











Photonics Cluster of Latvia

Latvia Photonics Companies





No.	Name of company	Short description of company	Contact details	No. of empl	Turnover (M€)
1	AGL Technologies 	<p>AGL Technologies offers thin film coatings on different materials of various sizes and shapes for a variety of applications. AGL is your partner from development to production.</p> <p>Engineers with 20 years of experience in R&D and thin film production at your service.</p> <p>Optical coatings, Smart textiles, Photo catalytic coatings, Custom coatings, Surface analysis.</p>	<p>Andris Āzens, CTO AGL Technologies Pulka 3/3, Riga LV-1007, Latvia info@agltechnologies.eu +371 28445967 www.agltechnologies.eu</p>	2	0.09
2	Baltic Scientific Instruments, Ltd 	<p>Radiation detectors, nuclear electronics and radiation measurements.</p> <p>The company Baltic Scientific Instruments (BSI) specializes in the development and serial production of the spectrometric devices based on semiconductor silicon, high-pure germanium and cadmium-zinc-tellurium detectors. Our products are applied in nuclear energetic and ecology, geology and mineral resource industry, medicine and space research activities, customs control, and other spheres. All products are available including detectors, electronics and software.</p>	<p>Vladimir Gostilo, CEO, 26 Ganību Dambis Riga LV-1005 info@bsi.lv, +371 67383947 www.bsi.lv</p>	66	2.6
3	Ceram Optek, SIA 	<p>What makes CeramOptec stand out from other optical fiber manufacturers? It's not just our high quality fibers. Our proprietary manufacturing process. Or that you'll find our products performing in multiple applications across a broad range of industries. The CeramOptec difference is our ability to deliver effective fiber optic solutions to our customers — even if they have never used fibers before.</p> <p>One secret to our success is an experienced management team and client-centric corporate structure. Both allow us to focus on finding the best possible solutions to our client's needs. Quality, cost-efficiency, innovation, and performance: these are the hallmarks of CeramOptec.</p>	<p>Jevgēnijs Smirnovs, CEO Domes 1a, Līvāni, Līvānu n., LV-5316 Latvia sales@ceramoptec.com +371 65343646 www.ceramoptec.com</p>	119	20
4	DARDEDZE HOLOGRAFIJA, SIA 	<p>"DARDEDZE HOLOGRAFIJA" was established in 1995 with the mission of manufacturing holograms, which help to secure documents and goods from attempted fraud. We first developed hologram technology with the help of Solid-state Physics University Optic laboratory.</p> <p>Currently, "DARDEDZE HOLOGRAFIJA" works and develops two major production lines – holographic security solutions and offset printing. Amongst offset printers we are one of the leading printing houses in Latvia</p>	<p>Guntis Vucens, CEO Maza Rencenu str 12, Riga, LV-1073, Latvia dh@dardedze.lv +371 67076700 www.dardedze.lv</p>	130	5.6
5	Difraks Sol. SIA 	<p>Our company is taking leading position in production of the security holograms in the Baltic region and the exporter to the European Union countries and throughout the world. We offer a complete cycle of the holograms production - from design to the stock-produced item, providing the highest quality and satisfying all customers' demands.</p>	<p>Sergejs Gerbreders, CEO Parades 1-132, Daugavpils LV-5401, Latvia difraks@difraks.lv +371 29 48 22 27 www.difraks.lv</p>	9	0.24
6	EuroLCDs SIA 	<p>The business aim of EuroLCDs is to fill the niche in the market that demands products based on bistable LCD technologies and various shutter type LCD products for both emerging 3D visualization applications and different industrial applications.</p>	<p>Ainars Ozols, CEO, VATP-2, Ventspils LV-3602, Latvia lcd@eurolcds.com, +371 63 600 300 www.eurolcds.com</p>	62	1.7

7	Eventech Ltd 	<p>„Eventech” Ltd is a spin-off company from Institute of Electronics and Computer Science of Latvia, established in 2011, specializing in development and manufacturing of high-performance and high-precision signal processing electronics. Our scientific team has more than 40-year experience in high-precision event timing system design and development for specific applications, for example, Satellite Laser Ranging (SLR). Our product is a computer-based instrument that measures the time of the event and intervals between the events. Distinguishing feature of the product is extremely high precision (up to 2-3 picoseconds) combined with high measurement rate (up to 20 MHz) and affordable price comparing to other similar high-tech instruments.</p>	<p>Katrina Krivenko, COO Dzerbenes street 14, Riga, LV-1006, Latvia info@eventechsite.com +371 29118068 www.eventechsite.com</p>	4	0.23
8	Fush Electronics 	<p>Optoelectronic components supplies, lumilights and indicating devices for commercial use, advertising and information displaying systems.</p>	<p>Fush Electronics Brivibas 152, Riga, LV-1012, Latvia sales@fush.lv +371 7364151 www.fush.lv</p>	3	0.13
