



18th International Exhibition for Laser, Optical and Optoelectronic Technologies

## EVENT SCHEDULE

**18<sup>th</sup> edition of the International Exhibition  
PHOTONICS. WORLD OF LASERS AND OPTICS 2024  
EXPOCENTRE Fairgrounds, Moscow, Russia, 26–29 March 2024**

26 March (Tuesday)	
<p><b>10.30–12.30</b> Southern Hall, Pavilion Forum</p>	<p><b>Joint Meeting of the Council of the Laser Association and the Секретариата of the Photonics Technology Platform on the Work of the Laser Association and the Technology Platform in Russian Regions</b></p> <p>Organised by the Laser Association, EXPOCENTRE AO</p>
<p><b>10.30-12.30</b> Western Hall, Pavilion Forum</p>	<p><b>Meeting of the Technical Committee on Standardisation ‘Optics and Photonics’ (TC296)</b></p> <p>Organised by the Laser Association, TC296, EXPOCENTRE AO</p>
<p><b>13.00–15.00</b> Pavilion Forum</p>	<p><b>Official opening ceremony of the 18<sup>th</sup> International Exhibition for Laser, Optical and Optoelectronic Technologies – Photonics. World of Lasers and Optics 2024</b></p> <p>Organised by the Laser Association, EXPOCENTRE AO</p>
<p><b>15.00–17.00</b> Southern Hall, Pavilion Forum</p>	<p><b>Workshop on Applied Photonics</b></p> <p>Organised by Perm Scientific and Industrial Instrument Making Company, Russia, EXPOCENTRE AO</p>
<p><b>15.00–18.00</b> Southern Hall, Pavilion Forum</p>	<p><b>Conference of the 12<sup>th</sup> Congress of the Photonics Technology Platform</b></p> <p><b>Laser macromachining of industrial materials</b></p> <p><b>Chair:</b> G.A. Turichin, member of the Executive Committee of the Photonics Technology Platform, Rector at State Marine Technical University</p> <ol style="list-style-type: none"> <li><b>Current developments and results of industrial implementation of laser and additive technologies</b> G.A. Turichin, State Marine Technical University, the Shipbuilding &amp; Shiprepair Technology Centre</li> <li><b>Selective laser fusion technology: achieved results and development prospects</b> A.A. Kim, Laser Systems</li> <li><b>Procedure for obtaining approval for the use of laser and laser-arc welding</b></li> </ol>

	<p><b>processes in the construction of vessels supervised by the Russian Maritime Register of Shipping</b> V.V. Osipov, State Marine Technical University</p> <ol style="list-style-type: none"> <li>4. <b>Laser safety. New regulations and basic principles</b> O.A. Kryuchina, IRE-Polus</li> <li>5. <b>Laser cladding of gas turbine components</b> G.G. Zadykyan, State Marine Technical University</li> <li>6. <b>Laser shock hardening machine</b> A.S. Shehekin, LASSARD</li> <li>7. <b>Application of robotic laser technology in the aviation and nuclear industries</b> V.P. Gilimkhanov, Intellectual Robot Systems</li> <li>8. <b>Development and implementation of laser technology in the processing of titanium alloys and steels</b> A.G. Sukhov, the Regional Center of Laser Technologies</li> <li>9. <b>Laser technology in Khristianovich Institute of Theoretical and Applied Mechanics of the Siberian Branch of the Russian Academy of Sciences: from fundamental research to applications</b> A.G. Malikov, Khristianovich Institute of Theoretical and Applied Mechanics of the Siberian Branch of the Russian Academy of Sciences</li> <li>10. <b>Advanced technologies for cutting electrical steel</b> N.M. Avilkin, Lasery i Apparatura</li> <li>11. <b>Laser thermal strengthening of heat-resistant steels</b> A.A. Akhmetov, State Marine Technical University</li> <li>12. <b>Why plasma is no longer needed: modern laser technology for large sheet and tube processing</b> M.I. Yakovlev, LLS</li> <li>13. <b>Mobile units for hardening of die tooling</b> D.O. Chukhlantsev, Termolazer</li> </ol> <p>Organised by the Laser Association, EXPOCENTRE AO</p>
<p><b>15.00–18.00</b> Western Hall, Pavilion Forum</p>	<p><b>Conference of the 12<sup>th</sup> Congress of the Photonics Technology Platform</b></p> <p><b>Semiconductor photonics. Nanophotonics</b></p> <p><b>Chair:</b> G.S. Sokolovsky, Chief Researcher at Ioffe Physical-Technical Institute</p> <ol style="list-style-type: none"> <li>1. <b>Terahertz quantum-cascade lasers: the path from a laboratory sample to a commercial product</b> R.A. Khabibullin, Institute for Ultra-High Frequency Semiconductor Electronics (Moscow), Moscow Institute of Physics and Technology (Dolgoprudny)</li> <li>2. <b>Semiconductor A3B5 heterostructures for laser radiation sources and photonic integrated circuits</b> S.O. Slipchenko, N.A. Pikhtin, Ioffe Physical-Technical Institute</li> <li>3. <b>Quantum cascade lasers with reflective and brightening optical coatings</b> K.A. Podgaetsky, A.V. Lobintsov, A.A. Marmalyuk, M.A. Ladugin, Stelmakh Polus Research Institute</li> <li>4. <b>High-power quantum cascade lasers of the mid-IR range</b> G.S. Sokolovsky, Ioffe Physical-Technical Institute</li> <li>5. <b>Advanced semiconductor lasers and their application</b> O.V. Korenchenko, G.T. Mikaelyan, V.A. Panarin, S.N. Sokolov, the Inject Research And Production Enterprise</li> <li>6. <b>Discussion of activities and current tasks of RG19</b> G.S. Sokolovsky, Ioffe Physical-Technical Institute</li> </ol> <p>Organised by the Laser Association, EXPOCENTRE AO</p>

