Vilnius University

VILNIUS UNIVERSITY

Lithuania

Population: 2,8 mln.

Capital: Vilnius

Language: Lithuanian

Neighboring states: Latvia, Belarus,

Poland and Russia.

Famous for:

- High speed internet
- Scientific laser production
- Very old and complicated language

Vilnius University



Vilnius University



Higher Education in Lithuania

University

Universities & Colleges (state and private)

Lithuanians have secondary or higher education (EU average 70%).

All school graduates continue their education in universities and colleges.

Lithuanians speak at least one foreign language, 52% - at least two.

Vilnius University

Vilnius University



Founded in 1579 m.



182 study programmes



1 in Lithuania



~ 1 500 scientific articles per year



458 in the world (QS) in 2019



~21 200 students, ~ 1300 international

Vilnius University

Studies

76 Bachelor and integrated study programmes

106 Master study programmes

29 Doctoral fields of science

Medicine and dentistry residency programmes





Scientific research

- Humanities.
- Lithuanian Studies.
- Structure and Development of Society.
- Biological and Socio-psychological
 Cognition and Evolution of Man.
- Healthy Man, Prevention, Diagnostics and Treatment of Diseases.
- Genomics, Biomolecules and Biotechnologies.

- Changes in Ecosystems, Protection,
 Natural Resources.
- New Functional Materials and Derivatives.
- Theoretical and Condensed Matter Physics.
- Laser Physics and Light Technologies.
- Fundamental and Applied Mathematics.
- Informatics and Information
 Technologies.

High Tech achievements 2016-2017

- Prof. Virginijus Siksnys: Warren Alpert prize winner, pioneer in CRISPR/Cas9 technology
- The development of Lithuanian space programme: 2 Lithuanian satellites "LituanicaSAT-1" and "LituanicaSAT-2" successfully launched in collaboration with High Tech Vilnius University spinoff "NanoAvionics"
- Dr. Linas Mazutis: leading scientist in micro-liquid technology application for cancer diagnostics
- "Vilnius-Lithuania iGEM": award-winning synthetic biology technology development team
- Prof. Saulius Klimasauskas and Biological DNA Modification team: 2 patents in epigenome studies



International relations

100 Bilateral agreements

Erasmus+
agreements with
431 institutions

Courses in English and other foreign languages

Programmes in English and Russian languages





International networks and associations

- ERASMUS+
- ARQUS ALLIANCE
- UTRECHT (MAUI, AEN)
- COIMBRA Group
- BCI
- UNICA
- ISEP
- Scholars at Risk/New York University

- EUA
- EAIE
- BUP
- Magna ChartaObservatory
- And more...

Home > Studies > Exchange studies

< Back

Studies

- > Bachelor studies
- > Master studies
- > Doctoral (PhD) studies
- > Residency
- → Exchange studies
 - > Exchange programmes
 - Courses taught in foreign languages
 - > Application
 - > Academic Calendar

Exchange studies

Every year nearly 700 international non-degree students study at Vilnius University. The term "international student" is applied to those students who have completed their prior education in any other country but Lithuania.

International students who come for a certain period of study to Vilnius University fall into two categories: exchange and free mover students.

- An exchange student is a student who is admitted to Vilnius University under the auspices of one or another exchange programme or bilateral agreement.
- A free mover is a student whose home university has no cooperation contacts with VU and who arranges his/her studies himself at Vilnius University. Free movers are expected to cover the tuition fees.

Exchange programmes

>

Courses taught in foreign languages

>

Application

>

http://www.vu.lt/en/studies/exchange-students

How to apply

Exchange and free moving students should apply **online**. The application is open:

- •From April 16 to June 1 for the Autumn semester or the Academic year
- •From October 1 to November 15 for the spring semester

Note for exchange students: the online application form must be filled in after you have been selected by your home university for the exchange studies at Vilnius University. The Nomination Letter, i.e. confirmation of your selection, has to be sent by your home university coordinator to the International Office of Vilnius University by e-mail () before you apply or it has to be attached to the online application.

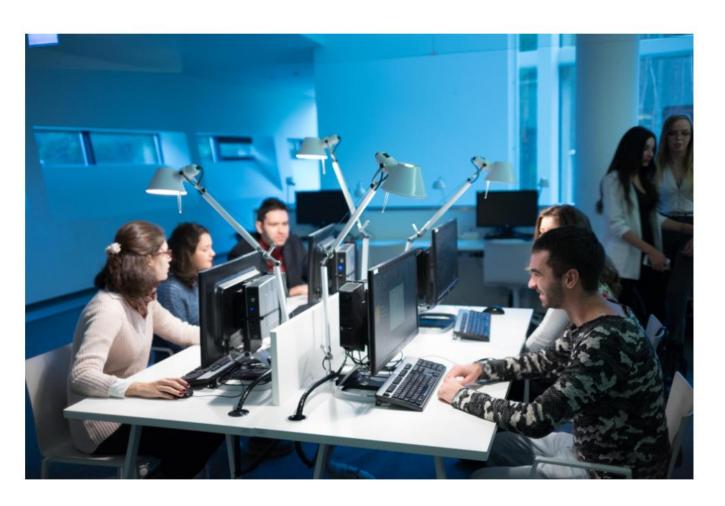
STUDIES

Q

International cooperation

- > Bilateral cooperation
- > Erasmus partners
- Erasmus International Credit Mobility
- > Networks and associations
- > International projects
- > For international staff
- > Contacts
- > Education Agents

