



Automation  
Civil Engineering  
Geodesy  
Electrical Engineering  
Mechanical Engineering  
Architecture  
Chemistry  
Food Technology  
Material and Technology  
Information and Communication  
Technology  
Design  
Management

# Facts & Figures

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Dear friends,

Slovak University of Technology is a leading university in Slovakia with a growing international reputation. Graduates are targeted by the best employers and enjoy highest wages. Many graduates become top leaders and strategic managers of successful businesses in various industries.

Research based education, intensive engineering activities and entrepreneurial spirit are key values we have maintained from the time when the first technical higher education institution was established - the Mining Academy in Schemnitz (Selmecbánya hung.) in the mining city of former Habsburg monarchy (1762-1918). Many things have changed since then, The city is now called Banská Štiavnica and is located in a beautiful region

of middle Slovakia. Even the university is new (formally est. in 1937), it focuses on datamining instead of excavating gold and silver, on advanced materials and technology research instead of ore processing, and on modern biotechnology instead of forestry. But the values remain the same.

Significant investments in research infrastructure have made the Slovak University of Technology even more attractive in recent years. The University science park project funded from European Structural Funds has helped to equip research facilities. *Atomic resolution cold field emission transmission electron microscopy* in STU Centre for Nanodiagnostics in Bratislava and *6MeV Tandron ion accelerator* in 3000 m<sup>2</sup> area materials research centre Slovaklon in Trnava are just two examples out of many.

In this publication you can find key facts about the university and achievements over the previous year.

Robert Redhammer, rector

#### **Slovak university of technology in Bratislava:**

- established in 1937 as the Technical institute of Dr. M. R. Štefánik
- the largest and oldest technical university in Slovakia
- the University commemorates 80th Anniversary (2017)
- the University continues the tradition of the Mining Academy in Banská Štiavnica, know as Schemnitz (1762 - 1918)
- education is based on own research and focuses on industry needs
- the best technical university in Slovakia

## STU in top world rankings

### QS World University Rankings 2016



- ranked 401. - 450. in the subject Computer science and information technologies
- ranked the best technical higher education institution in Slovakia as well in architecture, civil engineering, chemical engineering, mechanical engineering, material technologies and in mathematics

### Times Higher Education World University Rankings 2015



- 601. - 800. positions in the list of the world's best universities

### ARWU 2012:



- ranked 101. - 150. in computer sciences by the prestigious Center for World-Class Universities at Shanghai Jiao Tong University (ARWU TOP 200 world best universities ranking)

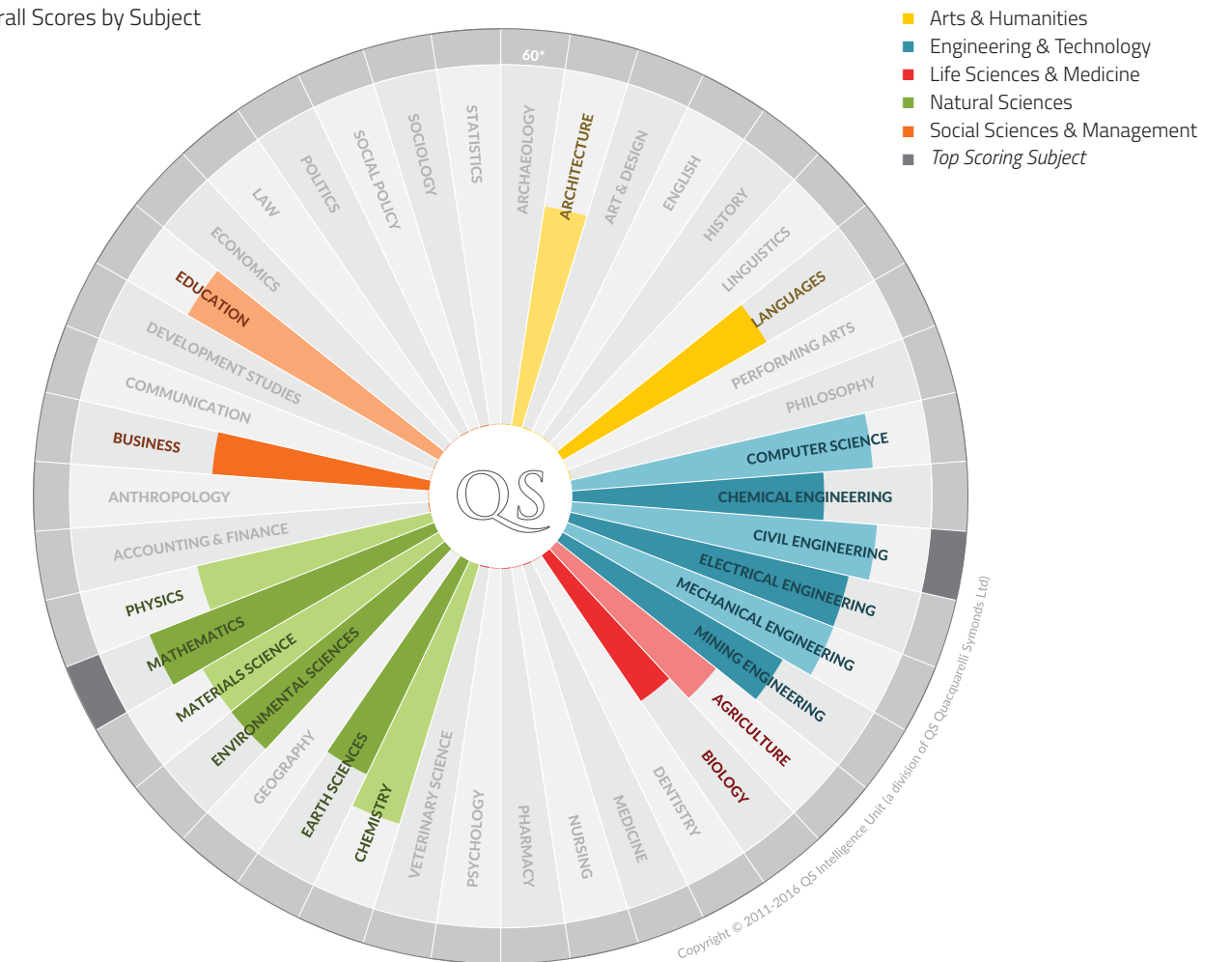
### ARRA – Slovak independent academic ranking and Rating Agency:



