

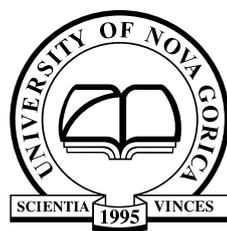
U N I V E R S I T Y O F N O V A G O R I C A



Annual Report of the University of Nova Gorica 2019

U N I V E R Z A V N O V I G O R I C I

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Annual Report of the University of Nova Gorica 2019

U N I V E R Z A V N O V I G O R I C I

Fakulteta za znanosti o okolju
v Novi Gorici

Ustanovljena: 24. 9. 1995

Ustanovitelja:

Mestna občina Nova Gorica

Župan: Tomir Špacapan dipl. oec

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Direktor: doc. dr. Danilo Zavrtanik

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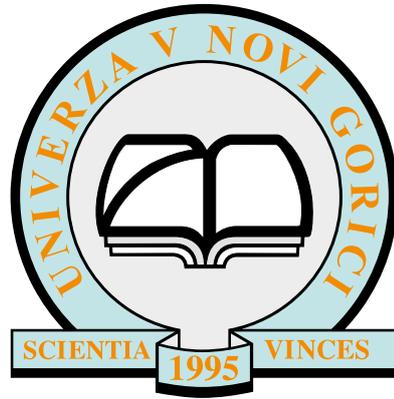
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Introduction

In 2019, the University of Nova Gorica activity covered undergraduate and postgraduate education, and research, artistic, and developmental work. The educational activity was implemented within five schools, one professional college, and an academy of arts. By the end of 2019, 236 doctors of science, 410 masters, and 897 graduates had completed their studies. The research activity took place in six centres and four laboratories.

The University of Nova Gorica is becoming an increasingly internationally oriented university institution. In 2019, foreign students from 48 different countries, both from Europe and other continents, represented 54% of the student population. Moreover, the University is becoming an attractive environment for foreign scientists and professors, and consequently, the number of experts from other countries is continuously increasing – at the end of 2019, they represented 25% of all employees.

In 2019, the European Union recognised the University of Nova Gorica excellence; namely, the global international comparison of Universities, U-Multirank 2019, ranks the University of Nova Gorica above average. The University of Nova Gorica excellence is recognised in the field of research, international orientation, and regional involvement. Moreover, the University shows good results in the field of learning and teaching. A comparison of the rankings (U-Multirank 2019) of the UNG and other universities in the wider region beyond the borders of Slovenia, shows that the University of Nova Gorica is top-ranked according to most evaluation

indicators. It outperforms not only all other Slovenian universities, but also older and larger neighbouring universities. In terms of scientific work, the University of Nova Gorica ranks among the top of the elite European and world universities. Last year, the University of Nova Gorica reached an exceptional 140th place in the Round University Ranking, which is the best result so far.

We would also like to draw attention to our colleagues awarded in 2019. Vice-rector for education, Prof. Dr. Mladen Franko, became a doctor honoris causa of the Azerbaijan State Agricultural University. The President of the Republic of Slovenia, Borut Pahor, awarded the “Apple of Inspiration” award to Doc. Dr. Tanja Petrushevski and Prof. Dr. Gabrijela Zaharijaš. Doc. Dr. Tanja Petrushevka received the award for the discovery of the first supernova where a double neutron star has been formed, and Prof. Dr. Gabrijela Zaharijaš received it for her research of outer galactic light, with the usage of the Fermi telescope. Moreover, our students achieve above-average results in science, the arts of sports and culture.

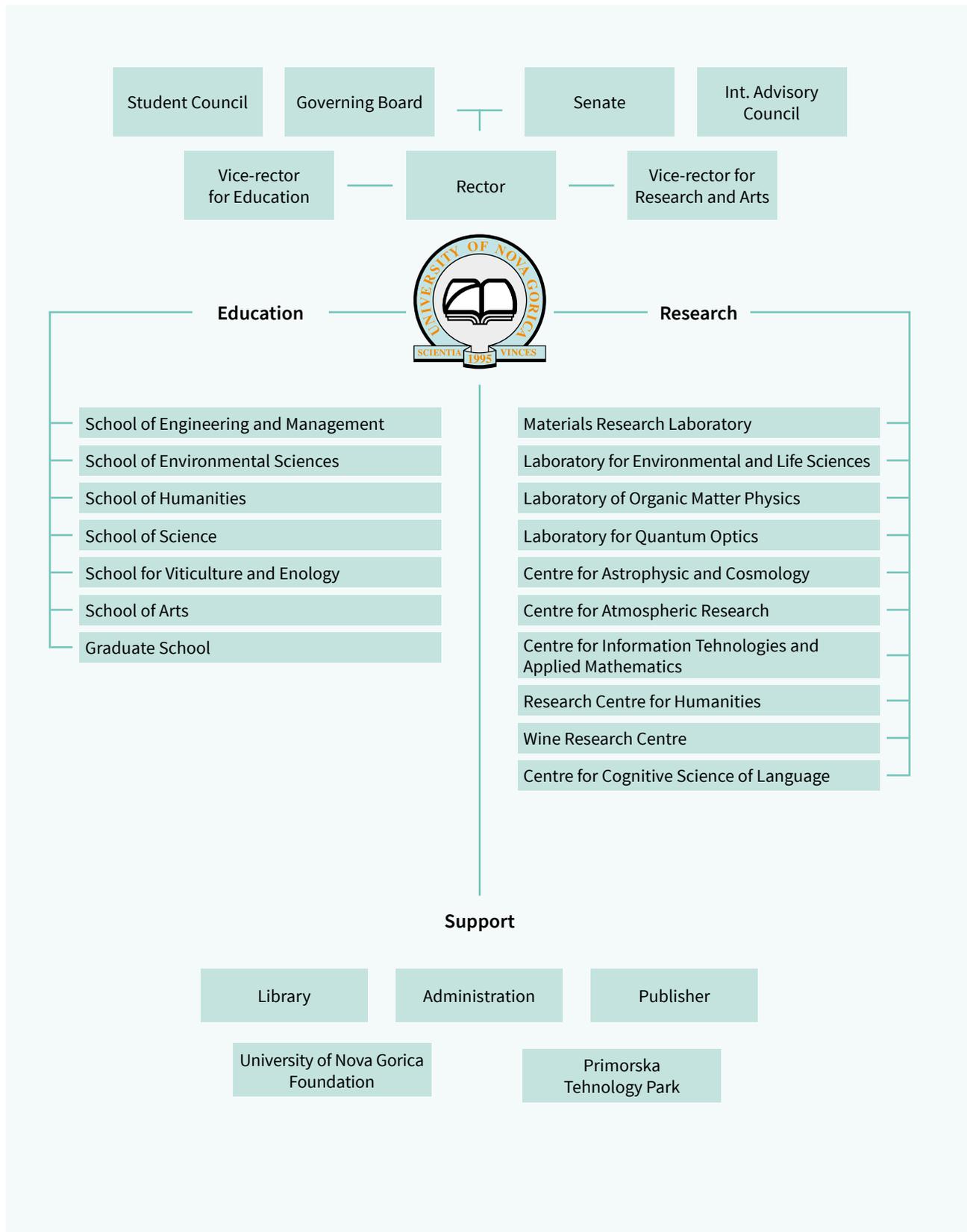
In 2019, the University of Nova Gorica awarded the titles of honorary doctor, professor emeritus, and honorary member. The title of honorary doctor of the University of Nova Gorica was awarded to the world-renowned expert in the field of molecular spectroscopic methods and biomedicine, Prof. Giacinto Scoles, for outstanding scientific and professional achievements in time-dependent spectroscopy and life sciences. The title of professor emeritus

of the University of Nova Gorica was awarded to the international expert in the field of conservation of the economics of culture, art and heritage, Prof. Dr. Xavier Greffe, for his important contribution to the international reputation and development of the University of Nova Gorica, and the exemplary performance of his pedagogical and mentoring work. The title of honorary member of the University of Nova Gorica was awarded to the international expert in the field of HPV virus biology and oncogenesis, Prof. Dr. Lawrence Banks, for his outstanding contribution to the development of scientific excellence at the University of Nova Gorica in the field of molecular and cell biology.

The year 2019 will also be remembered for the sale of patent rights. For the first time in its history, the University of Nova Gorica sold patent rights for the method for “solid-state grid energy storage” invention, to Institute CES, inštitut znanosti in tehnologije, d.o.o. The patent inventor is Prof. Dr. Matjaž Valant, the Head of the Materials Research Laboratory and Dean of the School of Environmental Sciences at the University of Nova Gorica.

The University of Nova Gorica devotes special attention to artwork; therefore, in 2019, it opened the UNG Gallery. In the first year of its operation, the gallery is to develop a programme of exhibition activity in the field of fine arts and design, which will also cover individual events in the field of the UNG Academy of Arts activity, i.e. in the field of film, animation, photography, new media, and contemporary artistic practices. The Gallery will feature at least eight exhibitions each year.

Organisational Structure



Staff structure

As of December 2019, the University of Nova Gorica had a total of 147 regular staff members (of which 29 were shared employees with primary employment at another institution). This included 86 doctors of science, 14 research assistants, another 21 holders of bachelor's or master's degree, 20 administrative personnel, 3 librarians, 1 maintenance officer and 2 photocopy clerks; 29 staff members were foreign nationals.

	Regularly employed	Supplementary employed
2008	93	51
2009	113	57
2010	114	67
2011	124	49
2012	137	42
2013	130	42
2014	147	37
2015	121	33
2016	117	29
2017	115	31
2018	113	28
2019	118	29

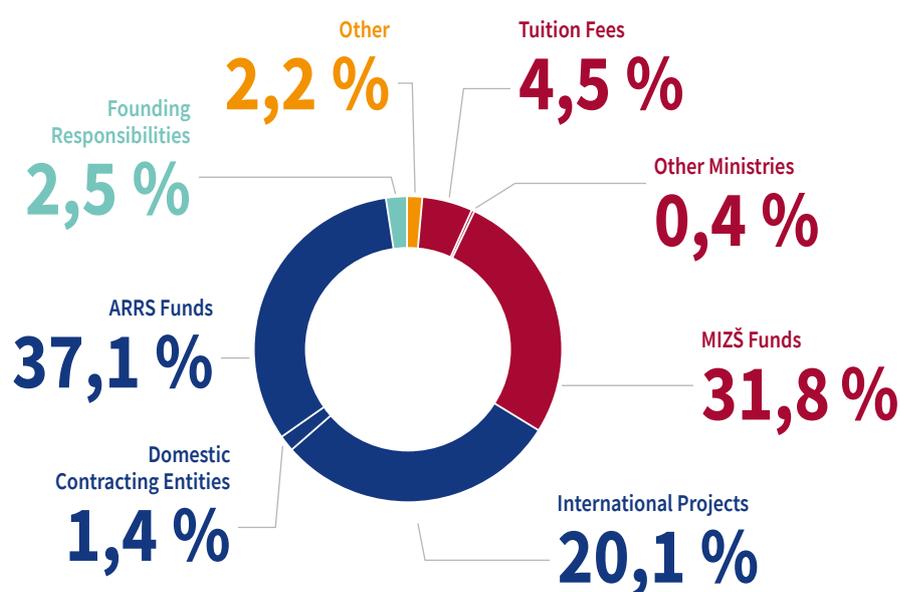
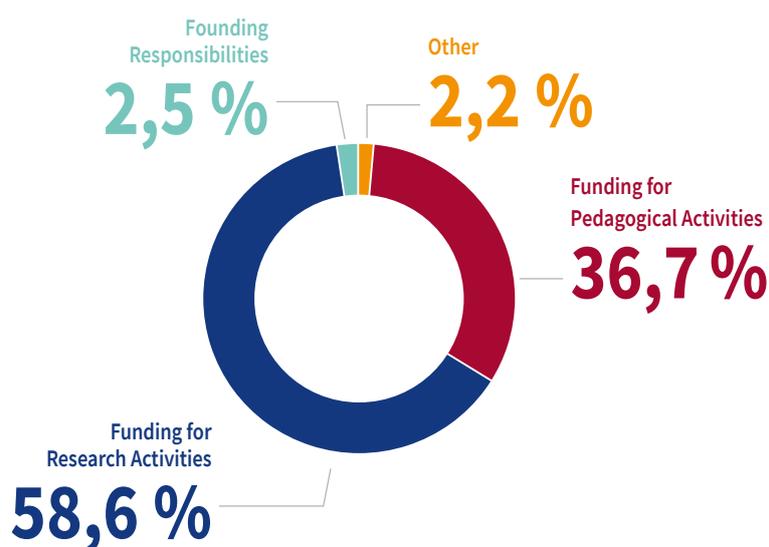
In addition, collaborating with the university were also over 200 adjunct faculty from other Slovenian universities and from universities outside of Slovenia.

State	Nr. collaborators
Austria	1
Bulgaria	1
Egypt	1
France	1
Croatia	1
India	2
Iran	1
Italy	11
Kazakhstan	1
China	1
North Macedonia	1
Germany	1
Poland	1
Romania	1
Ukraine	2
Great Britain	1
United States of America	1
Total	29

Financial Report

The University of Nova Gorica receives its funding from tuition fees, educational and research projects that are financed by the Slovene Ministry of Education, Science and Sport (MIZŠ) and the ARRS (Slovenian Research Agency), the income of the founders, international and industrial projects, as well as from various donations. In 2019, the University of Nova Gorica obtained about EUR 7,687 million of assets (cash flow) from the below listed sources:

Founding Responsibilities 2,5 %
Funding for Research Activities 58,6 %
ARRS Funds 37,1 %
Domestic Contracting Entities 1,4 %
International Projects 20,1 %
Funding for Pedagogical Activities 36,7 %
MIZŠ Funds 31,8 %
Other Ministries 0,4 %
Tuition Fees 4,5 %
Other 2,2 %
TOTAL 100,0 %



Prizes and Awards

Employee awards in 2019

French Distinction "Knight of the Order of Arts and Letters", February 2019

Igor Prassel

Prešeren Foundation Award, February 2019

Dušan Kastelic

"Apple of inspiration", President of the Republic Slovenia Borut Pahor Award, February 2019

Prof. Dr. Gabrijela Zaharijaš

"Apple of inspiration", President of the Republic Slovenia Borut Pahor Award, February 2019

Doc. Dr. Tanja Petrushevska

Award Lirikonov zlat, May 2019

Prof. Dr. Barbara Pregelj

Vesna award for special achievements related to his feature film, Festival of Slovenian Film, September 2019

Martin Turk

Vesna award for the best animated film, Festival of Slovenian Film, September 2019

Milanka Fabjančič

Mira award – the purpose of the award is to mark exceptional achievements in the field of literary work and excellence of one's personal stance, Women's Section of the Slovene PEN Center, October 2019

Neda Rusjan Bric

Award for best direction, Slovenian Animated Film Association, October 2019

Dušan Kastelic

Award for the best animation technique, Slovenian Animated Film Association, October 2019

Kolja Saksida

Award for the best visual artistic appearance of the animated film, Slovenian Animated Film Association, October 2019

Milanka Fabjančič

Honorary Doctor of the Azerbaijan State Agricultural University, November 2019

Prof. Dr. Mladen Franko

Student awards in 2019

First place for poster presentation, Winter College on Applications of Optics and Photonics in Food Science, Italy, February 2019

Hanna Budasheva

Educational Program Award called "Ostrenje pogleda" for her animated work, Festival of Slovenian Film, September 2019

Sandra Jovanovska

Poetry award of Association for Culture, Sports and Tourism Žalec Fanny Haussmann, September 2019

Maruša Mugerli Lavrenčič

Award for students animated project in progress, Slovenian Animated Film Association, October 2019

Anja Resman

Award for students animated film, Slovenian Animated Film Association, October 2019

Sandra Jovanovska

Award for the animated Master's degree, International film festival K3, December 2019

Sandra Jovanovska

Honorary Degrees in 2019

Doctor Honoris Causa

Prof. Giacinto Scoles

Honorary Member

Prof. dr. Lawrence Banks

Professor Emeritus

Prof. dr. Xavier Greffe

Student Award Alumnus Primus

Josipa Škrapič

Student Award Alumnus Optimus

Andrea Torroni

Gaja Tomsič

Zala Zbičajnik

Nik Obid

Nika Kravos

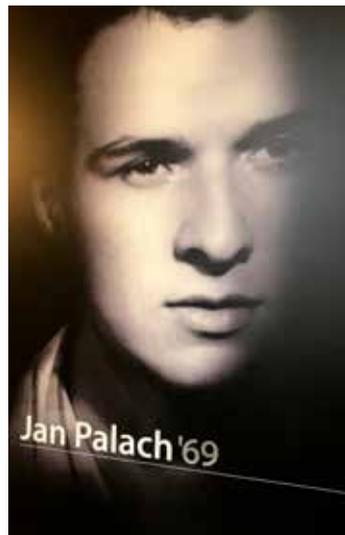
Ana Cukjati

Nada Ihanec

Josipa Škrapič

Mery Gobec

Important Events



From left to right: rector of the University of Nova Gorica Prof. Dr. Danilo Zavrtnik, Ambassador of the Check Republic, her Excellency Věra Zemanová, mayor of the Vipava municipality Ivan Princes and president of the Czech-Slovenian Society Alena Šamonilová.

