The Optics & Photonics in Sweden conference (OPS 2022) will be held on 4-7 October 2022 in Umeå at Umeå University. The conference is organised by PhotonicsSweden (PS). On 7 October the Laser Lab Sweden will have a workshop.

More information: photonicsweden.org

GENERAL CHAIR
- Ove Axner (Umeå University)

PROGRAMME COMMITTEE
- Maria Abrahamsson, Chalmers
- Magnus Andersson, Umeå University
- Ove Axner, Umeå University
- Petra Bindig, PhotonicSweden
- Joakim Bood, LTH
- Ludvig Edman, Umeå University
- Kristinn Gylafson, KTH
- Kenneth Järrendahl, LiU
- Magnus Karlsson, Chalmers
- Valdas Pasiskievicius, KTH
- Mikael Sjödahl, LTU Luleå
- Thomas Wågberg, Umeå University
- Petra Hardke, Thorlabs
- Urban Konradsson-Botes, Optonyx, Kista
- Håkan Olsson, SLU, Umeå
- Ewa Orlowska, Hamatsu Norden AB
- Christofer Silfvenius, Energimyndigheterna
- Maria Strand, Adopticum, Skellefteå
- Lisa Rähmisch, LU, Lund
- 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:

EXHIBITION & SPONSORING OPPORTUNITIES
Please contact Lennart BM Svensson if you are interested in our exhibition and sponsor opportunities: lennart@photonicsweden.org

FURTHER INFORMATION
For further information please go to photonicsweden.org

CONFERENCE VENUE
Umeå University
901 87 Umeå, Sweden

JOB FAIR AT EXHIBITION
We will arrange a matchmaking between companies and job seekers at the conference Optics and Photonics in Sweden 2022 at Umeå University. It will take place on 5 and 6 October in the exhibition area. All exhibiting companies welcome students (graduates, undergraduates and PhD students) to discuss jobs, internships, etc. More information on the conference can be found at https://photonicsweden.org/optics-photronics-in-sweden-2022/

APPLICATION FOR STUDENT FREE ADMISSION
Up to 10 students in a Bachelor’s degree or Master’s degree program can apply for free admission for OPS-2022, which is sponsored by ThorLabs Sweden AB.

THORLABS

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 can be sent to petra@photonicsweden.org
Deadline for abstracts: 15 September 2022
REGISTRATION FOR PARTICIPANTS

The registration deadline for online-registration is 20th of September.

Register here: http://dinkurs.se/OPS2022Participants

REGISTRATION FEES

3,300 kr  Non Members  +25% VAT

2,600 kr  Personal Members of PhotonicSweden and/or European Optical Society (EOS)  +25% VAT

1,500 kr  Student Members & Pensioner Members of PhotonicSweden and/or European Optical Society (EOS)  +25% VAT

1,500 kr  Invited Speakers  +25% VAT

REGISTRATION FOR EXHIBITORS

The registration deadline for online-registration is 20th of September.

Register here: http://dinkurs.se/OPS2022Exhibitors

EXHIBITION FEES

15,900 kr  Non Members  + 25% VAT  (incl. one person participation fee)

13,600 kr  Company Members of PhotonicSweden  + 25% VAT  (incl. one person participation fee)

2,600 kr  additional exhibitors colleagues  + 25% VAT  (incl. one person participation fee)

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

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

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 conference dinner.

Exhibition stand will be selected based on registration order. Map of exhibition floor will later be sent out to exhibitors.

Please contact Lennart BM Svensson lennart@photonicsweden.org if you are interested in exhibiting at OPS-2022.

Goods for the OPS-2022 conference delivers to:

Goods Label and Shipping Address:

OPS-2022/Ove Axner
Servicegränd 12
Umeå universitet
907 36 Umeå

Map: https://goo.gl/maps/aEnwaBE3rY2wte6o8

Delivery contact at Husservice/Universum:
Mr. Jan-Erik Lingebrandt
+46 (0)90 786 88 90
+46 (0)70-350 51 72

* 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.
Hotel reservation

PhotonicSweden has reserved **20 double rooms and 40 single rooms** at Hotel Björken, which is close to the venue.

- Special price for single room SEK 750 per room and night
- Special price for double room SEK 1150 per room and night
- The accommodation price includes breakfast.
- The parking cost is SEK 80 per day.
- Enter the code "PhotonicSweden 2022" when booking to get the special price.
- Rooms not booked 3 weeks before arrival are automatically canceled.

