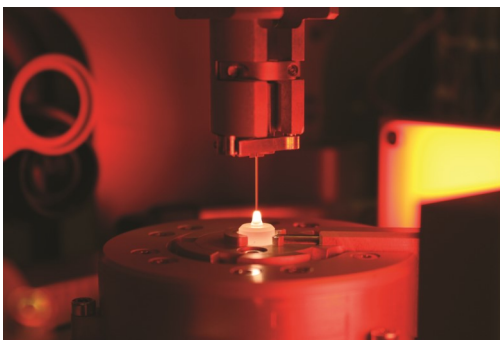
Group 2: Company visits

Optoskand AB

Aminogatan 30, 431 53 Mölndal

COHERENT

OPTOSKAND™
OPTIMIZE YOUR LASER

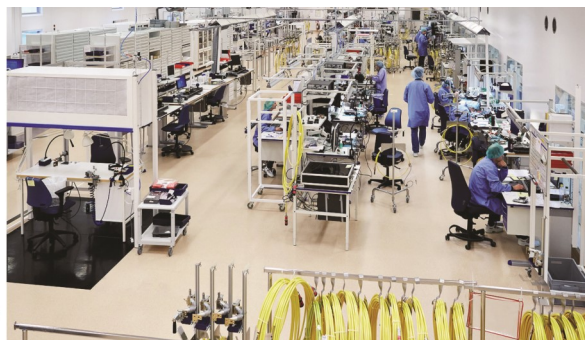


FEATURES

- 10 kW (CW)
- Mode stripper
- Air-cooled end cap
- Scattered light detection
- Superior power loss handling
- Round or square fiber core
- Plug-and-play within 10 µm

APPLICATIONS

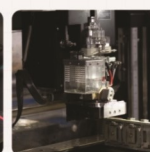
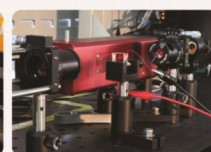
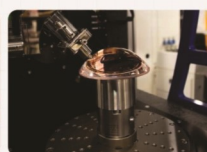
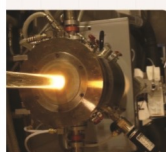
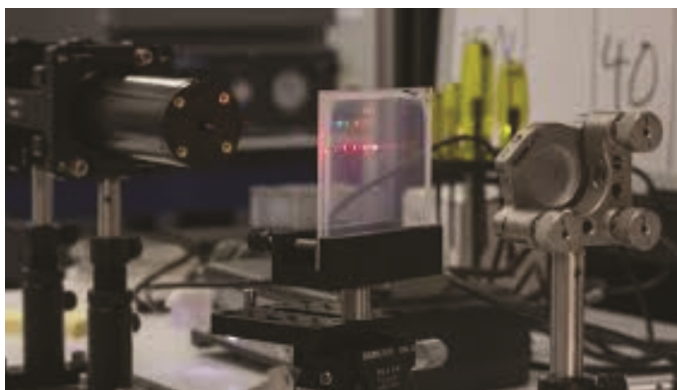
- Welding
- Cutting
- Surface Treatment
- Cladding
- 3D Additive Manufacturing



Thorlabs Sweden AB

Bergfotsgatan 7, 431 37 Mölndal

THORLABS



OEM Solutions
Your Concepts Realized

THORLABS

Cell Identification and Collection using a Lab-in-a-Fiber Device

Harish Achar Vasant, KTH

A draw-tower fabricated optical fiber for distributed H₂ sensing

Sandy Alomari, RISE

Establishing a Quantum Communication Link Over 200 km of Deployed Optical Fiber

Joakim Argillander, Linköping University

Quantum technologies are evolving rapidly, driving an increasing demand for the enabling technologies that support them

Enkeleda Balliu, Cobolt AB, a part of HÜBNER Photonics

Backward Wave Optical Parametric Oscillator Targeting CO₂ Absorption Lines at 2.7µm

Martin Brunzell, KTH

Distributed fibre-Optic Acoustic Sensing – A new tool for geophysical surveys

Åsa Claesson, RISE

Self Monitoring Quantum Random Number Generator using Photonic Shot Noise

Martin Clason, Linköping University

Directional Marangoni flow induced by laser heating of amorphous silicon nanodisks

