



# Santaka

# Valley

KTU Science and Technology Centre and Technological Business Incubator

# ABOUT

## KTU SANTAKA VALLEY

Opened in November 2014, Kaunas University of Technology (KTU) Santaka Valley was instantly labelled the Silicon Valley of the Baltics. It acts as a catalyst for collaboration between science and business.

KTU Santaka Valley is where frontier research and research and development (R&D) activities in the areas of crucial importance for developing knowledge economy in Lithuania are carried out. Sustainable chemistry and bio-pharmacy, future energy, mechatronics and information and communication technology are among the fields of science and technology which are being developed by the globally recognised researchers' groups working at the Valley.

In one year since the opening of KTU Santaka Valley, the University's revenue from R&D for national and international companies has increased by 22 per cent, and the national funding for the research projects exceeds that of 2012 three fold.

The National Innovation and Entrepreneurship Centre (NIEC) at KTU Santaka Valley acts as a one-stop shop, bridging cooperation between research and business. Soon after the opening of the Valley, NIEC launched an online platform where companies can learn about research and innovation activities undertaken at the Valley, as well as opt for knowledge intensive solutions for their business.

In addition to being a hub for research and business cooperation, and a point of attraction for international visitors of Kaunas universities, KTU Santaka Valley is also visited by schools from all over the country and by the citizens of the city. In a year after the opening, the Valley hosted more than 100 groups of representatives of science and governmental institutions, and business companies from around the globe; more than two thousand pupils visited KTU Santaka Valley's state-of-the-art research facilities.

Over 30 events – international research and business conferences, exhibitions, and open lectures for the public took place at KTU Santaka Valley in a year after its opening. It was visited by academic celebrities from the world's top universities in the world, European Commissioners and a Nobel Peace Prize laureate. The KTU Santaka Valley both in its award-winning architecture and activities represents synergy among research, studies and innovation. It is open for researchers and companies from all over the world.

### KTU Santaka Valley: Facts and Figures

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- ~150 research staff
  - 135 business company staff
  - 9,000 square meters of research facilities
  - 3,500 square meters for business
  - Almost 26 million EUR worth of research equipment installed
  - Over 30 events
-

# SANTAKA VALLEY TECHNOLOGICAL BUSINESS INCUBATOR

The Technological Business Incubator is the part dedicated to business at the KTU Santaka Valley. It is a part of Kaunas Science and Technology Park, which is one of the largest in the Baltics.

The strengthening of innovation support systems is an important step in developing the innovation economy in Lithuania. Young technological and knowledge-intensive enterprises, founded next to the University, are the seeds which will bear fruit by creating demand for new knowledge and innovation in the future.

It is predicted that within the three years following its opening, KTU Santaka Valley will house 40 young enterprises which will develop their businesses in the Technological Business Incubator and Youth Entrepreneurship Centre, and Open Access Business Laboratories, coordinated by Kaunas Science and Technology Park.

350 square meters of the premises are taken up by the Technology Exhibition Centre, where the visitors of the KTU Santaka Valley can get acquainted with the University's research which laid the foundations for innovative products and businesses.

## Premises

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- 490 square meters for open-access business laboratories
- 650 square meters for start-up activities
- 700 square meters of conference and events space
- 350 square meters' exhibition zone

**COMPANIES AND  
*START-UPS***



**AT THE VALLEY**

- **[JSC Singletonas](#)** is a software development company specialised in data analysis and visualisation. The company provides data management and visual analytics solutions for e-Commerce, home automation.

- **[JSC SEMS Technologies](#)** together with KTU researchers, commercialises people flow monitoring systems which can help analyse the public flow in transport, museums, galleries, shopping centres and other places. The system creates expense reductions, maximisation of effectivity and resource optimisation.

- **[JSC Sonaro](#)** has more than 10 years' experience in developing web and cloud-based technology solutions. The team consists of design, consumer behaviour, programming and project management professionals. We have accomplished more than 150 different projects for more than 60 companies and institutions.

- **[JSC Energetikos Projektai](#)** is a private equity company founded in 2006. It employs highly skilled professionals, whose qualifications are proved by various authorized documentation – including the Ministry of Environment certificate. The company's main line of business is electrical network construction and renovation projects.

- **[JSC Softneta](#)** is an innovative, rapidly growing IT company which creates and implements medical technological solutions. The company commercialises the research undertaken at KTU Prof. Kazimieras Baršauskas Ultrasound Research Institute.

- **[JSC Rubedo Sistemas](#)** is known for its R&D in the area of adaptive robotics. The company supplies mission-critical control solutions to the most demanding industries, including healthcare, in Europe, Asia, and the United States. The company has ISO 9001:2008 certification for software engineering.

- **[Virtustream LT](#)**, established with support from the Invest Lithuania agency, is a branch of a US company. It is expected to create 50 new work places for information technology professionals within two years.

- **[JSC Practica Capital](#)** is a venture capital company, which manages EUR 6 million Practica Seed Capital fund and EUR 15.7 million Practica Venture Capital fund, both established under the JEREMIE initiative, managed by EIF and financed by the EU Structural Funds under 2007–2013 Economic Growth Operational Programme of Lithuania.

- **[JSC Vittamed](#)** specialises in developing unique non-invasive intracranial pressure meters, which measure the pressure of the brain through a special sensor attached to the eye. The start-up raised 10 million US dollars in 2015 (the largest in the Baltics A series investment), and is the perfect example of a radical innovation turned into a successful business.

- **[JSC Fejana](#)** offers and implements smart home management design solutions. The products and qualifications provided by Fejana range from the development of intellectual system hardware (specialised items such as microcontroller design and prototyping) to software (web services and cloud computing software development).

- **[JSC Holtida](#)** developing optical document security elements (holograms) has the unique opportunity to use resources and equipment at the KTU's Institute of Materials Science to fulfil the hologram development cycle from the concept to its printing. Research, competencies, experience and cooperation with business partners allow quick and flexible responses to changing market needs, and to ensure the highest quality and reliability of the product. Among the clients of Holtida are government sectors, public institutions and business companies.

- **[JSC Biome](#)** is a biomedical start-up company offering a synthetic bone equivalent used for bone restoration operations in odontology. The bone equivalent Cell'in, created by Lithuanian researchers, is made from cellulose/hydroxyapatite composite. The analogical products in global market are usually based on synthetic polymers. Established in 2014, Biome made it to TiE50 TOP Start-up 2015, and was recognised as one of the 50 most enterprising technology start-ups in the world.

# RESEARCH AT KTU SANTAKA VALLEY

KTU Santaka Valley accommodates some of the most modern research spaces in the Baltics, which provides the opportunity to carry out global research in the areas of sustainable chemistry, future energy, mechatronics and information and communication technologies (ICT), which are of the utmost importance for developing Lithuanian economic competitiveness. Frontier and applied research at KTU Santaka Valley is undertaken by research groups collaborating extensively with world-class colleagues from across the globe. The University's researchers carry out projects with the largest local companies, international corporations, and state and cultural institutions.

More than 1 thousand types of specialised R&D research can be carried out for private and public institutions and organisations at KTU Santaka Valley. NIEC, coordinating R&D activities at the Valley, invites the use of the one-stop shop service system [APCIS](#), which is an efficient tool for communication between business and research. The state-of-the-art laboratory equipment utilisation rate reaches up to 90 per cent.

The consolidation of research potential in the Valley had a positive influence on the development of research at KTU overall: the number of publications in the Thomson Reuters Web of Science database journals increased by 10 per cent since 2014 (1.5 times since 2012).

In 2015 the KTU researchers applied for patents in Lithuania and abroad. The number of KTU patents has doubled since the last year and tripled since 2012.

The number of PhD students working at the KTU Santaka Valley is steadily increasing, more than 10 per cent of them are international students. Several PhD places have been funded by the companies accommodated at the Valley.