**Hotell Björken**
**Visiting address:** Lasarettsbacken 10
**Postal address:** Box 7986
907 19 Umeå, Sweden
**Phone:** +46 90 10 87 00
**E-mail:** hotell.bjorken.se@sodexo.com
**Web:** www.hotellbjorken.se
**Map:** [https://goo.gl/maps/xLQdz8m8Z3yxUj3W9](https://goo.gl/maps/xLQdz8m8Z3yxUj3W9)

**Clarion Hotel Umeå**
Has just released its opening offer with room for 799 SEK/night
**Visiting address:** Storgatan 36
903 26 Umeå, Sweden
**Phone:** +46 771 666 700
**E-mail:** cl.umea@choice.se
**Map:** [https://goo.gl/maps/4Yz55xiXSJ6Ghd8n7](https://goo.gl/maps/4Yz55xiXSJ6Ghd8n7)
Laser Plasma Accelerators (LPA) rely on our ability to control finely the electrons motion with intense laser pulses [1]. Such manipulation allows to produce giant electric fields with values that can exceed by more than 3 orders of magnitude those used in current accelerator technology. Controlling the collective electrons motion permit to shape the longitudinal and radial components of these fields that can be optimised for delivering high quality electrons beam or energetic photons.

To illustrate the beauty of laser plasma accelerators I will explain some of these concepts that improve beam quality and show how one can use them to image relativistic plasma wave [3] or electron bunch.

Finally, I’ll show the pertinence of the approach for many applications by considering the two most mature cases of relevance in security domain with non-destructive inspection compact gamma sources, and for radiotherapy with very high energy electrons delivered by compact LPAs [4].

Keywords: high power lasers, accelerators, X-ray beams, electron beams

## TUESDAY 4 OCTOBER 2022

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Room</th>
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<tbody>
<tr>
<td>14:00-21:00</td>
<td>Exhibition set up</td>
<td>Caféhörnan</td>
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<tr>
<td>14:00-18:00</td>
<td>Nordic Photonics Forum meeting</td>
<td>Triple Helix, Universitetsledningshuset</td>
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<tr>
<td>14:00 - 14:10</td>
<td>Introduction</td>
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<tr>
<td>14:10 - 14:40</td>
<td>Make equality measurable, Maria Strand and Kenth Johansson, Adopticum, Skellefteå</td>
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<td>At Adopticum we love to measure things, it’s what we do, it’s a part of our DNA. But today</td>
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<td>we won’t be talking about measuring from an optical point of view, but rather how we work</td>
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<td>and measure equality in highly technical project.</td>
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<td>Electronic Systems. The European Commission has released its primary response to this crisis</td>
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<td>through the European Chips Act, aiming to double the European share of global microchip</td>
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<td>production by 2030 and reduce supply dependencies. The presentation highlights why Europe</td>
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<td>needs an Initiative for a Chips Act. There are three pillars of the Chips Act: Chips for</td>
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<td>Europe Initiative, Security of Supply, and Monitoring and Crisis Response. The situation</td>
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<td>today, and what is missing in the EU is addressed, as well as the most important activities.</td>
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<td>15:20 - 15:40</td>
<td>Coffee Break</td>
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<tr>
<td>15:40 - 16:25</td>
<td>European Chips Act Continuation: Thorbjörn “Toby” Ebefors, Smarter Electronic Systems</td>
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<td>Support for Swedish Small and Medium sized Enterprises (SME’s), Business Sweden / TBD</td>
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<td>Does your company have fewer than 250 employees and a turnover below 50 million euro?</td>
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<td>If so, we can help you expand your business overseas. Our government funding allows us to</td>
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<td>offer a wide range of tailored services to support your international growth.</td>
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<tr>
<td>16:25 - 17:00</td>
<td>Innovation Support offered by EU-project PhotonHub</td>
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<td>A fund of 7.4 million Euro is earmarked for eligible companies, to perform technical</td>
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<td>innovation projects within the PhotonHub framework. Experts, laboratory resources,</td>
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<td>prototyping and test facilities across Europe are available to the projects.</td>
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<td>The PhotonHUB Offer - Why and how to apply for PhotonHUB funding? Lennart BM Svensson,</td>
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<td></td>
<td>PhotonicSweden PhotonHUB-Webinars &amp; courses offered by RISE-Fiberlab, Åsa Claesson, RISE</td>
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<tr>
<td>17:00 - 18:00</td>
<td>Photonics Clusters</td>
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<td>Photonics Finland and a unique operating environment for photonics companies to grow and</td>
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<td>develop at the new Photonics Center Ltd in Joensu, Juha Purmonen Photonics Finland</td>
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<td>Danish Photonics Club, Henrik Mertz, FORCE Technology, Denmark</td>
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<td>Baltics Photonics</td>
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<td></td>
<td>Photonics in Latvia and NOP-2023 Norther Optics and Photonics in Riga, Valters Jekabsons,</td>
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<td>LIAA, Latvia Embassy in Stockholm</td>
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<tr>
<td>18:00-19:00</td>
<td>Networking with drinks and fingerfood</td>
<td>Triple Helix, Universitetsledningshuset</td>
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</table>
Lecture rooms in the KBC-house.
There will be a walking distance between the lecture rooms and the exhibition and poster area.
The exhibition area is outside the entrance to the restaurant Lingon, where many university people will pass through during lunch hours.