9	GeoStar 	<p>Manufacture of instruments and appliances for measuring, testing and navigation (26.51) GeoStar Ltd. was established in 1997 to provide Latvian surveyors with modern and high-quality geodetic instruments. In addition to geodetic instruments also offer communications locators, moisture meters, GPS sensors and other equipment. GeoStar representing manufacturers whose web page you can find a section - Links GeoStar provides instruments warranty service and post-warranty service. Created service center and equipped with the necessary hardware with trained staff.</p>	<p>Māris Knoks, CEO GeoStar SIA Mārupes 20, Rīga, LV-1002, Latvia Phone: +371 67089191 www.geostar.lv Info@geostar.lv</p>	8	0.972
10	Groglass SIA 	<p>Groglass is one of the world's leading developers and manufacturers of anti-reflective and other high-performance coatings on glass and acrylic for various industries: high-end electronic and static displays, picture framing, museum showcases, architecture and other applications.</p>	<p>Sasha Kelberg, CEO Katlakalna 4b, Rīga, LV-1073, Latvia sales@groglass.com +371 67502910 www.groglass.com</p>	111	16
11	HansaMatrix 	<p>HansaMatrix is a fast-growing, high-technology company offering product design, industrialization and complete manufacturing services in data networking, Internet of Things, industrial segments and other high added value business segments. In addition to complete manufacturing services of OEM products, our company offers an ODM business model to both start-up and established companies that seek product development partnerships. HansaMatrix opened its first manufacturing plant in June, 2001 with only seven employees. The Ventspils manufacturing plant was opened in December, 2007. Since then our company has grown substantially into one of the leading Baltic – Nordic manufacturers. We now have several product development teams and run two manufacturing plants employing over 350 people in engineering, managerial and production jobs including subcontractors. Both manufacturing plants have been developed as substitute manufacturing facilities employing the latest identical production technologies. Back in 2005, HansaMatrix was the first contract manufacturer in the EU that deployed the FUJI NXT manufacturing platform, which later was accepted as the standard for high-complexity manufacturing. Similarly, our competence can be applied to our 2015 investment in the newest FUJI sFAB odd shape component assembling robot. Our company product development and manufacturing operation has been certified as per ISO9001; its medical products - as per ISO 13485; its mining and oil industry products – as per ATEX; and payment terminal products meet the MasterCard quality requirements.</p>	<p>Ilmars Osmanis, CEO HansaMatrix Customer Relations Lielirbes iela 17a-10, Riga, LV-1046, Latvia Phone: +371 6780 0003 Fax: +371 6504 9087 E-mail: sales@hansamatrix.com</p>	350	13,466
12	HEE Photonic Labs	<p>Inventors of advanced optical system, with very focussed optical beam that can be used for different special purposes in space and military ie. different kinds of surveillance systems equipment, laser beam radar monitoring systems, satellite laser ranging system, free space optical long range and high speed data communication. Company is also a provider of training simulators ie. computer controlled shooting training systems, a tactical field simulator, designed for fully interoperable and flexible collective training in natural environments:</p>	<p>Andris Treijs, CEO Nomaļes iela 6-25, Riga LV-1002, Latvia andris.treijs@heephotonic.eu +371 67613098 http://www.heephotonic.eu/</p>	2	0.03






		<div>1. using the rocket launchers CG and AT-4 in the training field for the squad of 4 army men,</div> <div>2. using modern weapon HK G36 assault rifles,</div> <div>multimedia shooting range equipment for combat training, using electronic target which is set into the screen and determines the hit of bullet marks after each shot.</div>			
13	<div>ISP Optics Latvia Ltd</div> <div></div>	<div>ISP Optics Corporation is a vertically integrated manufacturer offering a full range of the infrared products from high performance MWIR and LWIR Lens Assemblies to catalog and custom infrared optical elements. Our infrared IR Lens Assembly product line includes continuous zoom, dual FOV and fixed focal length lenses for cooled and un-cooled cameras including designs targeted for light weight and compact models. ISP Optics manufactures in-house precision optical components including spherical, aspherical and diffractive coated IR lenses. In addition to our built-to-print optical elements product line, we also offer custom opto -mechanical assemblies, coatings and diamond turning services along with IR catalog optics. We manufacture optics from various infrared crystals such as: Ge, Si, ZnS, ZnSe, CaF2, GaAs, BaF2, Amtir, GASIR, IG5 and others.</div> <div>Our manufacturing processes utilize CNC Grinding, Diamond Turning, Continuous and Conventional Polishing, Optical Contacting, advanced coating and design technologies to deliver consistent top quality solutions that serve the growing industry demands with an unwavering commitment to our world-wide customers.</div>	<div>Ēriks Bēdikis, CEO</div> <div>24A Ganību Dambis Street</div> <div>Rīga, Latvia LV-1005</div> <div>sales@isptoptics.eu</div> <div>+371 67323779</div> <div>www.isptoptics.eu</div>	65	6.8