**15.00–18.00**

Photon Hall,  
Pavilion Forum

## Conference of the 12<sup>th</sup> Congress of the Photonics Technology Platform

### Photonics test and measurement and diagnostic technology

**Chair:** S.A. Babin, Acting Director at Institute of Automation and Electrometry of the Siberian Branch of the Russian Academy of Sciences

- 1. Application of developments of Institute of Automation and Electrometry of the Siberian Branch of the Russian Academy of Sciences for creation and analysis of scales of optical encoders of angular and linear movements**  
V.P. Korolkov, V.P. Bessmeltsev, A.V. Kiryanov, Institute of Automation and Electrometry of the Siberian Branch of the Russian Academy of Sciences
- 2. Optoinformational methods of angular measurements as applied to the tasks of automatic alignment of highly sensitive laser resonators**  
A.V. Savin, A.S. Boreysho, A.G. Ershov, S.Yu. Strakhov, G. Sukhanov, Laser Systems, Voenmeh Baltic State Technical University
- 3. Features of scientific design of innovative optoelectronic equipment for quality control of optical surfaces on the basis of analysis of characteristics of scattered laser radiation**  
D.G. Denisov, Bauman Moscow State Technical University
- 4. Development of ellipsometric methods and instrumentation for the control of thin-film structures and new materials at Rzhanov Institute of Semiconductor Physics of the Siberian Branch of the Russian Academy of Sciences**  
I.A. Azarov, E.V. Spesivtsev, V.A. Shvets, S.V. Rykhlytsky, M.V. Yakushev, Rzhanov Institute of Semiconductor Physics of the Siberian Branch of the Russian Academy of Sciences
- 5. Industrial application of compact optical spectrometers based on flat diffraction gratings in the visible and near-infrared range**  
V.M. Polyakov, A.S. Bobe, S.I. Tomashevich, Yu.I. Khatanzeyskaya, ITMO University, R-AERO Group, Geophotonica
- 6. Developments of Technological Design Institute of Scientific Instrument Engineering of the Siberian Branch of the Russian Academy of Sciences for scientific and industrial applications**  
E.V. Vlasov, Technological Design Institute of Scientific Instrument Engineering of the Siberian Branch of the Russian Academy Of Sciences
- 7. Laser Doppler airflow velocity meter**  
Yu.D. Kaminsky, Research Institute of Heat and Power Instrument Engineering

Organised by the Laser Association, EXPOCENTRE AO

**15.00–18.00**

Marble Hall,  
Pavilion Forum

## Conference of the 12<sup>th</sup> Congress of the Photonics Technology Platform

### Optical materials, elements and components

**Chair:** L.N. Arkhipova, Research Director at Vavilov State Optical Institute

- 1. Laser ceramics based on Y2O3:Tm**  
P.A. Ryabochkina<sup>1</sup>, A.O. Ariskin<sup>1</sup>, S.A. Khrushchalina<sup>1</sup>, M.V. Gerasimov<sup>1</sup>, V.V. Balashov<sup>2</sup>, V.V. Osipov<sup>3</sup>, V.A. Shitov<sup>3</sup>, R.N. Maksimov<sup>3</sup>  
(1 – Ogarev Mordovia State University, 2 – the Fryazino Branch of Kotelnikov Institute of Radio-engineering and Electronics of the Russian Academy of Sciences, 3 – Institute of Electrophysics of the Ural Branch of the Russian Academy of Sciences)
- 2. Practical results of restorative capabilities of the technology of precision replication of optical surfaces**  
A.V. Lukin<sup>1</sup>, A.N. Melnikov<sup>1</sup>, E.G. Lisova<sup>1</sup>, N.A. Gurin<sup>2,3</sup>, A.A. Svistunova<sup>2</sup>  
(1 – State Institute of Applied Optics, Kazan, Russia, 2 – Novosibirsk Instrument-