## RESEARCH: FACTS AND FIGURES

- Since 2012, it has been applied for obtaining over 20 international patents
- Since 2012, it has been applied for obtaining over 40 Lithuanian patents
- Up to 90 % equipment utilisation rate
- 1st in Lithuania ISO 5 standard Clean Room
- +30 % of PhD students since 2012
- More than 10% international PhD students
- More than 1,000 types of specialised R&D research
- +10 % in research publications in a year

## KTU SANTAKA VALLEY ACCOMMODATES

- Prof. Kazimieras Baršauskas Ultrasound Research Institute
- Institute of Materials Science
- Biomedical Engineering Institute
- Health Telematics Science Institute
- Centre of Real Time Computer Systems
- Centre of Information Systems Design Technologies
- Institute of Synthetic Chemistry
- Department of Polymer Chemistry and Technology of Faculty of Chemical Technology



X-RAYS ON

BRUKER

ATC



# PROF. KAZIMIERAS BARŠAUSKAS ULTRASOUND RESEARCH INSTITUTE

## MAIN RESEARCH AREAS

- Ultrasonic measurements and imaging in high temperature environments
- Ultrasonic long range testing techniques using ultrasonic guided waves
- Air-coupled NDT ultrasonic technologies
- Techniques of signal processing and modelling in ultrasonic measurements and imaging
- Systems and technologies for diagnostics in medicine
- Diagnostics and condition monitoring systems and technologies for land, water, air and space transport
- Ultrasonic structure health monitoring techniques of renewable energy components
- X-ray computed tomography for material characterization

## Projects

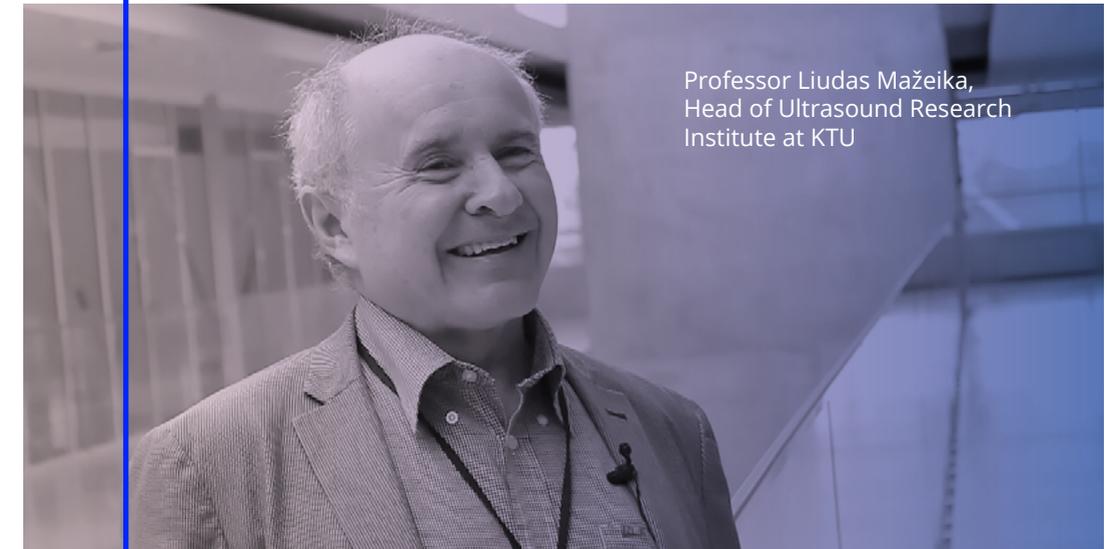
The Ultrasound Institute (UI) represents the majority of ultrasonic research groups at KTU and has experience in different areas of various applications of ultrasonic techniques for aerospace industry, nuclear and renewable energy, monitoring of manufacturing processes, density and viscosity measurements, ultrasonic distance measurements, ultrasonic flow measurements of gases and liquids, development of non-destructive testing (NDT) and imaging techniques for composite materials, medical and biological applications.

The main area of research covers the development of new advanced ultrasonic measurement, imaging and non-destructive techniques for extreme conditions (high temperatures, strong radiation, high pressure and chemical activity) and non-conventional applications of NDT, monitoring and quality control. These techniques are oriented to solve complicated questions related to construction safety and human health.

The UI successfully participated in 24 FRAMEWORK programme (FP5, FP6 and FP7) projects. Professor Manfred Horvat, independent expert in European Union stated that among CESAER members Kaunas University of Technology is a leader in the European Union according to the number of FRAMEWORK 7 projects for the benefit of SME. From 18 KTU projects, 16 were carried out by UI. This achievement is highly recognised and acknowledged by the European Commission and also identified as a certain benchmark of quality.

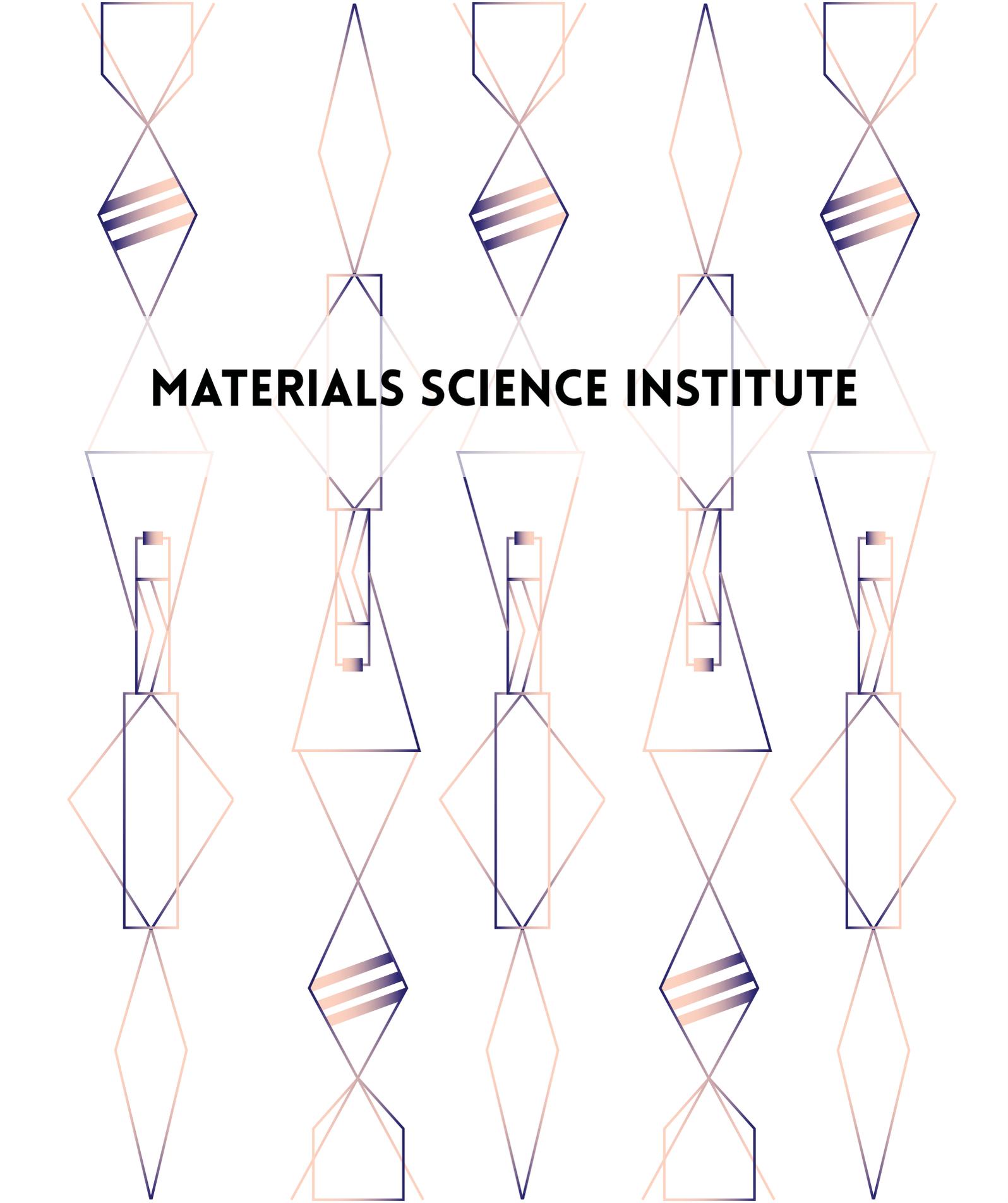
Stephen J. Ciesinski, Stanford Research Institute, USA, during the international conference for Local Hubs in Global Networks presented KTU's UI as an example of successful international activity.

