

The 5<sup>th</sup> 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=TDdDSUg4ZlVlNWxEVHlFYQmRBL2cwQT09>

**Agenda**

<b>Thursday, April 20</b>	
<b>Quantum Sciences and Photonics. Chair: Prof. Sune Svanberg</b>	
<b>9.30 - 9.45</b>	Welcome speeches
<b>9.45 - 11.00</b>	<b>Keynote lecture 1 Chair: Prof. Sune Svanberg</b>
9.45 - 10.20 <b>Online</b>	<b>Rashid Ganeev, University of Latvia</b> Recent Developments of Nonlinear Optics in Latvia
10.20 - 10.55	<b>Jānis Alnis, University of Latvia</b> Decade of Quantum Optics laboratory
10.55 - 11.00	QaA, if any
<b>11.00 - 11.20</b>	Coffee break
<b>11.20 - 13.20</b>	<b>Plenary session 1 (Invited speakers) Chair: Dr. Arnolds Ūbelis</b>
11.20 - 11.40	<b>Lorenzo Pavesi, University of Trento</b> <i>A platform for Artificial Intelligence: neuromorphic silicon photonics</i>
11.40 - 12.00	<b>Sune Svanberg, Lund University</b> Laser Spectroscopy Applied to Environmental Monitoring
12.00 - 12.20	<b>Katarina Svanberg, Lund University</b> Some Challenges in Medicine Addressable by Laser Spectroscopy Laser Spectroscopy
12.20 - 12.40	<b>Henning T. Schmidt, Stockholm University</b> DESIREE – a tool for studies of atomic, molecular and cluster ions
12.40 - 13.00	<b>Jyrki Saarinen, University of Eastern Finland</b> Photonics Flagship and Photonics in Finland
13.00 - 13.20	<b>Vladimirs Gostilo, Serhii Pohuljai, Rais Nurgalejevs, Igors Krainukovs, Normunds Grundmanis, Baltic Scientific Instruments</b> Semiconductor Materials and Technologies for Nuclear Radiation Detectors
<b>13.20 - 14.20</b>	Lunch break
<b>14.20 - 16.00</b>	<b>Plenary session 2 (Invited speakers + Short presentations) Chair: Dr. Aigars Atvars</b>
14.20 - 14.40	<b>Dag Hanstorp, University of Gothenburg</b> Negative Ions – Fragile Quantum Systems
14.40 - 15.00	<b>Erich Leistenschneider, CERN</b> Highly-sensitive negative ion spectroscopy with MIRACLS
15.00 - 15.12	<b>Miranda Nichols, University of Gothenburg et al</b> Studying radioactive negative ion production cross sections
15.12 - 15.24	<b>Vyacheslav Kim, University of Latvia</b> High-order harmonics generation in the plasmas containing newly synthesized materials
15.24 - 15.36	<b>Kishore Babu Ragi, Riga Technical University</b> Impact of Urban Forest on Heat and Photochemical Pollution in Riga, Latvia
15.36 - 15.48	<b>Lev Nagli, Michael Gaft, Yosef Raichlin, Ariel University</b> Laser-Induced Plasma Lasers: Polarization properties
15.48 - 16.00 <b>Online</b>	<b>Vishwa Pal, Indian Institute of Technology Ropar</b> Network of coupled lasers and its applications

17.00 - 18.00	<b>Poster session, Venue: Jelgavas street 3, 7<sup>th</sup> floor Chair: Dr. Hab. Uldis Bērziņš</b>
	<ul style="list-style-type: none"> <li>• <b>Aigars Atvars, University of Latvia</b> - Progress of the ERA Chair project</li> <li>• <b>Uldis Bērziņš, Arturs Ciniņš, Armans Bžiškjans, University of Latvia &amp; Dag Hanstorp, University of Gothenburg &amp; Paul Martini, Jose Navarro Navarrete, Henning Schmidt, Stockholm University</b> - Lifetime measurements of Ba II metastable ion: preliminary results</li> <li>• <b>Jānis Blahins, Armāns Bziškjans, University of Latvia</b> - Elaborated universal power supply for ion beam devices controlled by PC</li> <li>• <b>Vicor Kärcher, Tobias Reiker, Helmut Zacharias, University of Münster &amp; Andrea S.S. de Camargo, University of São Paulo</b> - Low order harmonic generation in laser induced borosilicate glass plasma and CdTe quantum dots</li> <li>• <b>Ulises Miranda, Baltic Scientific Instruments &amp; Ilya G. Kaplan, Universidad Nacional Autónoma de México &amp; Uldis Bērziņš, Arnolds Ūbelis, University of Latvia</b> - Computation and vibrational analysis of lower excited states of Te<sub>2</sub> dimer</li> <li>• <b>Viesturs Silamiķelis, Aigars Apsītis, Jānis Sņiķeris, Austris Pumpurs, University of Latvia</b> - Development of next generation technology for ultra purity crystal growth based on MHD semi levitation</li> <li>• <b>Arnolds Ūbelis, University of Latvia</b> - Grown in Riga worldwide known photonuclear physicist Michael Danos (1922-1999)</li> <li>• <b>Arnolds Ūbelis, Jānis Kļaviņš, Austris Pumpurs, Juris Silamiķelis, University of Latvia &amp; Hailey Hardy, Brigham Young University</b> - 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</li> <li>• <b>Arnolds Ūbelis, Reinis Rotkalis, Austris Pumpurs, University of Latvia</b> - Current status of NSP FOTONIKA-LV infrastructure project QUANTUM &amp; SPACE</li> <li>• <b>Boriss Janins, Slicker3D, SIA: On site/Online</b> - Lightfield imaging of wide viewing angle for 3D displays and adaptive camouflage using GSL array</li> <li>• <b>Irēna Mihailova, Vjačeslavs Gerbreders, Marina Krasovska, Ēriks Sļedevskis, Valdis Mizers, Daugavpils University: On site/Online</b> - Fabrication of patterned ZnO nanorod arrays</li> <li>• <b>Vasu Dev, Indian Institute of Technology Ropar: Online</b> - Aberration laser beams with propagation invariance characteristics</li> <li>• <b>Kaspars Miculis, University of Latvia &amp; Evgenii Viktorov, Pavel Serdobintsev, Nikolay Bezuglov, St. Petersburg State University, Russia: Online</b> - Modulation of quantum beats signal upon photoionization of Xe isotopes in the magnetic field</li> </ul>
from 18.00	<b>Networking Event</b>