	<p>Making Plan, Novosibirsk, Russia, 3 – Institute of Automation and Electrometry of the Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russia)</p> <p>3. <b>Pendulum-type dividing machines. Prospects of expansion of practical feasibility</b> A.N. Melnikov<sup>1</sup>, A.I. Karpov<sup>2</sup>, V.A. Krenev<sup>2</sup>, A.V. Lukin<sup>1</sup> (1 – State Institute of Applied Optics, Kazan, 2 – Tupolev Kazan National Research Technical University – KAI, Kazan)</p> <p>4. <b>Laser frequency converters based on segnetoelectrics with regular domain structure</b> V.Ya. Shur<sup>1</sup>, A.R. Akhmatkhanov<sup>1</sup>, M.A. Chuvakova<sup>1</sup>, A.A. Esin<sup>2</sup>, A.A. Boyko<sup>3</sup> (1 – Labfer, 2 – Ural Federal University, 3 – Novosibirsk State University)</p> <p>Organised by the Laser Association, EXPOCENTRE AO</p>
<b>27 March (Wednesday)</b>	
<p><b>10.00–12.00</b> Southern Hall, Pavilion Forum</p>	<p><b>Plenary Meeting of the 12<sup>th</sup> Congress of the Photonics Technology Platform</b></p> <ol style="list-style-type: none"> <li><b>Semiconductor lasers</b> G.T. Mikaelyan, professor, chief designer at LASSARD</li> <li><b>Quantum computing with single neutral atoms</b> S.S. Straupe, deputy chief researcher at the Russian Quantum Center</li> <li><b>Optic fibres in photonics</b> S.L. Semyonov, Head at Dianov Fiber Optics Research Center of the Russian Academy of Sciences, Prokhorov General Physics Institute of the Russian Academy of Sciences</li> </ol> <p>Organised by the Laser Association, EXPOCENTRE AO</p>
<p><b>12.30–15.30</b> Southern Hall, Pavilion Forum</p>	<p><b>Conference of the 12<sup>th</sup> Congress of the Photonics Technology Platform</b></p> <p><b>Photonics in agriculture</b></p> <p><b>Chair:</b> Yu.N. Kulchin, Chair at the Far Eastern Branch of the Russian Academy of Sciences, Chief Researcher at Institute of Automation and Control Processes of the Far Eastern Branch of the Russian Academy of Sciences</p> <ol style="list-style-type: none"> <li><b>Agrobiophotonics – development trends for increasing agricultural efficiency</b> Yu.N. Kulchin, Institute of Automation and Control Processes of the Far Eastern Branch of the Russian Academy of Sciences</li> <li><b>Use of fluorescence spectroscopy to detect root and fruit rots</b> S.V. Gudkov, the Biophotonics Center, Prokhorov General Physics Institute of the Russian Academy of Sciences</li> <li><b>Prospect of application of acoustic-electronic sensors for registration of pathogens of various plant diseases</b> I.E. Kuznetsova, Kotelnikov Institute of Radioengineering and Electronics of the Russian Academy of Sciences</li> <li><b>Technology of food potato production in the Far North under conditions of artificial lighting in indoor premises</b> V.I. Starovoytov, the Russian Potato Research Centre</li> <li><b>Variation of ellipticity of polarisation of laser radiation of red, green and blue ranges when passing through leaves of corn plants</b> Yu.N. Kulchin, S.O. Kozhanov, A.S. Kholin, E.P. Subbotin, K.V. Kovalevsky, N.I. Subbotina, A.S. Gomolsky, Institute of Automation and Control Processes of the Far Eastern Branch of the Russian Academy of Sciences</li> <li><b>Light is one of the factors of plant cultivation technology</b> O.Yu. Mironova, Lomonosov Moscow State University</li> </ol>

	<ol style="list-style-type: none"> <li>7. <b>The possibility of controlling the dynamics of <i>Chlorella vulgaris</i> development in freshwater aquatic areas under the influence of infrared lasers</b> E.N. Khalilov, Zh. Min, Z. Ma, O.Ya. Glibko, M. Wang, F.E. Khalilov, Yu. Zou, A.L. Ronzhin, St. Petersburg Institute for Informatics and Automation of the Russian Academy of Sciences</li> <li>8. <b>Non-invasive optical methods for determining the physiological state of agricultural plants in field conditions and photoculture</b> D.V. Rusakov, E.V. Kanash, T.E. Kuleshova, G.G. Panova, Yu.V. Chesnokov, Agrophysical Research Institute</li> <li>9. <b>Development of environmentally safe and energy efficient spectral technologies for increasing productivity of agricultural plants</b> I.V. Knyazeva, A.A. Smirnov, the Federal Scientific Agroengineering Center VIM</li> <li>10. <b>The use of LED technologies for agricultural production of protected vegetables in the off-season in Belarus</b> Yu.V. Trofimov, M.I. Barkun, I.K. Malko, S.I. Lishik, Center of LED and Optoelectronic Technologies of NAS Belarus</li> <li>11. <b>«Spectral optical instruments for solving problems in agriculture and food supply. Available solutions</b> V.O. Vasilyeva, LLS</li> </ol> <p>Organised by the Laser Association, EXPOCENTRE AO</p>
<p><b>12.30–15.30</b> Western Hall, Pavilion Forum</p>	<p><b>Conference of the 12<sup>th</sup> Congress of the Photonics Technology Platform</b></p> <p><b>Optic fibres and fibre optic components</b></p> <p><b>Chair:</b> S.L. Semyonov, Head at the Fibre Optics Research Center of the Russian Academy of Sciences – Prokhorov General Physics Institute</p> <ol style="list-style-type: none"> <li>1. <b>Development of telecommunication optic fibre production technologies in Russia</b> D.A. Tanyakin, Optic Fibre Systems, Saransk</li> <li>2. <b>Organisation of pilot production of blanks for special optic fibres on the basis of Technopark-Mordovia</b> M.Yu. Vlasov, A.V. Krivovichev, Technopark-Mordovia, Saransk</li> <li>3. <b>Development and production of special optic fibres at Perm Scientific and Industrial Instrument Making Company</b> I.S. Azanova, Perm Scientific and Industrial Instrument Making Company, Perm</li> <li>4. <b>Special optic fibres at the Fibre Optics Research Center of the Russian Academy of Sciences and Institute of Chemistry of High-Purity Substances of the Russian Academy of Sciences</b> S.L. Semyonov, the Fibre Optics Research Center of the Russian Academy of Sciences, Moscow</li> <li>5. <b>Development of quartz chiral microstructured optical fibres in Vavilov State Optical Institute</b> A.V. Burdin, V.V. Demidov, K.V. Dukelsky, E.V. Ter-Nersesyants, Vavilov State Optical Institute, St. Petersburg</li> <li>6. <b>Fibre Bragg gratings recorded with femtosecond laser radiation and their application</b> O.V. Butov, Kotelnikov Institute of Radioengineering and Electronics of the Russian Academy of Sciences, Moscow</li> <li>7. <b>Fibre optic splitter welding machine FBT-4.1</b> L.N. Platonov, OPTEL, Moscow</li> <li>8. <b>Chinese-made equipment for working with special optical fibres PM, MSF, LMA, DC</b></li> </ol>