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- **Founded in 1960**
  - **International and national projects: 80 % and 20 %**
  - **PhD students: 54% research staff**
  - **External and internal R&D: 50 % and 50 %**
  - **Around 80 doctoral dissertations**
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Professor Liudas Mažeika,  
Head of Ultrasound Research  
Institute at KTU

***“Extreme radiation where no form of life would survive for longer than several seconds, high pressure, chemically aggressive environments, and intense vibrations are the conditions under which our technologies effectively function. We are the leaders in Europe among technical research institutions by providing research and development for the benefit of small and medium enterprises (up to 500 employees). There is fierce competition for these projects among top European universities and research institutions, thus our achievement is outstanding.”***



# MATERIALS SCIENCE INSTITUTE

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## MAIN RESEARCH AREAS

- Micro and nanotechnologies (thin films and surface engineering; application of laser, ion and plasma methods for formation of nanostructures and nanomaterials; diffractive optics; biosensors)
- Optical document security (micro optical elements, interference filters; development of new materials and structures.)

## Projects

The research carried out at the KTU's Institute of Materials Science covers a number of subject areas that need micro and nanotechnology solutions and techniques. The research is performed in the field of diffractive optics, optical biosensors, functional materials, thin films and coatings.

Among the partners of the Institute are the leading manufacturers of THz emitters and detectors, and of precise optical metrology equipment, protective coatings for extending the service life of industrial equipment, producers of precision mechanics components, developers of ultrashort pulse lasers and other local and international innovative technological companies.

The Institute accommodates the first ISO 5 class cleanroom in Lithuania including e-beam lithography, advanced physical vapor deposition, reactive ion etching and other advanced technological and analytical equipment.

University and business representatives may use these as well as many other technological and analytical services offered at the Institute research facilities.

The Institute is a member of the Baltic Sea Region cleanroom and high technologies network Technet\_nano.

A spin-off enterprise, Holtida, was created in 2014 for production of optical document security elements created at the Institute. The resources and equipment at the Institute of Materials Science allow the fulfilment of the full development cycle of optical document security elements – holograms.

In recent years, the Institute has taken part in national, European (FP6-7, Eureka, COST, Nexus), regional (INTEREGIV, NordForsk) and international projects (NATO CLG). KTU's Institute of Materials Science is an active participant of research programmes and projects initiated by the Research Council of Lithuania, Lithuanian Ministry of Science and Education, where it often acts as a coordinating institution. Research projects, together with the industry partners, are performed on a constant basis using the analytical and technological facilities of the Institute. Multiple research projects funded by the National agencies and performed under coordination of the Institute have been completed recently.

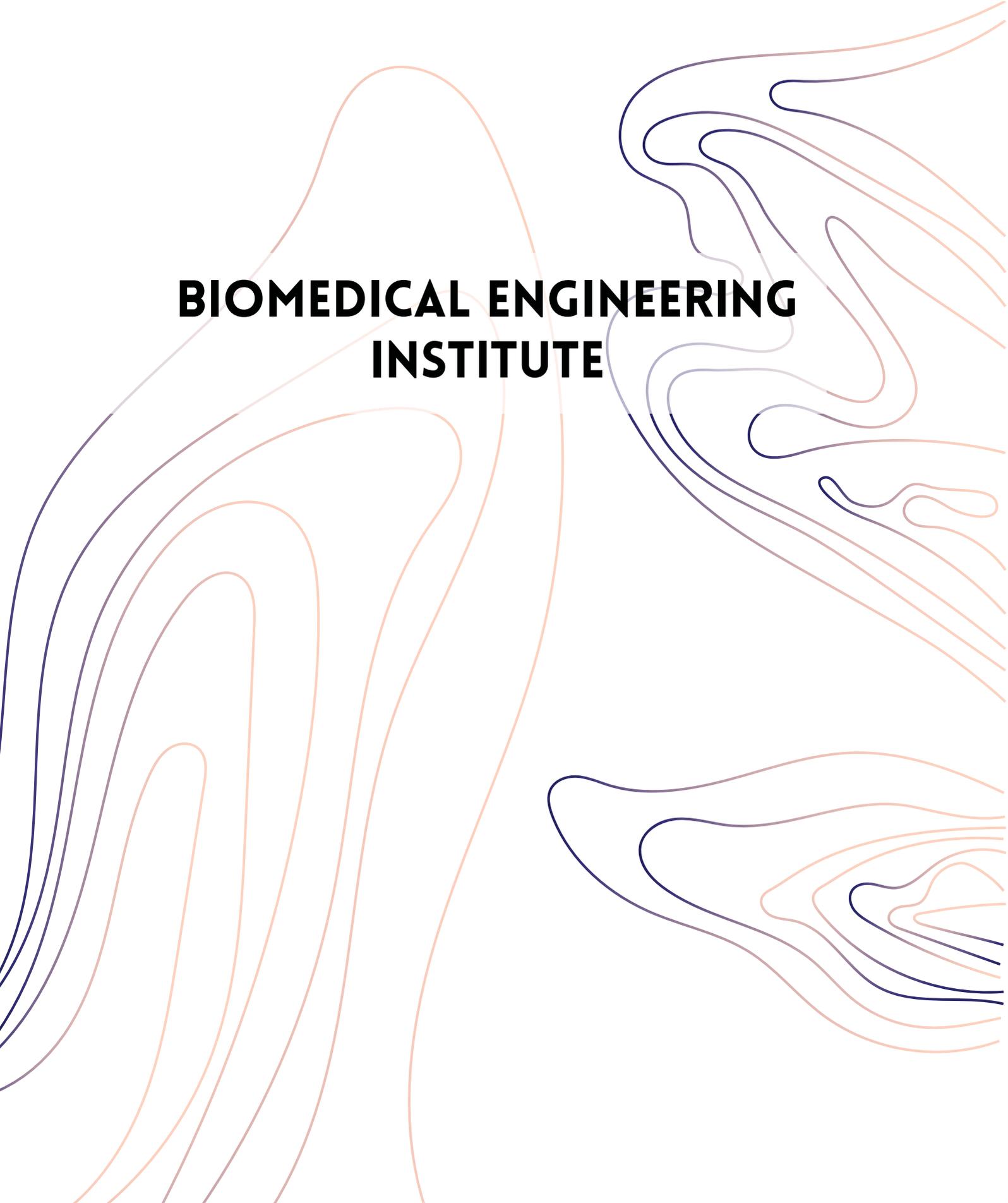
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- **Founded in 1994 (former Institute of Physical Electronics).**
  - **National and international projects: 50% and 50 %**
  - **PhD students: 25% research staff**
  - **External and internal R&D: 80% and 20%**
- 

***“We invite highly motivated upper-year university students to join our research projects. Working alongside experienced researchers is the most efficient study format: during their study years our undergraduates often publish at least one publication in internationally acknowledged science journals. The young doctors, graduated from our Institute, can find jobs anywhere – from New York University to Silicon Valley.”***



Professor Sigitas Tamulevičius,  
Head of Materials Science Institute at KTU





# BIOMEDICAL ENGINEERING INSTITUTE

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## MAIN RESEARCH AREAS

- Wireless wearable unobtrusive sensor networks for physiological monitoring
- Methods and algorithms for processing of multimodal bio-signals' processing streams
- Methods and software for parameterisation and segmentation of medical images including 3D images
- Data mining and decision support technologies for E-Health and telemedicine networks  
Knowledge generation and transfer into E-Health tele-medical technologies network
- Ultrasound quantitative imaging, elastography and sonoporation methods and technologies for diagnosis and therapy

## Projects

The projects carried out at KTU's Biomedical Engineering Institute specialise in applying rapidly progressing electronics, sensoric, computer science and knowledge engineering technologies for the diagnosis and treatment of medical problems. The research outputs are applied for different fields in medical practice, such as ophthalmology, cardiology, neurology, gastroenterology and for solving general medical and population problems, such as primary and preventive healthcare, sports and rehabilitation technologies, technologies associated with assisting aging population, and with creating and implementing E-Health systems.

Institute is continuously taking part in European projects (FP5, FP6 and FP7, COST, Eurostars), also in regional projects (INTERREG III and IV), Swedish Institute supported projects as well as in national competition based R&D projects.