https://link.mazemap.com/VEajgXaf
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
<th>Chair</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00-10:00</td>
<td>On-site registration and welcome coffee</td>
<td>Room: KB.E3.03 Kempe Salen in the KBC huset</td>
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<tr>
<td>10:00-10:15</td>
<td><strong>Opening Remarks</strong></td>
<td>Room: KB.E3.03 Kempe Salen in the KBC huset</td>
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<tr>
<td></td>
<td>Åsa Claesson, PhotonicSweden; Ove Axner, Umeå University</td>
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<tr>
<td>10:15-11:00</td>
<td><strong>Keynote Talk</strong></td>
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<td></td>
<td>Manipulating Relativistic Electrons with Intense Laser Pulses</td>
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<td>Victor Malka, Weizmann Institute of Science, Rehovot, Israel</td>
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<tr>
<td>11:00-12:00</td>
<td><strong>Exhibitor Presentations</strong></td>
<td>Room: KB.E3.03 Kempe Salen in the KBC huset</td>
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<td>Exhibitor Pitch Talks</td>
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<tr>
<td>12:20-14:00</td>
<td><strong>Lunch &amp; Poster Session &amp; Exhibition</strong></td>
<td>Room: Restaurant Lingon, Brashörnan, Caféhörrnan</td>
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<tr>
<td>14:00-15:00</td>
<td>**Session A1</td>
<td>Photonics for Life Sciences**</td>
<td>Room: KB.E3.03 Kempe Salen in the KBC huset</td>
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<td>Session Chair: Sergiy Valyukh</td>
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<tr>
<td>14:00-14:20</td>
<td>Functional fibers for opto-fluidic applications</td>
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<td>Fredrik Laurell, Royal Institute of Technology (KTH)</td>
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<td>14:20-14:40</td>
<td>Characterization of individual pathogens using optical tweezers based methods</td>
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<td></td>
<td>Magnus Andersson, Umeå University</td>
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<tr>
<td>14:40-15:00</td>
<td>Plasmonically-powered trapping and rotation of gold nanorods</td>
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<td>Hana Jungová, Chalmers University of Technology</td>
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<tr>
<td>14:00-15:00</td>
<td>**Session B1</td>
<td>Photonics application-funding**</td>
<td>Room: KB.E3.01 Lilla hörsalen in KBC huset</td>
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<td>Session Chair: Urban Konradsson Botes</td>
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<tr>
<td>14:00-14:20</td>
<td>Photonics resources at RISE: Innovation projects and opportunities for funding</td>
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<td></td>
<td>Åsa Claesson, Senior Researcher, RISE Fiberlab, Hudiksvall</td>
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<td>14:20-14:40</td>
<td>Examples of photonics development projects funded by SES and upcoming opportunities</td>
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<td>Thorbjörn Ebefer, Ph.D, Acting Program Manager, Smarter Electronic Systems (SES) (only 5/10)</td>
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<tr>
<td>14:40-15:00</td>
<td>Examples of regional innovation funded projects through optical measurement technology and how to assist in new projects</td>
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<td>Åsa Almström, Project Manager, The Adopticum Foundation, Skellefteå</td>
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15:00 - 15:20
Break

Room: KB.E3.03 Kempe Salen

15:20-15:40
Generation of attosecond light and relativistic electron pulses with ultra-intense lasers
Laszlo Veisz, Umeå University

15:40-16:00
Applications of Laser Plasma Accelerators
Olle Lundh, Lund University

16:00-16:20
Physics at ultra-high intensities
Mattias Marklund, University of Gothenburg

Room: KB.E3.01 Lilla hörsalen in KBC huset

15:20-16:20
Session B2 | 3D-analysis / Spectroscopy
Session Chair: Elena Vasileva

15:20-15:40
3D camera tracker for fast and easy physical performance analysis,
Jonas Sjöberg, Ph.D., Founder of Photon Sports AB, Umeå