	<p>R.R. Kashina, LLS, St. Petersburg, and Shanghai Shinho Fibre Communication, China</p> <p>Organised by the Laser Association, EXPOCENTRE AO</p>
<p><b>12.30–15.30</b> Photon Hall, Pavilion Forum</p>	<p>Panel on <b>the Russian-Chinese cooperation in the field of photonics</b></p> <p>Organised by the Laser Association, EXPOCENTRE AO</p>
<p><b>12.30–15.30</b> Marble Hall, Pavilion Forum</p>	<p><b>Conference of the 12<sup>th</sup> Congress of the Photonics Technology Platform</b></p> <p><b>Holographic technologies</b></p> <p><b>Chair:</b> V.Yu. Venediktov, Professor at St. Petersburg Electrotechnical University ‘LETI’</p> <ol style="list-style-type: none"> <li><b>Holographic tomography of phase micro-objects</b> G.N. Vishnyakov, Russian Research Institute For Optical And Physical Measurements, Moscow</li> <li><b>High-sensitivity holographic interferometers for technological and medical application</b> V.M. Petrov, St. Petersburg State University, St. Petersburg, V.Yu. Venediktov, St. Petersburg Electrotechnical University ‘LETI’, St. Petersburg</li> <li><b>Method of adaptive holographic interferometry and its use for determination of material parameters of photorefractive crystals</b> S.M. Shandarov, TUSUR, Tomsk</li> <li><b>Trends in the development of augmented and mixed reality display technologies</b> A.N. Putilin, Lebedev Physical Institute of the Russian Academy of Sciences, Moscow</li> <li><b>Hologram and diffractive optical elements: current status, application and prospects</b> M.V. Shishova, N.V. Baryshnikov, Bauman Moscow State Technical University</li> <li><b>Development of THz vortex modulator based on advanced spiral zone plates from single-walled carbon nanotube films</b> A.V. Chernykh, ITMO University, St. Petersburg</li> <li><b>Generation of optical vortices by means of integrated photonics</b> R.V. Kutluyarov, Ufa University of Science and Technology, Ufa</li> <li><b>Application of neural network methods in signal processing of optical-digital diffraction spatial filtering systems</b> R.S. Starikov, National Research Nuclear University MEPhI, Moscow</li> </ol> <p>Organised by the Laser Association, EXPOCENTRE AO</p>
<p><b>15.30–18.00</b> Southern Hall, Pavilion Forum</p>	<p><b>Conference of the 12<sup>th</sup> Congress of the Photonics Technology Platform</b></p> <p><b>Laser micromachining in microelectronics, instrument making, engraving and marking</b></p> <p><b>Chair:</b> I.N. Fomenko, Development Director at Laser Center</p> <ol style="list-style-type: none"> <li><b>Trends in the laser equipment market</b> I.N. Fomenko, Laser Center</li> <li><b>Laser surface functionalisation of materials and their application</b> A.V. Loginov, ITMO University</li> <li><b>Equipment of Lasery i Apparatura for 2D and 3D processing</b> A.L. Tsygantsova, Lasery i Apparatura Group</li> <li><b>Review of new laser emitters manufactured by IRE-Polus</b></li> </ol>

	<p>S.V. Petrov, IRE-Polus</p> <ol style="list-style-type: none"> <li>5. <b>Laser marking of 2D codes using DPM method</b> V.V. Zhdanov, Financial University under the Government of the Russian Federation</li> <li>6. <b>Presentation of MicroSET micromachining systems</b> V.S. Bondarev, Laser Center</li> <li>7. <b>Presentation of the TurboForm 3D machining system</b> D.V. Virkov, Central Research Institute of Laser Equipment and Technologies</li> <li>8. <b>The use of laser systems in the souvenir business</b> A.V. Mikhaylovsky, Otlichnie Podarki (Great Gifts)</li> <li>9. <b>New composite films for laser marking of products operating at temperatures up to 1100° C</b> E.Yu. Zhdanova, St. Petersburg Mining University</li> </ol> <p>Organised by the Laser Association, EXPOCENTRE AO</p>
<p><b>15.30–18.00</b> Western Hall, Pavilion Forum</p>	<p><b>Conference of the 12<sup>th</sup> Congress of the Photonics Technology Platform</b></p> <p><b>Optical sensorics</b></p> <p><b>Chair:</b> O.V. Butov, Deputy Director for Research at Kotelnikov Institute of Radioengineering and Electronics of the Russian Academy of Sciences</p> <ol style="list-style-type: none"> <li>1. <b>Interrogator is a unified fibre optic sensor interrogation module for monitoring systems of complex engineering structures. New technological design – integrated photonics</b> K.E. Pevchikh, the Zelenograd Nanotechnology Center</li> <li>2. <b>High-precision fibre optic interrogator IKS-49.90</b> A.N. Fedorov, Prolog</li> <li>3. <b>Areas of application of Danube distributed fibre sensors</b> D. Kharasov, V. Treshchikov, T8</li> <li>4. <b>Detection of oil leaks in trunk pipelines using distributed fibre optic sensors</b> V. Kislitsyn, V. Treshchikov, T8</li> <li>5. <b>Seismophotonics: registration of earthquakes by fibre-optic sensors using the case of the Danube DAS system</b> E.P. Spiridonov, T8</li> <li>6. <b>Integration of heterogeneous industrial sensors into a unified monitoring system based on fibre optic distributed sensors</b> P.G. Gavrilin, T8</li> <li>7. <b>Design, production and testing of a hydroacoustic antenna based on a linear array of fibre optic interferometers</b> V.N. Sorokovikov, Perm Scientific and Industrial Instrument Making Company</li> <li>8. <b>Fibre optic refractometers for monitoring parameters of aggressive liquids and gases</b> D.P. Sudas, the Fryazino Branch of Kotelnikov Institute of Radio-engineering and Electronics of the Russian Academy of Sciences</li> <li>9. <b>Infrared optoelectronic devices for environmental and industrial safety tasks</b> I.L. Fufurin, the Center of Applied Physics at Bauman Moscow State Technical University</li> <li>10. <b>Advanced photosensitive devices</b> G.D. Petrukhin, m.u.33965</li> <li>11. <b>High-precision recording of Bragg gratings by femtosecond laser radiation</b> O.V. Butov, Kotelnikov Institute of Radio-engineering and Electronics of the Russian Academy of Sciences</li> </ol> <p>Organised by the Laser Association, EXPOCENTRE AO</p>

