

Photonics 4

**Recycling Waste Material
& Metal Processing**

Skellefteå | April 2019

Innovation Symposium

- » Talks by Photonics Experts and End-users
- » Partnering & Networking
- » Exhibition
- » Matchmaking



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Workshop in Skellefteå, Sweden 3-4 April 2019

The aim of the workshop is to gather actors in photonics together with actors in recycling and handling of metallic materials. The Innovation Symposium is part of EU-project NextPho21.

Preliminary Agenda:

Day 1: Wednesday 2019-04-03

- 09:20 Arrival Skellefteå by SAS from Arlanda
- 10:30 Study visit at Optronic AB
- 12:00 Lunch at Optronic AB
- 12:30 Bus to visit Northvolt construction site
- 13:30 Bus to study visit at Rönnskärsverken
- 17:00 Bus back to Skellefteå
- 19:30 Dinner in Skellefteå

Day 2: Thursday 2019-04-04

- 09:30 Workshop Part-1 in Skellefteå
- 12:00 Lunch
- 13:00 Workshop Part-2 in Skellefteå
- 17:30 End of Workshop
- 18:00 Transport to SFT
- 19:25 SAS Departure to Arlanda

Optronic AB in Skellefteå is focused on series production on manufacturing products containing electronics or optical measurement technology. We specialize in the production of small and medium-sized series for industrial customers. Our facilities comprise approximately 3,000 square meters of manufacturing equipment adapted to the most demanding industrial segments. Some of the industries we have experience include automation, logistics, medical technology, security, traffic solutions and the agricultural sector.

Boliden-Rönnskärsverken in Skellefteå municipality is Sweden's sole smelter for the production of base metals, and is working on recycling of electronic scrap. The main products are copper, zinc clones, lead and precious metals with sulfuric acid as a bi-product. Rönnskär also produces metals from electronic scrap and other secondary materials. The smelting plant produced 190,000 tonnes of copper in 2010. In 2010, an expansion of approximately SEK 1.3 billion was made by Rönnskärsverken, which made the smelter world-leading in the recycling of electronic waste with a capacity of 120,000 tonnes of electronic scrap per year.

Northvolt Establishment of battery factory in Skellefteå
In total, the investment is expected to cost over SEK 40 billion and provide up to 2,500 direct jobs. "Our mission is to build the greenest battery in the world with a minimal carbon footprint and the highest ambitions for recycling to enable the European transition."



Organised by:  **PhotonicSweden**
The Swedish Technology Platform in Optics and Photonics

In cooperation & sponsored by:



Supported by:



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Click to register: <http://dinkurs.se/Skelleftea2019>

Photonics 4 Recycling Waste Material & Metal Processing

Day 1: Visit to Optronic AB and Boliden-Rönnskärsverken and dinner
Day 2: Workshop at Campus Skellefteå

The aim of the workshop is to gather actors in photonics together with actors in recycling and handling of metallic materials. The Innovation Symposium is part of EU-project NextPho21.

Registration options are:

Opt.1) I will attend both Days 1&2: **500,00 SEK** incl VAT

Opt.2) I'm a confirmed Speaker and I will attend both Days 1&2: **0,00 SEK**

Opt.3) I will attend only Day 2: **0,00 SEK**

Due to safety precautions, only 40 participants can visit Boliden-Rönnskärsverken on Day 1.

If you are unable to arrive in Skellefteå to participate the visit tours, you are still welcome to join us at the dinner on Day 1.

The venue on Day 2 is located at **Forumsalen** on **Laboratorgränd at Campus Skellefteå**. Companies are after confirmation allowed to exhibit for free in the Forum Foajé.

Payment options are by Credit card, Swish, or by Invoice.

Payment by invoice (choose "Other method" in the drop down menu) must be paid before 2019-03-30.

PhotonicSweden has prebooked 70 rooms at:

[Quality Hotel Skelleftea Stadshotell](#)

Stationsgatan 8-10, Skelleftea

Ph.+46-910 71 10 60

Emal: g.booking.skelleftea@choice.se

Prize: One single room is 1.150 SEK incl. breakfast and VAT.

Booking code: PhotonicSweden.