Results of research are implemented in prototypes validated in real environments. Projects with industry, medical institutions and SME pave the way towards wide practical applications of complex solutions.

The staff of the Institute apply their skills in the study process by coordinating undergraduate and postgraduate biomedical electronics and biomedical engineering study programmes. For 19 years, the Institute has been organising annual international biomedical engineering conferences.

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- **Founded in 1999**
  - **50 % national projects**
  - **50 % international projects**
  - **PhD students: 26% research staff**
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Professor Vaidotas Marozas,  
Head of Biomedical Engineering  
Institute at KTU



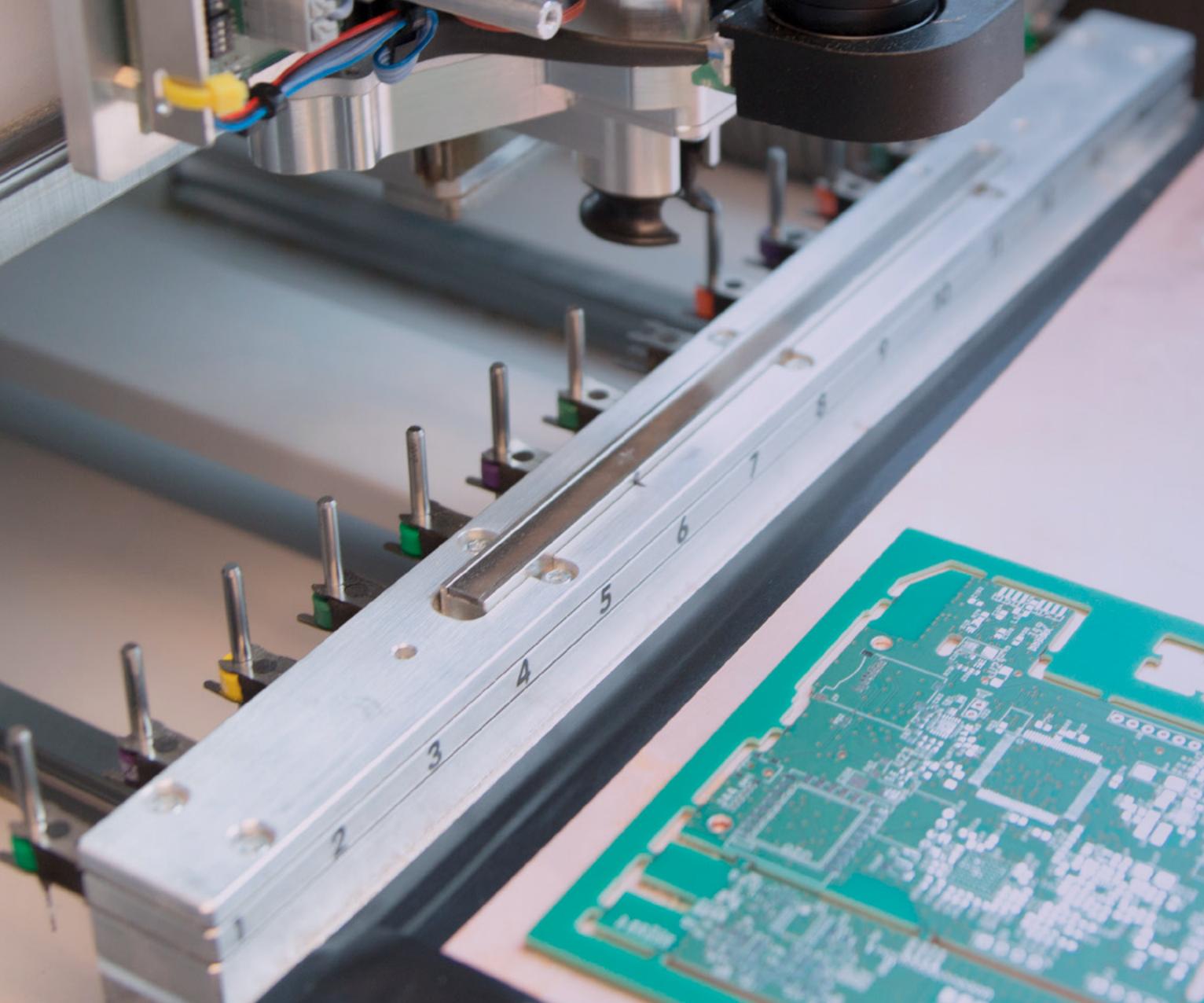
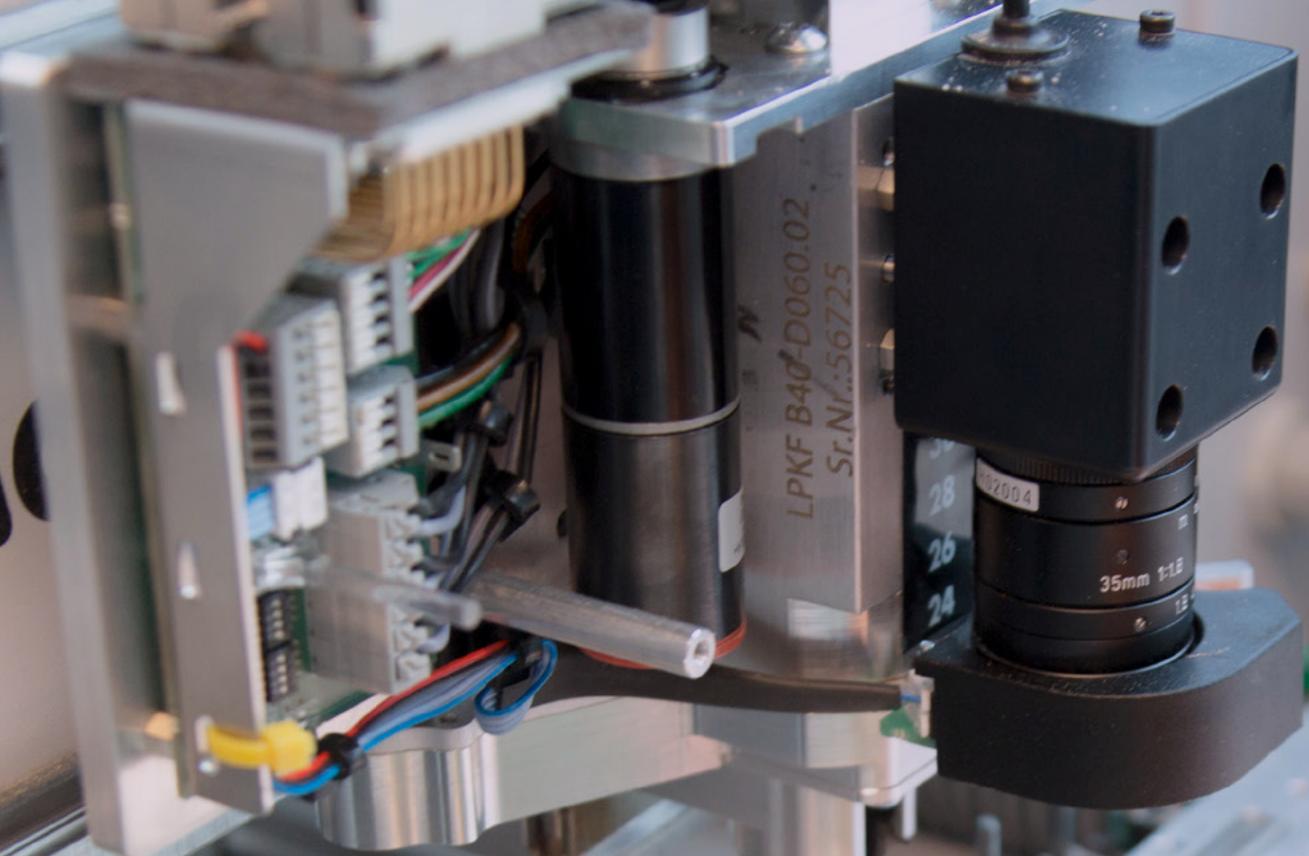
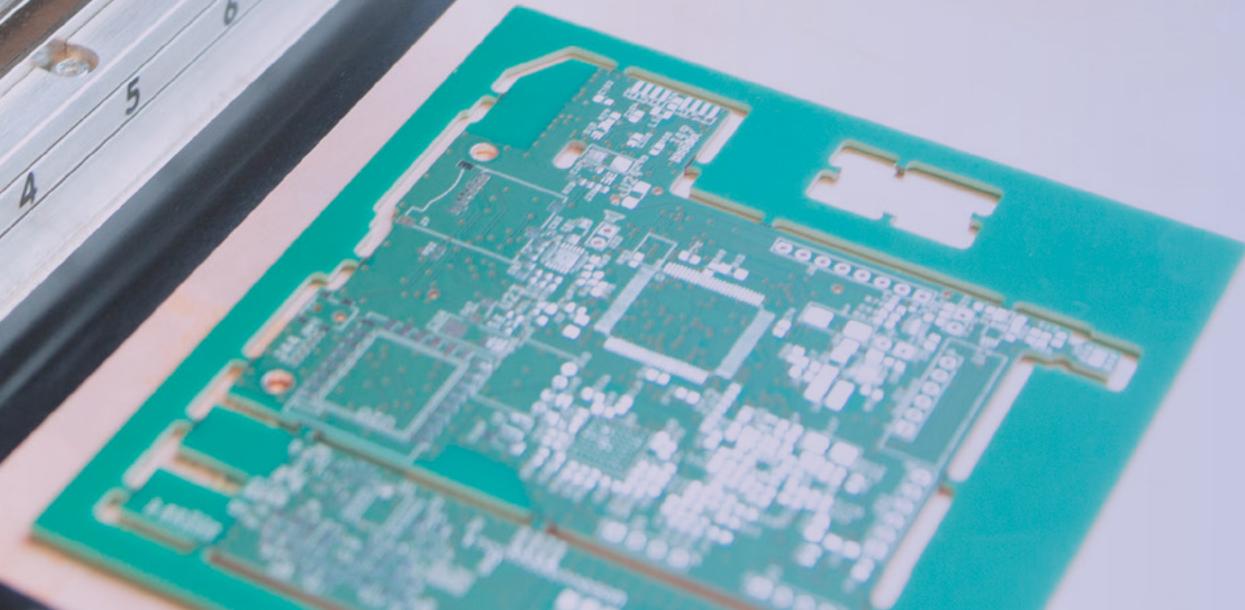
***Old age induces risk of certain diseases, such as dementia or Parkinson's disease. Although they are incurable, the progress of these and many other conditions can be controlled if diagnosed early. This permanent tension and passionate devotion of our young researchers and doctoral students motivates us to work, applying rapidly progressing technologies to solve health issues. We appreciate the support of the University, bringing us closer to businesses and fostering favourable ecosystem suitable for biomedical engineering innovations. Communicating with commercial structures and colleagues from medicine provides us with a different point of view boosting new ideas.***