Pantea Dara, Chalmers, University of Technology

Synthesis of Yb:YVO₄ Nanoparticles via Femtosecond Laser Ablation in Liquid

Magnus Engholm, Mid Sweden University

Laser-Enhanced Nanoporous Graphite Anodes for Next-Generation Lithium-Ion Batteries

Magnus Engholm, Mid Sweden University

Self-activating filter for optical power limiting (OPL)

Rikard Forsén, FOI

Generation of circular THz vortex by direct optical rectification

Yaqun Liu, KTH

D-scan: basic principles

Marzo López Cerón, Lund University

Revealing the Fano Combs in Mie Scattering

Javier Tello Marmolejo, University of Gothenburg

Optical simulator of a double potential well in quantum mechanics

Ricardo Méndez-Fragoso Universidad Nacional Autónoma de México

Metrology for wearable light loggers and optical radiation dosimeters

Maria Nielsson Tengelin, RISE

Sound, Light and Design in the Intensive Care Unit: SoLiDe-ICU 2030

Maria Nielsson Tengelin, RISE

On-Chip Lasers on Waveguides

Oliver Olsson, Chalmers, University of Technology

Measuring the phase of a dark pulse

Christoffer Oxelmark Krook, KTH

High-Precision Bone Microtomy Using Femtosecond Lasers: Impact of Flat-Top Beam Shaping

Aswin Prakash A, University of Gothenburg

Evaporation Dynamics of Optically Levitated Droplets Smaller than 5 microns under Near Infrared Heating

Jugal Rakesh Shah, University of Gothenburg

Comparison of layered coating materials in a neutral particle detector plate

Belén Ramírez, University of Gothenburg

Interferometric quantum control (IQC) by fs/ns rotational coherent anti-Stokes Raman spectroscopy (RCARS)

Meena Raveesh, Lund University

Optimizing magnetic traps for diamagnetic particles

Enrique Rodríguez, University of Gothenburg

Flat and miniature plasmonic biosensor enabled by metagrating-integrated vertical-cavity surface-emitting lasers

Erik Strandberg, Chalmers, University of Technology

Determine higher-order dispersion constants in arbitrarily patterned waveguides

Albin J Svärdsby, Chalmers, University of Technology

High-repetition-rate ultrafast light sources for attosecond science at the Lund Laser Centre

Ivan Sytcevic, Lund University

Detecting Nanomotions of Single Cells using Optically Trapped Nanomotors

Emelie Tornéus, Chalmers, University of Technology

Design, fabrication and characterization of advanced photonic devices for sensing applications