MARCH

The Opening of the Exhibition “JAN PALACH 69”

On 1 March, the opening of the exhibition “JAN PALACH 69” took place at the University of Nova Gorica’s venue in Vipava, the Lanthieri Mansion.

In January 1969 Jan Palach, a twenty-year-old student, set himself on fire at Wenceslas Square in Prague. He wanted to stir up his fellow citizens to face upcoming “normalization” (the period following the Warsaw Pact invasion of Czechoslovakia in August 1968 and up to the Velvet Revolution in November 1989). Although political development has failed to reverse, he has deeply written down on society memory. Since his death, he has been most often remembered as a symbol – the torch, the victim or the national hero. This exhibition, on the contrary, aims to offer a different perspective and to bring the life and the action of Jan Palach in historical context of the 1960s through archival documents, photographs, video recording and objects from that time (including all of the final letters of Jan Palach). It tries to put his story into the context of the Prague Spring and upcoming „normalization“, presents Palach’s life and the ideological background from which he came, portrays the planning and the execution of his act, as well as the response he made in society. Ryszard Siwiec, Jan Zajíc, and Evžen Plocek also received attention.

The exhibition was opened by the Rector of the University of Nova Gorica, Prof. Dr. Danilo Zavrtanik, the Mayor of the Vipava municipality Ivan Princes, the Ambassador of the Czech Republic, her Excellency Věra Zemanová and the President of the Czech-Slovenian Society Alena Šamonilová. Authors of the exhibition: Petr Blažek, Patrik Eichler, Jakub Jareš; the original exhibition was organized by: The Faculty of Arts of Charles University in Prague, The National Museum; the exhibition in Slovenia is organized by: Czech-Slovenian Society and Zavod »Zimske urice«.



○ APRIL

Visit of the Austrian Ambassador to Slovenia

On 1 April, the University of Nova Gorica hosted the Austrian Ambassador to Slovenia, Her Excellency, Sigrid Berka, who was visiting the Nova Gorica Municipality. Apart from the Ambassador, the Head of the Austrian Cultural Forum, Andreas Pawlitschek, also took part in the courtesy visit.

The Rector of the University of Nova Gorica, Prof. Dr. Danilo Zavrtanik and Vice-rector for Research and Arts, Prof. Dr. Guido Bratina, greeted the guests on the University of Nova Gorica's premises at the Lanthieri Mansion.

After introducing the university, the guests and the hosts talked about the projects that the University of Nova Gorica has built together with Austrian institutions in the areas of sciences, humanities and arts. We put special emphasis on the RETINA project, which is financed by the Interreg Slovenia-Austria program (with the University of Nova Gorica being the lead partner). After that, the guests visited the School for Viticulture and Enology and the Wine Research Center. At the end of the visit, both the Ambassador and the Rector expressed a huge interest in a closer collaboration between the countries in the spheres of pedagogical and research work.

MAY

Conclusion of the Patent Sale Agreement between the University of Nova Gorica and Institute CES, inštitut znanosti in tehnologije, d.o.o.

On 8 May, the Rector of the University of Nova Gorica, Prof. Dr. Danilo Zavrtanik, and the Director of Institute CES, inštitut znanosti in tehnologije, d.o.o., mag. inž. el. Nina Gramc, concluded the Agreement based on which the University of Nova Gorica sold the patent rights for the method for “solid-state grid energy storage” invention to Institute CES, inštitut znanosti in tehnologije, d.o.o..

The patent inventor is Prof. Dr. Matjaž Valant, the Head of Materials Research Laboratory and Dean of the School of Environmental Sciences at the University of Nova Gorica. The patent invention provides a solution to currently one of the major problems in the energy industry, that results from unbalanced electricity generation and consumption. This problem is particularly significant in cases where a greater amount of energy from non-permanent sustainable resources, such as wind and sun, is added to the electricity grid. “Today, a huge amount of energy is being discarded globally in order to balance electricity generation and production, and thus stabilise the grids; however, this represents environmental and economic damage. With the exception of pumped-storage power plants, which are geographically dependent on gravity fall, we do not yet have any appropriate technology for storing such huge amounts of electricity. The invention solves this problem by storing electricity in the oxidation reduction potential of a solid matter. The process is ecologically neutral, economically advantageous, and enables permanent storage of energy of density greater than that of e.g. fossil fuels”, explained the inventor, Prof. Dr. Valant, who highlighted that this is a one-of-a-kind solution in the world. Prof. Dr. Valant and his colleagues conducted research in connection with the

invention for many years; a year and a half passed before they found a company that was interested in developing a prototype.

This is a huge milestone for the University of Nova Gorica, as for the first time in 24 years of the University’s operation, patent rights have been sold. “Long-term investments in science are required in order to get the results with market value and financial evaluation. In the future, we would like to see many achievements of this kind”, said Prof. Dr. Zavrtanik. The proceeds from the sale will be used to finance new patents. “The University keeps its own fund, and it is the first time that funds have been raised from the sale of an invention or patent. They will be used exclusively for the development of new inventions and the financing of their patenting, and not for anything else”, said the Rector of the University of Nova Gorica.

The cooperation between the institutions will continue in the future, since the two have concluded a development cooperation agreement in addition to the aforementioned agreement on the purchase of patent rights. “One agreement relates to the purchase of patents, and the other, which is even more important for us, is the cooperation agreement with the University. The Materials Research Laboratory will produce a working prototype for our company, and determine all the relevant technological, energy, and economic parameters of this technology. It is important to support Slovenian science and knowledge, and to work together hand in hand in the future”, said the Director of the Institute CES, Nina Gramc, upon the signing of the Agreement.



From left to right: Head of the CES Institute, Nina Gramc (holding a Master’s degree in engineering), Rector of the University of Nova Gorica, Prof. Dr. Danilo Zavrtanik and Inventor of the Patent, Prof. Dr. Matjaž Valant.



From left to right: Head of the CES Institute, Nina Gramc (holding a Master’s degree in engineering), Rector of the University of Nova Gorica, Prof. Dr. Danilo Zavrtanik and Inventor of the Patent, Prof. Dr. Matjaž Valant.



○ MAY

The Opening of the University of Nova Gorica's Gallery

On 24 May, the University of Nova Gorica's Gallery was opened at the Lanthieri Mansion in Vipava.

As the Rector of the University of Nova Gorica, Prof. Dr. Danilo Zavrtanik said, the University puts special attention to artistic work and the opening of the UNG's Gallery is closely connected with the founding of the UNG's School of Arts. "Apart from the pedagogical work, the School also needs to have the other, artistic part to it, an aspect that it presents to a wider public. The idea about the Gallery was born at about the same time as the School itself, however, it took a while for us to set up and establish a program council, responsible for the curation of exhibitors," said Prof. Dr. Zavrtanik at the opening.

The program council, namely Prof. Rene Rusjan from the University of Nova Gorica, along with

Jani Bavčer and Lucijan Bratuš, is a body that independently creates the Gallery's program, it selects the exhibitors and takes care of the long-term vision of the Gallery. "The Gallery will feature at least eight exhibitions yearly, as we want our Gallery to stay lively and interesting," Prof. Dr. Zavrtanik added.

The first artist to exhibit her work at the new gallery is painter Mojca Zlokarnik, who loves colors. She adores colors, in fact, as she put it herself. She has been learning how to understand colors. She searches for provocative combinations. At the opening, she said that she was extremely honored that her work was chosen for the gallery's opening. "I am very glad that I received this invitation. I think this is an example of truly valuable interweaving of science and arts; I believe creativity is important in both areas. I present myself here with paintings and objects that are based in color. My art is mainly about color," explained Zlokarnik.



From left to right: Mojca Zlokarnik, Prof. Rene Rusjan, Jani Bavčer and Prof. Dr. Danilo Zavrtanik.



29 May 2019.



30 May 2019.

MAY

Graduation Ceremony for Bachelor's, Master's, and Doctoral Students

On Wednesday, 29 May and on Thursday, 30 May, 2019, the graduation ceremony for Bachelor's, Master's, and Doctoral students of the University of Nova Gorica was held at the Lanthieri Mansion in Vipava.

The School of Engineering and Management produced five Bachelor degrees, the School of Arts and the School of Humanities had two Bachelor degrees one student graduated from the School of Science and the School for Viticulture and Enology. Nine Master's students also received their official titles.

In addition to that, the University's Rector, Prof. Dr. Danilo Zavrtanik conferred doctoral degrees to ten graduate students, coming from the Physics, Environmental Sciences, Economics and Techniques for the Conservation of the Architectural and Environmental Heritage and Karstology.



Rector, Vice-rectors and Deans of the University of Nova Gorica.



OCTOBER

Gala Opening of the New Academic Year

The main event at the opening of the 25th academic year took place on Thursday, 17 October at the Lanthieri Mansion in Vipava.

The rector of the University of Nova Gorica, Prof. Dr. Danilo Zavrtanik first greeted the guests: "The beginnings of the University of Nova Gorica date back to 1995, when we started humbly but determined to create a different and top-class research, student-friendly and internationally open university. State and local communities, with few exceptions, have often failed to understand an institution that wanted to be autonomous, independent and simultaneously socially responsible. Thanks to the outstanding persistence and dedication of all employees and participants, the UNG has developed into a first-class university institution, which is particularly renowned worldwide for its scientific excellence and international involvement," Prof. Dr. Zavrtanik said in his introductory speech.

Today, the pedagogical activities of the university are spread around seven different Schools. Up until today, the University of Nova Gorica has produced 233 PhDs, 396 Master's degree graduates and 895 Bachelor's degree graduates. The research activities take place in six centers and four laboratories. The number of foreign students is increasing every year and this year the percentage of foreign students is as high as 54% of the entire student population. They come from 48 different countries, from Europe and from other continents.

"The success of academic institutions is achieved by the scientists, artists, professors, assistants, students and other university staff – at the UNG, we have been lucky enough to be able to attract the best individuals, who create at and are committed to the university even during a period that does not exactly welcome innovation. Our researchers achieve outstanding scientific

results that place us at the top of the research universities in Europe. In the EC study, we have been ranked at the top, among the elite universities such as the ETH Zurich and École Polytechnique Fédérale de Lausanne (EPFL), and the University of Oxford and University of Cambridge, in terms of scientific excellence. Also on the Round University Ranking we have managed to further improve last year's position, and are now in the 140th place in the world, in the first place in Slovenia, and 71st place in the field of engineering sciences," explained Prof. Dr. Zavrtanik.



Prof. Dr. Danilo Zavrtanik,
Rector of the University of Nova Gorica.



Honorary doctor of the University of Nova Gorica –
doctor honoris causa – Prof. Giacinto Scoles.



Awardees and Administration of the University of Nova Gorica.

At the University of Nova Gorica we are continuously upgrading and perfecting our programs. This year, we are introducing the Master's and PhD programs in the field of materials science and a master's program in the field of viticulture and enology. Moreover, we are preparing a lot of novelties in regards to the internationalization of the studies at our university. We are planning, in cooperation with foreign universities, to introduce double degree programs which enable students to study at two different universities or institutions.

"There are new challenges to confront in the 25th academic year. The maintenance of our vision has never been easy and we are not expecting it to be easy in the future. We will need to avoid the pitfalls that might deceive us into taking a course of agreeableness and of copying outdated concepts of higher education. For this reason, too, the University of Nova Gorica will need to

initiate a rejuvenation process that will bring freshness and new ideas in the fields of science and art, new concepts of study and of university management.

We are entering this new academic year with optimism, confident in our mission, committed to international university norms, and with a responsible attitude towards our students and to society in general. We are convinced that we are excellent and that together we can achieve more," the Rector concluded his speech.

At the ceremony, the Rector of the University of Nova Gorica, Prof. Dr. Danilo Zavrtanik, presented different awards, namely, the doctor honoris causa of the University of Nova Gorica, the title of professor emeritus of the University of Nova Gorica and the honorary member of the University of Nova Gorica.

At its session on 15 May 2019, the Senate of the University of Nova Gorica adopted a decision to award the title of an *honorary doctor of the University of Nova Gorica* – doctor honoris causa – to Prof. Giacinto Scoles for outstanding scientific and professional achievements in time-dependent spectroscopy and life sciences.

At its session on 15 May 2019, the Senate of the University of Nova Gorica adopted a decision to award the title of *professor emeritus of the University of Nova Gorica* to Prof. Dr. Xavier Greffe for his important contribution to the international reputation and development of the University of Nova Gorica and the exemplary performance of pedagogical and mentoring work.

At its session on 15 May 2019, the Senate of the University of Nova Gorica adopted a decision to award the title of *honorary member of the University of Nova Gorica* to Prof. Dr. Lawrence Banks, for his outstanding contribution to the development of scientific excellence at the University of Nova Gorica in the field of molecular and cell biology.

We also awarded nine male and female students. The *alumnus primus* award was given to those graduates who graduated first in their generation: Josipa Škrapič. Another award, *alumnus optimus*, was given to those who achieved the highest grade point average in each year of their studies: Andrea Torroni, Gaja Tomsič, Zala Zbičajnik, Nik Obid, Nika Kravos, Ana Cukjati, Nada Ihanec, Josipa Škrapič and Mery Gobec.



Honorary member of the University of Nova Gorica, Prof. Dr. Lawrence Banks.



Professor emeritus of the University of Nova Gorica, Prof. Dr. Xavier Greffe.



4 December 2019.



5 December 2019.

○ DECEMBER

Graduation Ceremony for Bachelor's, Master's, and Doctoral Students

On Wednesday, 4 December and on Thursday, 5 December, 2019, the graduation ceremony for Bachelor's, Master's, and Doctoral students of the University of Nova Gorica was held at the Lanthieri Mansion in Vipava.

The School of Humanities produced five Bachelor degrees, the School of Arts had four Bachelor degrees, the School of Environmental Sciences had two Bachelor degrees and the School for Viticulture and Enology and the School of Engineering and Management had three Bachelor degrees. Ten Master's students also received their official titles. In addition to that, the University's Rector, Prof. Dr. Danilo Zavrtanik conferred doctoral degrees to ten graduate students, coming from the Physics, Molecular Genetics and Biotechnology, Environmental Sciences and and Karstology.



Rector, Vice-rectors and Deans of the University of Nova Gorica.

Organizing of Conferences, Summer Schools, Workshops and Courses

The first meeting of the CEEPUS network Astro.CE at the University of Nova Gorica

13 May – 15 May 2019, University of Nova Gorica, Vipava, Slovenia

During the week 13-15 May 2019, School of Science and Graduate School of the University of Nova Gorica organized the first meeting of the CEEPUS network Astro.CE: "Multi-messenger Astrophysics in Central Europe", which we are coordinating with the University of Belgrade, University of Novi Sad, University of Banja Luka, University of Rijeka. About 40 participants from the whole network attended the school, together with visiting lecturers from Harvard University, International School of Advanced Studies of Astronomy, New York University and the University of Trieste. The meeting was also part of the proESOF initiative, a program of activities to anticipate and accompany the development of Euro Science Open Forum (ESOF) 2020 Trieste.