For international staff



General information

Mrs. Agne Gordejiene

Email: agne.gordejiene@cr.vu.lt

Phone: +370 5 2193216

Practical information

Checklist

Visas & Requirements for entry

Residence permits

Social Insurance System

Relocation

VU e-service

Employment

Social Informa



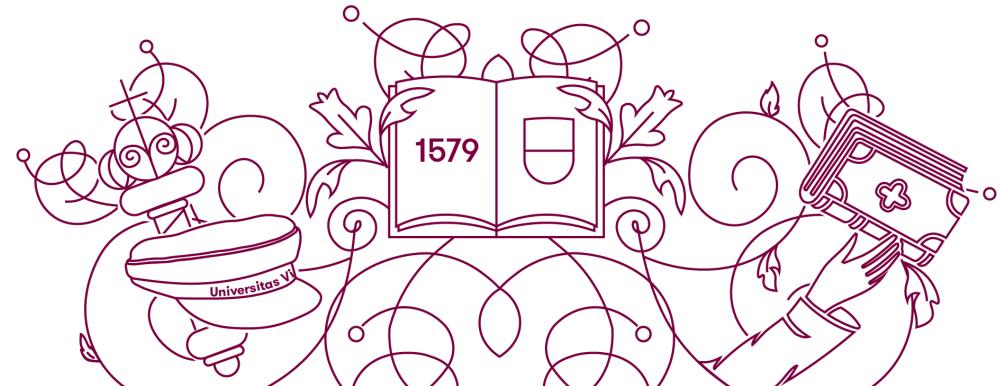
https://www.vu.lt/en/international-cooperation/for-international-staff





Vilnius
University
Vilnius
University

ERASMUS OPPORTUNITIES AT FACULTY OF PHYSICS



Vilnius University

Bachelor study programmes:

- •Light Engineering IN ENG
- Applied Physics
- Physics
- Computing Physics and Modelling
- Modern Technologies Physics and Managment
- Telecommunications Physics and Electronis

Master study programmes:

- ❖ Life and Chemical Physics IN ENG
- Materials and Technology of Optoelectronics IN ENG
- Electronics and Telecommunications Technologies IN ENG
- Theoretical Physics and Astrophysic IN ENG
- Laser Physics and Optical Technologies
- Laser Technology

15400	Applied Electronics I/II p.			
15392	Optics III/IV p.			
15393	Mechanics and Thermodynamics I/IV p.			
15398	Introduction to Quantum Field Theory			
15394	Introductory Molecular Quantum Mechanics			
15405	Laser Technology			
15415	Low Temperature Physics			
15399	Materials Science			
15428	Mathematical Physics			
15430	Microscopy Techniques for Materials Science			
15410	Modern Illumination Technologies and Light Design			
15431	New Materials and Technologies			
15414	Open Problems in Astrophysics			
15409	Optical Spectroscopy			
15406	Organic Optoelectronics			
15417	Physical Kinetics			
15412	Physics of Galaxies			
15433	Photonics and Adaptive Optics			

Vilnius University

AUTUMN SEMESTER

15400	Applied Electronics I/II p.		
15434	Production Technologies of Silicon Solar		
	Cells		
15416	Quantum Information and Cryptography		
15397	Theory of quantum dissipation		
15413	Selected Topics in Astrophysics		
15407	Semiconductors Growth Technologies		
15429	Synergetics		
15408	Solar Energy		
15396	Solid State Ionics		
15404	Solide state physics		
15411	Solid-State Lighting Technologies		
15401	Visual Programming		

15291	Applied Electronics II/II p.		Vilnius
15472	Astrobiology	University	
15272	Computerised Physical and Technological Measurements		3
15273	Cosmology		
15271	Energy-Saving Semiconductor Technologies		SPRING SEMESTER
15474	Evoliution of Stars		
15471	Fiber Technologies		
15269	Quantum physics I/IV p.		
15268	Electricity and Magnetisms	15278	Optoelectronics
15274	Lasers	15275	Principles of Magnetic Resonance
15466	Materials Characterization Techniques	15276	Research and Innovation Management
15469	Metrology of Light Sources and Components	15267	Response Function Theory in Nonlinear Spectroscopy
15470	Nano- and Microstructure Technologies	15475	Scientific Research Work
15476	Nanostructures and Material Engineering	15290	Transmission Lines
15277	Nanotechnologies	15270	Vibrational Spectroscopy of Polyatomic Molecules
15279	Numerical Methods I/II p.		
15402	Numerical Optimization Methods		
15403	Numerical Optimization Methods		
15467	Optical System Design		
15468	Optoelectronic and Lasers Engineering		