Travel example by SAS from Stockholm:

Wednesday 3 April: 08:10 Departure Arlanda / 09:20 Arrive at Skellefteå Airport

Thursday 4 April: 19:25 Departure Skellefteå Airport / 20:30 Arrive at Arlanda

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Forumsalen

Välkommen till Campus Skellefteå

- A** Luleå tekniska universitet
LTU Business AB
- B1** Luleå tekniska universitet
- B2** Luleå tekniska universitet
RISE
- C** Umeå universitet
- D** Helpdesk
Studievägledning CV
- E** Lärcentrum
ValiWeb
SFI
P-hus
YH
- F** Trä- och teknikarenan
T2 College
- G** VUX Reception
- H** Företagshus
- J** Företagshus
- K** Företagshus
- L** Restaurang/café
Studentpuben Traversen
Studio
- M** Campusbiblioteket
Forumsalen/Arenan
- N** Campushallen
- O** Studenthuset STOCK
Idelabbet



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Program on 3rd April: Visit tour

- **10:30 Study visit at Optronic AB and Veoneer Sverige LiDAR AB**
Visiting address: Företagsvägen 34, SE-931 57 Skellefteå, Ph. +46-(0)910 83 500
We will visit both **Optronic AB** and **Veoneer Sverige LiDAR AB** (which former was Fotonic AB).
- **12:00 Lunch at Optronic AB**
Optronic AB invites us for lunch at their premises.
- **12:30 Bus to visit Northvolt construction site**
The bus takes us from Optronic to the Northvolt construction site, where we will be guided by Hanna Hedlund and stay approx 30 min.
- **13:30 Bus to study visit at Rönnskärsverken –Max 40 participants !**
Then the bus takes us from the Northvolt construction site to Boliden-Rönnskärsverken, where Linn Andersson will meet us and together with her colleagues guide us around Rönnskärsverken.
Address: Skelleftehamn, Rönnskär, SE-932 81,
<https://www.boliden.com/operations/smelters/boliden-ronnskar>
- **17:00 Bus back to Skellefteå**
The bus takes us back from Boliden-Rönnskärsverken to our hotel.
- **19:30 Dinner in Skellefteå**
The dinner is at Restaurant Stadskällaren www.stadskallaren.nu
Address: Storgatan 43A, SE-931 31 Skellefteå, Ph.+46-(0)76-841 0007
Walking distance is 200m from Quality Hotel Skellefteå Stadshotell.
<https://goo.gl/maps/3G14UCik1xn>

Program on 4th April: Workshop

- 850m - 10min walking from Skellefteå Stadshotell to Campus Skellefteå.
Address: Laboratorgränd 13, House M, Forumsalen, Campus Skellefteå.
<https://goo.gl/maps/e2GpB5MDiu42>
- **09:00-09:30 Workshop Registration**
- **09:30-12:00 Workshop**
- **12:00-13:00 Lunch**
- **13:00-17:00 Workshop**

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Program on 4th April: Welcome & Invited speakers



Welcome by PhotonicSweden

Lennart BM Svensson, PhD, & Petra Bindig, M.A.,
PhotonicSweden, Kista, Sweden

Invited speakers



Northvolt Establishment of battery factory in Skellefteå

Anja Palm, Business Developer Officer, Näringslivskontoret, Skellefteå

Anja Palm work to attract new investment to Skellefteå and played a key role in getting Northvolt interested in Skellefteå. Anja will tell you about the journey.

Skellefteå municipality and Northvolt have had since 2017 and how this will affect the future of Skellefteå. Northvolt are building the next generation lithium-ion battery factory with a new concept focusing on scale, vertical integration and highly controlled manufacturing. The execution is fundamentally different compared to current battery production facilities. They are dedicated to creating a circular system, and have the highest ambitions for life cycle management. The approach covers cradle to grave.



Future challenges and needs for scrap and metal processing

Linn Andersson, M.Sc. Production Manager at Boliden-Rönnskär, Skellefteå

Linn Andersson started working for Boliden Rönnskär in 2001. She has held various positions and she comes from a position as Manager of R&D environment. Since March 2018, she holds the position as production manager at the site. Linn has a M.Sc. degree in Chemistry from Umeå University and a MBA from Edinburgh Business School.