- since it released its first rankings in 2005, the Faculty of Chemical and Food Technology at STU has been the best technical faculty in Slovakia.
- the Faculty of Electrical Engineering and Information Technology at STU is ranked within the top 3 of all faculties (in 2015 was ranked second best)

## QS World University Rankings by Subject 2016 - SLOVAK UNIVERSITY OF TECHNOLOGY IN BRATISLAVA

Overall Scores by Subject



SCORED IN 18 SUBJECT

RANKED IN 1 SUBJECT

\* The maximum possible score in any subject is 100 but the scale here is dynamically set to highlight the differences between disciplines at the given university

Study



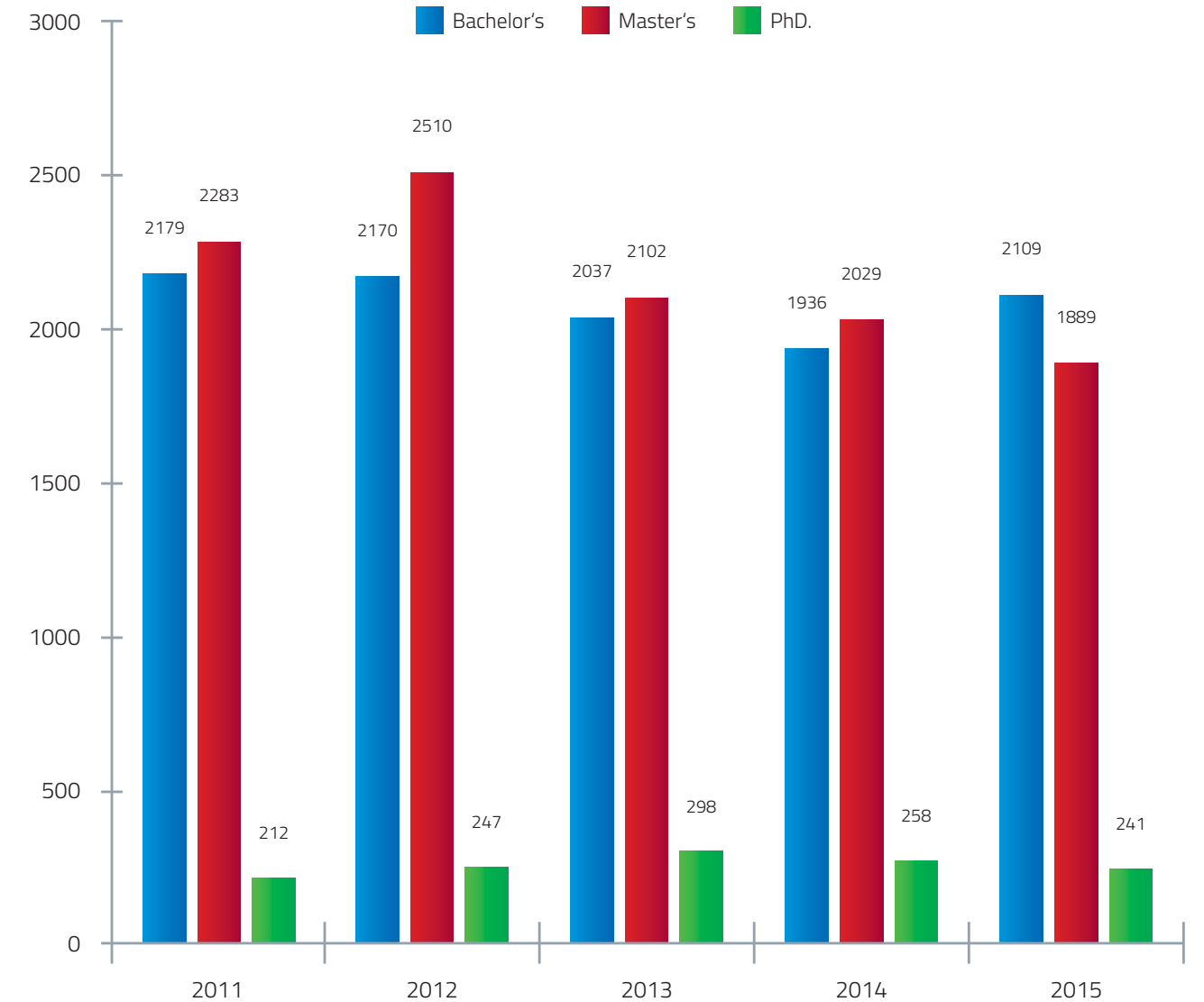
## Students and Graduates

- 15 403 students in the 2014/2015 academic year, 4 817 out of them were women
- 9 936 bachelor's degree students, 4 239 master's degree students and 1 228 PhD. students
- 4 172 graduates, 1 461 out of them were women.
- 172 study programmes in 2014/15
- ECTS label since 2012, DS Label since 2013

### FACULTIES

	STUDENTS 2014/15
Faculty of Civil Engineering	3 545
Faculty of Mechanical Engineering	1 366
Faculty of Electrical Engineering & Information Technology	2 346
Faculty of Chemical & Food Technology	2 319
Faculty of Architecture	1 202
Faculty of Materials Science & Technologies	3 057
Faculty of Informatics & Information Technologies	1 368
Institut of Management	200
<b>STU</b>	<b>15 403</b>

No. of STU students in the academic year 2014/2015





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## Faculty and their focus

### FACULTY OF CIVIL ENGINEERING

construction, geodesy and cartography, applied mathematics, mathematical and computer modelling, transport engineering and construction, hydro constructions, architecture and building construction, landscape management, applied mechanics

[www.svf.stuba.sk](http://www.svf.stuba.sk)

### FACULTY OF MECHANICAL ENGINEERING

transport and energy machines and devices, production technology and environmental production engineering, process engineering, applied mechanics, mechatronics, metrology, automation, engineering technologies and materials