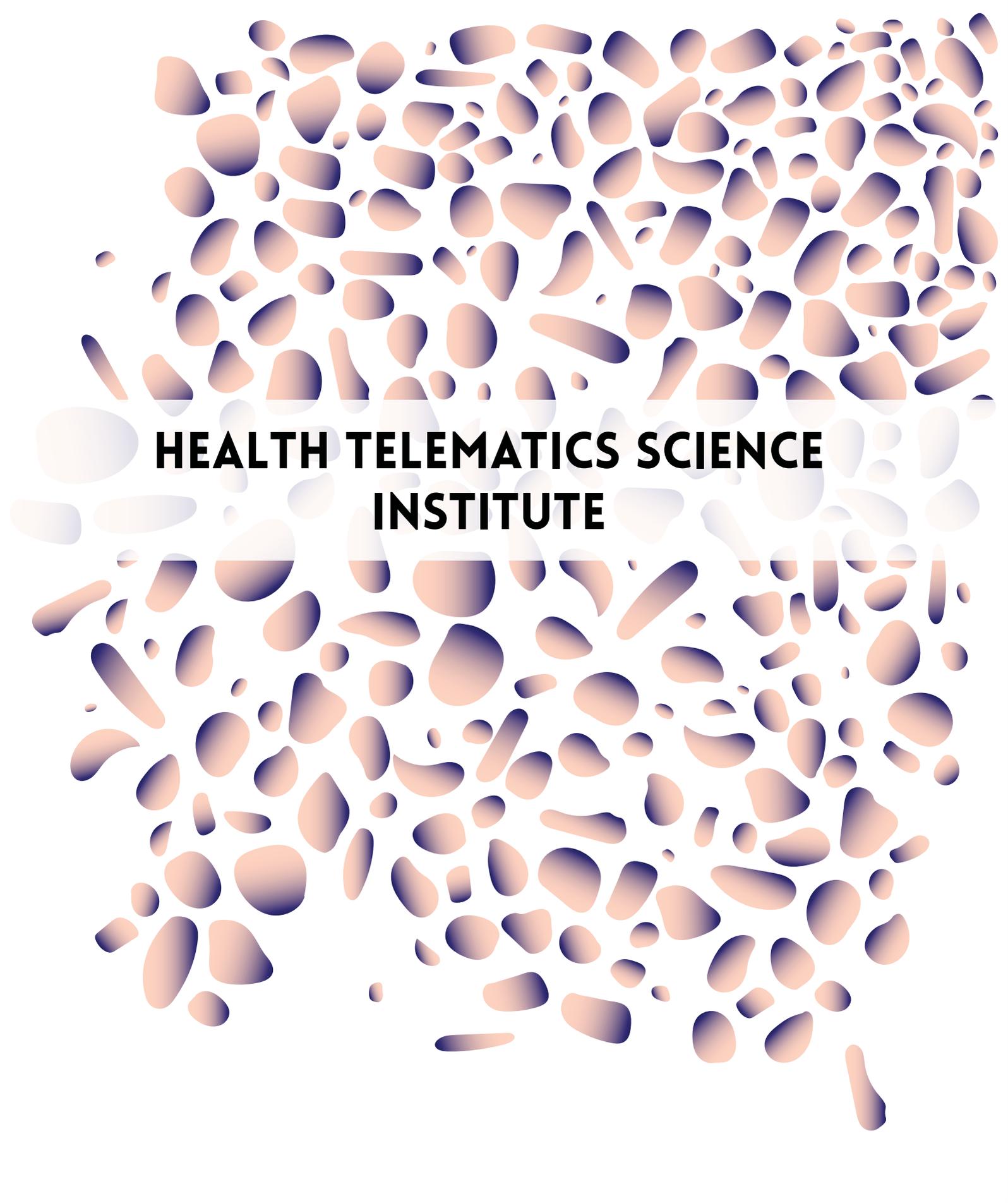
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# HEALTH TELEMATICS SCIENCE INSTITUTE

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## MAIN RESEARCH AND INNOVATIVE TECHNOLOGIES' DEVELOPMENT AREAS

- Non-invasive diagnostics and monitoring systems of the human brain
- Brain function impairment prevention systems during open heart surgery
- Brain function impairment prevention systems during gynaecological surgery
- Secondary brain function impairment prognosis systems
- Innovative methods for industrial measurement of fluid flow

## Projects

Collaborating with professionals from Lithuania, Europe, USA and China, Health Telematics Science Institute (HTSI) have created the world's first non-invasive absolute value intracranial pressure measurement technology, cerebrovascular blood flow autoregulation monitoring technology, technologies for monitoring and diagnostics of volumetric intracranial waves and brain compliance, and unique flow speed and debit measurement devices. Radical innovations of HTSI have opened new niches in the global medical technology market.

For designing a non-invasive technology to measure intracranial pressure, Professor Arminas Ragauskas, Head of KTU's HTSI, [was nominated as one of three finalists for the European Inventor Award 2016](#), organised by the European Patent Office (EPO). Based on the sonic Doppler wavelength effect, the ultrasound scanners provide precise and instant pressure measurements via a probe applied to the patient's eye. Besides elevated cranial pressures, the devices also detect stroke, glaucoma, and brain tumours.