<p><b>15.30–18.00</b> Photon Hall, Pavilion Forum</p>	<p><b>Conference of the 12<sup>th</sup> Congress of the Photonics Technology Platform</b></p> <p><b>Photonic integrated circuits</b></p> <p><b>Chair:</b> K.E. Pevchikh, Advisor to CEO at the Zelenograd Nanotechnology Center</p> <ol style="list-style-type: none"> <li>1. <b>Photonic coprocessor in compact design for neural network computation</b> V.N. Treshchikov, T8</li> <li>2. <b>Vertical radiation input-output grating for photonic integrated circuits based on a moth-eye metamaterial</b> I.A. Kazakov, PICSTECH</li> <li>3. <b>Application of photonic integrated circuits in photonic systems</b> A.V. Shipulin, Skoltech</li> <li>4. <b>Heterogeneous integration of photonic integrated circuits with lasers and photodetectors</b> K.E. Pevchikh, the Zelenograd Nanotechnology Center</li> <li>5. <b>Capabilities of planar numerical holograms in spectrometry</b> I. Ivonin, FOTISS</li> <li>6. <b>Energy-independent photonics elements based on phase-change materials</b> P.I. Lazarenko, National Research University of Electronic Technology – MIET</li> <li>7. <b>Modelling of components of photonic integrated circuits in Russian CAD from T1</b> V.M. Kirichenko, T1 Integration</li> <li>8. <b>Near- and mid-infrared integrated photonics with locally integrated detectors/emitters on superalloyed silicon: prospects</b> M.S. Kovalev, Lebedev Physical Institute of the Russian Academy of Sciences</li> <li>9. <b>Photonic integrated circuits based on A3B5/SOI heterostructures</b> S.O. Slipchenko, Ioffe Physical-Technical Institute of the Russian Academy of Sciences</li> <li>10. <b>Integrated germanium photodetectors for photonic integrated circuits</b> A.I. Nikiforov, Rzhanov Institute of Semiconductor Physics of the Siberian Branch of the Russian Academy of Sciences</li> <li>11. <b>Photonic integrated circuits for quantum key distribution systems</b> V.G. Krishtop, InfoTeCS</li> </ol> <p>Organised by the Laser Association, EXPOCENTRE AO</p>
<p><b>15.30–18.30</b> Marble Hall, Pavilion Forum</p>	<p><b>Panel on Personnel Training for the Photonics Industry. Activities of the Student Section of the North-West Republican Centre of the Laser Association</b></p> <p>Organised by the Laser Association, EXPOCENTRE AO</p>
<p><b>10.00–13.00</b> Southern Hall, Pavilion Forum</p>	<p><b>Conference of the 12<sup>th</sup> Congress of the Photonics Technology Platform</b></p> <p><b>Quantum technologies</b></p> <p><b>Chair:</b> S.S. Straupe, Deputy Research Director at the Russian Quantum Center</p> <ol style="list-style-type: none"> <li>1. <b>Quantum simulators on thulium atoms in optical lattices</b> A.V. Akimov, Research Director at the Russian Quantum Center</li> <li>2. <b>Femtosecond laser printing technology for quantum integrated photonics applications</b> N.N. Skyabin, the Quantum Technology Center at Lomonosov Moscow State University</li> </ol>