[www.sjf.stuba.sk](http://www.sjf.stuba.sk)

### FACULTY OF ELECTRICAL ENGINEERING AND INFORMATION TECHNOLOGY

electrical engineering, electrical energy, electronics and photonics, applied mechatronics and electro mobility, robotics and cybernetics, nuclear and physics engineering, applied informatics, telecommunications, measuring technology, theoretical electrical engineering

[www.fei.stuba.sk](http://www.fei.stuba.sk)

### FACULTY OF CHEMICAL AND FOOD TECHNOLOGY

food production, nutrition, cosmetics, health protection, food technology, Food chemistry and technology, biochemistry and biomedical technologies, conservation of land and buildings heritage, biotechnology, automation, chemical engineering, chemical engineering, inorganic chemistry, inorganic technology and materials, macromolecular chemistry, organic chemistry, analytical chemistry, polymer materials technology, chemistry and environmental technology, chemical physics

[www.fchpt.stuba.sk](http://www.fchpt.stuba.sk)



Students project

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## Faculty and their focus

### FACULTY OF ARCHITECTURE

design, landscape and garden architecture,  
architecture, city planning

[www.fa.stuba.sk](http://www.fa.stuba.sk)

### FACULTY OF MATERIALS SCIENCE AND TECHNOLOGY

manufacturing technologies and manufacturing  
process management, manufacturing techniques,  
industrial engineering, occupational health & safety,  
automation and computerization of processes,  
mechatronics, mechanical engineering technologies  
& materials, advanced materials and material design,  
material engineering

[www.mtf.stuba.sk](http://www.mtf.stuba.sk)

### FACULTY OF INFORMATICS AND INFORMATION TECHNOLOGIES

informatics, applied informatics, information  
systems, internet technologies, software  
engineering, information security

[www.fiit.stuba.sk](http://www.fiit.stuba.sk)

### INSTITUTE OF MANAGEMENT

spatial planning, investment planning  
in industrial companies

[www.stuba.sk](http://www.stuba.sk)