14	<div>Kepp EU</div> <div></div>	<div>Silicon metallurgy – equipment creation, manufacturing of innovative materials. We actively and successfully develop silicon technologies since the late 1970s. Our research in technologies of float zone (FZ) melting (high-frequency heating 2MHz) and growth of silicon from melt by the Czochralski method yielded in more than 20 certificates of authorship (analog of patent), and in a similar number of articles and reports.</div>	<div>Anatolijs Kravcovs. CEO</div> <div>Carnikavas street 5, Rīga</div> <div>Latvia</div> <div>info@keppeu.lv</div> <div>+371 67394989</div> <div>www.keppeu.lv</div>	13	0.46
15	<div>Light Guide Optics International Ltd</div> <div></div>	<div>Established in 2004, Z-Light is the leading European manufacturer and supplier of fibres, fibre bundles, cables and laser delivery systems used for sophisticated scientific, industrial and medical applications. We offer a full range of silica multimode optical fibres with excellent transmission in the UV-vis-IR region. Also, we provide full service starting from new product design to finished products and integrated optics solution.</div> <div>Our factory is equipped with the most state-of-the-art technologies and all manufacturing processes are in strict compliance with the EU quality and safety standards.</div> <div>At Z-Light we use innovation to create products and services which meet or even exceed our customers' expectations. Our team is always ready to implement solutions tailored for each customer no matter how sophisticated they are!</div>	<div>Daumants Pfafrods, CEO</div> <div>Līvānu nov., Līvāni, Cēlniecības iela 8,</div> <div>LV-5316, Latvia</div> <div>info@z-light.lv</div> <div>+371 65307175</div> <div>www.z-light.lv</div>	102	9.6
16	<div>Optek Ltd</div> <div></div>	<div>Optek has developed and manufactures various equipment for photonics research – tunable diode lasers, avalanche photodiodes, PID lockboxes for laser stabilization, optimized Fabry-Perrot cavities, etc. Most recent developments are laser stabilization system allowing to obtain the laser linewidth of 1 Hz and Cavity Ring-Down Spectroscopy (CRDS) system operating at 266 nm wavelength for detection of acetone in human breath (ppm levels).</div> <div>Some insight into scientific novelty of the work of OPTEK on Fabry-Perrot cavities can be found in recent SCI papers:</div> <div>DOI: 10.1515/lpts-2015-0014</div> <div>DOI: 10.1515/lpts-2015-0015</div> <div>Currently we are developing cost effective thin film thickness measurement software, which is based on data, obtained by low cost spectrometers.</div> <div>Optek represents and sells the following photonics manufacturer's products: Comsol - simulation software of real world multiphysics systems, Cobolt - high quality diode lasers, Rofin - CO2 lasers, Ophir - laser power/energy meters and laser beam profilers, Thorlabs, Hamamatsu, Gaussian software, etc.</div>	<div>Kaspars Blušs, CEO</div> <div>Lizuma 1-310, Rīga,</div> <div>LV-1006, Latvia</div> <div>info@optek.lv</div> <div>+371 2978 1582</div> <div>www.optek.lv</div>	2	0.32
17	<div>Optron Ltd</div> <div></div>	<div>OPTRON Ltd. was founded in 1992, as a multi-profile telecommunication company.</div> <div>Now the company is the largest private telecommunication company in Latvia, possessing the biggest in Rīga technologically unique specialized underground cable duct with more than 300 kilometers of the fiber-optical cables laid out and a high-speed duplicated telecommunication platform for data transmission. On the basis of these resources OPTRON provides full range of services of data transmission, access to Internet, a telephony, leased lines, virtual private networks (VPN), Wi-Fi access and offers specialized</div>	<div>Ruslan Uzhgalov, sales representative</div> <div>A. Deglava str. 73,</div> <div>LV-1082 Rīga, Latvia</div> <div>info@optron.lv</div> <div>+371 67159440</div> <div>www.optron.lv</div>	19	1.9

		<p>project solutions to meet the specific customer requirements. All the services are provided in strict compliance with SLA, securing quality, reliability and in-time reaction on customer's requests. The company has own production division, manufacturing optical connecting cords (patchcords, pigtails), based on factory technology of seal of fiber. Process of manufacturing comes to the end with complete control of optical parameters and issue of the passport on each product.</p> <p>The company also renders services in sale of a wide range of materials, network elements, tools, accessories, technological devices, and also the wide range of the equipment from world leading manufacturers for testing and measurement telecommunication network's parameters.</p>			
18	Sensotech 	<p>The company's activity sector is in manufacturing of computer, electronic and optical products and communication equipment. Sensotech provides services and consulting business plans for the development of EU projects in completing the forms, external market research and customer attraction etc.</p>	<p>Austris Galindoms, CEO Pļavu iela 17, Liepāja, LV- 3411, Latvia info@b-phone.eu +371 26032981 sensotech.lv</p>	2	0.13