Sixth meeting of the Virtual Alpine Observatory (VAO)

7 June 2019, University of Nova Gorica, Vipava, Slovenia

On June 7, 2019, the University of Nova Gorica hosted the sixth meeting of the Virtual Alpine Observatory (VAO) board in the Lanthieri mansion in Vipava. VAO - a network of European High Altitude Research Stations based in the Alps and similar mountain ranges with the goal to join forces and resources to address in scientific problems relating to the atmosphere, biosphere, hydrosphere and cryosphere systems is active since 2012 and includes partners from Austria, France, Germany, Georgia, Italy, Norway, Slovenia and Switzerland. Through the Otlica atmospheric observatory the partners from Slovenia are the University of Nova Gorica and the Slovenian Environment Agency.

International course on open education in Vipava as a final event of the "Open Education for a Better World" mentoring program

1 July – 4 July 2019, University of Nova Gorica, Vipava, Slovenia

There was a four day course on open education held from the 1st till the 4th of July 2019 in the premises of the University of Nova Gorica in the Lanthieri Mansion in Vipava. The course was organized by the University of Nova Gorica and the UNESCO chair on Open Technologies for Open Educational Resources and Open Education at the Jožef Stefan Institute. Around 60 participants acquired knowledge and exchanged experience needed for efficient usage as well as for development of open educational resources. Lecturers and the audience came from 17 countries (Slovenia, Brazil, Fiji, France, India, Indonesia, Italy, South African Republic, Canada, Lebanon, Germany, North Macedonia, Slovakia, Sudan, Switzerland, United Kingdom, USA).



The course was organised as a closing event of the *Open Education for a Better World* international mentoring program

Summer school “Basic Photothermal and Photoacoustic Techniques: Theory, Instrumentation and Applications”

6 July – 12 July 2019, Moscow, Russia

In collaboration with Lomonosov Moscow state university (LMSU) we organised an International summer school “Photothermal and Photoacoustic Techniques: Theory, Instrumentation, and Applications”, which was a pre-conference event for the 20th International Conference on Photoacoustic and Photothermal Phenomena and was part of the International year of the periodic system of elements. The school took part at the Chemistry department of LMSU from 6. - 12. 7. 2019, and was attended by 30 participants from Europe, South and North America, and Asia. The school was conducted by prof. dr. Mladen Franko (University of Nova Gorica), prof. dr. Mikhail Proskurnin (Lomonosov Moscow State University) and prof. dr. Andreas Mandelis (University of Toronto), with participation of internationally renowned experts from the field of photothermal and photoacoustic spectroscopy.



Participants to the Summer school “Photothermal and Photoacoustic Techniques: Theory, Instrumentation, and Applications” 7. - 12. 7. 2019.



Leonardo da Vinci Symposium - Reflections upon the 500th Anniversary of his Death

18 October 2019, University of Nova Gorica, Vipava, Slovenia

On October 18, the University of Nova Gorica held a Leonardo da Vinci Symposium - Reflections upon the 500th Anniversary of his Death, which confirmed the relevance of interdisciplinary consideration of the protagonist, and highlighted the opportunities offered, created, and enriched by modern times.

In the service of Venice, Leonardo da Vinci explored the Vipava Valley, proposed - in modern jargon - the construction of technical barriers to prevent Turkish invasions into the Friulian plain. In general, Leonardo da Vinci is considered to be an outstanding artist; however, since the 19th century, he has been recognised as one of the greatest engineers, with a remarkable gift for creativity; a man before his time.

At the conference, we learned about his time and life (his childhood, the situation at the Il Mora court of Milan during Leonardo's sojourn - records of Peter Bonomo, a diplomat in the service of Maximilian), and on the example Leonardo is setting to contemporary artists and creative people, i.e., in the age that institutionally promotes creativity. The greatest emphasis was placed on the work of Leonardo da Vinci in the Vipava Valley, with a cultural and historical presentation, and a presentation of the specific activities of the protagonist. At the roundtable discussion, the participants assessed the possibilities for the development of cultural tourism in Vipava and the entire valley, from three levels (academic community, local environment, and politics). Such a form of tourism, which preserves the local cultural heritage while attracting tourists, has the potential for development.



CTA - opportunities for Slovenian SME's

7 November 2019, University of Nova Gorica, Vipava, Slovenia

On November 7, 2019, the University of Nova Gorica and the ScienceTech consortium of the Chamber of Commerce of Slovenia jointly organized a workshop and a round table in the Lanthieri mansion in Vipava entitled "CTA - opportunities for Slovenian SME's". The aim of this workshop was to investigate the potential, the capability and the willingness of Slovenian high-tech companies to contribute to the development and to the construction of the Cherenkov Telescope Array observatory (CTA), which will be built to facilitate groundbreaking discoveries in the field of astrophysics. The workshop demonstrated Slovenian intent to partake in the design, construction and commissioning of one of the most complex future European Big Physics projects, and to collaborate in scientific exploration using one of the most complex astrophysics ground-based systems to be ever built.

Conference Škrabčevi dnevi 11

15 November 2019, University of Nova Gorica, Rožna Dolina, Slovenia

On November 15, 2019, the University of Nova Gorica and the Research Center of the Slovenian Academy of Sciences and Arts co-hosted *Škrabčevi dnevi 11*. The conference was initiated in 1994 by the renowned Slovenian linguist Jože Toporišič, and has been co-organized by the University of Nova Gorica and the RC SASA since 2011, when it was turned into a conference that imposes no restrictions with respect to the subdiscipline, topic, investigated language, framework or methodology of the reported research. As such, the conference attempts to serve as an all-inclusive umbrella event for Slovenian linguists. The 16 talks presented by speakers from institutions in Slovenia and abroad covered topics in dialectology, etymology, normativity, morphology, phonology and language acquisition. The conference will be completed in 2020 with the publication of the conference proceedings published by the University of Nova Gorica Press.



International workshop "Sustainable viticulture and climate change in Slovenian regions"

21 November 2019, University of Nova Gorica, Vipava, Slovenia

On November 21st 2019, an international workshop entitled "Sustainable viticulture and climate change in Slovenian regions" was organised by School of Viticulture and Enology and Wine Research Centre. The workshop, delivered in Lanthieri mansion by the local and foreign experts, was targeting the audience of winegrowers, winemakers and general professional public in the field of viticulture. The present "threats" to Slovenian viticulture, results of research with innovative late pruning techniques, different training systems and grape ripening dynamics in the context of environmental conditions were presented, as well as an interesting mechanism for the prediction of diseases. Winegrowers were thus prompted to change the existing viticultural practices in order to adapt to the climate change challenges.

Important Achievements

○ APRIL

The University of Nova Gorica reached an exceptional 140th place on the international Round University Ranking (RUR)

According to the results of the international Round University Ranking system, performing evaluations and rankings of leading world universities, the University of Nova Gorica found itself at an exceptionally high place, namely the 140th place, which is the best result so far. It also reached really high rankings in the previous years: in 2018, it was listed as the 353rd, in 2017, it was placed at the 186th spot, and in 2016 at the 203rd place. Among the latter the most highly esteemed U.S. and British universities prevail, such as the California Institute of Technology, Stanford University, Harvard University, the University of Oxford, the University of Cambridge etc.

Even better is UNG positioned on the RUR subject rating of world universities: in the field of technical sciences the University of Nova Gorica is ranked among the 100 best universities worldwide, namely on the outstanding 77th place. In the field of natural sciences the University of Nova Gorica is ranked on excellent 190th place.

The results of RUR show that in terms of all quality assurance indicators the University of Nova Gorica holds a remarkably strong lead over the rest of the universities in Slovenia. Up to date no other Slovenian university has been ranked so high on any of the internationally recognised world universities rankings. Moreover, it performed better than older and larger universities in Slovenia's cross-border area (See The world map of RUR Ranking)

RUR measures the performance of the leading world universities on an annual basis by universities' overall results achieved across four key missions: teaching, research, international diversity and financial sustainability. Beside overall results RUR provides also subject rankings of the world universities. RUR subject rankings evaluate performance of 761 world's leading higher education institutions by 6 broad subject areas: Humanities, Life Sciences, Medical Sciences, Natural Sciences, Technical Sciences, Social Sciences. All universities are assessed by the same 20 indicators and 4 key areas of university activities as in overall RUR World University Rankings.

RUR rankings are based on the data on world universities collected by Thomson Reuters, as part of the Global Institutional Profiles Project.

Thomson Reuters' assessment of universities is based on data obtained from three main sources: data on the institution's publications and citations from Thomson Reuters Web of Science®; the results of the annual Academic Reputation Survey and the data provided by the institution directly to Thomson Reuters. A database is thus formed on the institution's scientific and teaching performance, its sources of financing and the characteristics of its students and staff.

On the basis of the data obtained RUR's analysis is performed, considering 20 indicators of quality performance in the previously mentioned four key mission areas. The major part of the assessment is represented by the indicators in the area of research (40 %) and teaching (40 %). All indicators take into account the size of the institution. Consequently, small and large universities can equally be compared in terms of their performance.



Despite its short tradition (celebrating its 20th anniversary in 2015) and a relatively small size, the University of Nova Gorica excels on an international scale. Its excellence has also been recognised in the U-Multirank 2015, 2016 and 2017 comparative world university rankings and can by no means be considered as a coincidence but rather represents the results of hard work and the clearly defined mission of the development of the University of Nova Gorica. The University's scientific excellence was also identified and emphasized in the European Commission's report on the Scientific Output and Collaboration of European Universities in the period from 2007 to 2011, stating that according to the criteria of scientific excellence

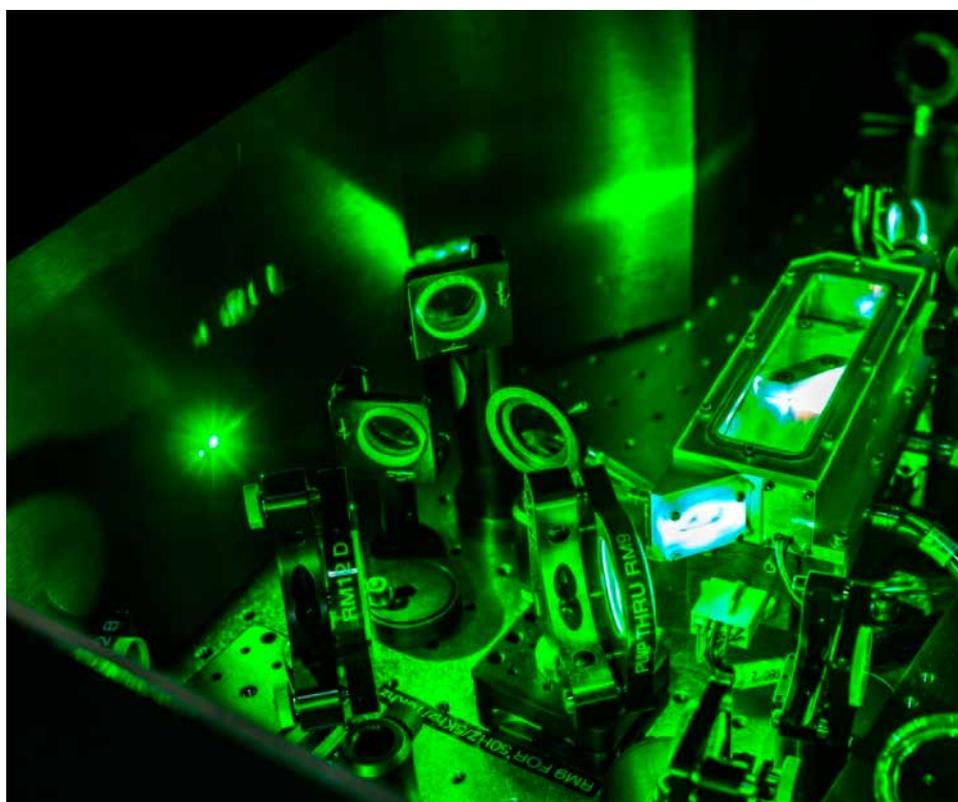
and the scientific impact of its publications, The University of Nova Gorica is ranked among five best universities in Europe, including the University of Oxford, the University of Cambridge, the École Polytechnique Fédérale de Lausanne (EPFL) and the ETH Zürich.

Such university rankings represent a valuable source of information for prospective students deciding at which university to study, since the quality of studies and study programmes ensuring high employment prospects are of key importance. The rankings can also serve to employers, providing them with the information which universities provide the most highly qualified young professionals.

FERMI free-electron laser (below the Elettra storage ring) in Trieste, where researchers test new methods for the generation of intense laser pulses in the x-ray spectral region.



High-energy pulsed laser for preparing the electron bunches which emit coherent burst of x-rays in the free-electron laser.



MAY



Researchers of the University of Nova Gorica played an important role in the development of an x-ray free-electron laser

A fully coherent source of intense soft x-ray pulses

An international team of scientists including two researchers from the University of Nova Gorica demonstrated a new method for producing intense and fully coherent soft x-ray pulses for studying interactions between the basic building blocks of matter. The experiment was performed at the FERMI free-electron laser in Trieste.

Free-electron lasers generate x-rays in the form of strong and short bursts lasting just a few quadrillionths of a second (0.000 000 000 000 001 s). Such pulses are short enough to study interactions between atoms or molecules on their natural time scales.

Free-electron lasers can be used to get information on the crystal structure of proteins, electron dynamics in novel materials, and complex quantum mechanical phenomena during transition of x-rays through gases. This information can be exploited to develop new drugs, new electronic devices, and to test physical models.

Most x-ray free-electron lasers amplify spontaneous radiation emitted by fast (relativistic) electron bunches traversing a periodic magnetic field. This generates broadband pulses with a chaotic temporal structure, which are not suitable for use in several recently developed techniques for studying the dynamics of matter.

An international team of scientists, in which two researchers from the Laboratory of Quantum Optics of the University of Nova Gorica, prof. dr. Primož Rebernik Ribič and prof. dr. Giovanni De Ninno played a key role, demonstrated a new method, where the electron bunch is carefully prepared before emission in order to produce light at a specific wavelength. Using two ultraviolet laser beams, the electrons within the bunch are compressed into thin slices. When such an electron bunch traverses a periodic magnetic field, it emits an intense and narrowband x-ray pulse. The results of the experiment performed at the FERMI free-electron laser at the Elettra laboratory in Trieste (which closely collaborates with the Laboratory of Quantum Optics of the University of Nova Gorica) were published in the journal *Nature Photonics*.

“FERMI is currently the only soft x-ray laser in the world operating in this configuration”, says the first author and member of the Laboratory of Quantum Optics prof. dr. Primož Rebernik Ribič. “The method will allow generation of intense and coherent laser pulses at wavelengths of only a few nanometres, which could be used to study the structure and dynamics of biological samples and for performing entirely new experiments in the emerging field of nonlinear x-ray optics.”

○ JUNE

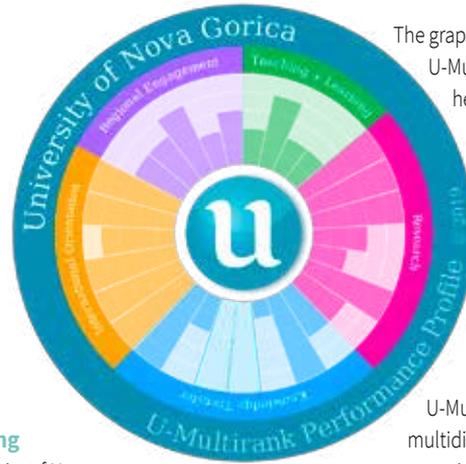
U-Multirank, the global university ranking

Exceptional Results of the University of Nova Gorica at the Global U- Multirank 2019 University Rankings

The University of Nova Gorica (UNG) has been a part of the global university ranking program called »U-Multirank« since the very beginning of this European project. This year's results of the comparative rankings of different universities from all over the world (»U-Multirank 2019«), published on the website www.umultirank.org, that UNG's results are high above average, within the global university chart. (Same exceptional results were obtained by UNG also in the last years U-Multirank 2015, U-Multirank 2016, U-Multirank 2017 and U-Multirank 2018 comparisons of universities.) In particular, the results show excellence of UNG performance in the field of research and international orientation. Good results were also ascribed to the areas of teaching and learning, and regional engagement. If comparing U-Multirank results of UNG with the results of other universities in Slovenian and wider region outside Slovenian borders, it shows that the University of Nova Gorica is the best university according to a majority of ranking parameters. It not only ranks higher than other Slovenian universities, but also higher than bigger universities in our vicinity, such as the Graz University the University of Trieste, Padova University, and the University of Zagreb. According to these indicators UNG ranks among best European and world universities.