Students day



# Research



Material research

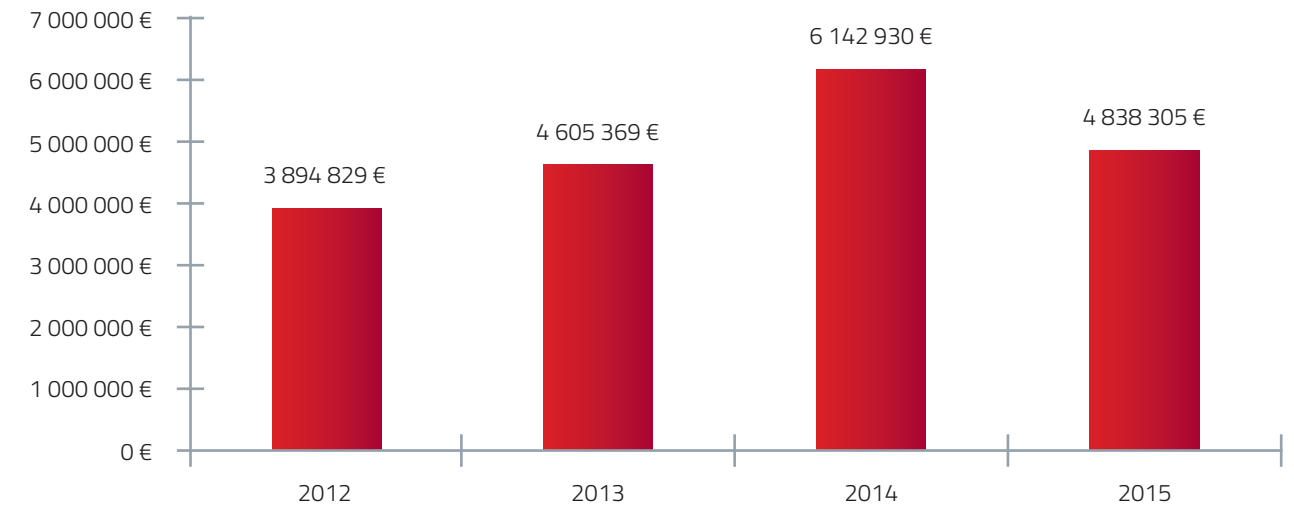
## Leader in commercial research

- 477 research projects financed by grants in 2015
- 22 projects out of those were financed by the EU Framework Programmes (FP7 and Horizon 2020), incl. the ENIAC and ECSEL initiatives
- 110 applications filed before 31. 12. 2015 in response to HORIZON 2020 calls
- 8th best project of 162 projects in the "Teaming for Excellence 2015" programme: The Slovak Ion Centre Project at STU in Trnava
- leader among the Slovak universities in the field of contract research for industry
- in the 2015/16 academic year leader among top technical universities in publishing activities and in securing national grants

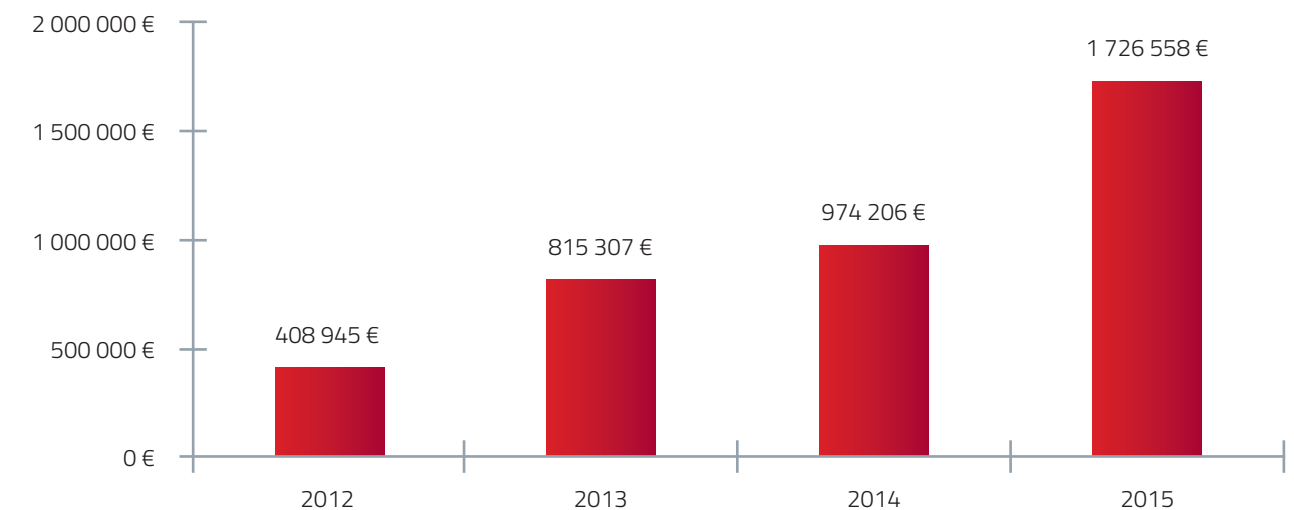


Laboratory of Hydraulic Engineering

## National grants



## Foreign grants



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## TOP research project

### Horizont 2020

#### *Climate action and environment*

**INREP** – Towards Indium free TCOs (2015 – 2017)

**INSPIRATION** – INtegrated Spatial PlannIng, land use and soil management Research ActTION (2015 – 2018)

#### *Energy*

**ingREeS** – Setting up Qualification and Continuing Education and Training Scheme for Middle and Senior Level Professionals on Energy Efficiency and Use of Renewable Energy Sources in Buildings (2015 – 2018)

#### *Information and communication Technologies*

**NEWTON** – Networked Labs for Training in Sciences and Technologies for Information and Communication (2016 – 2019)

#### *Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, and Biotechnology*

**HISENTS** – High level Integrated SEnsor for NanoToxicity Screening

**TEAMING, SlovakiON** – Slovak Centre of Excellence in Ion Beam and Plasma Technologies for Materials Engineering and Nanotechnology (2015 – 2016)