Edoardo Trabaldo, RISE



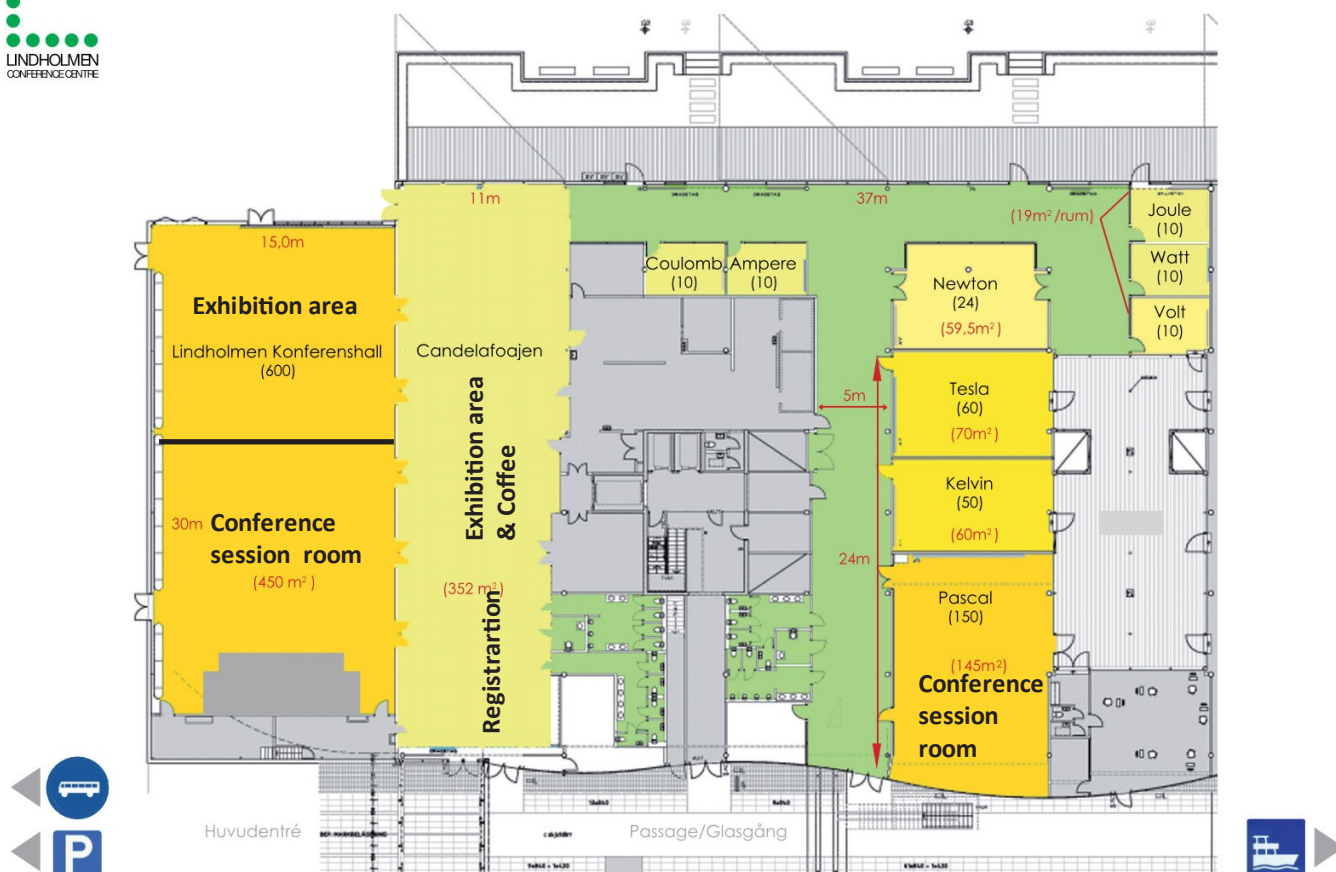
Kickoff Metapix competence centre

Room: **Pascal**

Metapix is a cutting-edge competence center dedicated to pioneering research and education in integrated meta-photonics. Our work spans a wide range of applications, from enhancing optical connections in data centers to advancing quantum simulations. Join us at our kickoff event to discover more about our innovative center. You'll have the opportunity to hear from renowned speakers, including Roel Baets, Dan Blumenthal, Delphine Marris-Morini, Thomas Van Vaerenbergh, and Geun Ho Ahn. The kickoff is free of charge!

WHEN WHAT

| | |
|-------|--|
| 09.00 | Welcome and introduction by Victor Torres Company, Metapix Centre Director |
| 09.10 | Roel Baets, Ghent University |
| 10.10 | Coffee |
| 10.30 | Dan Blumenthal, University of California |
| 11.30 | Delphine Marris-Morini, Université Paris Saclay |
| 12.30 | Lunch |
| 13.30 | Geunho Ahn, Stanford University |
| 14.30 | Thomas van Vaerenberg, Hewlett Packard Labs |
| 15.30 | Coffee |
| 15.50 | Panel discussion with all speakers |
| 16.50 | Closing remarks |



Getting to Lindholmen

www.lindholmen.se/en/lindholmen/getting-lindholmen

Every day, 30,000 people travel to Lindholmen Innovation District to work, study, network or live. There are many ways of travelling to Lindholmen Science Park — free ferry, bicycle, car or bus. Because of the ongoing construction work, we recommend that you travel here by public transport.

Bus

Route 16/16x departs every third minute during the morning and afternoon rush hour. Travel time from the Nordstan (Central Station) bus stop to Lindholmen is 6–8 minutes. You can also take buses 31, 45, 55, 58, 99, 121, 176 and 177.

Travel planner

www.vasttrafik.se/en/travel-planning/travel-planner/
www.vasttrafik.se/en/travel-planning/Timetables/

By car

Major construction work is currently taking place in the area, and the amount of parking is limited.