VILNIUS UNIVERSITY PHYSICAL SCIENCES AND TECHNOLOGIES RESEARCH CENTRE



FACULTY OF PHYSICS



LASER RESEARCH CENTER



VU FF: 251–300 in the world*



~500 students, ~110 graduate students., 76 PhD students

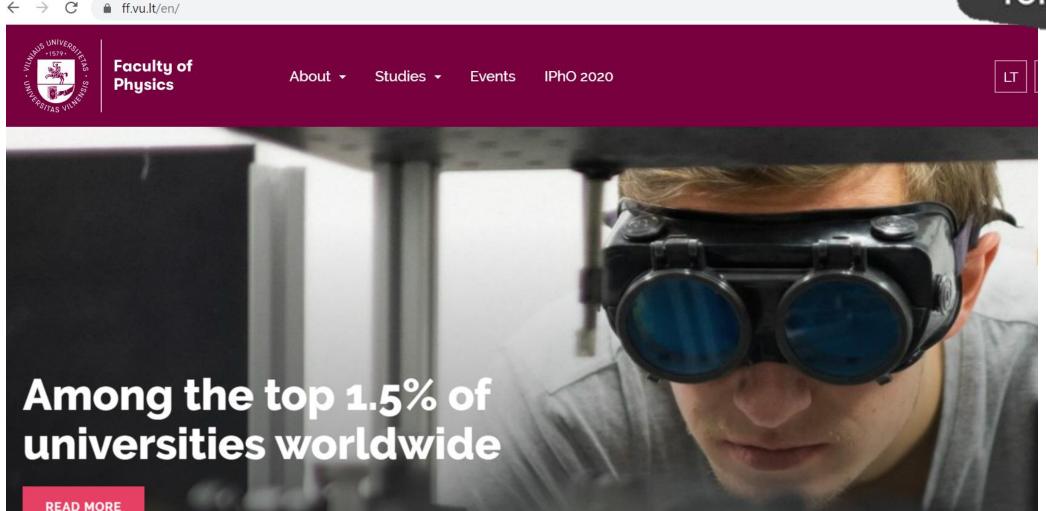
~200 academic staff/ scientific staff

*Q5 World University Rankings



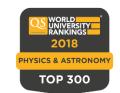
PHYSICS & ASTRONOMY

TOP 300



The Faculty Structure





DEAN Vice-deans **ADMINISTRATION** Office **Managers**

COUNCIL

Faculty staff members & student reprsentatives

Institute of Chemical Physics

Laser Research Center

Institute of **Theoretical** Physics and Astronomy

Institute of Photonics and Nanotechnology

Institute of Applied Electrodynamics & Telecomunications

Experimental

Nuclear and Particle Physics Centre (sui generis Department)

- Solid state physics and technology
- Spectrometric characterization of materials and electronic/molecular processes
- Laser physics and technology
- •Structure, functions and mutations of biomolecules in model and live systems
- •Physics of atoms, molecules and condensed matter New materials, nano-structures and surfaces: synthesis, characterization, technologies
 - •Structure and evolution of galaxies, stars and interstellar matter



Vilnius University

https://www.youtube.com/watch?time_continue=85&v=UpuSjVPlgbM





Faculty of Physics

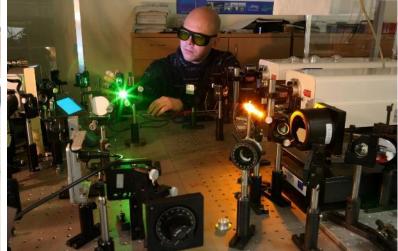
STAFF:

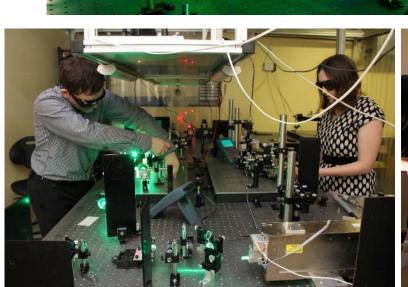
- ➤ Professors (Dr. & Habil. Dr.) 8
- ➤ Researchers with **PhD degree 19**
- ➤ Administrative and technical staff 10
- **≻PhD students** − **17**

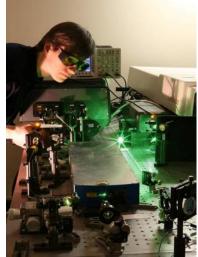
Teaching and supervision Master studies programs:

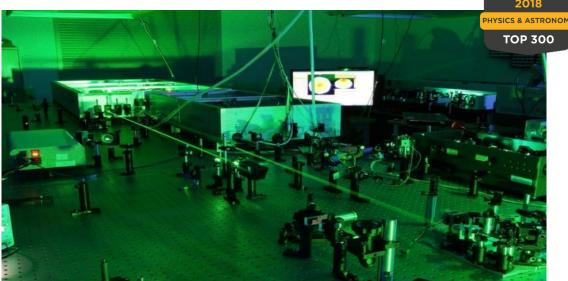
- ➤ Laser Physics and Optical Technologies 27
- ➤ Laser Technology **23**











Laser Research Center

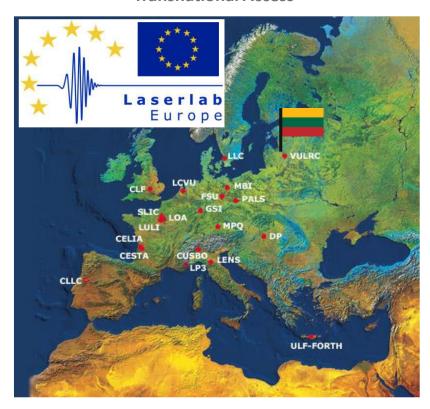
Existing Membership

Ongoing Membership



LASERLAB-EUROPE

Networking, Joint Research Activities and Transnational Access

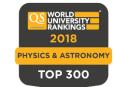


VU LRC is a member of Integrated Initiative of European Laser Research Infrastructures since 2004

https://www.laserlab-europe.eu

EXTREME LIGHT INFRASTRUCTURE

The World's First International Laser Research Infrastructure





VU LRC and Center for Physical Sciences and Technology (FTMC) together is the Lithuanian Laser Research Infrastructure and in the nearest future Lithuania will become an ELI member https://eli-laser.eu/

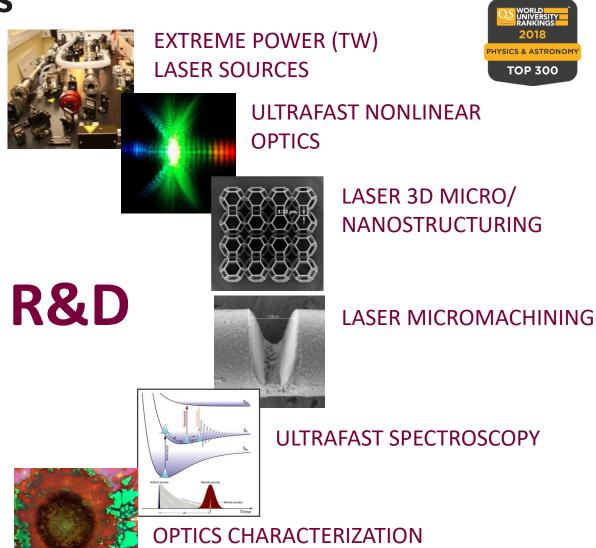


Faculty of Physics

Ongoing research activities

Scientific Groups at VU LRC:

- ➤ High-Intensity Laser Physics group leader dr. Arūnas Varanavičius
- ➤ Ultrafast Nonlinear Optics group leader prof. Audrius Dubietis
- Laser NanoPhotonics group leader dr. Mangirdas Malinauskas
- ➤ Laser Radiation-Matter Interaction group leader prof. Valdas Sirutkaitis
- ➤ BioPhotonics group leader prof. Saulius Bagdonas



AND LASER DAMAGE TESTING

MAIN COLLABORATION PARTNERS Laser Centre of Theoretical Physics, **Faculty of Physics** Ecole Polyechnique, Palaiseau, Research France Center University of Heriot-Watt Hannover Laser Marseilles University (UK) 2018 University of Centrum (France) PHYSICS & ASTRONOMY Wien University of Insubria (Italy) (Germany) **TOP 300** Technology (Austria) Foundation for Research and Technology Hellas (Greece) **Patros** University WE ARE MEMBERS OF (Greece) LITHUANIAN LASER **ASSOCIATION** Swinburne University of Technology that gives strong partneship and (Australia) **R&D** activities with **Lithuanian Laser industry Light Conversion** Shizuoka University **EKSPLA** (Japan) **FEMTIKA** Universitat Politechnica **Bordeaux University ALTECHNA** de Catalunya (UPC) (France) (Spain) LIDARIS and many others... **EKSMA Optics STANDA**

UNIQUE TERAWATT OPCPA systemIn collaboration with Light Conversion & EKSPLA companies



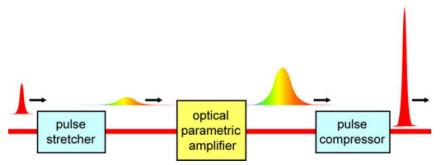


Optical parametric chirped pulse amplification (OPCPA) technique was proposed by VU LRC scientists and is now being widely used for high-intensity laser systems

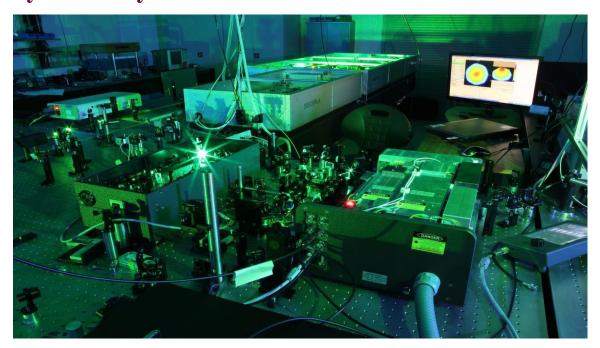
Optics Communications 88 (1992) 437–440 North-Holland OPTICS COMMUNICATIONS

Powerful femtosecond pulse generation by chirped and stretched pulse parametric amplification in BBO crystal

A. Dubietis, G. Jonušauskas and A. Piskarskas



VU LRC, in close collaboration with Light Conversion and Ekspla companies, demonstrated OPCPA system generating multi -TW few-cycle pulses. Up to date, the system delivers the average power (53 W), that is the highest among few-cycle laser systems!



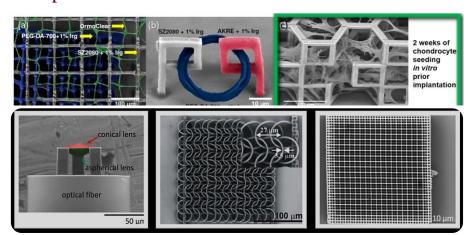
Forefront research



Faculty of Physics

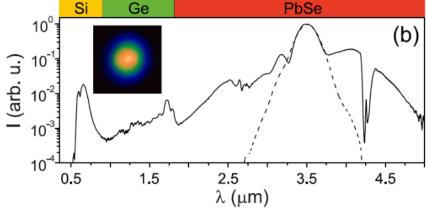


- Ultrafast laser 3D mesoscale lithography of organic, hybrid
 and pure inorganic materials with unmatched optostructuring resolution and throughput;
- Multi-material 3D meso-scale diverse functional components.



Femtosecond filamentation and multi-octave supercontinuum generation in transparent solids





Micro-optics



bio-scaffolds

nano-photonics

- ➤ Characterization of optical coatings using LIDT (laser induced damage threshold) technique in nano and femto regimes, vacuum, high rep. rate and tunable wavelengths.
- Morphological images of optical surfaces



Institute of Chemical Physics **Established in 2017**, merging 3 departments : 1. Dept. of General Physics and Spectroscopy; 2. Dept. of Solid State Electronics; 3. Dept. of Theoretical Physics



Faculty of Physics

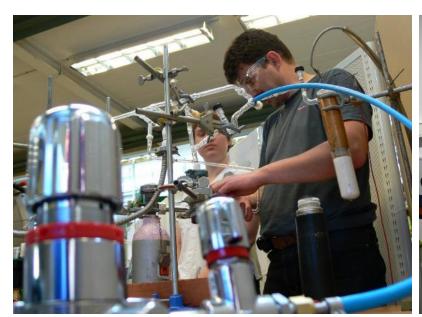


STAFF:

- **Professors** (Dr. & Habil. Dr.) − **9**
- ➤ Researchers with **PhD degree 32**
- ► Administrative and technical staff 17
- **≻PhD students** − **16**