#### *Marie Skłodowska-Curie Actions*

**papabuild** – Advanced physical-acoustic and psycho-acoustic diagnostic methods for innovation in building acoustics

**ImageInLife** – Training European Experts in Multilevel Bioimaging, Analysis and Modelling of Vertebrate Development and Disease

#### *ECSEL*

**PowerBase** – Enhanced substrates and GaN pilot lines enabling compact power applications (2015 – 2018)

**OSIRIS** – Optimal SiC substR ates for Integrated Microwave and Power CircuitS (2015 – 2018)

**IoSense** – Flexible FE/BE Sensor Pilot Line for the Internet of Everything

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### 7th Framework Programme (FP7)

**MANUNET II** – Supporting SMEs towards a new phase to European Research Area on new processes, adaptive manufacturing systems and the factory of the future (2011 – 2015)

**GRAIL** – Glycerol Biorefinery Approach for the Production of High Quality Products of Industrial Value (2013 – 2017)

**RE CARE** – Preventing and Remediating degradation of soils in Europe through Land Care (2013 – 2018)

**ENIAC - E2SG** – Energy to Smart Grid (2012 – 2015)

**SAFESENS** – Sensor technologies enhanced safety and security of buildings and its occupants (2014 – 2017)

**eRAMP** – Excellence in Speed and Reliability for More than Moore Technologies (2014 – 2017)





## Top publications

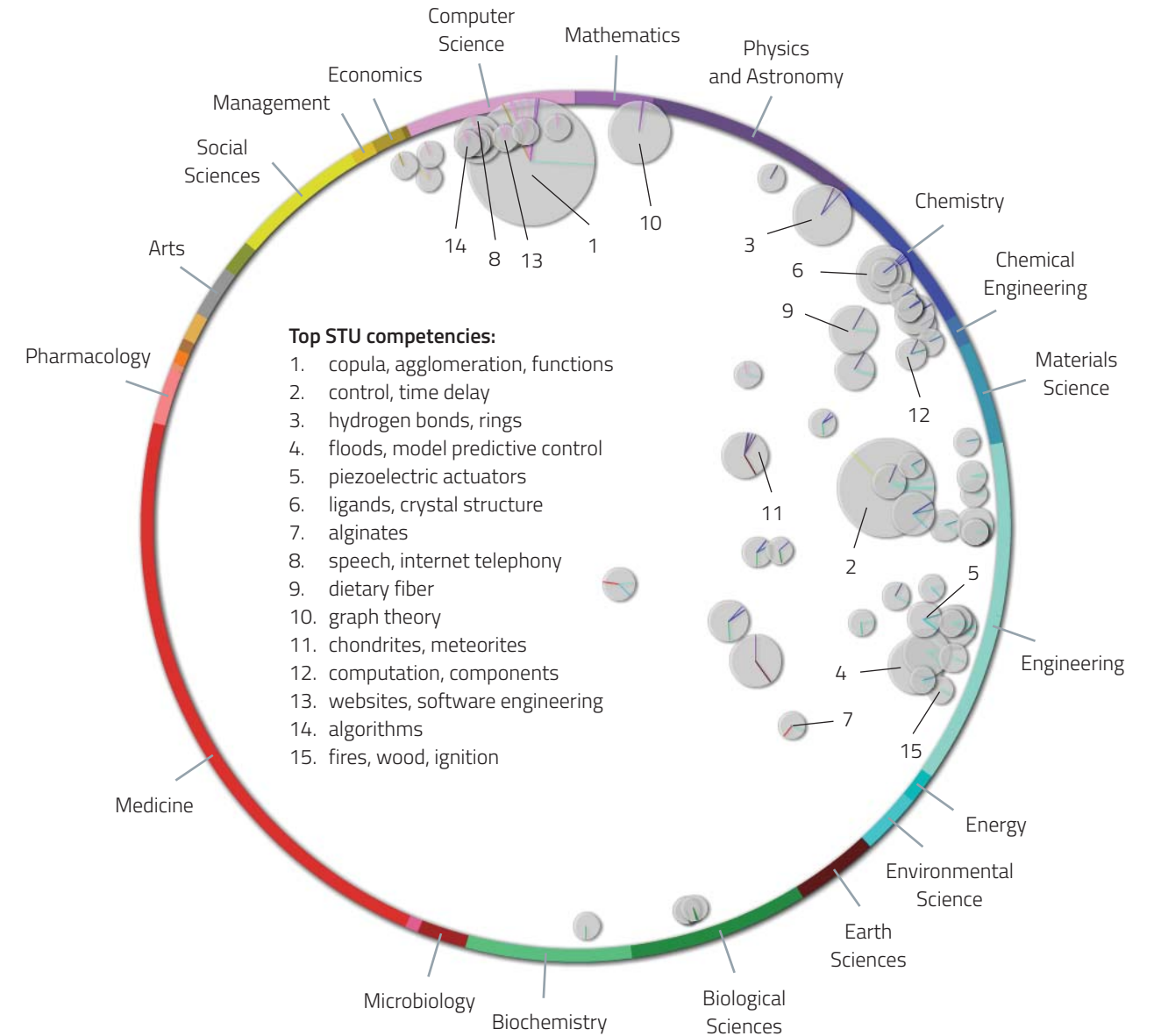
### Most cited author of 2015:

- **Prof. Marián Valko, DrSc.** from the Institute of Physical Chemistry at the Faculty of Chemical & Food Technology at STU: Free radicals and antioxidants in normal physiological functions and human disease, International Journal of Biochemistry & Cell Biology., listed in [www.mostcited.com](http://www.mostcited.com) and also in the Thomson Reuters publication: THE WORLD'S MOST INFLUENTIAL SCIENTIFIC MINDS 2015, the number of citations 10,548.

### Publications with the highest impact factor:

- **Prof. Dr. Radko Mesiar, DrSc.** from the Department of Mathematics and Descriptive Geometry at the Faculty of Civil Engineering at STU: Overlap Indices: Construction of and Application to Interpolative Fuzzy Systems, IEEE Transactions on Fuzzy Systems (IF=8,75.)
- **Dr. Ivan Šalitroš** from the Institute of Inorganic Chemistry, technologies and materials at the Faculty of Chemical & Food Technology at STU: Spin Transition in Arrays of Gold Nanoparticles and Spin Crossover Molecules, ACS Nano (IF=12,88).
- **Dr. Monika Kováčová** from the Institute of Mathematics and Physics at the Faculty of Mechanical Engineering at STU: Recurrent chromosomal gains and heterogeneous driver mutations characterise papillary renal cancer evolution, Exome sequencing of osteosarcoma reveals mutationsignatures reminiscent of BRCA deficiency, Nature Communications Journal (IF=11,47)
- **Prof. Dr. Ján Szolgay** from the Department of Land and Water Resources Management at the Faculty of Civil Engineering at STU: Storm type effects on super Clausius-Clapeyron scaling of intense rainstorm properties with air temperature, Hydrology and Earth System Sciences journal (IF=3,76)

## Scival spotlight profile of STU: Top 15 STU competencies





# Investments



New building of the Faculty of informatics and information technologies

## New laboratories in University Science Parks

- EUR 130 mil. was secured through a competitive tendering process in the programming period 2009 – 2015 from EU Structural Funds for research projects and for the development of STU's research infrastructure
- 2015 was the most important year in terms of investments: STU was finishing the university science parks projects Science City Bratislava and Cambo Trnava

### SCIENCE CITY BRATISLAVA

#### Regional Centre "Mlynská dolina":

- Virtual desktop cloud centre
- The User Experience and Interaction Research Centre (UXI@FIIT)
- Institute of Telecommunications
- Research centre for computer technologies
- Institute of Electronics and Photonics
- Institute of Nuclear and Physical Engineering
- Microwave and optical systems laboratory
- X-Ray diffraction laboratory

#### Regional centre „City Centre“:

- Research centre for product development
- Laboratory of bio-catalysis
- Laboratory of composite biomaterials
- New materials laboratory
- Biomass utilization research centre
- Laboratory of particulate materials
- Laboratory of physical properties in building constructions
- Laboratory for statics and dynamics in load bearing structures
- Laboratory of building materials
- Laboratory modeling of objects and phenomena in space
- Laboratory for constructions aimed at territory protection and prevention against geo-hazards