15:40-16:00
Laser Based Spectroscopy – Novel Solutions for Faster, Smarter Workflows,
Robert Wills, Molecular Spectroscopy Product Specialist, Agilent Technologies LDA UK Ltd (only 5/10)

16:00-16:20
Filters for space applications
Staffan Greek, Ph.D. R&D Manager, Spectrogon AB, Stockholm

16:20-17:30
Break

17:30-19:00
Poster Session & Exhibition & Beverage

Room: Brashörnan, Caféhörnan

19:00-22:00
Conference dinner

Location: Restaurant Lingon
<table>
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<tr>
<th>Time</th>
<th>Session A3</th>
<th>Spectroscopy / Spectrometry / Imaging</th>
<th>Session Chair</th>
<th>Valdas Paskevicius</th>
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<td>High Performance Lasers enable Cutting Edge Research</td>
<td>Elena Vasileva, Ph.D. Product Manager, Cobalt/HÜBNER Photonics, Stockholm</td>
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<td>09:30-10:30</td>
<td>Lasers for Raman Spectroscopy Applications</td>
<td>Mickael Winters, Area Sales Manager Scientific Research &amp; Instrumentation, Coherent, Gothenburg</td>
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<td>10:00-12:00</td>
<td>Stem quality estimated from ground based laser scanning,</td>
<td>Kenneth Olofsson, Associate Professor, Department of Forest Resource Management, SLU, Umeå</td>
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<td>10:40-12:00</td>
<td>Processing of remote sensing data, including ground based scanning and drone images at the Ljungberg lab,</td>
<td>Jonas Bohlin, Section Manager, Department of Forest Resource Management, SLU, Umeå</td>
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<td>11:00-11:20</td>
<td>National Mapping of Swedish Forests using Airborne Lidar,</td>
<td>Mats Nilsson, Associate Professor, Department of Forest Resource Management, SLU, Umeå</td>
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<td>11:40-12:00</td>
<td>Flashey-Lidar used same as cameras: real-time 3d lidar monitoring for security and industrial applications,</td>
<td>Ida Rhenström, COO and Johan Söderberg, Lead Developer, Flashey AB, Luleå</td>
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**The Ljungberg laboratory at SLU (The Swedish University of Agricultural Sciences)**
The Ljungberg laboratory is a training laboratory for 3D remote analysis of forests where the latest technology is available in terms of platforms and sensors.

In the Remote sensing and forest inventory course at SLU we always have a demo of different sensors and platforms available for the students in the Ljungberg laboratory like for example processing remote sensing data, including ground scanning, drone images, etc.

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**The Department of Physics belongs to the Faculty of Science and Technology at Umeå University.**
At present about 100 people work at the new Department of Physics, professors, lecturers, researchers, guest professors, postdocs, doctoral students, and technical and administrative staff.

We carry out research and research education in various fields, for example in optical physics, nonlinear physics, plasma physics, general relativity, condensed matter physics and nanotechnology, photonics, biological physics, complex networks, space physics and physics education.

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**CONFERENCE SCHEDULE**

**THURSDAY, 6 OCTOBER 2022**

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<tr>
<td>12:00-13:45</td>
<td>Lunch break &amp; Poster session &amp; Exhibition</td>
<td>Restaurant Lingon and Glasövergången to Naturvetarhuset, Caféhörnan</td>
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<tr>
<td>13:45-14:30</td>
<td>Keynote Talk: <em>Laser Applications and Scanner Technologies for Industrial Solutions</em></td>
<td>KB.E3.03 Kempe Salen</td>
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<td>14:30-15:00</td>
<td>PhotonicSweden Awards and Poster Prize</td>
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<td>Mikael Sjödahl, Luleå University, Peter Strömberg, Acoem AB, Laszlo Veisz, Umeå University</td>
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<td>15:00-15:30</td>
<td>Coffee Break</td>
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<td>15:30-17:30</td>
<td>Lab visits</td>
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Laserlab Sweden Day - A presentation of the ongoing activities within Laserlab Sweden - A hot field with lots of job opportunities - CARLA Camp

Laserlab Sweden is a Swedish network of Laser Research Infrastructures. It is organized in five nodes, comprising Lund Laser Centre, Laserlab Umeå, Laserlab Göteborg, Laserlab Uppsala, and Laserlab Stockholm. Further information can be found at https://laserlab-sweden.se/.