It is worth mentioning that scientific excellence of UNG was recognized and outlined also in the European Commission report on scientific performance of European universities »Scientific Output and Collaboration of European Universities«, in the period 2007 – 2011, which stated: »Four institutions stand out for their strong performances in terms of scientific impact, as they are always among the top five according to the three citation-based impact measures: the University of Nova Gorica, the University of Oxford, École polytechnique fédérale de Lausanne (EPFL) and ETH Zurich.«

»U-Multirank« is a comparative university chart that was developed within the EU with the financial help that came from the European Commission. It is intended for comparative grading of universities from all over the world. This year 1,700 universities from 96 countries were included into the grading project.



The graphic illustration of UNG's profile on the U-Multirank 2019 global ranking chart. The height of each column within a specific circular sector denotes a grade achieved for a specific criterion (the tallest column stands for 1 – exceptionally good, and the lowest column stands for 5 – weak).

U-Multirank is the first global chart that gives a multidimensional picture of the way universities operate, as it compares universities in five different areas:

teaching and learning, research, international orientation, regional engagement and knowledge transfer. If compared to other ranking charts that are geared towards classifying universities in charts like "best 100 universities" (based on a communal grade that is composed of parameters with different levels of importance), U-Multirank gives a complete picture of each university's virtues and disadvantages.

U-Multirank allows users to compare universities based on what matters to them. It reveals different strong performers in areas as diverse as research, teaching and learning, knowledge transfer, internationalisation and regional engagement. This approach and method give students the right sort and amount of information so they can pick the university that is appropriate for them more easily. This gives students an ability to make informed choices of the best universities for their interest. Students are also able to identify universities that do well in terms of international linkages and student mobility.

European Commissioner for Education, Culture, Youth and Sport, Tibor Navracsics, said: "U-Multirank gives students, parents and other stakeholders a valuable insight into the higher education institutions of their choice, across a range of parameters. This is vital to help drive informed decisions."

In order to create an efficient display that compares universities, the U-Multirank project offers to the students an online application that can be found on the following website <https://www.umultirank.org/>. By using this application, anyone can directly pick various universities in the select region or wider (on a global scale) and compare them in the areas of their interest.

U-Multirank uses 39 different indicators by means of which universities are graded and compared in various areas and activity fields. U-Multirank uses a five-degree chart: 1 – exceptionally good; 2 – good; 3 – average; 4 – below average; 5 – weak. Detailed results that pertain to UNG (based on individual indicators) can be found on U-Multirank's website: <https://www.umultirank.org/>.

Despite its youth and relative smallness, the University of Nova Gorica displays a visible degree of excellence on the global scale. The top results that it has achieved are not coincidental, but a result of hard work and a clear vision the university has set for itself and was approved by the University's Senate.

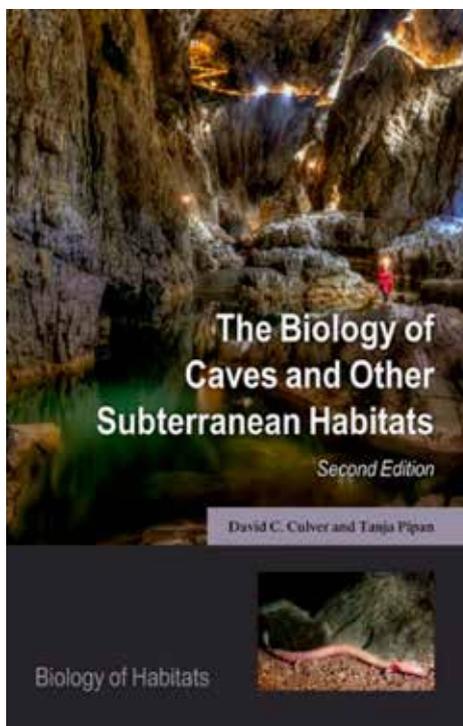
○ AUGUST

The world-renowned Oxford University Press published the second edition of the scientific monograph by Prof. Dr. Tanja Pipan

Ten years after the first edition, the world-renowned Oxford University Press published the second edition of the scientific monograph of the associate of the University of Nova Gorica, and the Karst Research Institute ZRC SAZU from Postojna, Prof. Dr. Tanja Pipan, *The Biology of Caves and Other Subterranean Habitats* (Biologija jam in drugih podzemeljskih habitatov).

The monograph is the result of many years of collaboration with a world-renowned professor in the field of biology and evolution of subterranean organisms and subterranean habitats, Prof. Dr. David C. Culver from American University (Washington, DC).

The book was first published in 2009, and in 2014, the same authors published the monograph *Shallow Subterranean Habitats: Ecology, Evolution, and Conservation* (Plitvi podzemeljski habitati: ekologija, evolucija in varovanje) with the same publisher. The second edition of the first mentioned book has been updated and improved due to excellent reader response.



The scientific work is one of the first integrated syntheses that contributes to a true understanding of the biology and ecology of subterranean habitats. It is notable for its rich selection of examples of organisms, caves, and other subterranean habitats, the presentation of groups of subterranean organisms and subterranean species, and the description of adaptations of subterranean organisms. The emphasis is placed on the description of biological processes in this unique environment, and its protection and management. One of the many positive reviews indicates, inter alia, that “many years of Professor Culver’s experience in active research and the drawing up of scientific journalism, his recognition as a top world-class scientist of subterranean ecology and biology, and Prof. Dr. Pipan’s innovativeness and modern approaches to the research of selected subterranean habitats, are a unique combination of quality and excellent achievements, as well as the scientific research results presented in the monograph”.

○ DECEMBER

A list of ten most prominent articles in 2019

Number	Journal	Authors, University of Nova Gorica members	The Impact Factor
1	NATURE PHOTONICS	Giovanni De Ninno, Primož Rebernik Ribič	31,583
2	ACS ENERGY LETTERS	Alexander Dixon	16,331
3	NANO ENERGY	Nejc Hodnik	15,548
4	SCIENCE ADVANCES	Maja Ravnikar	12,804
5	NANO LETTERS	Nejc Hodnik	12,279
6	ANGEWANDTE CHEMIE-INTERNATIONAL EDITION	Nejc Hodnik	12,257
7	NATURE COMMUNICATIONS	Iain Robert White	11,878
8	EUROPEAN RESPIRATORY JOURNAL	Iain Robert White	11,810
9	FEMS MICROBIOLOGY REVIEWS	Ario De Marco	11,524
10	CHEMISTRY OF MATERIALS	Iztok Arčon	10,159



Research Activity

In 2019, the research work at the University of Nova Gorica was organized at four research laboratories and six research centers. Those were: Laboratory for Environmental and Life Sciences, Laboratory of Organic Matter Physics, Materials Research Laboratory, Laboratory of Quantum Optics, Center for Astrophysics and Cosmology, Center for Atmospheric Research, Center for Information Technologies and Applied Mathematics, Research Centre for Humanities, Wine Research Centre, Centre for Cognitive Science of Language



Laboratory for Environmental and Life Sciences

(Head: Prof. Dr. Mladen Franko)

Investigations conducted at the Laboratory for Environmental and Life Sciences (LELS) include development of novel and unique ultrasensitive laser-based analytical methods, study of the fate, transport and transformations of pollutants in atmosphere, terrestrial and aquatic environments, food quality and safety, biomedical diagnostic tools, as well as identification of recombinant antibodies specific for tumor biomarkers. Cutting edge research at LELS enables new insights into environmental processes at the level of molecules, cells, organisms and ecosystems, their interactions and interrelation with life processes in organisms and human body, including cellular antioxidant activity, antimicrobial activities, biological processes regulating the virus trafficking, cancer diagnostics and therapy.

Research activity

In the field of ultrasensitive laser-based analytical techniques we developed and experimentally validated a novel theoretical model, which for the first time describes and evaluates signals and enhancements in a thermal lens spectrometer (TLS) equipped with a resonant cavity for multiple passing of the probe beam. The model appropriately predicts negligible divergence of the probe beam and enhancement of sensitivity, which is proportional to the number of passes of the probe beam across the sample. The developed technique was applied for detection of iron in liquid samples with lower limit of detection (LOD) at $0.4 \mu\text{gL}^{-1}$.

In collaboration with Wine research centre at UNG, we developed a new HPLC-TLS technique for detection of vinylphenolic pyranoanthocyanins in wines, which is based on application of TLS detection after HPLC chromatographic separation. Owing to a 20 times higher sensitivity and lower limits of detection ($\text{LOD} = 7 \mu\text{gL}^{-1}$) compared to HPLC with a transmission mode diode array detection (DAD), we were able to follow the formation of vinylphenolic pyranoanthocyanins already in the early stages of fermentation, i.e. from the sixth day, which is five days earlier than with a DAD detection. Such measurements are important in microvinification processes to find conditions for production of wines with better organoleptic properties and for selection of appropriate yeast.



Gel electrophoresis of DNA fragments after BDNF gene restriction analysis of stroke patient samples.

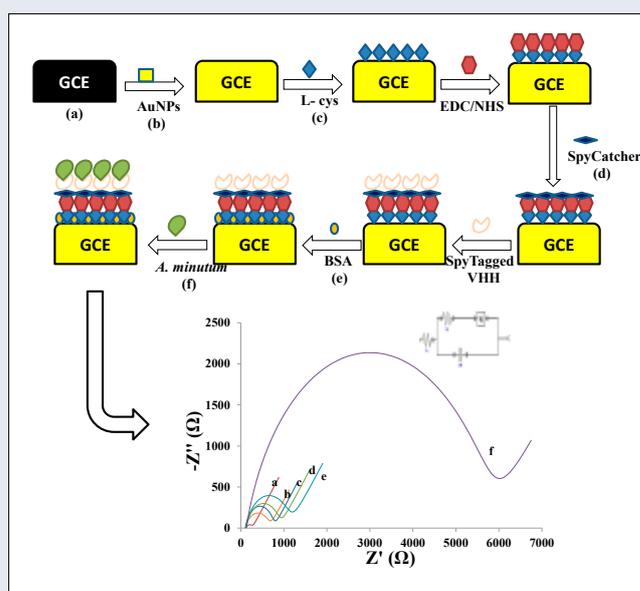
Our search for nanobodies (Nbs) suitable to selectively bind and identify extracellular vesicle (EV) biomarkers resulted in isolation of further candidate Nbs. In parallel, we developed new vectors to express such Nbs fused to a set of fluorescent proteins. This enables multidimensional characterization of EV sub-populations. Another major advancement in the EV studies is expected from an innovative chromatographic method, which is being developed. Preliminary results indicate that monolith columns activated with Nbs, selectively isolate and enable purification of EVs from biological fluids. We also developed alternative immunodiagnostic methods based on peroxidase-like DNAzyme, electrochemical impedance and thermal lens spectrometry, and validated them by identification of toxic microalgae/cyanobacteria with corresponding specific Nbs. We also set-up a new electrophoretic method for the separation of stress biomarkers from plant samples.

In the MEMORI-net project, RFLP restriction analysis was applied to detect Val66Met polymorphism in the BDNF gene of stroke patients. This polymorphism is important for the pain therapy as it affects the patient's susceptibility to certain pain relieve drugs. We also determined serotonin levels in the blood during treatment as a potential biomarker for effective rehabilitation. As part of the applied research, we confirmed the antimicrobial properties of chitosan-based biopolymers. The suitability of sporopollenin microcapsules as biocompatible carriers for various biologically active substances was also evaluated. Due to the very promising results, this part of the research will be continued in the future.

In the concluding stages of the national research project: *Thermo- and photo-active coatings for windows*, our photocatalytic studies have shown that under mild synthesis conditions we are able to produce photocatalytic (self-cleaning and anti-fogging) coatings, with incorporated TiO_2 nanoparticles, on mineral and thermally unstable substrates.



Structure of sporopollenin microcapsules acquired by fluorescence microscope (640x magnification).



Schematic representation of the biosensor preparation and of the dose-dependent electrochemical impedance response.

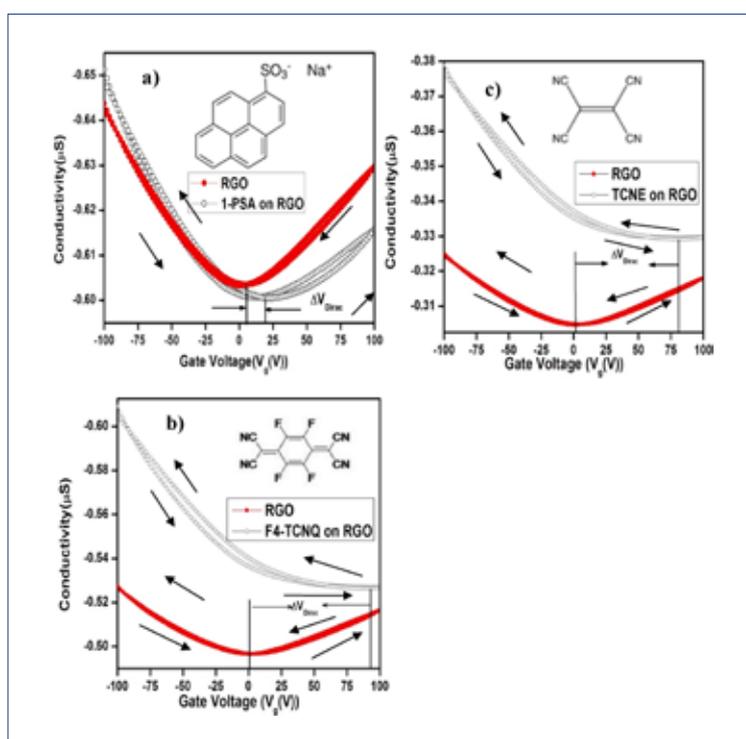
For the second year, LELS also participates in the international research project *EcoLamb - Holistic Production to Reduce the Ecological Footprint of Meat* (EU program ERANET SuSan). Within the framework of the project, we are concluding the activities that aimed to study ways of producing healthy and quality lamb meat with a low ecological footprint. In addition to conserving biodiversity, through the comprehensive approach of the EcoLamb project, we want to enforce the importance of animal welfare, which at the same time improves the quality and safety of meat, and contributes to greater acceptability and competitiveness of sheep farming among consumers.

Laboratory of Organic Matter Physics

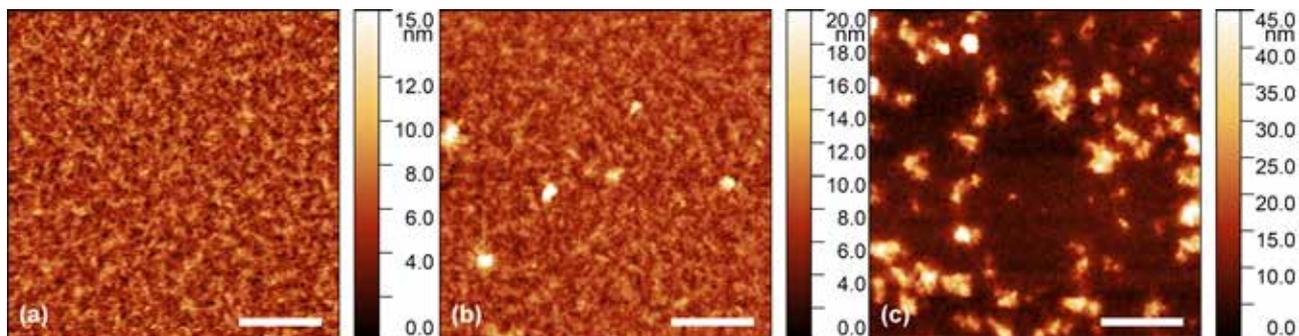
(Head: Prof. Dr. Guido Bratina)

In 2019, the Laboratory of Organic Matter Physics focused primarily on the characterization of the morphological characteristics and mobility of charge carriers in organic semiconductors and two-dimensional materials such as graphene and transition metal carbides (MXeni). At the center of research are transport studies of photo-excited charge carriers by using the time-of-flight method in an electric field between coplanar electrodes. In this way, we can explore the factors that determine the charge mobility. The research activity was carried out within the framework of the work packages of the FLAG-ERA MX-OSMOPED project, the ARRS program P1-005 Biophysics of polymers, membranes, gels, colloids and cells, and the projects NanoEIMem (M-ERA.NET), RETINA (Interreg Slo-At) and NANO-REGION (Interreg Slo-Ita).