	<ol style="list-style-type: none"> <li>3. <b>Hybrid photonic integrated circuit elements for optical computing, communications and sensors</b> V.V. Kovalyuk, the Laboratory of Quantum Detectors at Moscow Pedagogical State University</li> <li>4. <b>Algorithms for quantum computers</b> E.O. Kiktenko, the Laboratory of Quantum Information Technologies at the Russian Quantum Center</li> <li>5. <b>Implementation of algorithms on ionic quantum computers</b> I.A. Semerikov, the Laboratory of Optics of Complex Quantum Systems at Lebedev Physical Institute of the Russian Academy of Sciences</li> <li>6. <b>Multi-diode pumped femtosecond titanium-sapphire laser systems and their application</b> S.P. Nikitin, S.A. Babaev, K.A. Akmarov, K.A. Emelyanov, A. Mukhamedyanov, FemtoVision, the Russian Quantum Center</li> <li>7. <b>Use of continuous single-frequency lasers in laser atom cooling and atom manipulation processes for precision spectroscopy</b> V. Mikhaylov, LLS</li> </ol> <p>Organised by the Laser Association, EXPOCENTRE AO</p>
<p><b>10.00–13.00,</b> Western Hall, Pavilion Forum</p>	<p><b>Extended Meeting of the Council on Optics and Photonics of the Department of Physical Sciences of the Russian Academy of Sciences</b></p> <p>Organised by the Laser Association, EXPOCENTRE AO</p>
<p><b>10.00–13.00</b> Photon Hall, Pavilion Forum</p>	<p><b>Conference of the 12<sup>th</sup> Congress of the Photonics Technology Platform</b></p> <p><b>Laser information systems</b></p> <p><b>Chair:</b> A.A. Marmalyuk, Head at the Research and Technology Center at Stelmakh Polus Research Institute</p> <ol style="list-style-type: none"> <li>1. <b>Development of the element base for semiconductor pumping of fibre optic and solid-state lasers</b> A.V. Fomin, the Russian Federal Nuclear Centre – Zabababakhin Russian Research Institute of Technical Physics</li> <li>2. <b>Key problems of creating a solar aerospace energy-technological complex with remote power transmission</b> V.F. Matyukhin, A.S. Sigov, MIREA – the Russian Technological University</li> <li>3. <b>Transition from multi-loop adaptive optics systems for solar telescopes to multi-conjugate systems</b> V.P. Lukin, P.A. Konyaev, L.A. Bolbasova, A.G. Borzilov, Zuev Institute of Atmospheric Optics of the Siberian Branch of the Russian Academy of Sciences; D.Yu. Kolobov, P.G. Kovadlo, A.Yu. Shikhovtsev, Institute of Solar-Terrestrial Physics of the Siberian Branch of the Russian Academy of Sciences</li> <li>4. <b>The tri-band meteorological complex LIRA: the achieved results and development prospects</b> A.N. Ermolin, L.Yu. Maslov, Laser Systems</li> <li>5. <b>Development of lidars for unmanned vehicles</b> G.V. Nikandrov, Yandex Unmanned Technologies</li> <li>6. <b>NordLase – a Russian development and production of lasers (hybrid, solid-state, fibre lasers) and laser systems. Achievements and new products</b> D.V. Sachenko, LLS</li> <li>7. <b>Reconstruction of the spectrum of a broadband THz pulse based on time-response measurements of matter at some GHz frequencies</b></li> </ol>

	<p>V.A. Trofimov, South China University of Technology, Guangzhou, China; S.A. Varentsova, Lomonosov Moscow State University</p> <p>Organised by the Laser Association, EXPOCENTRE AO</p>
<p><b>10.00–13.00</b> Marble Hall, Pavilion Forum</p>	<p><b>Conference of the 12<sup>th</sup> Congress of the Photonics Technology Platform</b></p> <p><b>Metrology support for photonics</b></p> <p><b>Chair:</b> V.N. Krutikov, Research Supervisor at Russian Research Institute for Optical and Physical Measurements</p> <ol style="list-style-type: none"> <li>1. <b>Current state of metrological support of photonics technologies and products. WG5 activities in 2023, plans for 2024</b> I.S. Filimonov, Russian Research Institute for Optical and Physical Measurements</li> <li>2. <b>State and prospects of metrological support of pulsed lasers parameters</b> A.I. Kolpakov, Russian Research Institute for Optical and Physical Measurements</li> <li>3. <b>State and prospects of metrological support of measurements of time characteristics of ultrashort optical pulses</b> M.V. Kanzyuba, Russian Research Institute for Optical and Physical Measurements</li> <li>4. <b>Metrological support of instruments for measuring the modulation gain of lenses</b> G.N. Vishnyakov, Russian Research Institute for Optical and Physical Measurements</li> <li>5. <b>Metrological support of instruments for measuring the thicknesses of optical coatings</b> V.L. Minaev, Russian Research Institute for Optical and Physical Measurements</li> <li>6. <b>Metrological support of devices for inter-operational control of microelectronics products in cleanroom conditions</b> A.A. Smoylenko, Russian Research Institute for Optical and Physical Measurements</li> <li>7. <b>Methods for measuring signal propagation delays in optical amplifiers</b> O.V. Kolmogorov, Russian Metrological Institute of Technical Physics and Radioengineering (VNIIFTRI)</li> <li>8. <b>Light injection nodes from fibre to integrated photonic circuits: modelling and experimentation</b> A.E. Eroshkina, Russian Research Institute for Optical and Physical Measurements</li> <li>9. <b>Equipment for measuring the characteristics of laser radiation, available under sanctions</b> M.D. Komissarov, LLS</li> </ol> <p>Organised by the Laser Association, EXPOCENTRE AO</p>
<p><b>13.00–16.00</b> Southern Hall, Pavilion Forum</p>	<p><b>Conference of the 12<sup>th</sup> Congress of the Photonics Technology Platform</b></p> <p><b>Radiophotonics</b></p> <p><b>Chair:</b> M.A. Ladugin, Head at the Research and Production Complex at Stelmakh Polus Research Institute</p> <ol style="list-style-type: none"> <li>1. <b>Ultra-low noise optoelectronic microwave oscillator with passive optical amplification</b> A.B. Ustinov, LETI, St. Petersburg</li> <li>2. <b>Powerful microwave photodiodes: current state and prospects of development</b> A.V. Ivanov, M.A. Ladugin, Stelmakh Polus Research Institute, Moscow</li> </ol>