Google Maps Lindholmspiren 5 Gothenburg

<https://maps.app.goo.gl/SQME6huAKLBAXWvE7>

Ferry

The Älvsnabbare ferry is free of charge and runs every eight minutes between Stenpiren → Lindholmspiren, weekdays between 07:00 a.m. and 6:00 p.m. The trip only takes six minutes.





**PhotonHub
Europe®**

www.photonhub.eu



PHOTONICS²¹
PHOTONICS PUBLIC PRIVATE PARTNERSHIP

A PAN-EUROPEAN ONE-STOP-SHOP PHOTONICSINNOVATION HUB

Orienteering



Tailored advice to guide you on your best next step towards successful implementation of photonics innovation.

PhotonHub Support Activities



Training &
Reskilling



Innovation
Support
TRL3-8



Business
Coaching



Investment
Coaching



Regional
Support

All industry sectors
can benefit from
photonics innovation:

MANUFACTURING
AGRO-FOOD
SAFETY SECURITY
SPACE DEFENCE
HEALTH
ENERGY
MOBILITY
DIGITAL
INFRASTRUCTURE

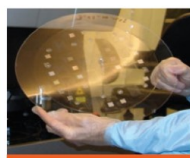
...

APPLY NOW ON
PHOTONHUB.EU

Photonics Innovation Support for prototyping, upscaling & manufacturing



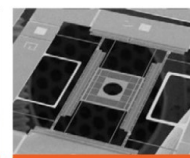
Free-space optics & components



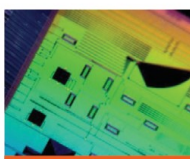
Polymer-based optics



Specialty fibers



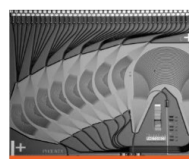
MOEMS



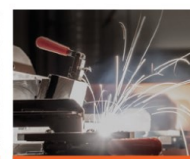
Si-PICs



SiN-PICs



InP-PICs



Laser-based manufacturing

REGISTER FOR THE ONLINE PHOTONIC TRAINING COURSES

→ photonhub.eu/online-training

VISIT OUR DEMO AND EXPERIENCE CENTERS

→ photonhub.eu/centers

JOIN OUR COMMUNITY

→ photonhub.eu/community





Strongly SUBSIDISED PROJECTS



TRL 3-4: PROTOTYPE LEVEL

Small-Medium Enterprises (SMEs):
First €30k of innovation project budget fully subsidised;
75% of total budget subsidised thereafter*

Large-Scale Companies (LSCs):
50% of total budget subsidised*

* Up to a maximum subsidised amount of €100k per prototyping project.

| Illustrative examples: | Total innovation project budget | Subsidised for company | Cash contribution of company |
|------------------------|---------------------------------|------------------------|------------------------------|
| SMEs | € 50k | ▷ € 45k | ⊕ € 5k |
| | € 100k | ▷ € 82.5k | ⊕ € 17.5k |
| LSCs | € 50k | ▷ € 25k | ⊕ € 25k |
| | € 100k | ▷ € 50k | ⊕ € 50k |

TRL 5-6: UPSCALING LEVEL

SMEs: 85% of total budget subsidised**

LSCs: 50% of total budget subsidised**

** Up to a maximum subsidised amount of €250k per upscaling project.

| Illustrative examples: | Total innovation project budget | Subsidised for company | Cash contribution of company |
|------------------------|---------------------------------|------------------------|------------------------------|
| SMEs | € 100k | ▷ € 85k | ⊕ € 15k |
| | € 220k | ▷ € 187k | ⊕ € 33k |
| LSCs | € 100k | ▷ € 50k | ⊕ € 50k |
| | € 220k | ▷ € 110k | ⊕ € 110k |

CUSTOMISED BENEFITS TO YOUR COMPANY

ONE-STOP-SHOP

Full supply chain of cutting-edge photonics platforms

TOP EXPERTS

We select the partners that can best serve your technology needs

SEAMLESS SUPPORT

All the way from concept to manufacturing (TRL3-8) through multiple follow-on projects

CONCRETE RESULT

TRL advancement of
1 to 2 TRL levels

FASTER TO MARKET

Duration of project: 6–9 months

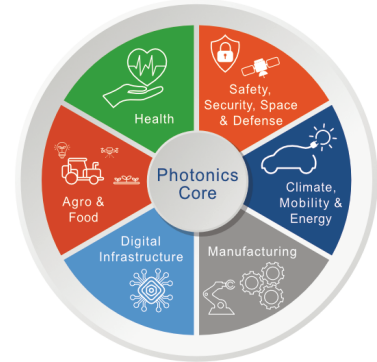
BUSINESS ACCELERATION

Customised business and IP coaching to support strategic development

SCALING FOCUS

Scaling Club dedicated to guidance on upscaling

Photonics Driving innovation across all industry domains



Start your
photonics innovation journey
with our support



**GET
STARTED!**
PHOTONHUB.EU

Version: Autumn 2024



HOW TO START?