The effects of 1-PSA, TCNE, and F4-TCNQ molecules on the transport properties of the charge in the reduced graphene oxide (RGO) layer were studied by measuring the transfer characteristics of field-effect RGO transistors and by measuring the photocurrent between the coplanar electrodes by using the time-of-flight method. We observed that the absorbed molecules produce a p-type doped RGO and reduce the electron mobility. Measurements of the photo-current as a function of time have shown that electron mobility decreases by increasing the deposition of these materials (even under one layer) up to a certain limit. Then, at larger depositions, a partial restoration of electronic mobility occurs. All three molecules therefore exhibit the same trend of change in charge carrier mobility, but each with different magnitude. Among all three molecules, 1-PSA was observed as the weakest electron acceptor compared to TCNE and F4-TCNQ. These experimental results are consistent with theoretical calculations. The results were published in *Organic Electronics*.



The figure shows the normalized conductivity as a function of gate voltage for a field effect transistor based on graphene oxide (RGO) when a) 1-PS, b) TCNE and c) F4-TCNQ were deposited.



The figure shows surface measurements using the atomic force microscope on samples of a) pure P3HT, b) P3HT with 0.2% graphene nanoparticles and c) P3HT with 3.2% graphene nanoparticles.

The transport of charges in a mixture of graphene nanoparticles and P3HT organic polymer was also investigated. While organic semiconducting polymers typically have a low to moderate mobility, graphene nanoparticles exhibit metallic charge transport with extremely high charge mobility. This mixture of graphene nanoparticles with semiconducting polymers was prepared in order to improve the charge transport properties. The electrical characteristics of the composite layers were studied using the time-of-flight method of photocurrent charge carriers, which were excited by a short laser pulse. By increasing the concentration of graphene nanoparticles, we observed an increase in charge mobility, thereby reducing the time spent by carriers for transport through the polymer chains.

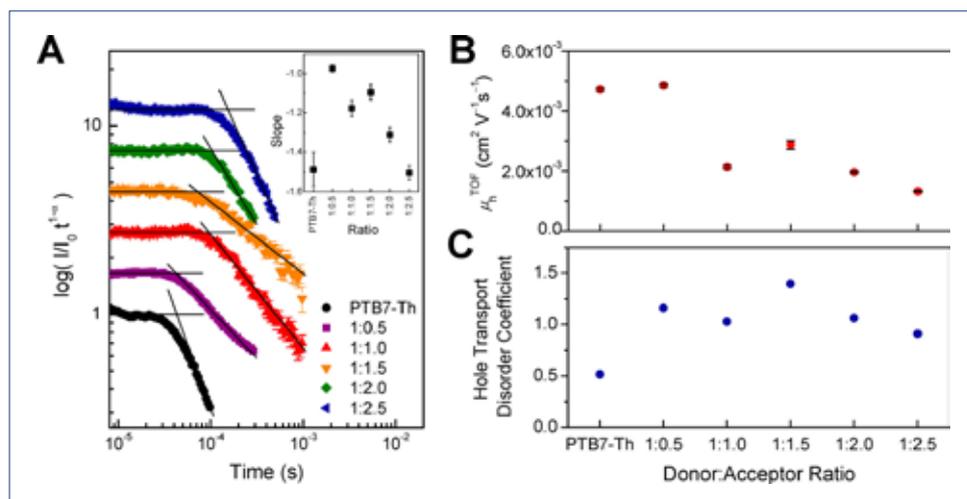
In addition, above the density of graphene nanoparticles of 0.2%, an increase in the density of free charges indicates an additional effect of doping. The results were published as a scientific article in the journal ChemPlusChem.

Within the RETINA project, we have also been researching the very industry-interesting non-fullerene based high performance organic solar cells.

In our work, we have used the PTB7-Th polymer as a donor and the O-IDTBR molecule as an acceptor, and studied the performance when changing the relationship between donor and acceptor concentrations. Using the atomic force microscope and measuring the mobility of charge carriers, insights into the morphology and molecular interactions

were obtained. We have found a high solar cell performance efficiency within a relatively wide range of polymer domain sizes. Such solar cells displayed a solar energy conversion efficiency of up to 9.42% between the donor:acceptor ratios from 1: 1 to 1: 2. The results were published in the journal ACS Applied Energy Materials.

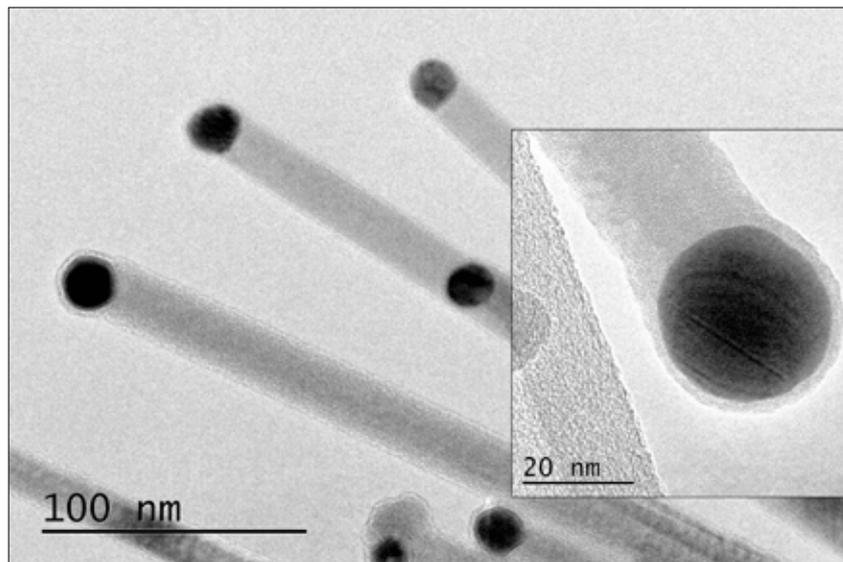
The figure shows a) measurements of the photocurrent from holes as a function of time across the 100 μm excitation channel and with 500 V voltage; b) the holes mobility; and c) the disorder coefficient in the donor: acceptor ratio change.



Materials Research Laboratory

(Head: Prof. Dr. Matjaž Valant)

Material Research Laboratory was established in 2009 and has evolved in a sizeable research unit with state-of-the-art equipment and diverse expertise of the team members ranging from synthetic and crystal chemistry, functional materials, surface science, theoretical and computational chemistry etc. We have not only maintained the initial research focus on environmental and electronic materials but also developed it towards new exciting and advanced material systems and processes that include topological insulators, energy storage, nanostructured photo-catalysts and materials in extreme environments. The joint efforts of the team members again resulted in some exciting discoveries and developments.



TEM image of Ga-Se nanowires with gold nanoparticles at the tip. In the inset, magnified detail of the tip.

A novel strategy is developed to simultaneously fight plastic pollution, cleaning water and producing hydrogen via water splitting. At first, the fluorescent carbon quantum dots (CQDs) were fabricated from polyethylene: popular plastic source and designed to act as a metal nanosensor (Cu@CQDs) for cleaning waste water. Further, the solution of Cu@CQDs was im-

mersed in TiO₂ by wet impregnation technique to design Cu@CQDs/TiO₂ photocatalyst with a change in energy gap (3.2 to 2.8 eV) making the composite active in solar irradiation region for hydrogen production. This study aims to solve three sustainable challenges with one cheaper and environmentally friendly step.

A collaboration with MBE division at IOM-CNR (Trieste, Italy) led by dr. Silvia Rubini has been established for the study of the growth of GaSe nanostructures by molecular beam epitaxy (MBE). The role of MRL researchers is the investigation of the obtained nanostructured systems (nanowires) by electron microscopy, in order to identify the crystal structure and the growth mechanism. In particular, the research revealed the role of Au, which catalyzes the spontaneous diffusion of the Ga atoms out of the GaAs substrate and the formation of the Ga+Se compound.

In collaboration with CEA (France) and CNR-IOM (Italy) we studied, by means of ab-initio calculations, the paramagnetic centers in P₂O₅ glass. The study has led to an improved understanding of the intrinsic point defects of P₂O₅ based glasses. We also investigated by ab-initio techniques the effect of electric fields on the migration of oxygen defects in SiO₂. The research aims at improving our understanding of OXRRAM.

Materials that are topological insulator (TI) manifest a novel state for their electrons. They possess topological surface states (TSSs) that are not destroyed by the presence of non-magnetic impurities on their surfaces. First-principles calculations on five tetradymite-like compounds - Bi₂Te₂Se, Bi₂Te₂S, Bi₂Se₂S, Sb₂Te₂Se and Sb₂Te₂S

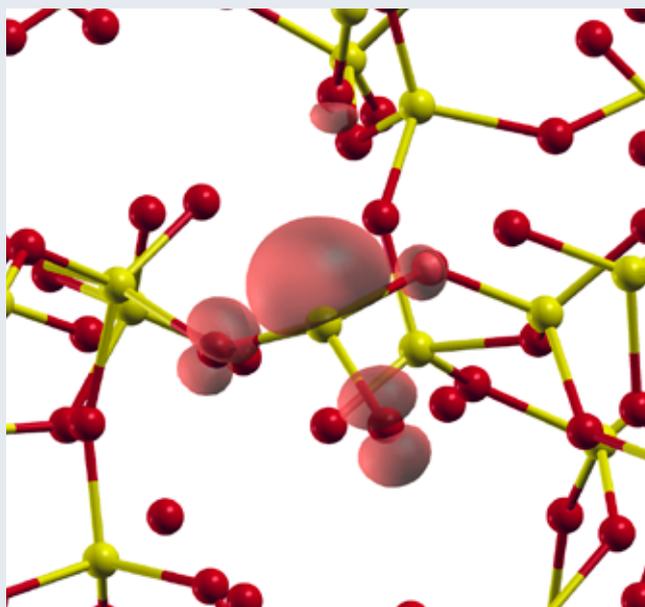
- show that these materials host TI features in their stoichiometric crystal structures. $\text{Bi}_2\text{Se}_2\text{S}$ have in fact proven to be the most resistive 3D TIs to date. For the purpose, we systematically studied the structural, electronic and chemical properties of $\text{Bi}_2\text{Se}_{3-y}\text{S}_y$ ($0 \leq y \leq 1$). High quality single crystal samples were prepared. Preliminary angle resolved photoemission measurements, with synchrotron light, reveal that samples support TSS up to $y=0.75$.

Research of the thin films on topological insulators was focused on the interface between Ti and Bi_2Se_3 . Using microscopy techniques morphological properties of such interface were characterized. Additional XPS analysis allowed for the characterization of chemical properties of Ti/ Bi_2Se_3 interface. Results showed high chemical reactivity of the interface and formation of titanium selenides and metallic Bi.

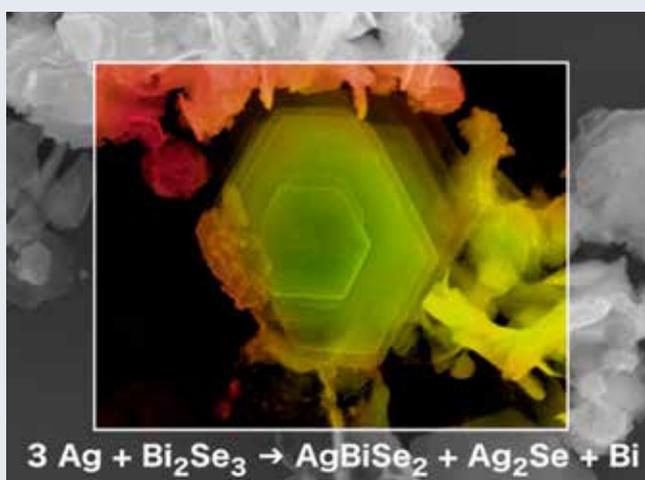
We further investigated the hydrothermal syntheses of Bi_2Se_3 topological insulator nanoparticles. We have begun a study to develop a method for detecting and confirming the presence of topological states on nanoparticle topological insulators. The method is based on the measurement of the optical properties of nanoparticles in aqueous suspension by UV-vis spectroscopy. Topological conditions on the surface of a nanoparticle topological insulator contribute to existence of plasmon resonance. For the purpose of this research, various Bi_2Se_3 nanoparticles will be synthesized using the known hydro-thermal method. By partially replacing Bi with another ion, we can change the position of the Fermi level, causing a change in material properties.

We started synthesis of iron phosphide nanoparticles and their application for efficient electrocatalytic hydrogen evolution. Our current target was hydrogen production using iron phosphides (FeP) nanomaterials. Used was wet chemistry synthesis method using a mixture of solvents. Spin coating of FeP allows the preparation of thin films. The films offer good stability for HER. TEM image of iron phosphide shows that it contains two different populations of particles which are the nanorods and the nanospheres.

Research was done on photoelectrocatalytic degradation of dye, using fluorine doped tin oxides films. Our task is to explore the application of fluorine doped tin oxide (FTO) thin films for photoelectrocatalytic (PEC) degradation of a model pollutant dye: rhodamine B (RhB) and Bezacryl Blau 300 GRL (BB). Our results show that PEC degradation of dye occur efficiently under UV-Vis from light emitting diode (LED) illumination. The effect of light, anodic potential, and pH



Spin-density (shaded) of the P1-like configuration obtained after placing an extra PO_2 unit nearby a non-bridging oxygen in a P_2O_5 glass model.



Elemental mapping of Bi_2Se_3 particles with Ag deposition showing chemical reaction and formation of new phases. Similar reactivity was observed with Ti applied.

were investigated for PEC degradation of RhB and BB using commercial FTO thin films. The present study provides a new strategy to exploit the photoactivity of FTO for energy production and environmental remediation of organics.

Using our expertise in modelling biopolymer conformations, as well as the analogy between DNA-DNA association and DNA-CNT(carbon nanotube) physisorption, we have proposed an approach to describe an important step prior to DNA hybridization. Using this analogy, with the help of the Hamiltonian formulation of the zipper model, we succeeded to process the results of the hybridization experiment, that was published, but not explained 10 years ago.

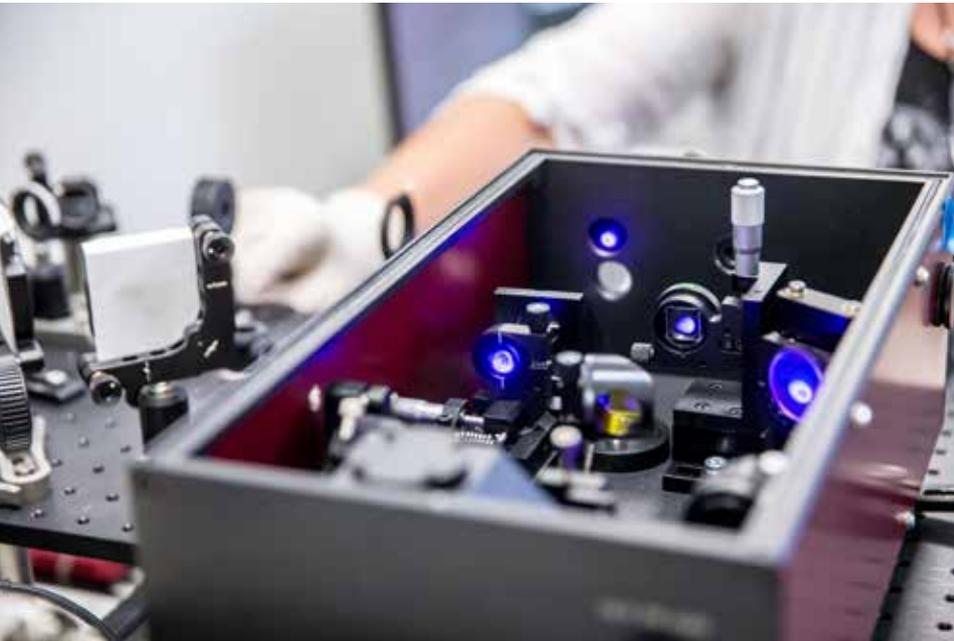
We studied the mechanisms of extracellular copper accumulation on algae cell surface and optimized the conditions for the reduction of copper ions and copper accumulation on the surface of *Chlamydomonas reinhardtii* cells. The

process made the cells much more resistant to high concentrations of copper ions. Also, using this approach it is very easy to separate copper from aqueous solution. This approach is particularly useful for bio-mining. We proved that the bioremediation of copper-polluted simulated wastewaters by green algae can be combined with the formation of ultrasmall copper-based nanoparticles.

