
Photonics Finland
OPTICS &
PHOTONICS DAYS
2021
Logomo, Turku, 1–3.12.2021
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OPD2021 Program

As a tradition, the OPD2021 program will include both the academy and industry sessions running parallel.

Venues (1st – 3rd December):

Wednesday 1.12.2021: University of Turku (UTU), Medisiina D, Kiinamyllynkatu 10, 20520 Turku.

Thursday and Friday 2. – 3.12.2021: Logomo, Junakatu 9, 20100 Turku.

In Logomo (2nd - 3rd December)

Academic program and plenaries – Logomo Hall

Industrial program – 2nd Dec in Kino Auditorium and 3rd Dec in Move Auditorium (both next to each other)

Exhibition, poster session, lunch and coffee – Logomo Foyer

Academic board

Matteo Cherchi *(chair)*
Juha Toivonen
Juha Muhonen
Matthieu Roussey
Alexander Bykov
Caterina Soldano
Pekka Hänninen

Industrial board

Olli Herranen *(chair)*
Sanna Uusitalo
Timo Vuorenpää
Niklas Saxen
Juha Purmonen

Organizing committee

Pekka Hänninen
Ana Gebejes
Juha Purmonen
Tuukka Pakarinen
Lasse Orsila
Slava Vanyukov
Caroline Amiot

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Photonics Finland OPD2021

WEDNESDAY 1.12.2021

12.00-14.00	Nordic Photonics Meeting – Auditorium ”Alhopuro”
14.00-17.00	PREIN flagship networking event – Auditorium ”Alhopuro”
16.30-17.30	**Registration – University of Turku, Medisiina D, Lobby area**
17.00-18.00	Photonics Finland autumn meeting – Auditorium ”Alhopuro”
18.00-18.10	Welcome speech – Pekka Hänninen – Restaurant & Cafe Flavoria
18.10-18.15	Pauliina Ojansivu – Introduction to Flavoria and Aistikattila – Restaurant & Cafe Flavoria
18.15-20.00	Get together – Restaurant & Cafe Flavoria

THURSDAY 2.12.2021

08.00-09.00	Registration – Logomo Foyer
09.00-09.15	Welcome Speech – Photonics Finland – Logomo Hall
09.15-10.00	**Plenary talk (Chairman: Matthieu Roussey):** *Integrated photonics on glass: from telecom to sensors* **Prof. Jean-Emmanuel Broquin**, *IMEP-LAHC, Université Grenoble*
10.00-10.30	Exhibitors pitch session 1. Chairman: Juha Purmonen
10.30-11.00	Coffee Break and Exhibition – Logomo Foyer

PARALLEL SESSIONS: ACADEMIC TALKS / INDUSTRIAL TALKS

	Academic session – *Polarisation of classical and quantum light* **Chairman: Matteo Cherchi**	**Industrial session – Freeform Optics** *Kino Auditorium* **Chairman: Olli Herranen**
11.00-12.20	1. 'Coherence Poincare sphere', *Jyrki Laatikainen, University of Eastern Finland* 2. 'Photonic angular super-resolution using twisted N00N states', *Markus Hiekkamäki Tampere University* 3. 'Polarization vortex-driven third-harmonic generation from a vertically-aligned semiconductor GaAs nanowire', *Shambhavee Annurakshita, Tampere University* 4. 'Experimental detection of non-Markovianity of single photon polarization by unknown measurement mechanism', *Dr. Henri Lyyra, University of Jyväskylä*	1. Modelling and design approaches for freeform optics (See Abstract), *Csilla Timar-Fulep, Optical Engineer, Zemax Europe Ltd* 2. Metrology of Freeform Optics (See Abstract), *Antti Lassila, Research team leader, Length metrology, VTT Mikes* 3. Freeform metal optics for New Space applications (See Abstract), *Matthias Beier, CEO & Co-Founder SpaceOptix GmbH (Germany, Jena)* 4. SMART manufacturing of polymer optics (See Abstract), *Lucas Klamer, CCO & Co-Founder, Addoptics B.V. (Netherlands)*
12.20-13.00	Lunch – Logomo Foyer	
13.00-14.45	Poster session *(Posters in page 8)*	
14.45-15.30	**Plenary talk (Chairman: Juha Muhonen):** Quantum networks, simulations and computations with spin qubits in diamond ***Tim Taminiau**, Team leader, QuTech, Delft University, Quantum Internet Division*	
15.30-16.00	Exhibitors pitch session 2. Chairman: Juha Purmonen	
16.00-16.30	Coffee break and Exhibition – Logomo Foyer	