19	Sidrabe AS 	<p>SIDRABE has been designing and manufacturing vacuum coating systems and developing unique thin film technologies for more than 50 years.</p> <p>We offer:</p> <ul style="list-style-type: none"> •Development and implementation of thin film technologies •Customized vacuum coating systems •Optimized and cost effective product solutions •Contract R&D •Contract design engineering. <p>A variety of processes have been implemented successfully in SIDRABE equipment for many applications:</p> <ul style="list-style-type: none"> •Coating of polymer films and metal foils •Coating of metal strips •Coating of large-size flat glass •Coating of large-size astronomical mirrors •Coating of artificial diamond and various powders •Protective and decorative coating of 3D articles •Substrate pre-treatment using ion sources •Vacuum lamination •Vacuum drying of webs 	<p>Matiss Misels-Piesins, Business development 17 Krustpils Str. Riga, Latvia LV-1073 sidrabe@sidrabe.eu +371 67249806 www.sidrabe.com/</p>	79	4.75
20	StarSpace 	<p>StarSpace is a private observatory open to the public</p>	<p>SIA StarSpace Ogres nov., Suntažu pag., Kaltiņi, LV-5060, Latvia info@starspace.lv www.starspace.lv</p>	2	0.056
21	Vizulo SIA 	<p>Various LED solutions in lighting: developing client orientated products; delivering light planning calculations; assembling LED lighting products; organizing wholesales and end sales to large scale municipal and commercial clients; taking care of electrical installation – as general contractor (in special cases); monitoring electrical consumption and CO2 reduction for our major projects; taking care of warranty period; selling components after warranty period.</p> <p>Electronics manufacturing services: design and development; assembly – box build; SMT line; gasketing and coating; wire cutting; crimping; tampo printing.</p>	<p>Janis Zeltniš, CEO Ganību dambis 7a Rīga, LV-1045 office@vizulo.com +371 67383024 www.vizulo.com</p>	20	2.8


Latvia Photonics Laboratories, Organizations and Research Centers

No.	Name of institute	Name of laboratory	Description of laboratory	Short description with key information regarding the activity of the team in photonics field	Contact details
1	University of Latvia, Faculty of Physics and Mathematics 	Laser Centre	<p>The Laser Centre was established as an open facility, with an idea to provide access to interested external researchers willing to use its infrastructures. It has become de facto the leading and largest laser laboratory in Latvia, with its researchers actively working in the areas of atomic, molecular, and chemical physics, astrophysics, as well as various kinds of applications of laser techniques. The scope of this research is reflected in regular publications in international scientific journals (like Phys. Rev. Lett., Phys. Rev. A, J. Chem. Phys., J. Phys. B etc.).</p>	<p>Research in the Laser Centre is structured topically in its four laboratories:</p> <ul style="list-style-type: none"> – Atomic and Molecular Physics Laboratory (Prof. M. Auzinsh) – Molecule Optical Polarization Laboratory (Prof. R. Ferber) – Laser-manipulation laboratory (Dr. A. Ekers) – Laboratory of Astrospectroscopy (Dr. L. Zacs) 	<p>Prof. Ruvins Ferbers Laser Centre University of Latvia Zellu Str. 8 LV-1002 Riga Latvia E-mail: ferber@latnet.lv Webpage: www.lasercentre.lv</p>
2	Daugavpils University G.Liberts' Innovative Microscopy Centre 		<p>G.Liberts' Innovative Microscopy Centre, Daugavpils University was founded in 2004 by uniting scientific laboratories of the Department of Physics. The centre is doing scientific research in different areas (functional nanostructured materials, holography, biophysics, etc.); it also cooperates with biologists and doctors. Here students produce their term papers, dissertations and other kinds of scientific work.</p>		<p>Prof. Edmunds Tamanis Daugavpils university, Vienības iela 13, Daugavpils, LV5401 edmunds.tamanis@du.lv Phone: +371-25921174 http://du.lv/en/research/institute-s-and-centres/g-liberts-innovative-microscopy-centre/</p>
3	FOTONIKA National Photonics and Space Technology Centre 		<p>The National Photonics and Space Technology Centre of the University of Latvia is an emerging national research center whose formal designation is in process. The core of the Center is the FOTONIKA-LV association of University of Latvia research institutes comprised of the Institute of Atomic Physics and Spectroscopy, the Institute of Astronomy and the Institute of Geodesy and Geoinformatics. FOTONIKA-LV was founded April 2010 to build economies of scale to take on large-scale projects. In 2011 FOTONIKA-LV won its first larger project the FOTONIKA-LV FP7-REGPOT-2011-1 project 285912 with total budget €4,198,520.00. The project was successfully completed in 2015 and received an excellent review. The FOTONIKA-LV project included significant outreach to industry in Latvia, particularly to the emerging cluster of photonics and space technology firms in Latvia whose turnover in 2015 exceeded €105 million. Steps are underway to have the National Photonics and Space Technology Center formally recognized as a research organization with the structure of the University of Latvia comprised of the initial