The talk will also cover that in 1930, production started at the Rönnskär copper smelter. During the smelters lifetime hazardous waste has been stored on site. In 2007, Boliden Rönnskär intensified the investigation for a final storage solution for the hazardous waste by building a deep repository more than 300 meters under a smelter.



Industrial Digitalisation –Future trends

Pär-Erik Martinsson, PhD, Manager Digital Sweden at RISE SICS, Luleå

Project manager with extensive experience from collaborative projects that specifically appreciates working strategically with regional, national and European development questions. Pär Erik Martinsson has a background in engineering physics and industrial electronics.

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Photonics as an enabler for advanced production and manufacturing of metals

Larz Ignberg, M.Sc. Director at Triple Steeli, Västerås, Sweden.

With a higher education in Materials Physics, Larz has considerable experience of R&D and innovative processes within the metal industry carried out within a global environment. At Triple Steelix he has been responsible for the Value Chain development area, above all as it relates to product development and growth in small and medium-sized companies (SMEs) working together with the steel industry.



Optical Metrology for the Metal Industry

Mikael Sjö Dahl, PhD, Chair professor in Experimental Mechanics at Luleå University of Technology, Luleå, Sweden

Professor Sjö Dahl's research is focused on non-contact, often image-based, experimental methods that solve generic problems in industry. He is currently involved in several research projects together with many of the leading metal companies in Sweden. During the presentation he will present a number of examples from past and present projects where optical Metrology is utilized as the information carrier of specific properties used to characterize, quantify, and control processes.



OMIN – Optical Measurement technology for an Innovative business community

Kenth Johansson, M.Sc. CEO at Adopticum, Skellefteå, Sweden

Kenth has twelve years of hands-on experience from all the aspects of starting, growing and creating profitability in entrepreneurial and fast growing companies. His current employment is with Adopticum, an organization set out to increase the uptake of photonics in companies in the northern parts of Sweden.



Laser-Induced Breakdown Spectroscopy for industrial processes

Tania Irebo Schwartz, PhD, Group Manager at Swerim AB, Kista, Sweden

At Swerim we develop a laser based technique (LIBS) as an on-line chemical analysis method for industrial processes. The analysis is fast and remote making it suitable for on-line applications with fast materials flows and various types of materials.



Fiber-optical systems for process industry

Carola Sterner, PhD, Senior Scientist, RISE, Stockholm

Carola has been working at Acreo's fiber-optical department, now part of RISE, for 12 years. Her speciality areas are fiber-optical sensors for high-temperatures and LIBS (laser-induced breakdown spectroscopy) for chemical analysis of process materials. She will present examples of fiber-optical sensor technologies and performed industrial activities.

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Photonics for selecting different materials in recycling processes

Jussi Tenhunen, M.Sc. Senior Scientist at VTT, Oulu, Finland

Jussi is a senior expert on applied optics and photonics at VTT. He has outstanding theoretical and practical skills in photonics, and his responsibilities include system level design of optical instruments, optical power budgets, discovering the principles that solve the problems of the clients / customers / partners.



Computer Vision and Machine Learning: From Vision to Decision

Martin Simonsson, PhD, Senior Machine Learning, Vision Specialist at Data Ductus, Luleå, Sweden

Martin has a background in biomedical imaging and did his PhD within Oncology at Uppsala University. Followed by two Postdocs: one at Centre for Image Analysis in Uppsala, and one at Luleå University of Technology.

Research has revolved around automated quantitative image analysis and projects have included diverse applications such as: DNA damage quantification in skin biopsies; quality control of electric solar wind sail for spacecraft propulsion; texture classification in hyper-spectral images of drill cores; carbide and grain boundary detection in steel with scanning electron microscope. Martin started working for Data Ductus in 2016. During his talk he will share his experiences of design and implementation of measurement solutions based on computer vision and machine learning.