The innovative technologies created by HTSI are being protected by 27 patents in the US, European Union, Japan and in other countries. HTSI applied for three new patents in the US, EU and WIPO in 2015. HTSI is a partner in several large-scale international projects; among them – the 30 million EUR European CenterTBI (FP7) project. Institute projects have been funded by the European Commission, US Department of Defence, US Department of the Army, EU Structural Funds, NASA, the US National Space Biomedical Research Institute, German Aerospace Centre (DLR) and other institutions and organisations.

The radical innovations of the HTSI are being commercialised by Vittamed Corporation (Boston, USA), which has recently raised a 10 million dollar investment from venture capital funds. This is the biggest ever series A funding round for high-tech medical device company in the Baltics. Part of the investment will be used to build a pilot production line for a world-first, non-invasive intracranial pressure measurement device.

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- **Founded in 1993**
  - **27 Lithuanian and global patents overall**
  - **3 (US, EU and WIPO) patents' applications in 2015**
  - **National and international projects: 50 % and 50 %**
  - **PhD students: 33% research staff**
- 



***“Only a fraction of scientific knowledge created when solving fundamental science problems is economically profitable. We are converting this economically productive knowledge into innovative technologies. Creating radical innovations, which open new niches in global market, is our line of work.”***

Professor Arminas Ragauskas,  
Head of Health Telematics Science Institute at KTU

# CENTRE OF REAL TIME COMPUTER SYSTEMS

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## MAIN RESEARCH AREAS

- Smart environments
- Internet of Things
- Internet of Services

## Projects

The Centre of Real Time Computer Systems carries out state-of-the-art research related to creating and developing smart house systems. Methods, algorithms and technologies developed by the researchers of the Centre enable us to create and apply innovative smart environments and smart systems, as well as services intended for those systems. The Centre has created a web server that makes accessing these systems and services a reality, not a distant dream. The server is among the smallest in the world.

Intelligent technologies such as self-shopping refrigerators, smart house systems, and real-time health monitoring appliances, created at KTU's Real Time Computer Systems Centre, affect global markets. Among the completed projects on future home equipment and high technologies is the digital home system, the integrated health system Gudris, the smart kitchen system Fėja, a prototype for an e-refrigerator and the innovative smart house environment technologies and services that are able to make decisions based on the habits of residents.

Innovations created at the KTU Centre of Real Time Computer Systems are based on an open architecture model that allows the integration of third party services – in this way, new business models are created for potential suppliers of smart environment services.

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- **Founded in 2000**
  - **International and national projects: 40 % and 60 %**
  - **PhD students: 11% research staff**
  - **External and internal R&D: 90 % and 10 %**
  - **More than 20 inventions**
  - **2 patents**
  - **Around 20 doctoral dissertations**
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***“In 2000, when we started to develop smart home systems, everyone said that it would be too expensive for an average consumer, that the system would cost more than a house. Today, our technology is being successfully implemented in private homes and hotels. Now, when all the research potential is concentrated in one building I expect a huge qualitative breakthrough in research. The fact that we will be physically close to each other, will enable closer cooperation – joint projects, optimum utilization of equipment. This is an implementation of cluster ideology – we are encouraged to think about a project as a whole, consisting of different parts which can be implemented by different research institutes, but at the same University.”***



Professor Egidijus Kazanavičius,  
Head of Real Time Computer Systems  
Centre at KTU

# CENTRE OF INFORMATION SYSTEMS DESIGN TECHNOLOGIES

## MAIN RESEARCH AREAS

- User needs analysis and requirements modelling
- Computer aided software engineering (CASE) technologies
- Model driven development, model-to-model transformations
- Ontologies and solutions for the Semantic Web
- Lithuanian language analysis
- Data mining, business intelligence, big data analysis
- Modelling of business processes, business vocabularies, and business rules
- Development and analysis of planned or existing information systems

## Projects

As computerised information systems (IS) are commanding all aspects of modern life, increasing the productivity of systems development as well as the quality of the systems themselves becomes paramount. Those are among the key aims of research done at the KTU Centre of Information Systems Design technologies. Here, the bulk of the Centre's activities involve work on the seamless integration between deliverables of business analysis, requirement specification and system design through model driven, standards-based IS development methodologies and tools.

At the same time, the Centre is working on issues of dealing with the rapidly expanding pool of information. The work done in this area includes research and development of novel approaches to business analytics, semantic search, and knowledge extraction from large heterogeneous data sources. Unsurprisingly, research on ontologies as well as the development of common language resources are also important areas of the Centre's research.

The in-depth understanding of IS life-cycle means that the Centre is also continuously involved in the development and analysis of novel IS solutions for companies and public organizations.

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- **Founded in 2012**
  - **National and international projects: 80% and 20%**
  - **PhD students: 30% research staff**
- 

***"One cannot overestimate the role that digital information plays in our everyday life. Yet there is still a lot to be improved in the ways we analyse and develop systems intended to process and manage this information.***

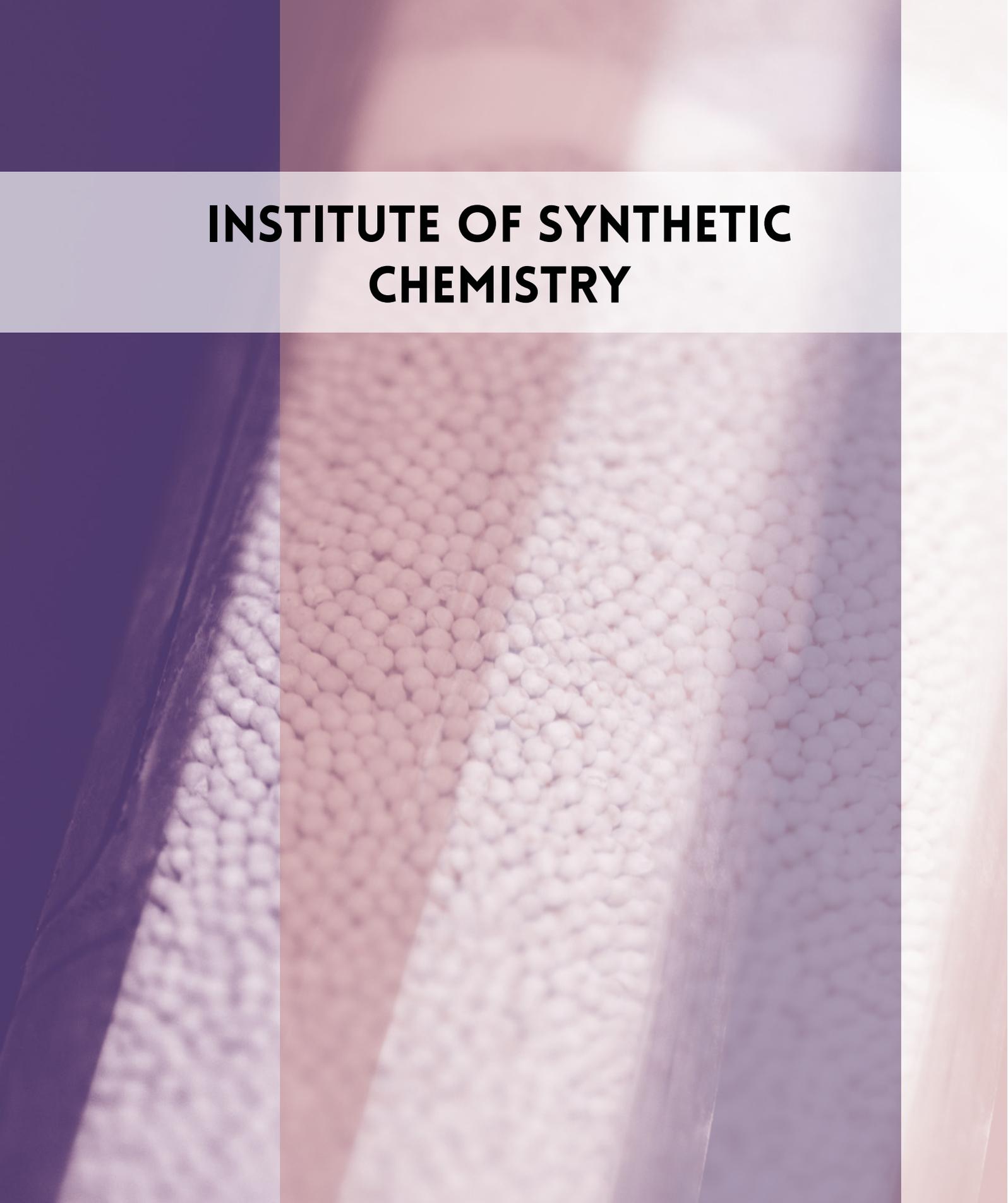
***Our firm believe is that only interdisciplinary R&D efforts can lead to next generation solutions in such areas as model driven systems engineering, semantic web, or big data. The challenge here is not only ensuring that the increasingly complex information systems get developed efficiently and fully meet our needs. We must also learn to use the information these systems help us collect to foster economic, social, and cultural progress."***