	<ol style="list-style-type: none"> <li>3. <b>Research of amplitude and phase distribution of the field using a radiophotonic receiving channel</b> R.V. Ryzhuk, D.E. Burkitbaev, N.I. Kargin, V.V. Kulagin, D.A. Prokhorov, National Research Nuclear University MEPhI, Moscow</li> <li>4. <b>Thin-film lithium niobate as a platform for production of integrated-optical ultra-wideband microwave modulators</b> M.V. Parfenov, A.V. Tronev, A.V. Varlamov, I.V. Ilichev, A.A. Usikova, Yu.M. Zadiranov, P.M. Agruzov, A.V. Shamray, Ioffe Physical-Technical Institute, St. Petersburg</li> <li>5. <b>Multichannel radiophotonic receiver for ultra-wideband microwave signals</b> V.V. Kulagin, V.V. Valuev, Lomonosov Moscow State University</li> <li>6. <b>Radio-photon technologies in radiolocation: determination of angle of arrival and Doppler frequency shift</b> A.A. Kuznetsov, P.E. Denisenko, K.A. Lipatnikov, Kazan State University, Kazan</li> <li>7. <b>Long analogue optical path with sampling for transport of signals up to Ku-band</b> V.A. Nebavsky, R.S. Starikov, National Research Nuclear University MEPhI, Moscow</li> <li>8. <b>Photonic integrated circuits for high-performance transmission and signal processing systems – an overview of the latest developments</b> R.S. Starikov, National Research Nuclear University MEPhI, Moscow</li> <li>9. <b>Specifics of vocational training in radiophotonics in the Russian Federation</b> A.A. Kuznetsov, V.A. Masnoy, K.A. Lipatnikov, Kazan State University, Kazan</li> </ol> <p>Organised by the Laser Association, EXPOCENTRE AO</p>
<p><b>13.00–16.00</b> Western Hall, Pavilion Forum</p>	<p><b>Conference of the 12<sup>th</sup> Congress of the Photonics Technology Platform</b></p> <p><b>Fibre optic communication lines and their components</b></p> <p><b>Chair:</b> O.E. Naniy, Professor at Lomonosov Moscow State University , Deputy CEO at T8</p> <ol style="list-style-type: none"> <li>1. <b>Achievements and prospects of Russian DWDM communication systems</b> V.N. Treshchikov, T8</li> <li>2. <b>Bismuth fibre amplifiers for broadband fibre optic communication networks</b> M.A. Melkumov, Prokhorov General Physics Institute of the Russian Academy of Sciences</li> <li>3. <b>Evolution of digital signal processors for coherent optical channels</b> S.S. Kogan, T8</li> <li>4. <b>Characteristics and prospects of application of multimode telecommunication optical fibres based on quartz glass</b> A.I. Mikilev, Russian Research, Design and Technological Institute of Cable Industry</li> <li>5. <b>Precision transmission of frequency and time scale by VCH-608 FOCL modems</b> M.I. Vekselman, A.V. Zheglov, R.S. Kobayakov, R.N. Novozhilov, S.Yu. Medvedev, Vremya-Ch, MaxNavi</li> <li>6. <b>Highly coherent laser source with sub-kilohertz instantaneous linewidth and power over 10 mW in a Butterfly housing form factor</b> A.V. Reznikov, E.A. Fomiryakov, S.P. Nikitin, V.N. Treshchikov, T8</li> <li>7. <b>Networks with heterogeneous fibres. Theory. Modelling. Experiment</b> L.A. Samodelkin, D.D. Starykh, T8 Science and Technology Center</li> <li>8. <b>Evaluation of transmission quality in coherent FOCL by machine learning methods</b> G.A. Andreev, I.P. Chebykin, T8 Science and Technology Center</li> </ol>

	<p>9. <b>Implementation of carrier phase recovery algorithm in integer arithmetic</b> I.S. Khalko, T8</p> <p>Organised by the Laser Association, EXPOCENTRE AO</p>
<p><b>13.00–16.00</b> Photon Hall, Pavilion Forum</p>	<p><b>Conference of the 12<sup>th</sup> Congress of the Photonics Technology Platform</b></p> <p><b>Optoelectronic systems and components</b></p> <p><b>Chair:</b> V.V. Startsev, CEO at SPA Orion</p> <ol style="list-style-type: none"> <li>1. <b>Chair’s welcoming remarks</b></li> <li>2. <b>The use of the CPL mechanism to create a roadmap for optoelectronics</b> A.V. Zablotsky, Foundation for Advanced Research</li> <li>3. <b>Quantum dots and a new generation of IR photosensors based on them</b> V.S. Popov, SPA Orion</li> <li>4. <b>Matrix photodetectors based on barrier structures for applications operating at elevated cooling temperatures</b> V.S. Kovshov, SPA Orion</li> <li>5. <b>Russian OLED microdisplays and their application in optoelectronic systems</b> S.A. Stakharny, Central Research Institute Cyclone</li> <li>6. <b>Tunable quantum-cascade lasers for solving problems of laser infrared spectroscopy</b> I.L. Fifurin, the Center of Applied Physics at Bauman Moscow State Technical University</li> <li>7. <b>Production of special optical fibres in the Russian Federation</b> I.S. Azanova, Perm Scientific and Industrial Instrument Making Company</li> <li>8. <b>Photodetector based on matrix microbolometer detector with spectral range of sensitivity 2-16 <math>\mu\text{m}</math></b> N.A. Sheleyko, OKB Astrohn</li> <li>9. <b>Modern technologies of deep purification and synthesis of basic materials of microelectronics and infrared optics. Status and prospects</b> L.A. Mochalov, Lobachevsky National Research State University of Nizhny Novgorod</li> <li>10. <b>Microchannel electronic amplifiers: principle of operation and applications</b> D.A. Samkanashvili, VTC Baspik</li> </ol> <p>Organised by the Laser Association, EXPOCENTRE AO</p>
<p><b>13.00–16.00</b> Marble Hall, Pavilion Forum</p>	<p><b>Conference of the 12<sup>th</sup> Congress of the Photonics Technology Platform</b></p> <p><b>Photonics units and devices for scientific research</b></p> <p><b>Chair:</b> V.E. Pozhar, Department Head at the Research and Technological Centre of Unique Instrumentation of the Russian Academy of Sciences</p> <ol style="list-style-type: none"> <li>1. <b>Multispectral video camera for registration of spectral images without scanning</b> A.S. Machikhin, V.I. Batshev, the Research and Technological Centre of Unique Instrumentation of the Russian Academy of Sciences</li> <li>2. <b>Internet resource for solving nonlinear optical frequency conversion problems</b> S.G. Grechin, Prokhorov General Physics Institute of the Russian Academy of Sciences</li> <li>3. <b>Prospects of using nanodispersed media based on complexes of carbon</b></li> </ol>