Optimization for better sustainability and effective production within process industry. "Where to put your effort"

Lars Lindqvist, M.Sc. Deputy CEO at Optimization AB and CEO at MBV Systems AB, Luleå, Sweden

Lars is one of the founders of Optimization AB which was founded in 2002. He is an expert within process control and dynamic simulation. Since 2012 Lars is part time deputy CEO for Optimization AB and since 2015 he act as CEO for the subsidiary company MBV Systems AB. Through the knowledge on where and why to measure within Optimization, and the knowledge on how within MBV Systems, the small but effective and unique company group has made an impact on Swedish process industries effectiveness for many years now. And lately also global industries have "opened their eyes".



Vision systems developed for and successfully used within global process industry. "Measurement by Vision"

Jan Nyström, PhD, Principal Engineer at MBV Systems AB, Piteå, Sweden

Jan has a long experience of design, development and commissioning of robust machine vision systems within process industry. In recent years the majority of applications has been in mining, steel and metals industry where MBV have found a global demand for their products. Machine vision solutions in 2D and 3D helps the customers to control the quality of products and optimize the process.

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	09:00 - 09:30	Registration in Foajé, Workshop in Forum
Talk-1	09:30 - 09:40	Welcome by PhotonicSweden <i>Lennart Svensson, PhD, & Petra Bindig, M.A., PhotonicSweden, Kista, Sweden</i>
Talk-2	09:40 - 10:10	Northvolt Establishment of battery factory in Skellefteå <i>Anja Palm, Business Developer Officer, Näringslivskontoret, Skellefteå</i>
Talk-3	10:10 - 10:30	Future challenges and needs for scrap and metal processing <i>Linn Andersson, M.Sc. Production Manager at Boliden-Rönnskär, Skellefteå</i>
	10:30 - 10:40	Discussion
Talk-4	10:40 - 11:00	Industrial Digitalisation –Future trends <i>Pär-Erik Martinsson, PhD, Manager Digital Sweden at RISE SICS, Luleå</i>
Talk-5	11:00 - 11:20	Photonics as an enabler for advanced production and manufacturing of metals <i>Larz Ignberg, M.Sc. Director at Triple Steeli, Västerås, Sweden.</i>
	11:20 - 11:30	Discussion
Talk-6	11:30 - 11:50	Optical Metrology for the Metal Industry <i>Mikael Sjö Dahl, PhD, Chair professor in Experimental Mechanics at Luleå University of Technology, Luleå, Sweden</i>
Talk-7	11:50 - 12:10	OMIN –Optical Measurement technology for an Innovative business community <i>Kenth Johansson, M.Sc. CEO at Adopticum, Skellefteå, Sweden</i>
	12:10 - 12:20	Discussion
	12:20 - 13:20	Lunch at Campus Restaurant
Talk-8	13:20 - 13:40	Laser-Induced Breakdown Spectroscopy for industrial processes <i>Tania Irebo Schwartz, PhD, Group Manager at Swerim AB, Kista, Sweden</i>
Talk-9	13:40 - 14:00	Fiber-optical systems for process industry <i>Carola Sterner, PhD, Senior Scientist, RISE, Stockholm</i>
	14:00 - 14:10	Discussion
Talk-10	14:10 - 14:30	Photonics for selecting different materials in recycling processes <i>Jussi Tenhunen, M.Sc. Senior Scientist at VTT, Oulu, Finland</i>
Talk-11	14:30 - 14:50	Computer Vision and Machine Learning: From Vision to Decision <i>Martin Simonsson, PhD, Senior Machine Learning, Vision Specialist at Data Ductus, Luleå, Sweden</i>
	14:50 - 15:00	Discussion
	15:00 - 15:20	Coffee Break in Foajé
Talk-12	15:20 - 15:40	Optimization for better sustainability and effective production within process industry. “Where to put your effort” <i>Lars Lindqvist, M.Sc. Deputy CEO at Optimization AB and CEO at MBV Systems AB, Luleå, Sweden</i>
Talk-13	15:40 - 16:00	Vision systems developed for and successfully used within global process industry. “Measurement by Vision” <i>Jan Nyström, PhD, Principal Engineer at MBV Systems AB, Piteå, Sweden</i>
	16:00 - 16:10	Discussion
	16:10 - 17:00	Pitch & Workshop Discussions
	17:00	End of Day