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Professor Rimantas Butleris,  
Head of Information Systems Design Technologies Centre at KTU





# INSTITUTE OF SYNTHETIC CHEMISTRY

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## MAIN RESEARCH AREAS

- Synthesis and research of heterocyclic compounds
  - Synthesis and research of biomolecular synthetic analogues
  - Pd-catalytic cross-coupling reactions
  - Renewable biomaterials
  - Biologically active materials' formation
  - Organic optical materials' formation
-

## Projects

Formation of functional molecules and materials, synthesis and examination of their functional qualities are the most important trends of contemporary chemistry. The generation of new pharmaceutical compounds, nano and information technologies development together with the expansion of high technology fields in general is related to the new functional materials' accessibility.

The KTU Institute of Synthetic Chemistry focuses on creating functional organic compounds for high technologies. The research groups of the Institute work on exploring new effective methods for the synthesis of those compounds. The aim of the research is to generate scientific and technological knowledge which can be transferred into innovative products.

The research carried out at the Institute is closely related to new medicine creation processes in biotechnology companies across the world.

The Institute has extensive collaborative relationships with research groups in academic institutions abroad, including University of Ghent (Belgium), Vienna University (Austria), Orleans University (France), Palacky University (Czech Republic), Leipzig University (Germany), etc., and performs research service agreements with innovative Scandinavian biotechnological and pharmaceutical companies.

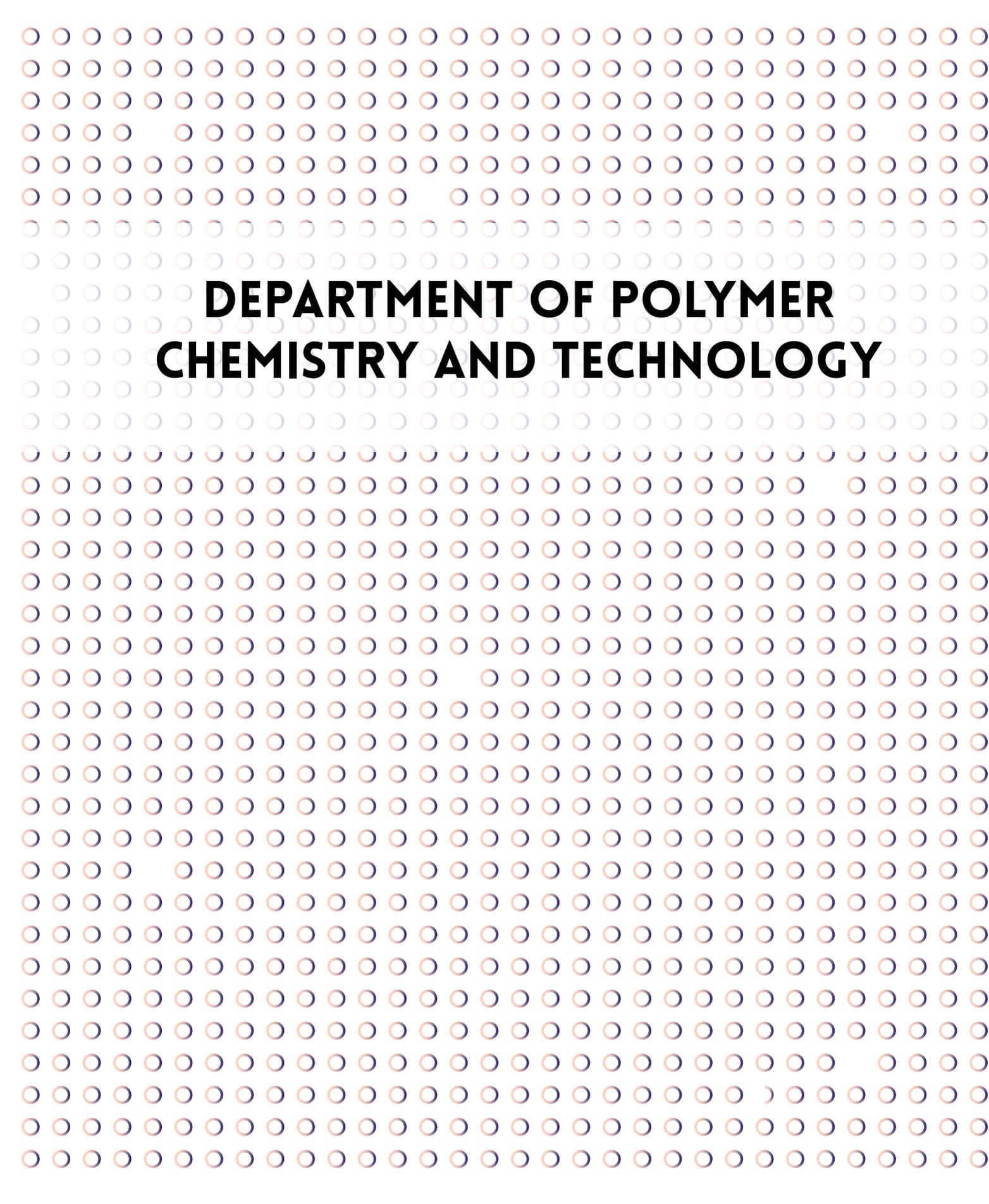
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- **Founded in 2005**
  - **National and international projects: 50% and 50%**
  - **2 (Lithuanian and EU) patents' applications in 2015**
  - **PhD students: 20% research staff**
- 



***“Contemporary synthetic organic chemistry is the entrance to a huge and fascinating world of organic molecules, where researcher imagination and creativity may provide new directions in science and innovations path.”***