The applied and industrial research is focused on development of new technologies for grid energy storage. We have developed and patented a system that enables the grid energy storage in solid matter. The patent rights were sold to a company Institute CES d.o.o. Together with the company we are continuing the work on development of a demonstrator. We also continue cooperation with a company Seven refractories d.o.o. from Divača. For them, we are performing incoming quality control for their bitumen.

Laboratory of Quantum Optics

(Leader: prof. dr. Giovanni De Ninno)



LKO focuses on investigating ultrafast response of electrons in semiconductors, topological insulators, superconductors, and metal/organic interfaces for applications in electronics, spintronics, and energy harvesting. Furthermore, LKO uses X-rays at synchrotron radiation facilities for characterization of atomic and molecular structure of new functional nano-materials, and biological and environmental samples. The lab members actively participate in the development of the FERMI free-electron laser, one of the most powerful laser sources worldwide, which is opening new opportunities for exploring the structure and non-equilibrium states of condensed, soft and low-density matter.

Researchers at the **Laboratory of Quantum Optics (LKO)** use ultrashort laser pulses spanning the visible, ultraviolet and x-ray spectral regions for basic and applied research in physics and material science. Such pulses induce ultrafast electronic, structural and/or chemical changes, providing information on the out-of-equilibrium states of matter and serve as input for the design of new materials.

Recent activities:

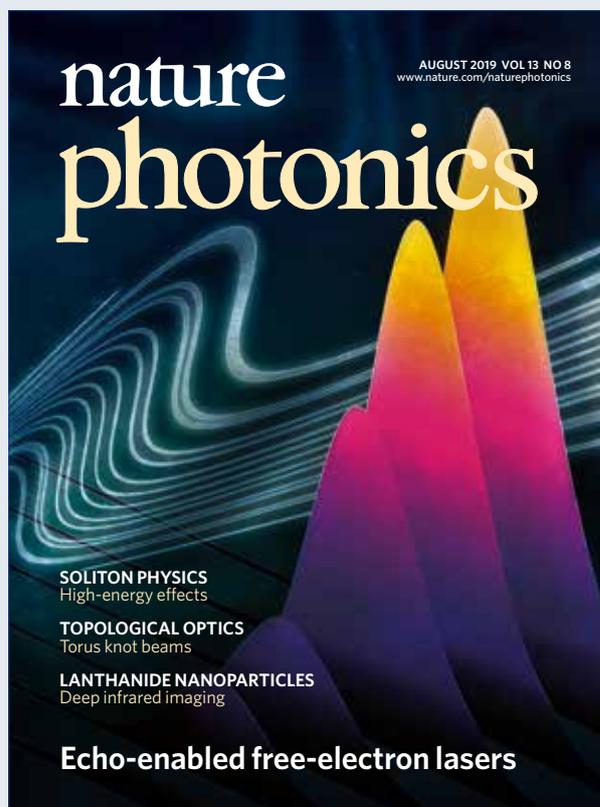
The main activities were focused on time-resolved photoemission studies of different materials exhibiting phase transitions. In the first study, we examined the out-of-equilibrium properties of the layered ternary chalcogenide Ta_2NiSe_3 , an excitonic insulator candidate, whose ground state is characterized by cooperatively condensed electron-hole bound states. The compound has a high potential in nanoscale device applications, ranging from electronics and optoelectronics to biosensors and catalysis. Our results indicate, that at low optical excitation, the excitonic condensate nature of the material is maintained, while at increasing optical pumping, the material undergoes an insulator-to-metal transition, which could potentially be utilized in optical switching applications.

In the second study, we investigated the ultrafast response of the compound 1T-TaS_2 , a well-known example of a strongly correlated material. Upon cooling below 180 K, the material exhibits a metal-to-insulator transition, whose origin represents an open problem in material science, because it is still not fully clear if it is driven by strong electron-electron correlations (Mott-insulator) or affected by the fully commensurate charge-density wave (CDW). Thanks to the state-of-the-art combined energy and time resolution at CITIUS, we observed decoupled temporal responses of the gaps in the band-structure ascribed to the pure electronic (Mott-insulator) and CDW states. Our findings will contribute to a better understanding of the physics of strongly correlated materials.

Part of the work was devoted to further development of the CITIUS light source. We designed and built an additional experimental chamber that will allow performing time-resolved resonant magnetic scattering measurements, giving access to element-specific magnetisation dynamics in complex magnetic materials. In our setup, a white (non-monochromatized) HHG beam interacts with an optically excited sample and the scattered spectral intensity is dispersed onto a 2D detector using a diffraction grating. As the magnetic signature is spectrally localised at element-specific resonant photon energies, this kind of setup will allow tracking the magnetisation dynamics of different magnetic species in materials containing more than one magnetic element.

LKO members played a key role in further development of the FERMI free-electron laser (FEL) in Trieste, Italy. We employed a technique called echo-enabled harmonic generation (EEHG), extending the generation of intense, fully-coherent, and stable femtosecond pulses into the soft-x-ray regime (down to wavelengths as short as 2.6 nm). The results were featured on the cover of the August 2019 issue of **Nature Photonics** and in a number of news media (EPS News, FELs of EUROPE, RTV SLO, Delo, etc.). These improved capabilities will allow extending techniques of coherent control of quantum processes to shorter wavelengths.

For atomic structure characterization of different functional nano-materials and biological and environmental samples with X-ray absorption spectroscopy (XAS) methods micro-XANES and EXAFS, we realized seven



Artistic impression of first lasing from a soft X-ray free-electron laser that uses echo-enabled harmonic generation.
Image: Elettra Sincrotrone Trieste, Art by Basiq.

international research projects at different European synchrotron radiation facilities in collaboration with research partners from Jožef Stefan Institute, National Institute of Chemistry, University of Ljubljana and University of Maribor. We performed in-operando XAS analysis of different cathode materials for Li-ion, and Li-, Ca- and Mg-S batteries with high energy density, zeolite-based energy storage materials, different (photo)catalytic materials for water cleaning and catalysts for different large-scale technological process. Results elucidate the dynamics of electrochemical processes during battery operation and catalytic mechanisms crucial for optimization of their performance. With a combination of X-ray spectroscopy and sub-micron X-ray microscopy, we explained the mechanisms of metal cation uptake, accumulation and detoxification in different nutrition plants and fungi, which can help to prevent the noxious metal cation transport to a food chain. We published our results in 11 scientific articles in high-impact international journals.

Center for Astrophysics and Cosmology

(Head: Prof. Dr. Danilo Zavrtnik)



A ceremony and a scientific symposium at the site of the Pierre Auger Observatory in Argentina in November 2019, at the occasion of its 20th anniversary.

Pierre Auger Collaboration

Our flagship project focuses on the research related to ultra-high energy cosmic particles with the world's largest cosmic ray detector, the Pierre Auger Observatory in Argentina. Upon collisions with nuclei of gases in the Earth's atmosphere, they create huge showers of secondary particles, which can be used to identify the properties of their primary cosmic particle. The observatory combines data from a grid of 1660 water Cherenkov detectors spread on the surface with data from four fluorescence telescope sites, observing excited nitrogen molecules along the shower path. Auger results support the production of extremely energetic cosmic rays via particle acceleration at extragalactic astrophysical sites and the suppression of their flux due to interactions with cosmic microwave background. Our experimental focus was on searches for the signatures of very high energy gamma ray flares from galactic astrophysical sources in Auger low-energy data. In 2019, about 300 scientists and guests from all over the world celebrated the 20th anniversary of the Pierre Auger

Complementary studies of the phenomena on the extremely large and the extremely small scales via astrophysical observations of the Universe provide a more complete, unified picture of matter and its interactions. Combining the information carried by different cosmic messengers, such as charged cosmic particles, photons, neutrinos and gravitational waves is the key to better understanding of physical processes in the Universe. Our activities take place within international research collaborations Pierre Auger, Cherenkov Telescope Array, Fermi-LAT, Gaia, Liverpool telescope and Belle2 experiment, and are focused on the searches of extremely energetic astrophysical sources, transient astrophysical phenomena, dark matter and possible mechanisms responsible for the matter – anti-matter asymmetry in the Universe. Among other achievements in 2019, two researchers were awarded the “Apple of inspiration” award by the president of the Republic of Slovenia, Dr. Tanja Petrushevska for her involvement in the discovery of a supernova, resulting in a birth of a compact neutron star binary system, and Dr. Gabrijela Zaharijaš for her research of extragalactic background light using the Fermi-LAT satellite.

Observatory with a ceremony and a scientific symposium at the site of the Observatory in Argentina.

Cherenkov Telescope Array Consortium

Studies of very high-energy cosmic gamma rays provide crucial information on non-thermal Universe. Contrary to charged cosmic particles, photons are not affected by magnetic fields, so they can point back to their production sites. Our research was coordinated within the Cherenkov Telescope Array (CTA) consortium, which prepares instrumentation, observation strategies and software for the construction of a new generation observatory for the detection of high energy photons with energies between 20 GeV and 100 TeV. In 2018, the final hosting agreements for the construction were signed, and the construction of both the northern and southern array, providing full-sky coverage and considerably improving the sensitivity with respect to current experiments, is expected to begin in 2021. Our main research activities were performed in collaboration with international partners, as we were involved in the development of a Raman lidar system for atmospheric characterization at the observatory sites (U. Autònoma de Barcelona), identification procedures for ultra-high energy cosmic ray sources amongst active galactic nuclei (U. of Innsbruck) and sensitivity studies for the search of dark matter in the Galactic center (U. of Oslo).

Fermi Large Area Telescope Collaboration

Fermi Large Area Telescope (LAT) is the main detector onboard the Fermi Gamma ray Space Telescope, leading space laboratory for the high energy gamma ray research since 2008. In the energy range between 20 MeV and 300 GeV, Fermi LAT so far discovered about 100 Galactic pulsars, more than 800 active galactic nuclei, and unexpectedly, a large bubble-like structure stemming from the center of the Milky Way above and below the Galactic plane. It also provided strong constraints on the nature of dark matter particles by investigating their decay or annihilation signatures in astrophysical objects. In 2019, the results of Fermi LAT experiments provided crucial information for a series of multi-messenger discoveries, in particular related to the origin of ultra-high energy neutrinos and high energy emissions from the gamma ray bursts.

Astrophysical transients

Our team is active in international



The first completed large telescope (LST-1) of the CTA North observatory at La Palma, Spain, in 2019 successfully passed the critical design and started providing data. A smaller Čerenkov telescope from MAGIC Observatory can also be seen to the left.

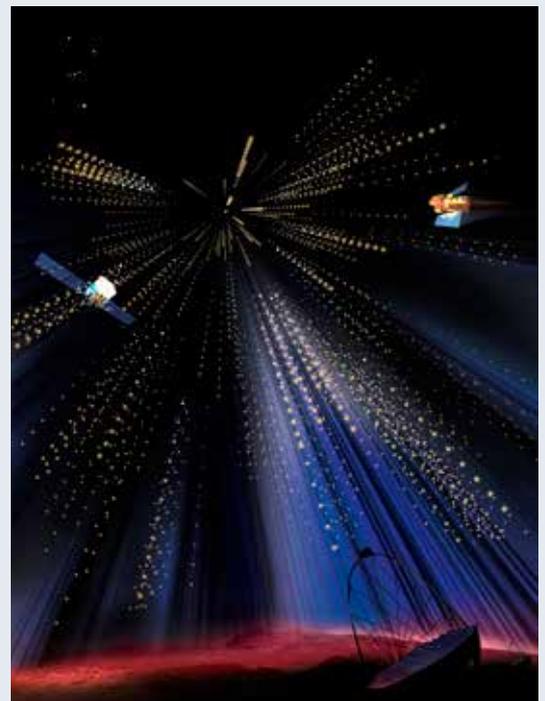
collaborations studying astrophysical transient sources, which include gamma ray bursts, the most violent explosions in the Universe since the Big Bang. We lead the international project for gamma ray burst optical afterglow observations with the robotic Liverpool Telescope on Canary Island La Palma. Using its SPRAT spectrograph, we contributed to the identification and classification of optical counterpart candidates of recent gravitational wave events, detected by the LIGO experiment. In 2018, we continued our activities related to Gaia project and to the NSF Vera C. Rubin Observatory, which will provide the biggest and most ambitious sky survey so far, observing 20 billion stars and detecting numerous transient events.

International collaboration Belle2

A complementary activity of the Center is the involvement in the Belle2 Collaboration at the electron-positron collider SuperKEKB in the Japanese Center for Particle Physics. The Belle2 experiment, starting its activities in 2019 focused on the discovery of new, as yet unknown types of processes which are necessary for the satisfactory explanation of the evolution of the Universe and of its present properties.

On Jan. 14, 2019, the MAGIC observatory in the Canary Islands captured the highest-energy light ever recorded from a gamma-ray burst.

The observation started just 50 seconds after it was detected, thanks to positions provided by Fermi and Swift spacecraft.



Center for atmospheric research

(Head: Prof. Dr. Samo Stanič)



The aircraft with the equipment for measurement of pollutant vertical profiles. We see the fine aerosol inlet under the wing and the coarse aerosol inlets on the fuselage.

The Center for Atmospheric Research (CAR) focuses on the study of physical processes in the lower part of the atmosphere, using remote sensing and in-situ measurements. Modeling of atmospheric phenomena adds to these efforts. Our research activities include the investigation of aerosol sources, their dispersion in the atmosphere and vertical profiles. We investigate atmospheric structures and the impact of atmospheric conditions on astrophysical observations. The key question is, how aerosols influence the atmospheric optical properties through scattering and absorption of solar radiation. Scattering cools the atmosphere, while absorption warms it – aerosol black carbon is the second most important climate forcer. The Center is located at the University of Nova Gorica Ajdovščina site. It runs the atmospheric observatory at Otlica and is involved in the activities of the Pierre Auger Collaboration, the Cherenkov Telescope Array Observatory, and field campaigns around the globe.

Lidar research

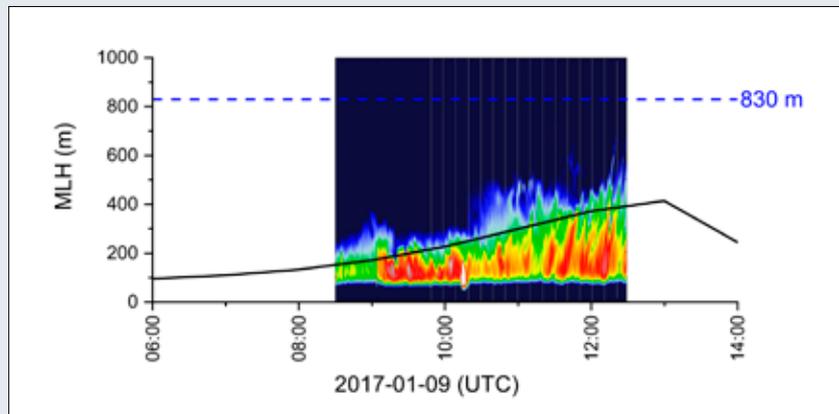
Lidar measures the laser light backscattered on aerosols. With lidar measurements we monitor regional aerosol transport and local processes in the planetary boundary layer. The Center for Atmospheric Research currently uses two lidar systems: the mobile elastic lidar with the capability of three-dimensional scanning of the atmosphere, and the stationary polarization Raman lidar, in operation at the CRA laboratory in Ajdovščina enabling aerosol characterization in terms of size and morphology. Lately, we have been using concurrent lidar and *in-situ* measurements to investigate optical and physical aerosol properties and the dynamics of their spatial distribution, separating different sources of air pollution.