Teaching and supervision Master studies programs:

- ➤ Theoretical Physics and Astrophysics 11
- ► Environmental and Chemical Physics 6



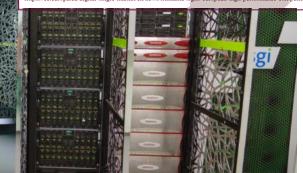




Institute of Chemical Physics

Established in 2017

#EuroHPC (High Performance Computing) Declaration Sianatory European countries Seven countries - France, Germany, Italy, Luxembourg, Nether lands. Portugal and Spain - signed the declaration in March Since then, another ten countries - Beloium Slovenia Bulgaria Switzerland Greece Croatia Zzech Republic, Cyprus, Poland and Lithuania -



Open access supercomputing center "HPC Saulėtekis", part of national resources "LitGrid-HPC"

International cooperations:

Technischen Universität Darmstadt



Technische Universität Dresden

Stora Enso Oyj (Finland)



Technische Universität München Charles University of Prague (Czech Republic) Queens Mary University of London (UK)



Ongoing Membership



Faculty of Physics

EGI: Advanced Computing Services for

Research

https://www.egi.eu/



MAXIV - Swedish National Laboratoty of **Synchrotron radiation International Open Access Infrastructure**



Open access infrastructure SPECTROVERSUM from Institute of Chemical Physics is signed scientific partnership with international infrastructure MAXIV www.maxiv.lu.se

Ongoing research activities

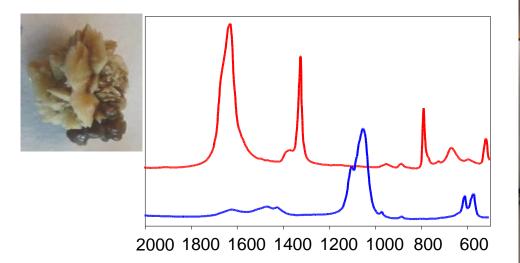


Faculty of Physics



Scientific Groups:

- ➤ Group of Molecular spectroscopy leader prof. Valdas Šablinskas
- ➤ Group of Solid State Physics leader prof. Kęstutis Arlauskas
- ➤ Group of molecular theory and modeling leader prof. Darius Abramavičius



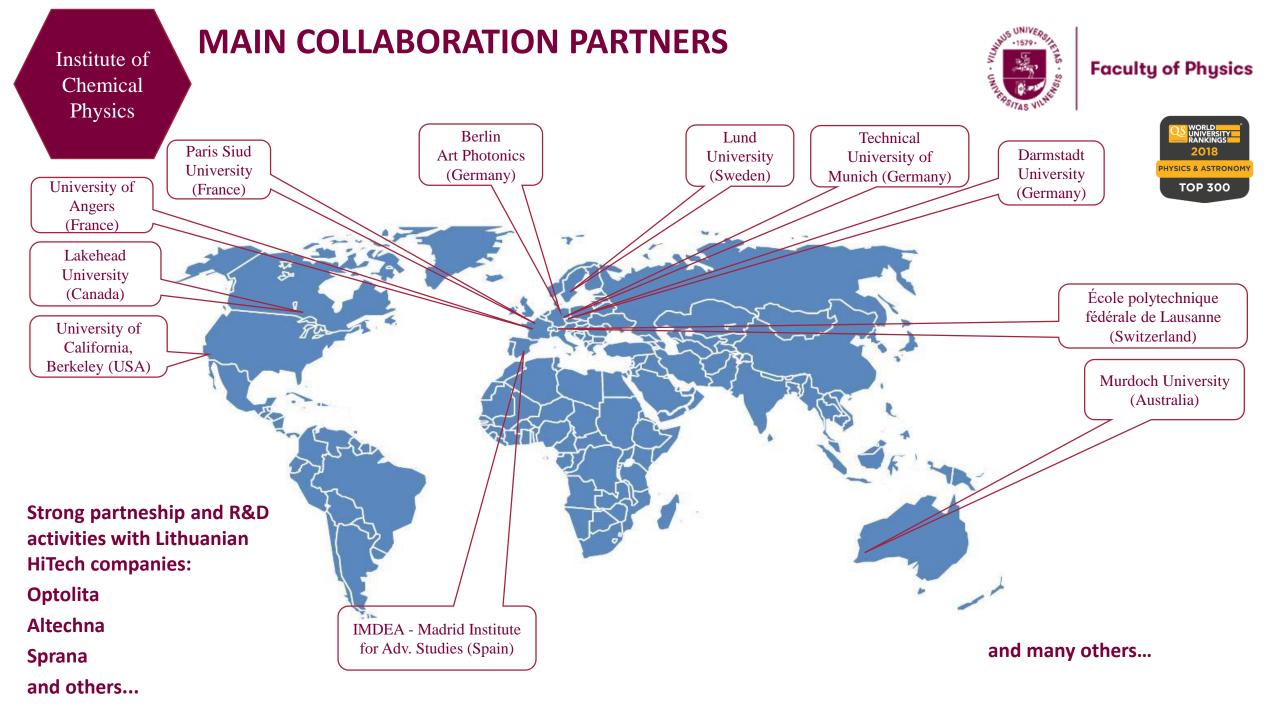
R&D

- ❖ Structural studies of biomolecules by means of molecular spectroscopy
- Modeling of processes of photosynthesis
- ❖ Tailoring of materials for photonic devices for electrical charge separation











Faculty of Physics

STAFF:

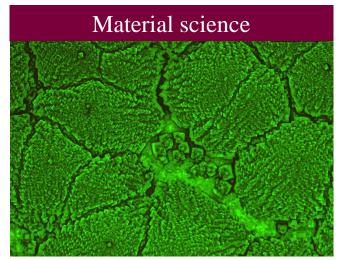
- **Professors** (Dr. & Habil. Dr.) − **9**
- ➤ Researchers with PhD degree 22
- **≻PhD students** − **19**
- **≻**Undergraduate students 8
- Administrative and technical staff 9





Study programs:

- ➤ Undergraduate studies Light engineering (since 2017)
- ➤ Master studies Materials and Technology of Optoelectronics



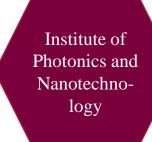




Optoelectronic technology





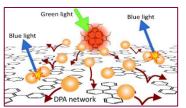


Research groups and areas



Faculty of Physics





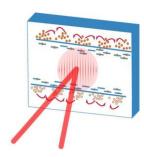
ORGANIC SEMICONDUCTORS



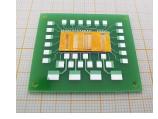


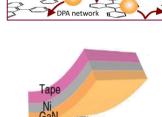












NITRIDE LED TECHNOLOGY



INTELIGENT LIGHTING

> Liquid crystal laboratory leader prof. Povilas Adomėnas

> Organic optoelectronic research group

> Radiation defect and detector research group

Luminescence spectroscopy group

leader prof. Saulius Juršėnas

leader prof. Gintautas Tamulaitis

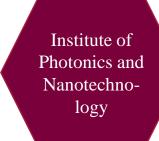
> Nitride technology group

leader prof. Roland Tomašiūnas

leader prof. Eugenijus Gaubas

> Lighting research group

leader dr. Pranciškus Vitta

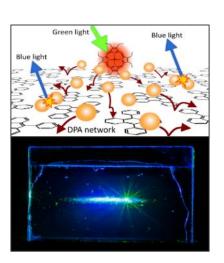


Research highlights



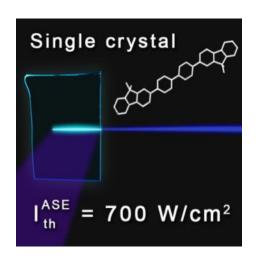


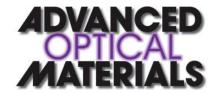
Non-coherent solid state light upconverters



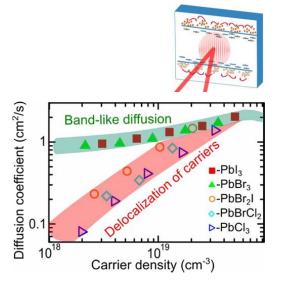


Organic crystals with extremely Advanced all-optical low lasing threshold



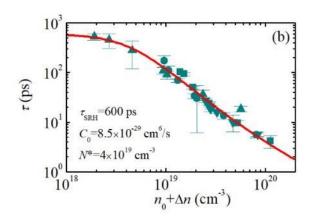


characterization of perovskites

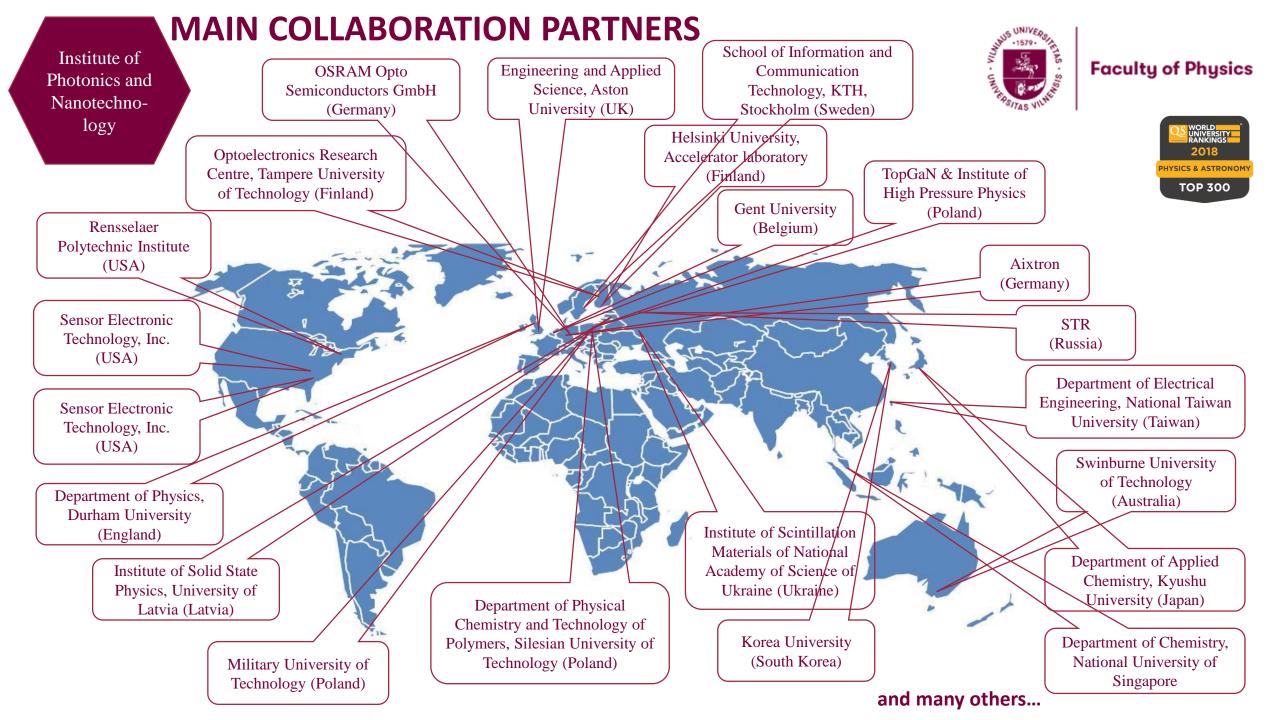




Determination of direct Auger recombination in Indium Nitride epilayers







INDUSTRIAL PARTNERS

Institute of Photonics and Nanotechnology

USA

UK

Alfa Aesar, Avocado research Chemicals Ltd.