PARALLEL SESSIONS: ACADEMIC TALKS / INDUSTRIAL TALKS

	Academic session – *Photovoltaics and metamaterials* **Chairman: Alexander Bykov**	**Industrial session – Photonics for Food Industry** *Kino Auditorium* **Chairman: Juha Purmonen**
16.30-17.50	1. 'Multiply-resonant second-harmonic generation from periodic plasmonic metasurfaces', *Timo Stolt, Tampere University* 2. 'Low loss three-dimensional fishnet structures via strained induced self-assembled rolled-up nanotechnology', *Daria Briukhanova, Tampere University* 3. 'Hybrid Quasi-3D modeling of Single Junction Photovoltaic Converter', *Veikka Nikander, Tampere University* 4. 'High-Efficiency Four-Junction Solar Cells', *Dr. Arto Aho, Tampere University*	1. Digitalizing the food chain: how sensors, measuring and food metadata deliver new value to consumers and agrifood businesses, *Mari Norrdal, Development Manager, Functional Foods Forum, University of Turku* 2. Photonics in digitalized agrifood ecosystem, *PhD Heikki Aro, R&D Manager (PhD, Food Chemistry), HKScan Corporation, Finland* 3. Integrating sphere near-infrared spectrometer in grain analysis, *PhD Kari Jänkälä, CTO, GrainSense Ltd*
17.50-18.00	Short break and Wine serving – Logomo Foyer	
18.00-19.00	Women in Optics and Photonics – Logomo Hall	
19.15-20.00	Bus transfer from Logomo to restaurant Göran. Bus stops at Hotel Helmi, Wiklund and Omena (same stop with Scandic Plaza).	
20.00-23.00	Dinner in restaurant Göran	

FRIDAY 3.12.2021

7.45-8.30	Photonics Finland Run
09.15	Logomo doors open
09.45-10.30	**Plenary talk (Chairman: Matthieu Roussey):** Tomography using light and sound **Prof. Tanja Tarvainen**, *Computational Imaging and Modelling, Vice head of the department, University of Eastern Finland*
10.30-11.00	Coffee break and Exhibition – Logomo Foyer

PARALLEL SESSIONS: ACADEMIC TALKS / INDUSTRIAL TALKS

	Academic session – *Sensing and light sources* **Chairman: Juha Toivonen**	**Industrial session – Medical Technologies** *Move Auditorium* **Chairman: Niklas Saxen**
11.00-12.20	1. 'High-resolution photoacoustic spectroscopy of radioactive methane using a mid-infared CW-OPO', *Santeri Larnimaa, University of Helsinki* 2. 'Low-noise octave-spanning mid-infrared supercontinuum generation in a multimode chalcogenide fiber', *Zahra Eslami, Tampere University* 3. 'Double resonant plasmonic lattices for Raman studies', *Kabusure Kabusure, University of Eastern Finland* 4. 'A semiconductor membrane external-cavity surface-emitting laser (MECSEL) with a quantum dot-based gain region emitting around 1.5 µm', *Philipp Tatar-Mathes, Tampere University Foundation Sr*	1. Photonics in wellness industry, *Jyrki Schroderus, Director, Polar Electro* 2. Detection of two–photon excited fluorescence (See Abstract), *Matilda Sipilä, Junior Engineer, ArcDia International* 3. MIRACLE – Mid-infrared spectroscopy system for real-time examination and diagnosis of degenerative joint diseases during arthroscopy, *Simo Saarakkala, Professor, University of Oulu, Miracle Project* 4. Ekspla tunable high repetition rate OPO systems and their application examples for photoacoustic microscopy (See Abstract), *Giedrius Kudaba, Program Manager, Ekspla*

12.00-14.00	Job Fair – Logomo Foyer
12.20-13.20	Lunch Break and Exhibition – Logomo Foyer