institutes of the FOTONIKA-LV association plus other research groups and strong links with other centers at other institutions in Latvia. At present, space technology and space related research is fragmented among several research organizations including the institutes that comprise FOTONIKA-LV (Institute of Astronomy of the University of Latvia, The Institute of Atomic Physics and Spectroscopy, and the Institute of Geodesy and Geoinformatics) as well as the Ventspils International Radio Astronomy Centre (VIRAC) and researchers in research centers associated with the Riga Technical University, Riga Stradins University, the Physics Institute, the Institute of Wood Chemistry and other research organizations. The formal establishment of the National Photonics and Space Technology Center will establish a lead space science and space technology research center in Latvia that coordinates work at a national level.</p>		<p>Arnolds Ūbelis, Scientific Secretary, FOTONIKA-LV National Photonics and Space Technology Centre University of Latvia Šķūņu iela 4 Rīga, LV-1050 Latvia www.fotonika-lv.eu info@fotonika-lv.eu</p>
4	Riga Photonics Centre 		<p>Riga Photonics Centre is an association of research organizations, educational institutions, government functions and individuals involved with photonics in Latvia and more broadly the Baltic Sea Region. Photonics can be defined as the study and practice of controlling photons to meet human needs. Photons are quanta of light. As such photonics is involved in all devices that use light across the full spectrum including optical devices, lasers, fiber optics, spectroscopy, telescopes, microscopes and numerous other technologies and devices. Photonics is involved in research as well as in manufacturing as well as in everyday devices such as mobile telephones. Photonics frames fields such as quantum sciences, space sciences and related technologies and is an important component of research conducted in Latvia, Lithuania and Estonia comprising approximately 45% of research output in peer reviewed journals from the three Baltic Sea states. The Centre organizes workshops, outreach programs, seminars and conferences to promote photonics in Latvia.</p>		<p>Rīgas Fotonikas Centrs / Riga Photonics Centre Šķūņu iela 4, Rīga LV-1050, Latvia www.rigaphotonicscentre.org info@rigaphotonicscentre.org</p>
5	Riga Technical university Faculty of Electronics and Telecommunications 	Laboratory of	<p>The main research directions of the IT are connected with the interaction between charge carriers and electromagnetic field, materials, elements, schemes, equipment's and devices, whose</p>	<p>Research priorities of the laboratory of high-speed fiber optic transmission systems: -The development of high reliability subsystems</p>	<p>Prof. Girts Ivanovs Azenes iela 12, Rīga, LV- 1048, Latvia</p>

	Institute of Telecommunications  RĪGAS TEHNISKĀ UNIVERSITĀTE	high-speed fiber optic transmission systems	operation is based on this interaction and which are intended for electromagnetic energy, electric and other signal conversion, information accumulation, processing and transmission in following directions: •Realization of the newest generation of fiber optical and microwaves transmission systems and the components; •Research and development of cyber physical system's technologies using the innovative high-speed optical transmission system and microwave technologies; •Mathematical modelling of telecommunication networks and systems, optimization of their resources and operation; the investigation of applications of artificial intelligence to network control and management.	and component's for optical signal processing, optical filtering, modulation format conversion for high-speed ($R > 10$ Gbit/s) wavelength division multiplexing (WDM) systems; -The development of methodology for nonlinear optical effects assessment and their application's in WDM communication systems; -Spectral and energy efficiency on WDM networks optical layer; -The implementation of new FTTH (Fiber to the Home) in the next generation PON's (Passive Optical Networks) and AON's (Active Optical Networks)..	girts.ivanovs@rtu.lv +371 67089204 http://www.ti.rtu.lv
6	Riga Technical University Faculty of Material Science and Applied Chemistry, Institute of Technical Physics  RĪGAS TEHNISKĀ UNIVERSITĀTE	Laboratory of Material Optics	The laboratory develops new organic materials for holographic information recording and nonlinear optics in collaboration with chemists of Faculty of Material Science and Applied Chemistry.	The laboratory has theoretical background and experimental capabilities to apply and develop holographic grating spectroscopy methods to study photoinduced processes in materials and to determine their characteristics.	Prof. Andris Ozols Paula Valdena iela 7, LV-1007, Riga, Latvia. Andris.Ozols@rtu.lv +37129449921 www.rtu.lv www.lza.lv