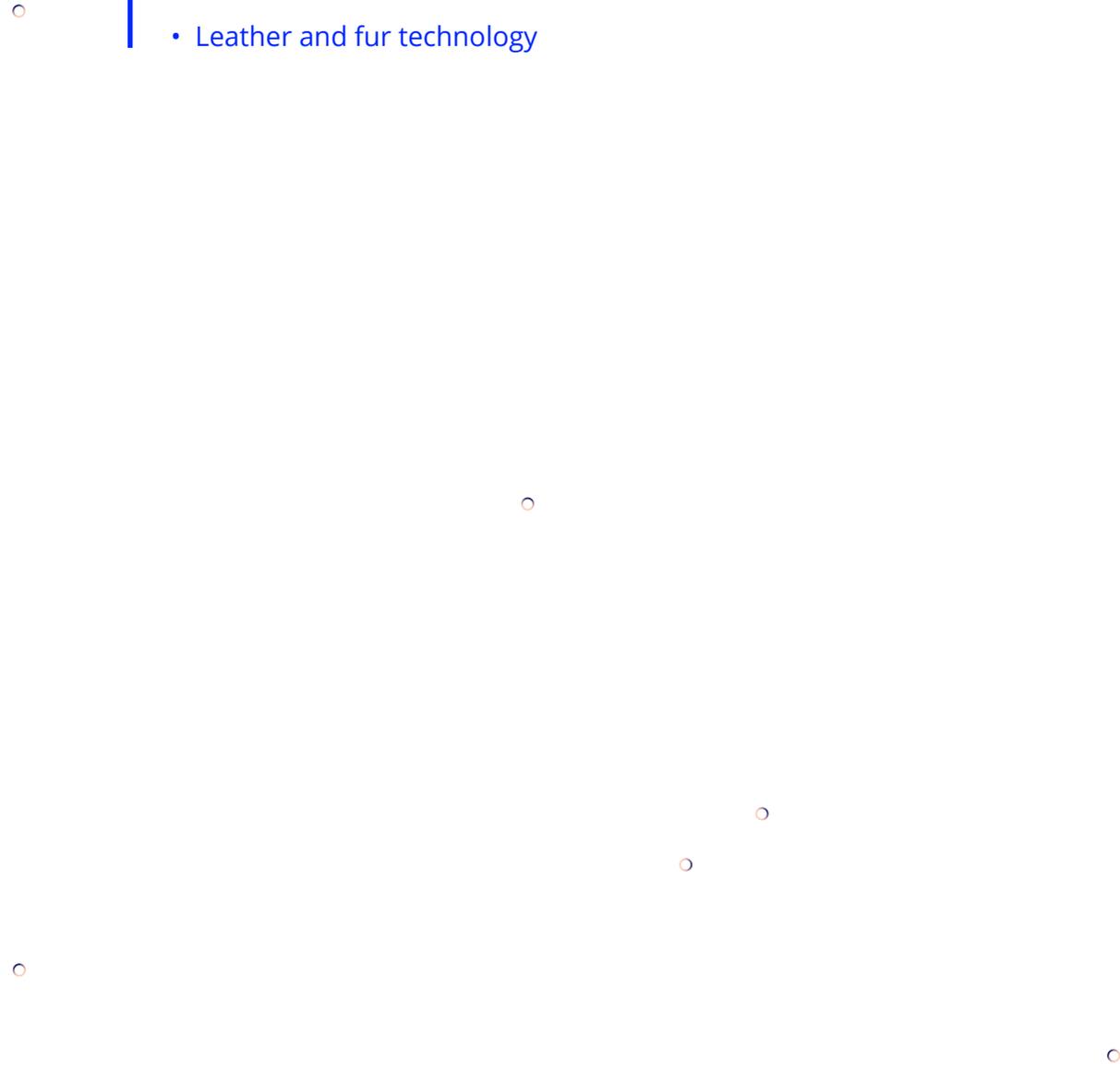
Professor Algirdas Šačkus,  
Head of Synthetic Chemistry at KTU



# DEPARTMENT OF POLYMER CHEMISTRY AND TECHNOLOGY

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## MAIN RESEARCH AREAS

- Materials for organic electronics
  - Polymers from renewable resources
  - Biopolymer research
  - Polysaccharide research
  - Leather and fur technology
- 

## Projects

The KTU Department of Polymer Chemistry and Technology consists of several research groups working on the development and application of materials for the world-class innovations. The research interests include synthesis and studies of materials for organic optoelectronic devices, synthesis and investigation of monomers and polymers from renewable resources, preparation and investigation of polymeric composites, including those from industrial organic waste materials, synthesis of natural polysaccharide-cellulose compounds, their characterization and applications. The research focusing on new eco-friendly leather and fur processing is also being undertaken at the Department.

Ground-breaking inventions, recognised by the global scholarly community are taking place in the laboratories of the Department of Polymer Chemistry and Technology (DPCT) at the Valley: innovative organic light-emitting diodes are being developed, polymeric composites with areas of application ranging from 3D printing to agriculture. The polymers with bioactive materials developed at the Valley are being used in biomedicine and industrial packaging, and the synthesised water-soluble cellulose compounds have numerous applications in such fields as in bone tissue engineering, in sorption of bile acid, and in the transfer of medicinal compounds.

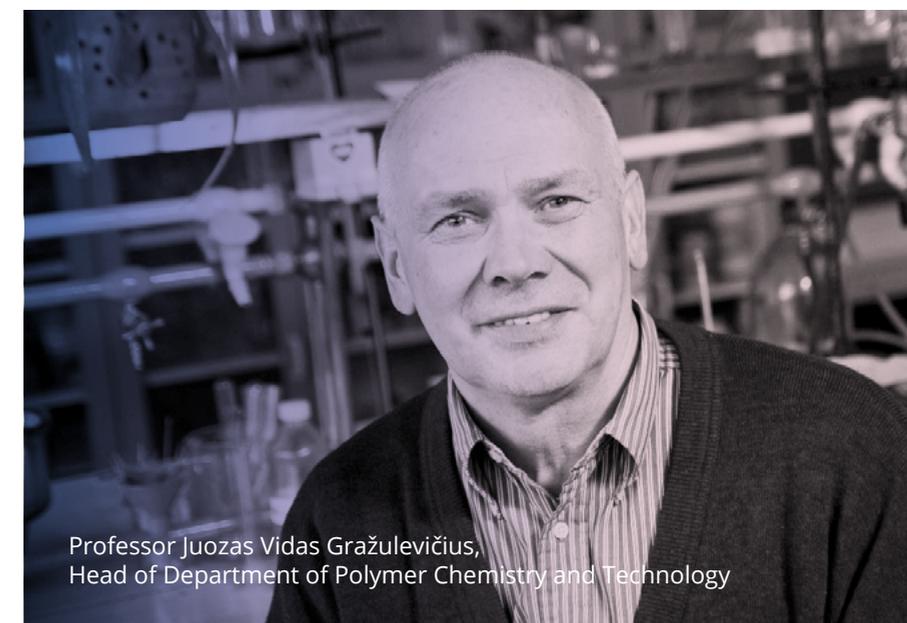
The researchers of KTU DPCT collaborate with the research groups and companies from across the globe including Germany, Taiwan, France, United Kingdom, Spain, and Malaysia. In the international research team (79 percent of the staff are doctoral students), postdocs from France, India, Tajikistan, Ukraine and other countries work together.

The Department is currently carrying out FP7, Horizon 2020 programme projects, projects funded by the Lithuanian Research Council and KTU, and is undertaking R&D projects for local and international companies.

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- **Founded in 1922**
  - **National and international projects: 39% and 61%**
  - **5 patents' applications in 2015**
  - **PhD students: 79% research staff**
- 



***“As Lithuania is a relatively small country, and in global world distance is not an issue, we look for partners in other parts of the world. In order to predict and explore the characteristics of the newly developed materials used as organic semi-conductors we collaborate with scholars from France and Latvia, Vilnius (Lithuania) and Durham University (UK). In order to test the new materials in the certain devices we work together with developers of organic light emitting diodes from Taiwan, with the experts of hybrid and organic solar cells from France and Spain. Our Department has truly international community: around 80 percent of our postdocs came from countries other than Lithuania.”***



Professor Juozas Vidas Gražulevičius,  
Head of Department of Polymer Chemistry and Technology



# ABOUT KAUNAS UNIVERSITY OF TECHNOLOGY

Kaunas University of Technology (KTU) is one of the largest technical universities in the Baltics and one of the most prominent higher education schools in the country, leading in many research areas and fields of study.

The urgent need for new ideas, technologies, and innovations in the constantly changing world requires increasingly complicated solutions. At KTU, the creative and intellectual leaders of tomorrow participate in frontier research and innovation while collaborating with internationally recognised research groups.

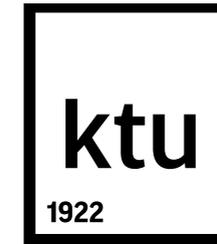
KTU researchers' achievements in ultrasound, organic chemistry, systems diagnostics, informatics, materials science, environmental engineering, business and public administration, economics, and educational science have significantly contributed to key international advancement in these fields.

The university maintains extensive links with business and industry, and participates in joint projects with the largest local companies, international corporations, and state and cultural institutions. The synergy of the physical, social, and technological sciences and the humanities and arts creates an open, exciting, and fertile environment for the development of topics that are of crucial importance today.

In 2012 KTU established the first academic entrepreneurship centre in Lithuania – KTU Startup Space. It is dedicated to young entrepreneurs and all active creative people who wish to change the world with their innovative products. KTU Startup Space collaborates with a wide range of partners from the local and international entrepreneurial community: experts and mentors, venture capitalists and sponsors, solid businesses and the most successful start-ups.

Since its establishment in 1922, over 130 000 students have graduated from the University.

More information: [www.ktu.edu](http://www.ktu.edu)



- **Established in 1922**
- **7% of international students**
- **62 study programmes taught in English**
- **~11,000 students**
- **~ 1,500 academic and research staff**
- **59 start-up companies as of 2012**
- **Over 70% of research funded through projects and R&D services**
- **More than 100 technological solutions for business**

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