In-situ research

Measurements in Ajdovščina and Otlica above it enable characterization of the pollutant dispersion. Pollutant concentrations are influenced by the activity of emitting sources and the atmospheric dynamics – weather. If we want to determine the activity of sources, we need to characterize the atmospheric dynamics on the time scale identical to the one of the pollutant concentration measurements. Black carbon is a primary pollutant and as such a direct tracer for source activity. Additionally measuring radon, a gas emanating from the Earth, we can characterize the atmospheric dynamics and determine the thickness of the atmospheric layer into which we are emitting pollutants. Thus determined mixing layer height agrees well with the one determined with the lidar, and the one measured using airplanes. The end results are source specific emission rates, especially important for traffic and biomass burning for domestic heating. The article on this topic is in review in Atmospheric Chemistry and Physics (Gregorič et al., 2019).

Bora research

Bora is a phenomenon of strong, gusty, downslope wind, where the cold air flowing over an orographic barrier sinks and accelerates as it encounters warm air at the lee side. In the Vipava valley, Bora occurs when cold air-masses move over the Eastern Alps and down the steep slopes of the Trnovski Gozd plateau. It is more frequent in the winter and can reach speeds up to 52 m/s at the valley floor. We perform regular lidar measurements of atmospheric structure and its dynamics, using aerosols as tracers for air mass motion. In addition to the characterization of Bora wind we investigated



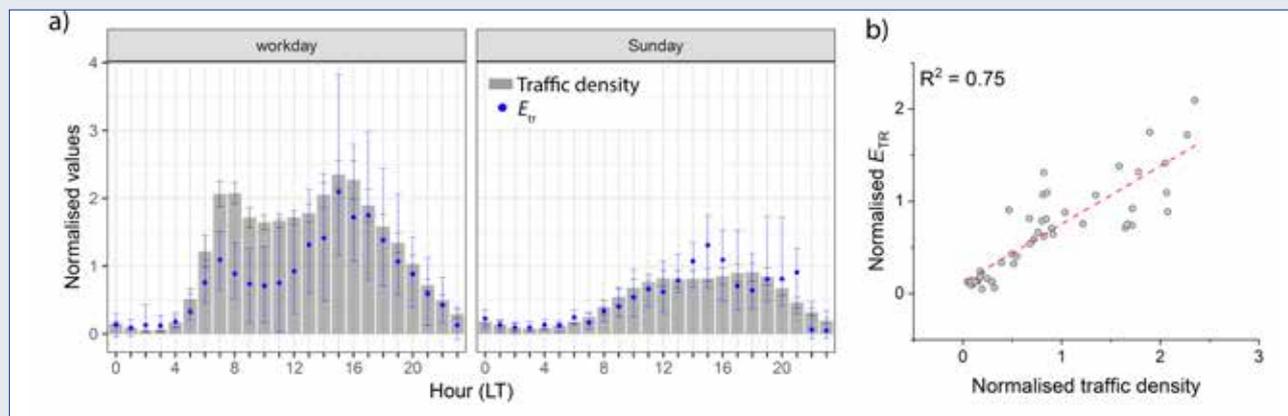
The comparison of lidar- and model-derived (black line) mixing layer height. The model uses measurements of the radon concentrations to derive the height, which agrees well with the lidar measurements (Gregorič et al., 2019).

the processes within the planetary boundary layer on small-scales by the means of CFD simulation and modeling, describing the effects of Bora-like winds on structures.

Applied research

The observatory at Otlica above Ajdovščina (965 m above sea level) is a node in the national grid of meteorological and environmental stations, administered by the Slovenian Environment Agency, and a member of the European Virtual Alpine Observatory, with continuous monitoring of temperature, humidity, wind speed and direction, ozone concentration and solar irradiation, all available on line at the Agency's and Center's web portals. The observatory also hosts a filter photometer for black carbon measurements (in collaboration with Aerosol d.o.o.), light pollution monitor (in collaboration with Universidad Complutense de Madrid) and three passive remote sensing devices investigating climate change related stratospheric processes at about 90 km above the ground (in collaboration with Earth Observation Center of the German Aerospace Agency – DLR).

Gregorič, A., Drinovec, L., Ježek, I., Vaupotič, J., Lenarčič, M., Grauf, D., Wang, L., Mole, M., Stanič, S., and Močnik, G.: The determination of highly time resolved and source separated black carbon emission rates using radon as a tracer of atmospheric dynamics, *Atmos. Chem. Phys. Discuss.*, <https://doi.org/10.5194/acp-2019-911>, in review, 2019.



The determined emission rates for traffic E , which is independent of the weather, and agrees well with the traffic counts in Ljubljana (Gregorič et al., 2019).

Wine Research Centre

(Head: Doc. Dr. Melita Sternad Lemut)



Pot experiment with vine plants irrigated with the tap water, with the treated model waste water, cleaned with electrochemical approach, and with the model waste water.

In 2019 Wine Research Centre (CRV) started to lead a new applied research ARRS project entitled “The effect of heavy metals on ageing of white wines”. It is carried out together with Chemical Institute and Agricultural Institute of Slovenia as partners. We initially performed an analytical survey comparing Slovene and French white wines targeting the markers of fruity aroma (esters), metal ions, compounds involved in oxidative process (hydroxycinnamic acids, glutathione, GRP, SO₂) and basic oenological parameters. Preliminary trials assessing the influence of metal ions and

antioxidants (glutathione, gallic acid) on esters hydrolysis in wine matrix were also carried out. Future analytical developments as needed for the planned project work were under progress.

At the same time CRV started working on another applied research ARRS project entitled “Improvement of Slovenian white wines through better expression of varietal aroma”, led by the Agricultural Institute of Slovenia. We began to set up methods for enzymatic phenotypic characterisation of yeast for β -lyase activity.

Wine Research Centre (CRV) is uniting the researchers and multidisciplinary research activities that are related to the fields of viticulture and enology (plant physiology, biochemistry and pathology; viticulture and wine-making technologies; sustainable viticulture; fruits, grape and wine analytics; microbiology and molecular biology of yeasts, grapes and wine; biotechnology). We operate in the laboratories of Lanthieri Mansion in Vipava and in the fields, including the University’s own vineyard. Our primary studied plant is grapevine (with the processing of grapes to wine) but we also focus to some fruit plants, olives and apple wine (cider). We deal with both applicative research, addressing current problems in the field, as well as expert, more future-oriented research.

Furthermore, we continued the work on Interreg project between Slovenia and Italy AGROTUR II “Sustainable agriculture and tourism development on cross-border Karst region”. We monitored the grapevine water status and grape ripening during the season to determine the optimal harvest date for the production of Teran PTP wine. In order to optimise the water use and assure the production of high quality ‘Refošk’ grapes, we put up a field experiment with grapevine irrigation at Karst area, together with University of Udine and Agricultural institute of Slovenia. The influences of irrigation were than

evaluated in the laboratory through physical and chemical analysis of grape and wine. In collaboration with University of Trieste, we were investigating and developing optical method for the detection of embolism in grapevine conduction system, which is an important part for the research of grapevine drought stress. In addition, lactic acid bacteria were isolated in Karst region from grapes and wine and biogenic amines were determined in wine.

Within the EnViRoS project we collaborated with University of Udine in a viticultural field experiment and with Ben-Gurion University (BGU) in the pot experiment, where we studied the effect of irrigation and salinity on the soil microbiome.

The work within ARRS bilateral project Israel-Slovenia was also ongoing. In 2019 we carried out a pot experiment on irrigation by using a recycled model of waste water. A visit to BGU was realised to transfer MDA and H_2O_2 methods. In the host laboratory, genomic DNA was isolated from soil and vine root samples for microbiome analysis. A preliminary experiment was set-up to clean model wastewater by using an electrochemical approach, with the material for the experiment being developed in the Materials Research Laboratory at UNG. In addition, during the visit of Israel partner we have gained many important experiences on methods for the determination of oxidative stress, malondialdehyde (lipid peroxidation) and metabolomic analyses.

Among other research activities, two doctoral projects were also in the progress. Within the first doctoral work we have mainly continued to study different mode of actions of biocontrol yeasts against pathogenic strains *B. cinerea*. As part of the second doctoral work, the experimental fermentations were carried out and the sensory as well as chemical evaluations of wines fermented with different selected yeasts were done focusing on pyranoanthocyanins in Pinot noir wines. In the second part, this thesis deals with the characterisation of lactic acid bacteria isolates as related to the formation of biogenic amines. Three methods for the detection of biogenic amines were developed, two chromatographic (liquid and thin-film) and one enzymatic method, with all three representing a major upgrade from the methodology currently used. The results of the research were presented at two international conferences.



Part of the procedure of anthocyanins extraction from the skins of Pinot noir grapes.



Preparation for the analytical survey comparing Slovene and French white wines targeting the markers of fruity aroma, metal ions and compounds involved in the oxidative process.



Selective media for the quick monitoring of the main grape-related microbial groups on the grapes from the experimental vineyards.

Center for Information Technologies and Applied Mathematics

(Acting Head: Prof. Dr. Irina Elena Cristea)

The Center for Information Technologies and Applied Mathematics is an interdisciplinary dynamic research group, developing its activities at the intersection of computer science and informatics, mathematics, systems theory, and control systems technology. It focusses on novel approaches to model and solve a wide range of problems, from industrial engineering practice to education, biomedicine, theoretical and applied mathematics. Methods for intelligent data analysis are being developed and applied to the domains where IT support is required for knowledge discovery aiming at understanding complex diseases, phenomena in the environment, or problem solving in various complex domains, especially in engineering. In the mathematical area, we contribute mainly in hypercompositional algebra and computational methods for surgical simulations.

In 2019 the Center employed 7 researchers, working on different topics in the framework of knowledge discovery, hypercompositional algebra, computational methods for surgical simulations, Gaussian-process models, open education, and renewable energy sources.

In the field of geographic informations systems and spatio-temporal databases, we continued the research on positioning and tracking systems. We analysed the cellular networks on a general modelling based on observations collected by positioning systems. In particular we faced the problem of coping with sparse sequences of cellular fingerprints. Besides we constructed a new map-matching algorithm (Figure 1) that exploits the well-known Hidden Markov Model and Random Forests to successfully deal with noisy and sparse cellular observations.

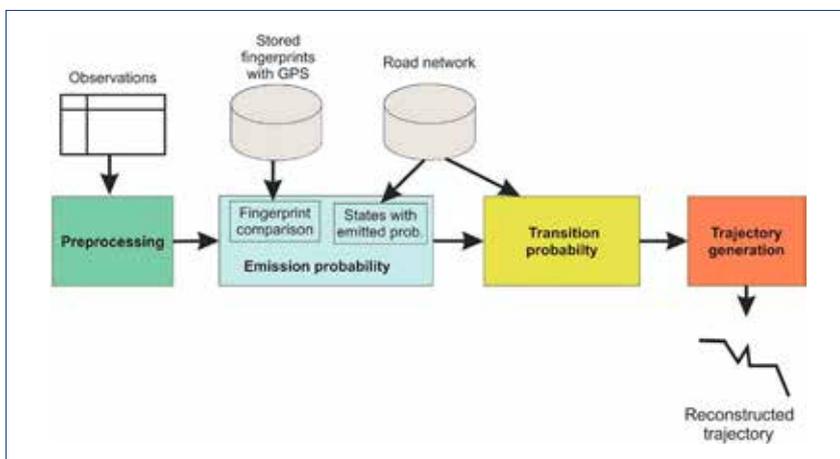
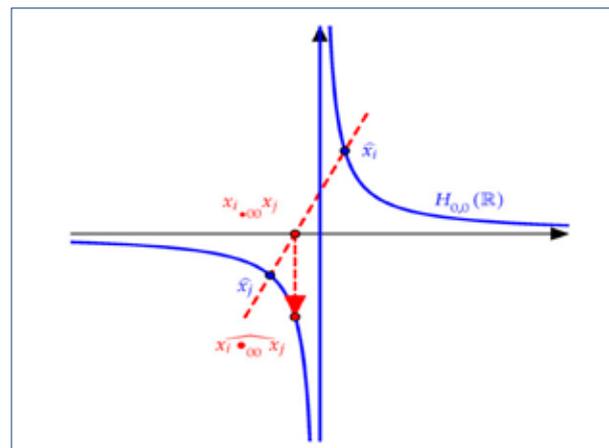


Diagram with the four phases of the algorithm. Paper in *Geo-spatial information science*, 2019.



Hyperbola $H_{0,0}(\mathbb{R})$, the graph of the homography transformation $f(x)=1/x$.

Source: paper in *Symmetry*, 2019.

The center continued to focus on the study and the development of innovative methods for bisociative cross-domain knowledge discovery. In a new publication we presented how such methods work and how they can be applied to discover new knowledge in biomedicine. We contributed also to a publication presenting a broad review of conceptual representations for computational concept creation. In collaboration with the Jožef Stefan Institute, we started studying semantic data mining for linked open data.

In the context of the surgical simulation methods, we presented a study about numerical computation of stresses under fretting fatigue conditions derived from closed form expressions. The Navier-Cauchy equations were solved with strong and weak form meshless numerical methods.

New contributions have been obtained also in hypercompositional algebra, where we succeeded to generalize several important results from classical algebra, by defining breakable semihypergroups, composition hyperrings, or extensions of elliptic curves. We have initiated a new study in Krasner hyperrings regarding the hyperhomographies (Figure 2) and elliptic hypercurves with an applicative impact in cryptography. Besides, by introducing the notion of dependence relation, we studied from an algebraic point of view, properties of interdependencies between several sets of variables, in particular some atmospheric variables. We focussed also on several studies in ordered algebra, investigating properties and applications of BCK/BCI-algebras, involving also the new theory of neutrosophic sets. In this context, the center was collaborating with researchers from Iran, Czech Republic, Montenegro and Korea.

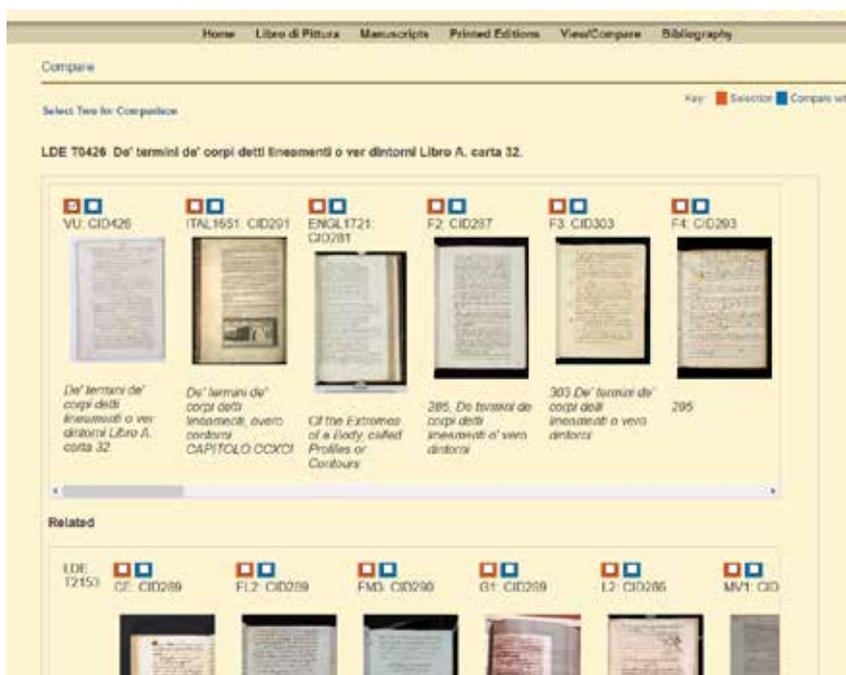
The research on modelling of dynamic systems and applications of these models was pursued in the framework of research projects at Jozef Stefan Institute. Research activities were pursued in the direction of the atmospheric variables modelling with Gaussian-process models. The main focus was on modelling of temperature profile and on the investigation of relations among variables of the dynamic model.