7	University of Latvia, Institute of Atomic Physics and Spectroscopy  	Biophotonics Laboratory	Biophotonics Laboratory develops new methods and technologies for optical diagnostics and monitoring, focusing on non-invasive and non-contact in-vivo skin assessment. The new technologies are implemented in self-made prototype devices which are tested in laboratory and clinical environment. Several devices have found routine clinical applications.	Three main research directions currently are: <ul style="list-style-type: none"> - fluorescence technologies for oncology - multi-spectral imaging for dermatology - PPGI - video-imaging for anesthesiology 	Prof. Janis Spigulis Skunu 4 LV-1050, Riga, Latvia janis.spigulis@lu.lv +371 67228249 http://www.asi.lv/New/fog-page.htm
8	University of Latvia, Institute of Atomic Physics and Spectroscopy  		1. Interaction of atoms with strong laser fields (theory). 2. High-resolution spectroscopy of plasma and light sources. Spectroscopic control of pollution with heavy metals. 3. Bio-photonics: application in medical diagnostics and monitoring. 4. UV and VUV spectroscopy in atomic physics and photochemistry of atmosphere		Inga Širante, Deputy Director 4 Šķūņu iela, Rīga, LV-1050 www.asi.lv asi@lu.lv +371-67225493
9	University of Latvia, Institute of Atomic Physics and Spectroscopy  	High-resolution spectroscopy and light source technology laboratory	Research fields: Low-temperature plasma investigations, high-resolution spectroscopy, light source technology, plasma/surface interaction, inductively coupled discharge, capacitatively coupled discharge, plasma nanotechnology	Applications: heavy metal and benzene pollution control, surface plasma processing, radio-frequency electrodeless spectral lamp production, etc.	Dr. Atis Skudra Skunu 4 LV-1050, Riga, Latvia askudra@latnet.lv +371 67225907 http://www.atomic-physics.lv/group.htm
10	University of Latvia, Institute of Atomic Physics and Spectroscopy	Laboratory of atomic and atmospheric physics and photochemistry	Experimental studies in atomic and ion physics, photochemistry, sources of UV - VUV atomic spectra, atmospheric pollution and photochemistry, technologies for sustainable development: high temperature flash photolysis of sulphur, selenium, tellurium vapour, vapours of tin and lead salts, <ul style="list-style-type: none"> • recombination and photorecombination of sulphur, 	Measurements of atomic spectra and constants, pollution and photochemical processes in atmosphere, methods of spectroscopy and flash photolysis	Dr. Arnolds Ubelis Skunu 4 LV-1050, Riga, Latvia arnolds@latnet.lv +371 29498659 http://www.asi.lv/New/atmphys

		<p>selenium and tellurium atoms in the ground and metastable states</p> <ul style="list-style-type: none"> • secondary photolysis and photochemical processes in the vapours of tin and lead salts • lifetime and branching ratio studies of energy states of sulphur, selenium, tellurium, arsenic and phosphorus atoms by UV, VUV and laser spectroscopy; • studies of various negative ions • processes of photochemistry in polluted atmosphere • interdisciplinary studies of environmental problems 	htm
11	<p>University of Latvia, Institute of Atomic Physics and Spectroscopy</p>  <p>Quantum Optics Laboratory</p>	<p>Research focused on optical frequency metrology with a femtosecond optical frequency comb, improvement of optical and radio frequency standards, development of ultra-stable optical resonators for laser stabilization</p>	<p>Applications in satellite laser ranging, metrology, environmental control, clinical diagnostics, etc.</p> <p>Dr. Janis Alnis Skunu 4 LV-1050, Riga, Latvia janis.alnis@lu.lv +371 67228249 http://www.asi.lv/New/Quantum%20Optics%20Lab%20Riga.pdf</p>
12	<p>University of Latvia, Institute of Astronomy</p> 	<p>The Institute of Astronomy performs research on stars and interstellar medium, microwave sources at Sun and asteroids in the Solar System. It updates and maintains General Catalogue of Galactic Carbon Stars. The Institute runs a satellite laser ranging system (SLR, which has been in substantial part designed on the site) and a permanent GPS station. SLR and GPS stations, working with high accuracy, are involved in international service, define the origin of the Latvian national geodetic coordinate system and tie it to international reference frames. The Institute provides design of small optical systems, and software support and construction of laser ranging equipment for its own use, and also for international collaborators.</p> <p>The Institute shows a good level of scientific research, especially in the field of navigation which is an area important both for Latvia and the international community. It should increase its internal visibility by stronger use of its potential (good infrastructure and skilled scientists) for extending research portfolio to more up-to-date research topics. Current international exchange and activity in attracting national funds are not satisfactory. The REGPOT 'FOTONIKA-LV' project and Latvia's accession to the European Space Agency create perspectives for further development of the Institute.</p>	<p>Prof. Ilgmārs Eglītis, director Rīga, Raiņa bulv. 19 +371-67034580 astra@latnet.lv http://www.lu.lv/par/strukt/instituti/lu-astronomijas-instituts/</p>
