The 5th Anniversary International Conference of NSP FOTONIKA-LV

Quantum sciences, Space sciences and Technologies –

PHOTONICS RIGA 2023

20–21 April 2023, Riga

Hybrid conference:

on-site venue – *keynotes, plenaries: Šķūņu street 4 (Downtown Riga); poster session: Jelgavas street 3*

online Zoom link - *https://zoom.us/j/92195164728?pwd=TDdDSUg4ZFVlNWxEVHFYQmRBL2cwQT09*

Agenda

Thursday, April 20

Quantum Sciences and Photonics. *Chair: Prof. Sune Svanberg*

9.30 - 9.45	**Welcome speech** **Alvis Brazma, *EMBL's European Bioinformatics Institute*,** United Kingdom
9.45 - 11.00	**Keynote lecture 1** *Chair: Prof. Sune Svanberg*
9.45 - 10.20 ***Online***	**Rashid Ganeev, *University of Latvia*** Recent Developments of Nonlinear Optics in Latvia
10.20 - 10.55	**Jānis Alnis, *University of Latvia*** Decade of Quantum Optics laboratory
10.55 - 11.00	QaA, if any
11.00 - 11.20	Coffee break
11.20 - 13.20	**Plenary session 1 (Invited speakers)** *Chair: Dr. Arnolds Ūbelis*
11.20 - 11.40	**Lorenzo Pavesi, *University of Trento*** *A platform for Artificial Intelligence: neuromorphic silicon photonics*
11.40 - 12.00	**Sune Svanberg, *Lund University*** Laser Spectroscopy Applied to Environmental Monitoring
12.00 - 12.20	**Katarina Svanberg, *Lund University*** Some Challenges in Medicine Addressable by Laser Spectroscopy Laser Spectroscopy
12.20 - 12.40	**Henning T. Schmidt, *Stockholm University*** DESIREE – a tool for studies of atomic, molecular and cluster ions
12.40 - 13.00	**Jyrki Saarinen, *University of Eastern Finland*** Photonics Flagship and Photonics in Finland
13.00 - 13.20	**Vladimirs Gostilo, Serhii Pohuliai, Rais Nurgalejevs, Igors Krainukovs, Normunds Grundmanis, *Baltic Scientific Instruments*** Semiconductor Materials and Technologies for Nuclear Radiation Detectors
13.20 - 14.20	Lunch break
14.20 - 16.00	**Plenary session 2 (Invited speakers + Short presentations)** *Chair: Dr. Aigars Atvars*
14.20 - 14.40	**Dag Hanstorp, *University of Gothenburg*** Negative Ions – Fragile Quantum Systems
14.40 - 15.00	**Erich Leistenschneider, *CERN*** Highly-sensitive negative ion spectroscopy with MIRACLS
15.00 - 15.12	**Miranda Nichols, *University of Gothenburg* et al** Studying radioactive negative ion production cross sections
15.12 - 15.24	**Vyacheslav Kim, *University of Latvia*** High-order harmonics generation in the plasmas containing newly synthesized materials
15.24 - 15.36	**Kishore Babu Ragi, *Riga Technical University*** Impact of Urban Forest on Heat and Photochemical Pollution in Riga, Latvia
15.36 - 15.48	**Lev Nagli, Michael Gaft, Yosef Raichlin, *Ariel University*** Laser-Induced Plasma Lasers: Polarization properties
15.48 - 16.00 ***Online***	**Vishwa Pal, *Indian Institute of Technology Ropar*** Network of coupled lasers and its applications

ERDF project No. 1.1.1.5/19/A/003

17.00 - 18.00	***Poster session, Venue: Jelgavas street 3, 7th floor Chair: Dr. Hab. Uldis Bērziņš***
	• **Aigars Atvars, *University of Latvia*** - Progress of the ERA Chair project • **Uldis Bērziņš, Arturs Ciniņš, Armans Bžiškjans, *University of Latvia* & Dag Hanstorp, *University of Gothenburg* & Paul Martini, Jose Navarro Navarrete, Henning Schmidt, *Stockholm University*** - Lifetime measurements of Ba II metastable ion: preliminary results • **Jānis Alnis, Dina Bērziņa, *University of Latvia*** - Development of optical frequency comb generator based on a whispering gallery mode microresonator and its applications in telecommunications • **Jānis Blahins, Armāns Bziškjans, *University of Latvia*** - Elaborated universal power supply for ion beam devices controlled by PC • **Vicor Kärcher, Tobias Reiker, Helmut Zacharias, *University of Münster* & Andrea S.S. de Camargo, *University of Sãu Paulo*** - Low order harmonic generation in laser induced borosilicate glass plasma and CdTe quantum dots • **Ulises Miranda, *Baltic Scientific Instruments* & Ilya G. Kaplan, *Universidad Nacional Autónoma de México* & Uldis Bērziņš, Arnolds Ubelis, *University of Latvia*** - Computation and vibrational analysis of lower excited states of Te_2 dimer • **Viesturs Silamiķelis, Aigars Apsītis, Jānis Sniķeris, Austris Pumpurs, *University of Latvia*** - Development of next generation technology for ultra purity crystal growth based on MHD semi levitation • **Arnolds Ūbelis, *University of Latvia*** - Grown in Riga worldwide known photonuclear physicist Michael Danos (1922-1999) • **Arnolds Ūbelis, Jānis Kļaviņš, Austris Pumpurs, Juris Silamiķelis, *University of Latvia* & Hailey Hardy, *Brigham Young University*** - RF ICP plasma atomic spectra source of Ar, Xe and Kr - for wavelength calibration of lasers in visible - near IR spectral range ensuring accuracy up to 0.001 nm • **Arnolds Ūbelis, Reinis Rotkalis, Austris Pumpurs, *University of Latvia*** - Current status of NSP FOTONIKA-LV infrastructure project QUANTUM & SPACE • **Boriss Janins, *Slicker3D, SIA*: *On site*/*Online*** - Lightfield imaging of wide viewing angle for 3D displays and adaptive camouflage using GSL array • **Irēna Mihailova, Vjačeslavs Gerbreders, Marina Krasovska, Ēriks Sļedevskis, Valdis Mizers, *Daugavpils University*: *On site*/*Online*** - Fabrication of patterned ZnO nanorod arrays • **Vasu Dev, *Indian Institute of Technology Ropar*: *Online*** - Aberration laser beams with propagation invariance characteristics • **Kaspars Miculis, *University of Latvia* & Evgenii Viktorov, Pavel Serdobintsev, Nikolay Bezuglov, *St. Petersburg State University, Russia*: *Online*** - Modulation of quantum beats signal upon photoionization of Xe isotopes in the magnetic field
from 18.00	***Networking Event***