CMS Chemicals Ltd.

Discovery Fine Chemicals Ltd.

Eurolabs Ltd.

Maybridge Ltd.

Molekula UK Ltd.

Niche Materials Ltd.

IRELAND

Camida, Ltd.

GERMANY

ABCR GmbH & Co. KG

Alfa Aesar GmbH & Co. KG

AppliChem GmbH

Carl Roth GmbH & Co

KISCO Deutschland GmbH

Organica Feinchemie GmbH Wolfen

Sigma-Aldrich Logistik GmbH

Synthon Chemicals GmbH & Co. KG

SWITZERLAND

Connect Marketing GmbH DKSH Switzerland Ltd.

Santa Cruz Biotechnology Inc.

Matrix Marketing GmbH

Akos Consulting & Solutions GmbH

Panslavia Chemicals LLC

MP Biomedicals LLC

Austin Chemical Company, Inc.

BCH Research L.L.P.

INDIA

Advinus Therapeutics PVT Ltd.

Alkali Metals Ltd.

International Centre for Genetic

Engineering and Biotechnology

JAPAN

Chukan Butsu Ltd.

KISCO Tokyo Ltd.

Sumitomo Shoji Chemicals Co. Ltd.

CHINA

Tianjin Datao international Trade Co. Ltd.

SOUTH KOREA

Mirae Interchem Co. Ltd.

BELGIUM

Acros Organics B.V.B.A. Chemosyntha N.V.

> TCI Europe NV UCB Pahrma SA

UNITED ARAB EMIRATES

Elite Inter-Chem FZC

POLAND

PPW "AWAT" Spolka z o.o.

UKRAINE

Ukrorgsyntez Ltd.

and many others...



Faculty of Physics





STAFF:

- **Professors** (Dr. & Habil. Dr.) **12**
- ➤ Researchers with **PhD degree** ca. **40**
- ➤ Administrative and technical staff 8
- **▶PhD students** 10



- Solid professional background and qualifications ensured by international experience
- Former and current Humboldt fellows, Marie-Curie fellows

EDUCATION and OUTREACH

- Science olympiads and competitions
- High-profile public events, National Science Festivals, Researchers Nights
- International summer schools

Institute of Theoretical Physics and Astronomy

RESEARCH: tackling nature's complexity at multiple scales

- from elementary particles ...
- to stars and galaxies...
- to quantum engineering ...
- to social and economic systems

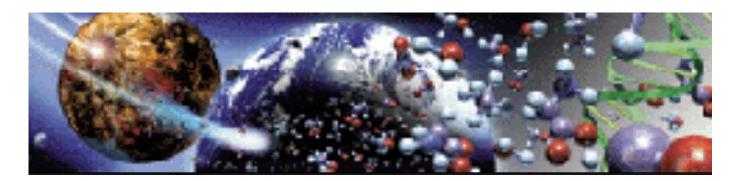


Faculty of Physics



- ➤ Astrophotometry group leader Kazimieras Černis
- ➤ Astrospectroscopy and exoplanets group leader Gražina Tautvaišienė
- ➤ Atomic processes research group leader Valdas Jonauskas
- ➤ Computational atomic structure group leader Gediminas Gaigalas
- ➤ Nuclear and particle physics group leader Arnoldas Deltuva

- ➤ Complex physical and social systems group leader Vygintas Gontis
- ➤ Cold atoms and condensed molecular structures group leader Gediminas Juzeliūnas
- > Stellar atmospheres physics group leader Arūnas Kučinskas
- ➤ Laboratory of stellar systems leader Vladas Vansevičius