#### STU Centre for Nano-diagnostics

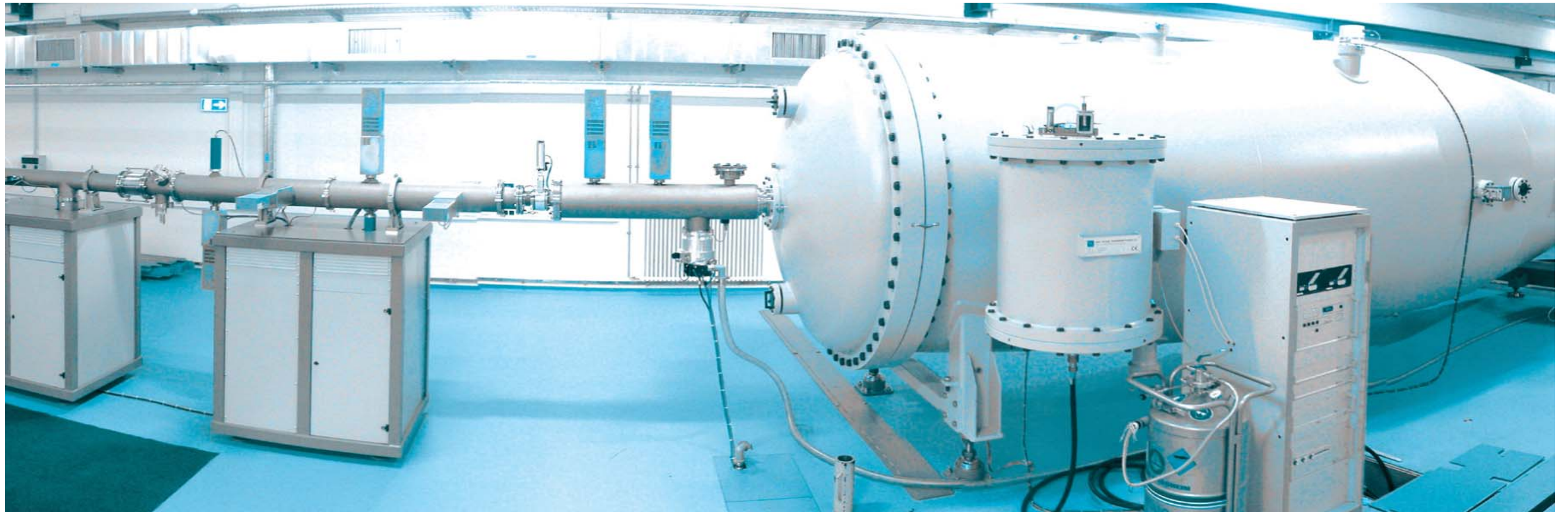




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## CAMBO TRNAVA

- Centre for materials research
- Centre for automation and computerisation of manufacturing processes and systems
- Centrum of Excellence for 5-axis machining



6MV Tandatron Tandem Accelerator

## Third mission of the university



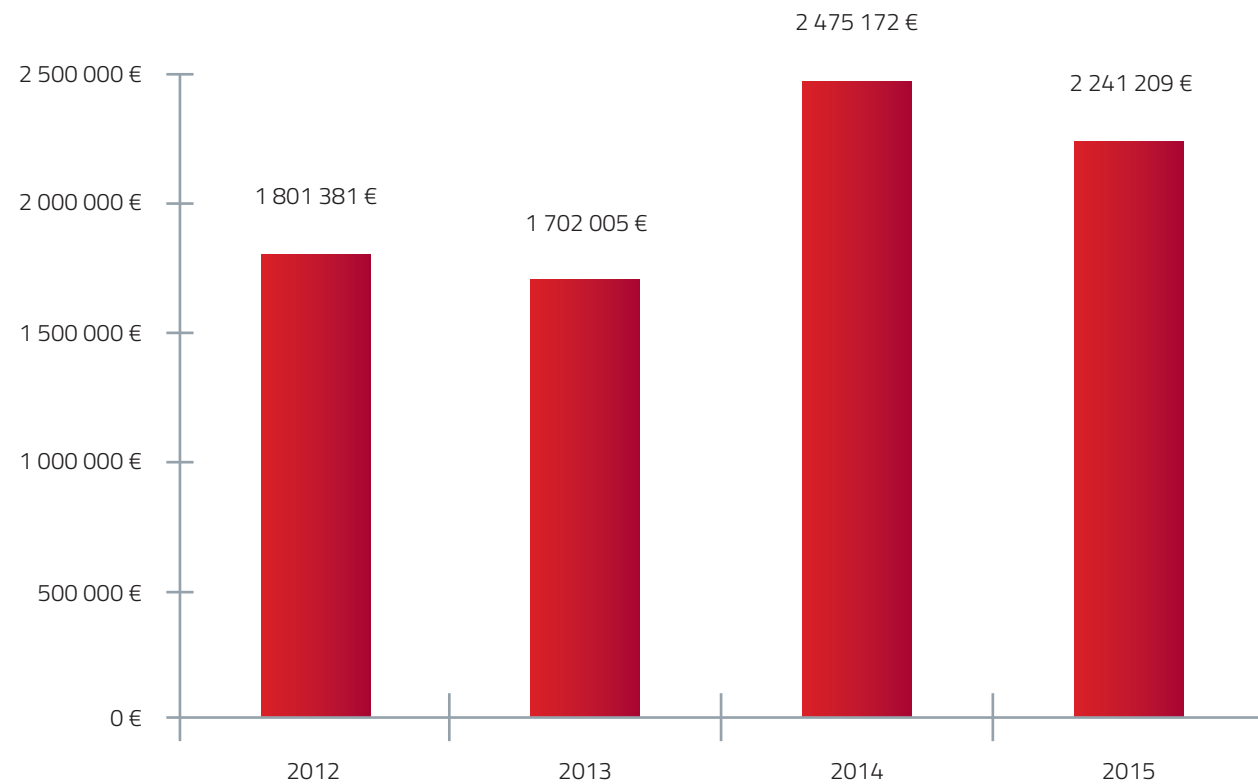
Strong cooperation with industry (VW leaders at STU)



## Technology transfer

- 294 contract research projects for businesses in 2015
- 38 patent and utility model applications filed at the Slovak industrial property office in 2015
- 1. place for the "The best technology transfer project 2015 in Slovakia" received for the additive to improve the cetane number in diesel and bio-diesel fuels.
- The patented bio-additive increases the cetane number of diesel and bio-diesel fuels and hence increases the fuel quality in an environmentally friendly way (decrease in the volume of exhaust gases)

## Income from commercial contracts



## Entrepreneurship

- 5 innovative spin-off companies operated independently from STU
- The spin-offs were founded by STU employees based on their own research. These companies are active in the field of nutrition and health-promoting foods, electro-mobility, flood protection, extreme materials and electro-energy.
- 7 new innovative companies in the University Technology Incubator and three new start-ups supported in 2015
- The companies specialise in: innovative map applications, biofuel production, digital marketing, energy-efficient constructions and building materials, smart grids, software development and architecture with a focus on eco-friendly materials.
- 10th anniversary of The University Technology Incubator – the first university incubator established in Slovakia.
- During its existence, the Incubator has supported 44 companies and 43 individuals undertaking the special start-up programme.