Conference promoters:

Rīgas Fotonikas centrs –
Riga Photonics Centre:
https://rigaphotonicscentre.org

Light Guide Optics International Ltd.:
https://www.lightguide.com/about

Friday, April 21

Space Sciences and Space Photonics. *Chair: Dr. Valdis Avotiņš*

9.30 - 9.45	**Welcome speech** **Andris Vaivads, KTH Royal Institute of Technology,** Sweden **&** ***Ventspils University of Applied Sciences***, Latvia
9.45 - 11.00	**Keynote lecture 2** *Chair: Dr. Valdis Avotiņš*
9.45 - 10.20	**Andris Vaivads, *Ventspils University of Applied Sciences*** Space science at Ventspils University of Applied Sciences
10.20 - 10.55	**Bernard Foing, *Leuven University* & Arnolds Ūbelis, *University of Latvia*** The project SPACE-LV: "ERA Chair in Astrophysics, Instrumentation, Ground Segment Technologies and Space Photonics at the University of Latvia"
10.55 - 11.00	QaA, if any
11.00 - 11.20	Coffee break
11.20 - 13.20	**Plenary Session 3 (Invited speakers)** *Chair: Dr. Ilgmārs Eglītis*
11.20 - 11.40	**Kalvis Salmiņš, Jorge Roberto del Pino Boytel, Jānis Kauliņš, *University of Latvia*** The Hybrid Photodetector (HPD) as a detector for Satellite Laser Ranging, first results
11.40 - 12.00	**Jara Pascual, *Collabwith-EuroSpaceHub*** EuroSpaceHub, how to digitise the space and aviation ecosystem to leverage funding, talent, innovation and entrepreneurship
12.00 - 12.20	**Ilgmars Eglitis, *University of Latvia*** Projects in Baldone Astrophysical Observatory
12.20 - 12.30 *12.30 - 12.40* ***Online***	**Vidvuds Beldavs, *Riga Photonics Centre*** 1. Space compacts as a means to implement Space2030 Agenda linking space sciences and technologies to UN Sustainable Development Goals 2. ChatGPT and other AI tools to accelerate development at the community level in Sub-Saharan Africa
12.40 - 13.00	**Naresh Kumar Readdy Andra, *University of Latvia*** Diffractive phase elements to form new-class of optical fields are driving with versatile spatial distributions
13.00 - 13.20 ***Online***	**Sergey Kravchenko, *Cryogenic and Vacuum Systems*** Capabilities of space industry test systems
13.20 - 14.20	Lunch break
14.20 - 15.20	**Plenary session 4 (Short presentations)** *Chair: Kalvis Salmiņš*
14.20 - 14.32	**A. Kalinovskis, V. Stepanovs, A. Ancāns, Dans Laksis, Atis Elsts, *Institute of Electronics and Computer Science*** Event Time and Amplitude Meter: High-Precision Measurement Device Based on Enhanced Event Timing Principles
14.32 - 14.44	**Serhii Matviienko, *National Technical University of Ukraine* & Arnolds Ūbelis, *University of Latvia*** Next Generation's Relativistic Radio-Physical Gravimeter for Geology, Seismology and Geodesy
14.44 - 14.56	**Krišjānis Krakops, Valdis Avotiņš, Arnolds Ūbelis, *University of Latvia*** The Progress of the EU supported Project "EuropeanSpaceHub" at the University of Latvia
14.56 - 15.08 ***Online***	**Juulia-Gabrielle Moreau, Argo Jõeleht, *University of Tartu* & Bernard Foing, *Leuven University* & Arnolds Ūbelis, *University of Latvia*** Shock metamorphism, a cause for spectral changes in meteorites: from Tartu to Riga, a cooperation
15.08 - 15.20 ***Online***	**Vladislavs Bezrukovs, *Engineering Research Institute Ventspils International Radio Astronomy* & et al** Properties of the variability of active galactic nuclei Perseus A, MRK 421, MRK 501 according to joint radio-optical observations in Latvia, Ukraine and Slovakia
around 15.45	Departure to Baldone Observatory
17.00 - 18.30	***Baldone Observatory:*** ***Coffee break & Popular science presentation***

Saturday, April 22: optional Sightseeing tour combined with Business visit

Līvāni: 165 km from Riga *(about 8-10 hours)* **– photonics related high-tech SME**