Institute of Theoretical Physics and Astronomy

CONTRIBUTING TO AMBITIOUS MISSIONS

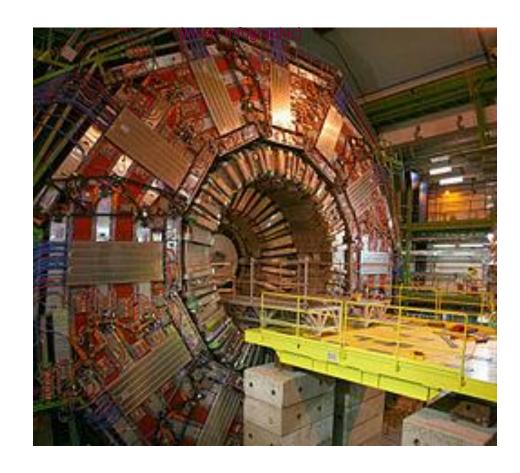


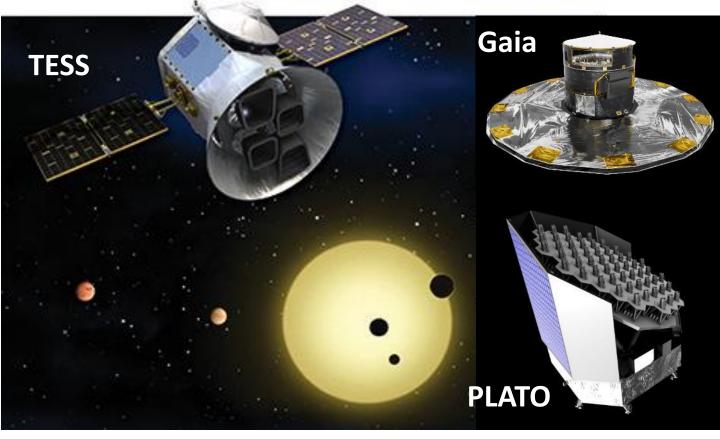
LARGE-SCALE INITIATIVES AND INFRASTRUCTURES



CERN

EXOPLANET SEARCH SPACE MISSIONS





Institute of Theoretical Physics and Astronomy

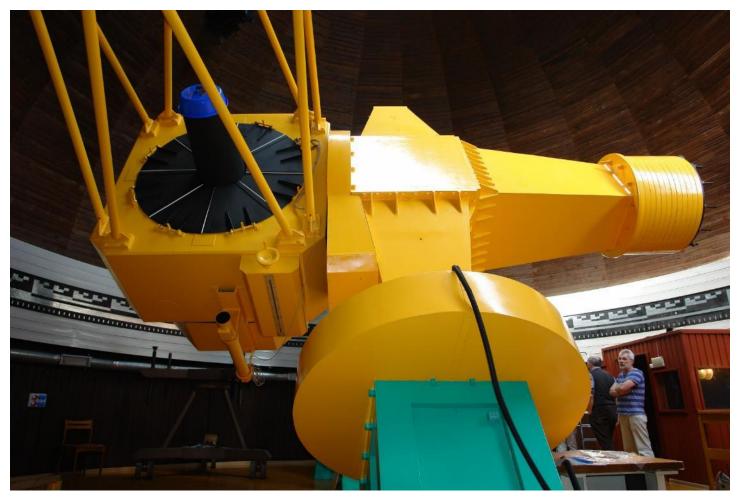
REGIONAL AND WORLD-WIDE LEADERSHIP



WORLD WORLD AND WANKINGS 2018

PHYSICS & ASTRON

1.65 m optical telescope largest in the northern Europe (refurnished in 2016, equiped with a high-resolution spectrograph



Recognised experts in -

- Theory of cold atoms and condensed molecular structures
- Analysis of C, N, O, and carbon isotopes in stellar spectra

Established in 1960 as the Department of Radiophysics



Faculty of Physics



STAFF:

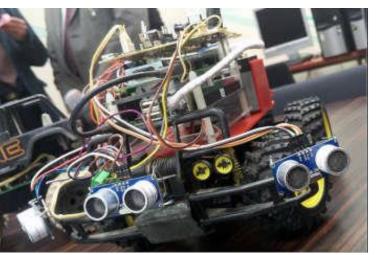
- ➤ Professors (Dr. & Habil. Dr.) 5
- ➤ Researchers with **PhD degree 27**
- ➤ Administrative and technical staff 4
- >PhD students 12

Teaching and supervision studies programs: Bachelor:

➤ Telecommunications Physics and Electronics

Master:

➤ Telecommunications Physics and Electronics





R&D

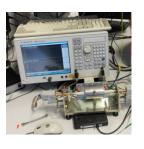


Faculty of Physics



Scientific Groups:

- Microwave Spectroscopy group leader prof. Jūras Banys
- Nanoionics group leader dr. Tomas Šalkus
- Acousto-optics group leader dr. Romualdas Rimeika
- Noise Research and Terahertz Electronics group leader prof. Jonas Matukas
- > Telecommunication Research Center leader dr. Kęstutis Svirskas



M₂M

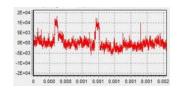
4G, LTE INVESTIGATION

MICROWAVE SPECTROSCOPY FOR SOLIDS AND LIQUIDS



TERAHERTZ ELECTRONICS

LOW-FREQUENCY NOISE SPECTROSCOPY OF MODERN SEMICONDUCTOR DEVICES





NEW SUPERIONIC MATERIALS DESIGN

MEMRISTORS

ULTRASOUND IN NANOSTRUCTURES



Industrial Collaboration

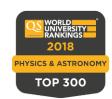
National

- Telecommunication companies (Tele2, Telia, Ruptela, Wilibox);
- Elmika, **Brolis Semiconductors**;
- Communications Regulatory Authority of the Republic of Lithuania (RRT)

and many others...



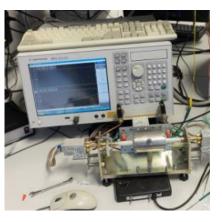
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- Huawei technologies;
- HANA (Huawei **Authorized Network** Academy);
- Cellular Expert;
- > CEPT/ECO;
- NanoAvionics;



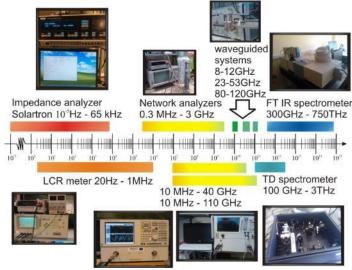


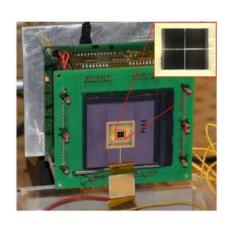


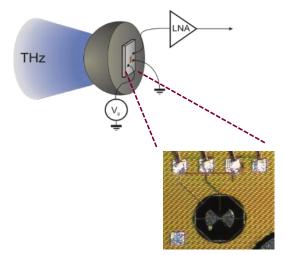
Faculty of Physics



- ➤ Unique ultra-broadband impedance spectrometer 1 Hz − 10 GHz with possibility of measurements at very high temperatures 300 K − 1200 K;
- Is among the few institutes applying measurements of dielectric properties for many materials in an extremely broad frequency range from 10 μHz to 750 THz;
- ➤ State of the art room temperature terahertz detectors (from 100 GHz to 10 THz) and detector arrays. Cooperation with DLR, ESA.









Any questions?

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