1 SELECT THE SERVICES OF INTEREST AND REGISTER ONLINE

Prototyping
Upscaling
Manufacturing
Training & Reskilling
Investment Coaching
Business & IP Coaching*

* Available as part of any technology innovation project.

PHOTONHUB.EU



Scan to register!

2

TECHNOLOGY ORIENTEERING



We will contact you to discuss your photonics innovation ambition and determine the right technology approach & partners for you. This discussion will take place under NDA.

3

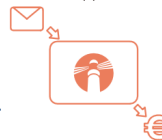
INITIAL EXPERT ASSESSMENT



In-depth face to face meeting with the appointed experts covering both technical and business aspects followed by a report including the recommended next steps. (Typically, 2 weeks to complete this step)

4

PROJECT PROPOSAL



PhotonHub appoints a project leader to work with you in preparing and submitting your customised innovation project proposal covering tasks, milestones, deliverables, budget, and IP ownership. (Typically, 1-2 months to complete this step)

5

PROJECT EVALUATION



The PhotonHub Evaluation Team reviews and scores your proposal in accordance with the evaluation criteria*. You will be invited to participate online to address any questions and will receive a formal evaluation report within one week. Possible outcomes are: granted; approved pending resubmission with modifications; or cancelled. (Evaluation meetings every 1 – 2 months) * available at photonhub.eu

6

CONTRACT SIGNING AND KICK-OFF

Once granted, an innovation project agreement is signed by your company and all of the partners involved. The project kicks off and you are on your way!



SPONSORS & EXHIBITORS

SPONSORS

**Smartare
Elektroniksystem**

ELECTRONIC COMPONENTS & SYSTEMS

THORLABS

EO **Edmund**
optics | worldwide

HAMAMATSU
PHOTON IS OUR BUSINESS

HÜBNER Photonics



**LASER
COMPONENTS®**

**SVENSK
ELEKTRONIK**

YOKOGAWA ◆

SPONSORS OF THE PS STUDENT AWARDS 2024

1ST PRIZE

HAMAMATSU
PHOTON IS OUR BUSINESS

2ND PRIZE

EO **Edmund**
optics | worldwide

POSTER AWARD

**IEEE
photonics
SOCIETY**

MEDIA PARTNERS

**ELEKTRONIK
TIDNINGEN**

OPTICA

SUPPORTED BY



CHALMERS
UNIVERSITY OF TECHNOLOGY



BUSINESS REGION GÖTEBORG

EOS

European Optical Society

Coherence for Europe

EXHIBITORS

HAMAMATSU
PHOTON IS OUR BUSINESS

EO **Edmund**
optics | worldwide

THORLABS

**LASER
COMPONENTS®**

entangly
optics and photonics

TILLQUIST
Specialists in measurement technology

**RI.
SE**

HÜBNER Photonics



4photonics
YOUR PARTNER FOR PHOTONIC EQUIPMENT

ECLIPSE



SiTek®
ELECTRO OPTICS



OPTRONIC

a better product life

COHERENT

Oxxius
Simply Light

YOKOGAWA ◆



**LIGHT
CONVERSION**



KIMMY
PHOTONICS

BEFORT WETZLAR
DESIGN - SYSTEMS - COATINGS - PRECISION OPTICS

Panasonic

CONNECT

Anritsu

envision : ensure

LASER 2000
Experts in Photonics



**ESSENT
OPTICS**

exatronic



**TELEDYNE
FLIR**



**Photonics Industries
International, Inc.**



AZPECT
part of
amSTECHNOLOGIES

SPECTROGON
Optical filters • Coatings • Gratings



AFRY
AF PÖYRY

OPTICA



Photonics Joensuu