	<p><b>nanotubes and phthalocyanines for protection against high-power laser radiation</b>  P.N. Vasilevsky, A.Yu. Gerasimenko, National Research University of Electronic Technology – MIET</p> <p>Organised by the Laser Association, EXPOCENTRE AO</p>
<p><b>16.00–18.30</b>  Southern Hall,  Pavilion Forum</p>	<p><b>Conference of the 12<sup>th</sup> Congress of the Photonics Technology Platform</b></p> <p><b>Photonics in medicine and life sciences</b></p> <p><b>Chair:</b> A.V. Samorodov, Head of the Department of Biomedical Engineering Systems at Bauman Moscow State Technical University</p> <ol style="list-style-type: none"> <li>1. <b>Biophotonics: trends 2024</b>  A.V. Samorodov, Bauman Moscow State Technical University</li> <li>2. <b>Laser medical device developed by the Russian Federal Nuclear Centre – Zabababakhin Russian Research Institute of Technical Physics</b>  A.V. Berezin, the Russian Federal Nuclear Centre – Zabababakhin Russian Research Institute of Technical Physics</li> <li>3. <b>Application of artificial intelligence elements in infrared spectroscopy for biomedical applications</b>  I.S. Golyak, Bauman Moscow State Technical University</li> <li>4. <b>Multispectral differential diagnosis of skin malignancies in vitro based on Raman light scattering</b>  E.N. Rimskaya, Lebedev Physical Institute of the Russian Academy of Sciences</li> <li>5. <b>Diagnostics of microhemodynamics by speckle imaging using optical luminescence technology of biotissues</b>  P.A. Timoshina, Yu.I. Surkov, V.V. Tuchin, Saratov State University, Tomsk State University</li> <li>6. <b>Opportunities for photoacoustic in vivo flow cytometry and in vivo spectroscopy using tunable laser systems</b>  D.N. Bratashov, Institute of Physics of Saratov State University</li> <li>7. <b>System of organ and tissue perfusion visualisation based on low coherence interferometry. Experience of implementation of component base of Asian manufacturers</b>  K. Goncharov, LLS</li> <li>8. <b>Short and ultrashort pulse lasers for research</b>  D. Tarvanen, LLS</li> <li>9. <b>Joint meeting of Working Group 9 of the Photonics Technology Platform and the Scientific and Technical Council on Biomedical Photonics under the Scientific and Technical Council of the Laser Association</b></li> </ol> <p>Organised by the Laser Association, EXPOCENTRE AO</p>
<p><b>16.00–18.30</b>  Western Hall,  Pavilion Forum</p>	<p><b>Conference of the 12<sup>th</sup> Congress of the Photonics Technology Platform</b></p> <p><b>Photonics in navigation, geodesy and open communication lines</b></p> <p><b>Chair:</b> A.L. Sokolov, Chief Researcher at the Scientific and Production Corporation ‘Systems of Precision Instrument Making’</p> <ol style="list-style-type: none"> <li>1. <b>Chair’s welcoming remarks</b></li> <li>2. <b>Results of the experiment on counter range measurements between Glonass satellites</b>  E.S. Kolodochkin, V.V. Murashkin, the Scientific and Production Corporation ‘Systems of Precision Instrument Making’</li> </ol>

	<ol style="list-style-type: none"> <li>3. <b>Optical retro-reflector system for spacecraft-to-space station docking</b> S.N. Bazaeva, the Scientific and Production Corporation ‘Systems of Precision Instrument Making’</li> <li>4. <b>High-speed space laser communications</b> V.V. Murashkin, the Scientific and Production Corporation ‘Systems of Precision Instrument Making’</li> <li>5. <b>Beams with axially symmetric structure. Status and prospects of development for quantum optical communications</b> V.V. Petrov, St. Petersburg University</li> <li>6. <b>Three-dimensional flow diagnostics by multicolour anemometry method</b> N.M. Skornyakova, M.V. Sapronov, Sh.Sh. Usmanova, MPEI National Research University</li> <li>7. <b>Modernised retro-reflector system for navigation spacecraft</b> V.D. Nenadovich, the Scientific and Production Corporation ‘Systems of Precision Instrument Making’</li> </ol> <p>Organised by the Laser Association, EXPOCENTRE AO</p>
<b>16.00–18.00</b> Photon Hall, Pavilion Forum	<b>Panel and presentation on Laser technologies for urban economy</b>  Organised by the Laser Association, EXPOCENTRE AO
<b>29 March (Friday)</b>	
<b>10.00–13.00</b> Southern Hall, Pavilion Forum	<b>Joint Meeting of the Councils of Heads of Priority Technology Areas in Photonics, Optoelectronics and Radiophotonics</b>  Organised by the Laser Association, EXPOCENTRE AO