13	<p>University of Latvia, Institute of Geodesy and Geoinformatics</p> 	<p>The Institute of Geodesy and Geoinformatics of the University of Latvia (LU GGI) represents continuation of the Institute of Geodesy (1924-1944). It was established in 1994 on basis of part of former Astronomical Observatory of the University of Latvia and has inherited from it several directions of research. Presently GGI is performing research in 3 main directions:</p> <p>astrometric instrument design for satellite laser ranging (SLR), optical tracking of Near-Earth objects (NEO) and vertical deflection measurements. GGI has accomplished 2 ERAF projects in this area and currently is involved in a ESF project, the goal of which is design of a new universal optical tracking instrument for simultaneous SLR and positional observations of NEO.</p> <ul style="list-style-type: none"> – 1. Construction and application of satellite laser ranging systems for geodynamic research. – 2. Global Navigation Satellite Systems; Design of digital zenith telescope for studies of gravity field structure. Geodetic reference networks. Geodynamics for studies of environmental changes. <p>3. Geoinformatics. GIS data bases. Spatial analyse of urban environment. Digital 3D models (terrain, building and land cover)</p>	<p>19 Raina blv., Riga, LV-1586, Latvia ggi@lu.lv http://www.lu.lv/eng/general/administrative/institutes/scientific/geodesy/ +371 67034436</p>
14	<p>University of Latvia, Institute of Solid State Physics</p>  <p>INSTITUTE OF SOLID STATE PHYSICS UNIVERSITY OF LATVIA</p> <p>Laboratory of Amorphous Materials Spectroscopy</p>	<p>Fundamental and applied research of wide-bandgap amorphous and crystalline materials, mainly based on pure or doped SiO₂, suitable for optical elements and optical fiber waveguides for high-power lasers, for harsh radiation environments and for sensing/analytic applications in near infrared to deep UV spectral regions. The main goal is to identify and understand the factors,</p>	<p>Vacuum UV, UV, visible, infrared, Raman and magnetic resonance spectroscopy of wide-bandgap materials. High-power excimer laser-induced phenomena in UV-transparent glasses and optical waveguides. Luminescence of SiO₂/GeO₂-based and other</p> <p>Dr. Linards Skuja, Kengaraga 8, LV-1063, Riga, Latvia skuja@latnet.lv +371 6726 0756 http://www.cfi.lu.lv/eng</p>

			which are detrimental to these applications and to find ways to remove them. The fundamental knowledge developed in the laboratory has significantly contributed to the understanding of the main optically active radiation defects in SiO ₂ materials.	wide-bandgap materials. Ionizing- and particle-irradiation effects on transmission of optical fiber waveguides and related optical materials. Characterization of fiber-optical waveguides in VIS - UV- deep-UV spectral regions.	
15	University of Latvia, Institute of Solid State Physics  INSTITUTE OF SOLID STATE PHY UNIVERSITY OF LATVIA	Laboratory of Nanomaterials and Optoelectronics	Research activity of the lab is focused mainly on synthesis of novel 0D and 1D nanomaterials (nanocrystals, nanorods, nanowires) with emphasis on hybrid nanostructures. These materials can be used for photoelectric and photonic applications (solar cells, photodetectors).	Synthesis of metal nanowires (Au, Ag, Pd, Cu), oxide (ZnO, CuO, SnO ₂ , etc) and sulfide (PbS, CdS, ZnS, etc) nanowires and nanocrystals, hybrid and core-shell (Ag-SiO ₂ , ZnO-WS ₂ , etc) nanowires. Metal nanowires for surface plasmon enhanced luminescence. Semiconducting nanowires for photodetectors. Nanocrystal based solar cells.	Dr. Boris Polyakov, Kengaraga 8, LV-1063, Riga, Latvia boris.polyakov@cfi.lu.lv +371 26718631 http://www.cfi.lu.lv/eng
16	University of Latvia, Institute of Solid State Physics  INSTITUTE OF SOLID STATE PHY UNIVERSITY OF LATVIA	Laboratory of Optical Spectroscopy	The research activities of the laboratory are related to synthesis and spectroscopic investigation of rare-earth doped inorganic materials: nanocrystals, fluorides, oxyfluoride glasses and glass ceramics. Applications of the materials in the fields of sensors and photonics are assessed.	Synthesis of rare-earth doped fluoride nanocrystals Synthesis of rare-earth doped oxyfluoride glasses, glass ceramics Investigation of up- and downconversion luminescence in various materials	Dr. Anatolijs Sarakovskis, Kengaraga 8, LV-1063, Riga, Latvia anatolijs.sarakovskis@cfi.lu.lv +371 264 09394 http://www.cfi.lu.lv/eng
17	University of Latvia, Institute of Solid State Physics  INSTITUTE OF SOLID STATE PHY UNIVERSITY OF LATVIA	Laboratory of Organic Materials	Fundamental and applied research of organic molecules, materials and their structures are conducted by the Laboratory. The main goal is to develop organic materials for next generation electronics and photonics. Assessment and demonstration of the possible applications of novel developed materials is an important task of the laboratory. Trained human resources, generated knowledge and technology within the Laboratory are the key elements for development of organic electronics and photonics in Latvia.	Quantum chemical investigation of structure and properties of chromophores; Design of thin films; Energy structure of thin films; Electrical and photoelectrical properties; Nonlinear optical phenomena; Stimulated emission; Electroluminescence in thin films; Optically induced switching; Thermoelectric properties of thin films.	Dr. Martins Rutkis, Kengaraga 8, LV-1063, Riga, Latvia martins.rutkis@cfi.lu.lv +371 292 34521 http://www.cfi.lu.lv/eng