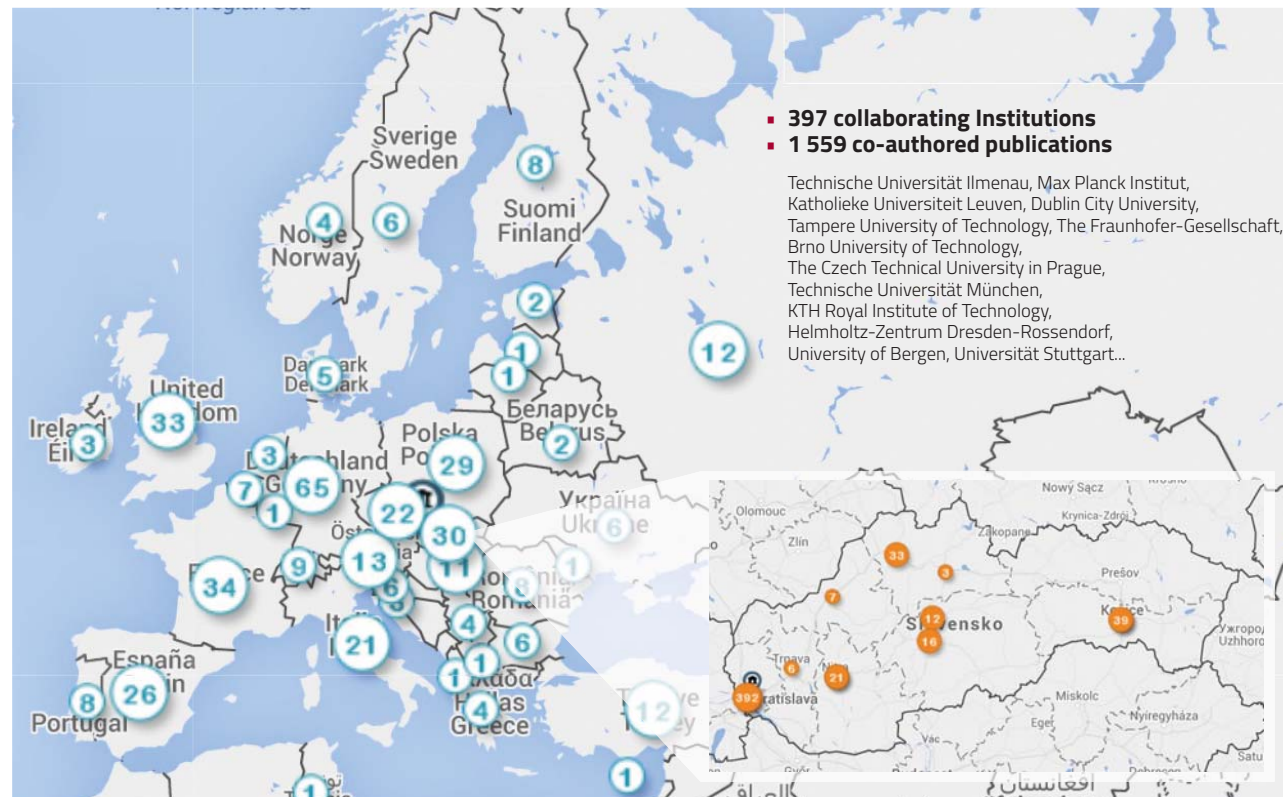


Biodegradable plastics

## International Collaboration

- 100 framework contracts with institutions in 35 different countries worldwide
- 326 Erasmus+ agreements concluded by STU with 198 institutions in 25 countries
- membership of prestigious international organisations, e.g. European University Association (EUA), the European Society for Engineering Education (SEFI), Vision2020 (innovation platform for research organisations and companies participating in the 'Horizon 2020' EU funding programme), European Sustainable Energy Innovation Alliance (eseia), European Alliance for Innovation (EAI), European Platform of Women Scientists (EPWS) and others

### Institutions collaborating with the Slovak University of Technology



## Lifelong Learning

- 3 312 graduates of further education, predominantly mathematics, physics, chemistry and also drawing and modelling
- 725 students at the university of the third age
- joint MBA programme with TU Wien (Vienna University of Technology): Professional MBA Automotive Industry
- Since its launch in 2009 up until 2014, 96 students from 23 countries from Asia, Europe, Africa and Northern America have completed the programme.
- In the academic year 2014/15 the programme was attended by 14 students from 7 countries.





VI/2016

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