### Conference promoters:

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



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



<b>Friday, April 21</b>	
<b>Space Sciences and Space Photonics. Chair: Dr. Valdis Avotiņš</b>	
<b>9.30 - 9.45</b>	Welcome speeches
<b>9.45 - 11.00</b>	<b>Keynote lecture 2 Chair: Dr. Valdis Avotiņš</b>
9.45 - 10.20	<b>Andris Vaivads, Ventspils University of Applied Sciences</b> Space science at Ventspils University of Applied Sciences
10.20 - 10.55	<b>Bernard Foing, Leuven University &amp; Arnolds Ūbelis, University of Latvia</b> 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
<b>11.00 - 11.20</b>	Coffee break
<b>11.20 - 13.20</b>	<b>Plenary Session 3 (Invited speakers) Chair: Dr. Ilgmārs Eglītis</b>
11.20 - 11.40	<b>Kalvis Salmiņš, Jorge Roberto del Pino Boytel, Jānis Kauliņš, University of Latvia</b> The Hybrid Photodetector (HPD) as a detector for Satellite Laser Ranging, first results
11.40 - 12.00	<b>Jara Pascual, Collabwith-EuroSpaceHub</b> EuroSpaceHub, how to digitise the space and aviation ecosystem to leverage funding, talent, innovation and entrepreneurship
12.00 - 12.20	<b>Ilgmars Eglitis, University of Latvia</b> Projects in Baldone Astrophysical Observatory
12.20 - 12.30	<b>Vidvuds Beldavs, Riga Photonics Centre</b>
12.30 - 12.40 <i>Online</i>	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 <i>Online</i>	<b>Naresh Kumar Readdy Andra, University of Latvia</b> Diffractive phase elements to form new-class of optical fields are driving with versatile spatial distributions
13.00 - 13.20 <i>Online</i>	<b>Sergey Kravchenko, Cryogenic and Vacuum Systems</b> <i>tbc</i>
<b>13.20 - 14.20</b>	Lunch break
<b>14.20 - 15.20</b>	<b>Plenary session 4 (Short presentations) Chair: Kalvis Salmiņš</b>
14.20 - 14.32 <i>on site/ online</i>	<b>A. Kalinovskis, V. Stepanovs, A. Ancāns, Dans Laksis, Atis Elsts, Institute of Electronics and Computer Science</b> Event Time and Amplitude Meter: High-Precision Measurement Device Based on Enhanced Event Timing Principles
14.32 - 14.44	<b>Serhii Matviienko, National Technical University of Ukraine &amp; Arnolds Ūbelis, University of Latvia</b> Next Generation’s Relativistic Radio-Physical Gravimeter for Geology, Seismology and Geodesy
14.44 - 14.56	<b>Krišjānis Krakops, Valdis Avotiņš, Arnolds Ūbelis, University of Latvia</b> The Progress of the EU supported Project “EuropeanSpaceHub” at the University of Latvia
14.56 - 15.08 <i>Online</i>	<b>Juulia-Gabrielle Moreau, Argo Jõelet, University of Tartu &amp; Bernard Foing, Leuven University &amp; Arnolds Ūbelis, University of Latvia</b> Shock metamorphism, a cause for spectral changes in meteorites: from Tartu to Riga, a cooperation
15.08 - 15.20 <i>Online</i>	<b>Vladislavs Bezrukovs, Engineering Research Institute Ventspils International Radio Astronomy &amp; et al</b> 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
<i>around 15.45</i>	Departure to Baldone Observatory
<b>17.00 - 18.30</b>	<b>Baldone Observatory: Coffee break &amp; Popular science presentation</b>



**Saturday, April 22: optional Sightseeing tours combined with Business visits**  
**Līvāni: 165 km from Riga (about 8-10 hours) – photonics related high-tech SME**  
**Ventspils: 180 km from Riga (about 8-10 hours) – space SME, university and radio telescope**