18	University of Latvia, Institute of Solid State Physics  INSTITUTE OF SOLID STATE PHY UNIVERSITY OF LATVIA	Laboratory of Solid State Radiation Physics	The research is focused on electronic as well as ionic processes in inorganic materials, including macroscopic single crystals, nanocrystals and coatings. The study of oxides, simple and complex, are of main interest contemporarily. Therefore the basic and applied studies are conducted in laboratory	The methods used are UV, visible and infrared spectroscopy, time-resolved spectroscopy, including transient absorption study, thermo stimulated processes (including fractional glow techniques). The synthesis of coatings by plasma electrolytic oxidation (PEO) is possible. The coatings with nanometer pores will be produced and the pores of these coatings subsequently can be filled with luminescent compound. The radiation interaction with materials under study changes the electronic processes and therefore the optical properties change also. These changes were detected for a number of materials including up-conversion materials.	Dr. Larisa Grigorjeva Kengaraga 8, LV-1063, Riga, Latvia lgrig@latnet.lv +371 26545803 http://www.cfi.lu.lv/eng
19	University of Latvia, Institute of Solid State Physics  INSTITUTE OF SOLID STATE PHY UNIVERSITY OF LATVIA	Laboratory of Wide Band Gap Materials	Fundamental spectroscopic investigation and applied research of wide-bandgap nanosize and bulk materials - metal nitrides and oxides such as AlN, Al ₂ O ₃ , hBN and others in order to broaden knowledge about the light induced processes characteristic for these materials as well as to evaluate application of these materials for creation of new light emitters working within the UV and visible spectral region, including white light emitters, for optical oxygen gas sensors and dosimetry of UV light and ionizing radiation.	Spectral characterization of wide-bandgap materials based on measurements of photoluminescence spectra within a wide spectral region from 230 nm up to 1500 nm; luminescence excitation spectra (190 nm-400 nm) and absorption spectra (190 nm – 1100 nm). All spectra can be measured at any fixed temperature in the 10-300 K interval. Investigation of luminescence polarization.	Dr. Baiba Berzina Kengaraga 8, LV-1063, Riga, Latvia baiber@latnet.lv +371 2615 7869 http://www.cfi.lu.lv/eng

	<p>Investigation of optically stimulated luminescence. Material characterization using methods of microscopy: SEM, TE M. Luminescence characterization of material in different environments such as vacuum and different gasses (oxygen, nitrogen, syntethic air etc.).</p>
<p>20</p> <p>Ventspils International Radio Astronomy Centre</p> 	<p>The Engineering Research Institute “Ventspils International Radio Astronomy Centre” (VIRAC) is a scientific institution in Ventspils University College. It operates a radiotelescope complex, along with other infrastructure items. VIRAC conducts fundamental and applied research in the fields of astronomy and signal processing. VIRAC was recognized as one of 15 Latvian scientific institutions of international level in the international Research Assessment of science Latvia (2013).</p> <p>RT-32 and RT-16 are Cassegrain system radiotelescopes with 32 and 16 meter main mirrors, respectively. These were obtained from the Soviet Army, and were restored to operating condition since 1994. In 2012, RT-32 was finally confirmed to match the standards necessary for scientific observations in the European Very Long Baseline Interferometry (e-VLBI EVN) network. The network itself is transforming to ERIC excellence status with high performance multi-antenna data processing centre.</p> <p>RT-32 is equipped with receivers in 327 MHz and 1.6; 5 and 12 GHz frequency bands as digital data registration systems suitable for single dish and VLBI observations of near-Earth, Solar system, and far space objects. There is a dedicated receiver for Solar observations in the 3.2 – 4.8 cm wave range with 16-channel spectropolarimeter. Both telescopes will undergo a major overhaul in 2014-2015. The process of installing new broad band cryogenic receiver in 4.5 – 8.8 GHz band is to be finished during September, 2014 and full renovation and modernization of both telescopes tracking and pointing systems is to be finished on August 2015. After this, the RT-32 together with Torun (Poland) and Svetloe (Russia) will be one of three advanced radio telescopes of such a diameter in Baltic region. VIRAC also operates an IBM cluster for high-performance computations, and a prototyping laboratory.</p> <p>VIRAC has a close collaboration with European VLBI Network and together with members of this network takes part in ES funded projects, such as RADIONET4</p> <p>VIRAC has four departments with more than 40 scientific personnel, supported by technical staff for maintenance of radio telescopes.</p> <p>Dr. Valdis Avotiņš, director Inženieru Street 101, Ventspils, LV-3601 Latvia infovirac@venta.lv +371 63629656 http://virac.eu</p>