8.30 – 8.40 Introduction to Laserlab Sweden
Dag Hanstorp

8.40 – 9.40 Presentation of the Gothenburg node
Node presenter (15 min): Dag Hanstorp
Invited speaker (25+5 min): Hélène Coudert-Alteirac, "Attoshallen: commissioning of a new attosecond facility"
PhD student speaker (12+3 min): Javier Marmolejo, "A water droplet as a toy atom"

9:40 -10:00 Coffee break

10:00 - 11:00 Presentation of the Lund node
Node presenter (15 min): Claes-Göran Wahlström
Invited speaker (25+5 min): Anne-Lise Viotti, "Ultrafast sources at high repetition rates"
PhD student speaker (12+3 min): Weihua Lin, "Light-induced electronic dynamics in 2D perovskites"

11:00 - 12:00 Presentation of the Umeå node
Node presenter (15 min): Laszlo Veisz
Invited speaker (25+5 min): Vinicius Silva de Oliveira, "Double resonance spectroscopy of methane using an optical frequency comb"
PhD student speaker (12+3 min): Aitor De Andres, "Spatio-spectral characterization of few-cycle laser pulses"

12:00 - 13:00 Lunch

13:00 - 14:30 Presentation of the Stockholm/Uppsala nodes
Stockholm node presenter (10 min): Valdas Pasiskevicius
Invited speaker (25+5 min): Clarissa Harvey, "Advanced fiber fabrication"
PhD student speaker (12+3 min): Christoffer Krook, "Self-compression of pulses by impulse polariton scattering"

Uppsala node presenter (5 min): Ronny Knut
Invited speaker (25+5 min): Ronny Knut, "Ultrafast dynamics in magnetic materials"

14.30 – 14.45 Wrapping up
Photonic Quantum Random Number Generation with Guaranteed Privacy
Joakim Argillander, Linköping University

Cascaded Mode-locking of Nd:YVO4 Laser through Intra-Cavity Sum-Frequency Generation
Martin Brunzell, The Royal Institute of Technology (KTH)

Development of a new laser facility for material science research
Ruslan Chulkov, Uppsala University

Raman frequency conversion of spectrally tunable laser radiation on coherently driven molecular vibrations in high-pressure hydrogen
Ruslan Chulkov, Uppsala University

Attohallen: Commissioning of a new attosecond science facility
Helene Coudert-Alteirac, University of Gothenburg

Double-resonance spectroscopy of methane in the $3\nu_3 \leftarrow \nu_3$ region using a frequency comb probe
Vinicius de Oliveira, Umeå University

GAS MODULATION REFRACTOMETRY – A TECHNIQUE FOR PRECISE AND ACCURATE PRESSURE ASSESSMENTS
Clayton Forssen, Umeå University

Optical frequency comb Fourier transform spectrometer for high-accuracy line position retrieval in the 8 μm range
Adrian Hjältén, Umeå University

Implementing the Multi-plane Gerchberg-Saxton Algorithm in Digital Signal Processors
Varis Karitans, University of Latvia

Slow light laser stabilization
Marcus Lindén, Lund University

Towards 3D printed lasers
Pawel Maniewski, The Royal Institute of Technology (KTH)

Optical spectrophotometry for material appearance modelling in 2.5D and 3D printing
Alina Pranovich, Linköping University

Coherent Control of Molecular Rotation with Single-shot fs/ns Coherent anti-Stokes Raman Spectroscopy
Meena Raveesh, Lunds University

Protocells and Surface-adhered Biomembrane Networks
Ruslan Ryskulov, Chalmers University of Technology

Quantitative in situ detection and imaging of gas-phase K, KOH and KCl in biomass combustion
Emil Thorin, Umeå University

Non-polarizing spatial light modulation on liquid crystals for Li-Fi under normal lighting conditions
Sergiy Valyukh, Linköping University

Simultaneous quantitative measurement of KOH, KCl and K atom with spatial resolution
Weng Wubin, Lunds University

Ivan Yakymenko, Linköping University

Measuring the Pulse Duration and the Time-Dependent Polarisation State of Ultrashort Laser Pulses with the D-Scan Technique
Daniel Dias Rivas, Lund University
The Nordic Photonics Forum and Laserlab Sweden at ULED Triple Helix.

Exhibition area at Caféhöran outside Restaurant Lingon and Aula Nordica.

Keynote speeches and Academic Sessions: Lecture room KBE303-Stora hörsalen
Industrial Sessions: Lecture room KBE301-Lilla hörsalen
Lecture rooms in the KBC-house.
There will be a walking distance between the lecture rooms and the exhibition and poster area.
The exhibition area is outside the entrance to the restaurant Lingon.,
The blue line shows the outdoor way to the Lab-visits at Physics. You will be guided.
There will also be a walking distance outside to SLU’s Ljungbergslab.
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