PARALLEL SESSIONS: ACADEMIC TALKS / INDUSTRIAL TALKS

	Academic session – *LiDAR* **Chairman: Matteo Cherchi or Caterina Soldano**	**Industrial session – Photonics for Autonomous Processes** *Move Auditorium* **Chairman: Sanna Uusitalo**
13.20-14.40	1. 'Supercontinnuum-based Hyperspectral Lidar for Online Combustion Diagnostics', *Abba Saleh, Tampere University* 2. 'Coherent high spectral resolution lidar based on robust tapered fiber amplifier technology', *Kim Kalmankoski, Tampere University* 3. 'Development of optical phased arrays in a micron-scale silicon photonics platform', *Sidra Tul Muntaha, VTT Technical Research Centre of Finland* 4. 'Finding exciton states from phosphorus doped suspended thin silicon membrane', *Teemu Loippo, University of Jyväskylä*	1. Photonic sensing solutions for industry (See Abstract), *Janne Paaso, Principal Scientist, VTT* 2. Photonic sensing solutions for industry (See Abstract), Janne Paaso, Principal Scientist, VTT Photonics in mining industry, *Jani Kaartinen, Director – Smart Products and Processes, Outotec* 3. Online photonic sensing solutions for paper industry, *Pekka Suopajärvi, Technology Manager, Valmet Automation* 4. Autonomous processes in the optical alignment of ADAS cameras for mass production in the automotive industry (See Abstract), *Sebastian Frisch, Development Engineer, Trioptics (Germany)*
14.40-15.00	Coffee break – Logomo Foyer	
15.00-15.30	Conference farewell	

POSTER SESSION:

P1	*Tuning the light-matter interaction in dielectric nanoparticle arrays*	**Heilmann, Rebecca** Aalto University
P2	*NIR bright luminescent aqueous colloidal solutions of Nd3+: LaF3 nanocrystals for noninvasive deep bioimaging*	**Orlovskii, Yurii** University of Tartu
P3	*Quantitative phase imaging microscopy in lensless configuration*	**Shevkunov, Igor** Tampere University
P4	*Electrically tunable Epsilon-Near-Zero and Localized Surface Plasmon coupling*	**Ghindani, Dipa** Tampere university
P5	*Phase mismatch and a CW-pumped cascaded quadratic nonlinear frequency comb*	**Ulvila, Ville** | VTT
P6	*TiO2 inverse opals with silver nanoparticles for visible light photocatalytic activity*	**Saarinen, Jarkko J** University of Eastern Finland
P7	*Integration of a microdisk laser with a strip-loaded slot waveguide*	**Fetisova, Marina** University of Eastern Finland
P8	*Supercontinuum evolution prediction by recurrent neural network*	**Salmela, Lauri** Tampere University
P9	*Modelling of Errors due to Uncertainties in Ultrasound Sensor Locations in Photoacoustic Tomography*	**Sahlström, Teemu** University of Eastern Finland
P10	*Silicon Photonic Sensor for Nanoscale Thermometery*	**Pourjamal, Sara** | VTT
P11	*Optically Miniaturized VISNIR Hyperspectral camera on CMOS sensor*	**Ojala, Kai** | VTT
P12	*Pancharatnam-Berry phase in Young's two-beam interference experiment*	**Friberg, Ari T.** University of Eastern Finland
P13	*Azobenzene photoisomerization for relative humidity sensing – From fundamental research into an operational concept device*	**Virkki, Matti** Tampere University
P14	*Dairy farm silage analysis using NIR MEMS spectrometers*	**Uusitalo, Sanna** | VTT
P15	*Spatial unitary transformations: complex degree of coherence, visibility, and complementarity*	**Halder, Atri** University of Eastern Finland
P16	*Enhancement of photocatalytic behaviour of TiO2: incorporating and optimizing bimetallic nanostructures*	**Bhuskute, Bela Dhananjay** Tampere University
P17	*Full-field real-time characterization of broadband optical fields*	**Gallazzi, Francesca** Tampere University
P18	*Multimodal polarisation and fluorescence lifetime imaging system for nondestructive analysis of tissue blocks*	**Zherebtsov, Evgenii** University of Oulu
P19	*Wearable laser Doppler flowmetry sensors for blood perfusion measurements: towards clinical trials*	**Zherebtsov, Evgenii** University of Oulu
P20	*Tissue-mimicking opto-mechanical phantoms for biomedical applications*	**Sieryi, Oleksii** University of Oulu
P21	*Tunable Metamaterial Absorber in the Visible Spectrum*	**Li, Fangfang** University of Eastern Finland
P22	*Response of various Yb3+ -doped oxide glasses to different radiation treatments*	**Petit, Laeticia** Tampere University
P23	*Development of new glass-based composites with persistent luminescence*	**Garcia Arango, Nicolas** Tampere University
P24	*Development of glasses and glass-ceramics for MIR applications*	**Lemiere, Arnaud** Tampere University
P25	*Supercontinuum-based photoacoustic gas sensing*	**Mikkonen, Tommi** Tampere University
P26	*Higher-order vector beams for efficient hybrid-mode excitation in plasmonic nanoantennas*	**Zang, Xiaorun** University of Eastern Finland
P27	*Tuning Tenebrescent Hackmanites across the Visible Spectrum*	**Byron, Hannah** University of Turku
P28	*Radial and longitudinal group velocities of angularly dispersed beams and pulses*	**Hildén, Panu** Aalto University
P29	*Fluorescence based biofilm detection in drinking water*	**Luoma, Daniel** Tampere University
P30	*Non-cyclic Pancharatnam-Berry geometric phase with continuous evolution in Young's experiment*	**Leinonen, Aleksi** Institute of Photonics, University of Eastern Finland

P31	*Optical primary thermometry based on high-temperature Doppler broadening*	**Pourjamal, Sara** | VTT
P32	*Detection of X-ray doses with color-changing hackmanites: mechanism and application*	**Vuori, Sami** University of Turku
P33	*Utilizing Monte Carlo method for light transport in quantitative photoacoustic tomography*	**Hänninen, Niko** University of Eastern Finland
P34	*Temperature-tunable Surface Lattice Resonances in Plasmonic Metasurfaces*	**Kelavuori, Jussi** Tampere University
P35	*Cellulose optical fiber*	**Hokkanen, Ari** | VTT
P36	*Stokes vector imaging for label-free screening of mouse brain tissue with Alzheimer's disease*	**Borovkova, Mariia** University of Oulu
P37	*High-power and high-accuracy optical attenuators for comparing radiation pressure and conventional optical detectors*	**Dönsberg, Timo** | National Institute of Standards and Technology (NIST)
P38	*Hong-Ou-Mandel interference and noise*	**Siltanen, Olli** University of Turku
P39	*Optical readout of donor spins in Si*	**Shakespeare, Cliona** University of Jyväskylä
P40	*Synthesis of Highly Photochromic Hackmanite from Natural Nepheline*	**Agamah, Cecilia** University of Turku
P41	*Bioceramic Scaffolds with Persistent Deep Red Luminescence*	**Lastusaari, Mika** University of Turku
P42	*Towards high-power plasmonic metasurfaces*	**Vesala, Anna** Tampere University
P43	*Complete coherence of nonstationary electromagnetic fields*	**Al Iakki, Mohammad** University of Eastern Finland
P44	*Remote Optical Detection of Alpha Radiation in Daylight*	**Manninen, Kalle** Tampere University
P45	*Stabilization of the trisulphide chromophore in sodalite*	**Rashid, Sobia** University of Turku

P46	*Radiocarbon dioxide detection using cantilever-enhanced photoacoustic spectroscopy*	**Fatima, Mehr** | VTT Technical Research Center of Finland
P47	*Faraday rotation in micron-scale silicon waveguides*	**Shahwar, Dura** VTT Technical research centre of Finland
P48	*Spectral Vector Beams for High-Speed Spectroscopic Measurements*	**Kopf, Lea** Tampere University
P49	*Nonlinear microscopy of 2D monolayer materials using cylindrical vector beams*	**Kallioniemi, Leevi** Tampere University
P50	*Ultra-low losses in thick silicon-on-insulator waveguides through H2 annealing*	**Marin, Yisbel** | VTT
P51	*Enhanced ENZ metamaterial structures*	**Koivurova, Matias** Tampere University
P52	*Non-invasive Assessment of Meat Samples Utilizing Mueller Matrix Imaging Polarimetry*	**Peyvasteh, Motahareh** University of Oulu
P53	*Analyzing the effects of nanoparticles on red blood cell interactions with optical trapping and microscopy methods*	**Avsievich, Tatiana** University of Oulu
P54	*Digital holographic microscopy for photolithographic surface patterning*	**Berdin, Alex** Tampere University
P55	*A nonlinear hybrid plasmonic structure for all-optical modulation*	**Paul, Sushmita** Aalto University
P56	*Reusable black silicon-based SERS-active substrates for the quantitative analytes' detection*	**Kuzhir, Polina** | University of Eastern Finland, Institute of Photonics
P57	*PPG for HRV and PRV measurement and analysis*	**Huotari, Matti** Oulu University
P58	*Red-emitting AlGaInP-based membrane external-cavity surface-emitting lasers (MECSELs)*	**Rogers, Aaron** Optoelectronics Research Center, Tampere University
P59	*Development of high efficiency thin-film solar cells*	**Ramu, Prabudeva** Tampere University
P60	*Tunable GaSb-based hybrid laser utilizing silicon photonics resonators*	**Ojanen, Samu-Pekka** Tampere University

EXHIBITORS AT OPTICS AND PHOTONICS DAYS 2021



















































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