We participated in research projects related to the development of energy supply systems for buildings and the adjustment of fiscal (tax and non-tax) policy measures to promote the use of renewable energy sources. We were in the Expert Council of the Ministry of Infrastructure to support the development strategy in the field of energy and buildings. We actively worked in the committee of the Gorizia Region Development Council in the preparation of the Regional Development Program for the period 2021-2027.

We also continued researching the process of transformation of educational activities towards more flexible and open forms. We developed and published a new model of mentoring program for open education. In addition, we carried out case studies, analysing several aspects connected with education supported by information and communication technologies. A comparative analysis of bridging mathematics courses at the University of Nova Gorica and University of Udine has been published. Experimental analysis of chosen web conferencing tools has been carried out to identify their benefits and difficulties and to guide their future integrations into the e-learning platform already used at our university.

Research Centre for Humanities

(Acting Head: Prof. Dr. Gvido Bratina)



Transcriptions of Leonardo's manuscripts from the portal *Leonardo da Vinci and His Treatise on Painting* (Francesca Fiorani, University of Virginia, 2012).

Research Centre for Humanities operates in the fields of literary studies, cultural history and digital humanities. The approaches are mutually connected. Comparative literary studies enable reflection on the complexity of human communication and forms of coexistence. Cultural history is expanding historical research on the level of cultural practices. We understand digital humanities as critical thinking methods of the humanities in the context of progressive digitalization of culture and communicational media. Topics: distant reading, the role of writers in the literary culture; literature at the junctures; questions of humanities in the context of digitization; historical transformation of scientific institutions, environmental awareness in Slovenia.

Research activity

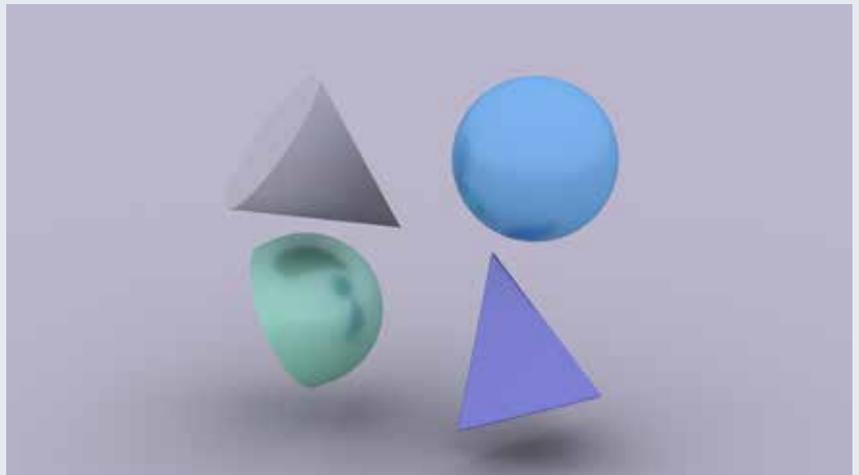
Gvido Bratina, Prof., PhD, is the acting head of the Research Centre for Humanities. In the field of literary studies work is organized in several research areas. Research is also oriented to the field of cultural history operated by historian Željko Oset, Assist. Prof., PhD.

In the year 2019 Katja Mihurko Poniž, Prof., PhD, continued to lead the research activities in the field of women's literary authorship in connection with digital humanities. We have been active in a working group within DARIAH network (Women Writers in History). Prof. dr. Katja Mihurko Poniž became the Chair of this working group. The centre is taking part in the COST Action, entitled *Distant Reading for European History*. Katja Mihurko Poniž is the Science Communication Manager of the Action. This Action's challenge is to provide support for a vibrant and diverse network of researchers jointly developing the resources and methods necessary to change the way European literary history is written. Grounded in the distant reading paradigm (i.e. using computational methods of analysis for large collections of literary texts), the Action is creating a shared theoretical and practical framework to enable innovative, sophisticated, data-driven, computational methods of literary text analysis across at least 10 European languages. Fostering insight into cross-national, large-scale patterns and evolutions across European literary traditions, the Action will facilitate the creation of a broader, more inclusive and better-grounded account of European literary history and cultural identity.

Special attention is given to the space, where our university is located, that is at the cross-roads of Slavic, Romance and Germanic Worlds. Ana Toroš, Assoc. Prof., PhD, is conducting research in the framework of regional comparative literature, which overcomes the boundaries of national literary histories and focuses on minority literature in the region, including the methodological and theoretical aspects of literary imagology and collective memory, collective trauma and post memory. From September 2017 to April 2019 she was the project leader within the INTERREG Slovenia-Italia project EDUKA 2, the University of Nova Gorica being one of the project partners. She was leading the research activities in the field of cross-border didactic that involved colleagues from the Research centre for humanities and the humanities students at UNG.

The third field represents exploring the culture in the post-digital era. In 2019 Assoc. Prof., PhD, Aleš Vaupotič completed an experimental augmented-reality project that added to the real space virtual additions, so-called »augments«, objects in the virtual cyber-reality. The project was closely connected to the research in the Centre, in particular to the studies of the literatures in contact. Alongside the literary questions, his work addressed the media-theoretical and literary-methodological issues. A synthetic outline on the place of literature in the digitized world (and in the globalized world since the 19th century) is presented in the scholarly monograph *The Question of Realism (Vprašanje realizma)* by Vaupotič, which was published by the University of Nova Gorica Press.

Dr. Željko Oset, Assist. Prof., a member of RCH who is active on the field of cultural history, has continued his research into environmental history and Slovenian intellectual history. In the first section, he published an article on environmental activism in Slovenia during the communist period and presented a paper on integration of environmental risk assessments into bank loan procedures for companies at the biannual conference of the European Association for Environmental History in Tallinn. He conducted a workshop on environmental activism in the scope of LYY institute during his research stay at the University of Eastern Finland. As member of COST action European Network for Environmental Citizenship he was active at the consortium's activities, e.g. writing a SWAT analysis on environmental citizenship



Aleš Vaupotič, Narvika Bovcon, Ana Toroš. Literaritinernary in augmented reality - the object "Janez Povše: Meja".

Aleš Vaupotič, Narvika Bovcon, Ana Toroš. Literaritinernary in augmented reality - the object "P. P. Pasolini: Dedicca".

in Slovenia, and translation of a booklet about the Education for Environmental Citizenship into Slovene.

In the second, a more extensive section, he researched the history of the University of Nova Gorica, the University of Ljubljana, Slovene Matrica Society, the "survival strategies" of Slovene scientists during World War II, and selected Slovene intellectuals (Janez Bleiweis, Henry Ronald Cooper, Bibiana Čujec and Valentina Kobe). In addition, he organized an international symposium on Leonardo da Vinci. Furthermore, he has begun organizing a symposium on Women

and Academic Career in Central Europe after the Second World War 1945–1968. Symposium held in honor of Professor Soňa Štrbáňová; the symposium will be held in the framework of the 26th Congress of the History of Science and Technology, which will be in July 2021, Prague.

In the centre there is employed young researcher Mateja Eniko, who focuses on the research of Slovenian and foreign contemporary poetry, within her doctoral research especially on the image of the artist and poetic self-reflection in the poetry after the Second World War.



Transcriptions of Leonardo's manuscripts from the portal *Leonardo da Vinci and His Treatise on Painting* (Francesca Fiorani, University of Virginia, 2012).

Center for Cognitive Science of Language

(Head: Doc. Dr. Rok Žaucer)

Center for Cognitive Science of Language is an interdisciplinary research center of the University of Nova Gorica. Our core expertise is in formal generative linguistics, which we use as a foundation for engaging in other domains of language-related cognitive science – especially language processing, language acquisition, bilingualism and the relation between language and other cognitive abilities.

At the focus of our research are investigations of theoretically relevant syntactic and semantic/pragmatic aspects of different languages. We strengthen the reliability of our data and analysis assessments with the use of corpora, large judgment samples, and various behavioral experimental methods (e.g. sentence completion, reaction times, developmental tasks, eye tracking, ERPs).

The Center for Cognitive Science of Language group specializes in formal generative linguistics, especially syntax and semantics/pragmatics, and uses this as a foundation for engaging in other domains of language-related cognitive science – especially language processing, language acquisition and bilingualism.

Basic research topics recently investigated in the Center include the following:

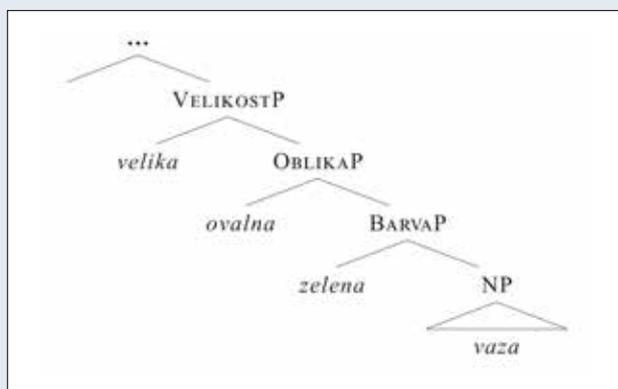
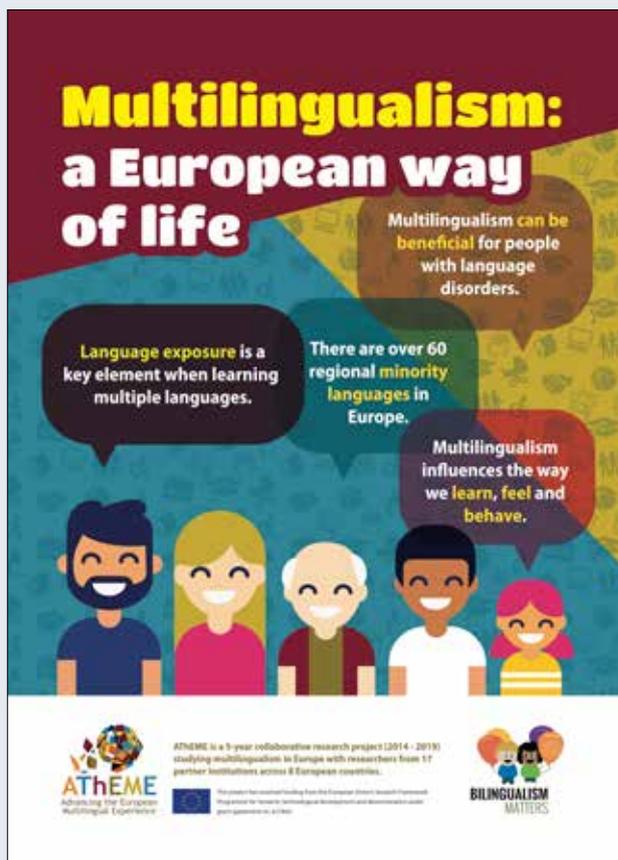
After a period of five years, 2019 was the closing year for our multipartner, EU FP7 large-scale project ATHEME, which dealt with various aspects of multilingualism in the individual and the society. The main results of the project include the finding that in addition to the age of acquisition of a second language, early bilinguals' proficiency in this language is importantly determined also by the extent to which this language is spoken on a daily basis; and the finding that on standardized linguistic tests multilingual children with dyslexia generally perform equally well as or better than their monolingual dyslexic peers, which means that in the case of dyslexia multilingualism is not a disadvantage, and it can even be an advantage.



We also successfully concluded a national, Slovenian Research Agency-funded project in which we explored categorization and perception prominence of nonlinguistic concepts of color, size and shape. We found that the results closely parallel the results that had been independently obtained with linguistic methods in theoretical linguistics. We thus confirmed the hypothesis that certain aspects of the language faculty derive from more general aspects of human cognition.

In the second half of 2019, we started work on two new Slovenian Research Agency-funded projects. In 'Development of a standardized test of the sentence comprehension ability in Slovenian-speaking adults' we will be trying to measure standard reactions in language comprehension under normal circumstances, with which we wish to make possible a comparison with the understanding of language use in special circumstances, specifically, in i) language acquisition in children, ii) multilingualism, iii) ageing, iv) language disorders. In the project 'Hyperspacing the Verb: The interplay between prosody, morphology and semantics in the Western South Slavic verbal domain', which we are conducting together with the University of Graz, Austria, we will attempt to map out in detail the morphology landscape of verbs and verbal derivatives in western South-Slavic languages, including any effects of interaction between verbal and deverbal morphology on the one hand and phonology, semantics, and syntax on the other hand. The project is also scheduled to produce a large database with a range of diverse data for a comprehensive list of verbs in the languages studied, thus providing linguists at large with a tool that will allow further investigation of various characteristics of the class of words under consideration.

Other work recently conducted in the Center includes the following:



2019 was the fifth year that saw us run the outreach center 'Večjezičnost velja' (<http://vecjezicnost.ung.si/>). This is the Slovenian branch of Bilingualism Matters, established in 2008 in Edinburgh, and targets families, teachers and anyone else who might have questions about raising bilingual children or about an adult life with more than one language. The center offers individual counseling and organizes public events with which we disseminate information and new, science-based findings about multilingualism.

A member of the Center collaborated in the drafting of the national strategic plan for Slovenia's language policy for the period from 2020 to 2024, which is being prepared by the Slovenian Language Office of the Ministry of Culture of the Republic of Slovenia.

Two members of the Center served their second year as joint editors-in-chief of the Journal of Slavic Linguistics, which is published by the Slavic Linguistics Society and aims to be the primary outlet for reporting research findings in any subdiscipline of Slavic linguistics.



Pedagogical Work

In 2019, the pedagogical work at the University of Nova Gorica was done within six schools and one graduate school: School of Environmental Sciences, School of Engineering and Management, School of Science, School of Humanities, School for Viticulture and Enology, School of Arts, and Graduate School, and at those schools, we had the following programs: Environmental Sciences, Physics, Humanities, Karstology, Cultural Heritage Studies, Molecular Genetics and Biotechnology, and Cognitive Science of Language.



School of Environmental Sciences

(Head: Prof. Dr. Matjaž Valant)



Lab work at
Group project.

The study program Environment, Level I is an undergraduate program to obtain a university degree. The program offers all important contents from natural sciences and technical and social subjects related to environmental issues such as pollution of water, air and soil, environmental monitoring, waste management and environmental protection, management and economics. The basic goal of the program is to educate experts that will be able to conduct work on research, technical and managerial fields related to environment. This goes for different industrial sectors, lawmaking and law executing area on national and local levels.

In 2019/2020 school year we enrolled thirteen generation of students in the study program Environment, Level I. Beside mandatory and selective courses the students had an opportunity within their field trips, excursions and group projects to see waste landfills, experimental stations and institutes, industrial facilities, power plants and regional parks.

Study Programmes:

Bachelor's Study Programme Environment (First Level)

Master's Study Programme Environment (Second Level)

School for Environmental Sciences educates in the field of research, preservation and management of environment. The university study program Environment was according to the Bologna Directives modernized in changes into study programs Environment, Level I and Environment, Level II. The I. and II. level programs received public accreditation with declaration of Directorate for Higher Education of Republic of Slovenia on date 12. 10. 2007 and 15. 2. 2008, respectively. Continuously, we are modernizing the contents of the both study programs. In 2017/18, we have introduced obligatory practical training for the I. level students and substitute a diploma thesis with a diploma seminar. In 2018/19 we introduced courses on climate issues. In addition, we have introduced up-to-date contents among mandatory courses on the II. Level.

A uniqueness of our study program Environment Level I is a course called Group project, which introduces a modern approaches to education through project work. Emphasizes are on solving practical problems related to environment and working in a multidisciplinary group. In collaboration with Salonit Anhovo we have successfully finished PKP project called Searchin a possibility for application of side products of cement industry with a high salt content. The project was supervised by prof. dr. Mladen Franko, prof. dr. Saim Emin and prof. dr. Artem Badasian. The promotional event was organized on 16th October 2019 as a part of University Week. The representatives from several Slovenian foundations have attended the event. On the study program Environment Level I we have graduated 2 students in 2019.



Field work at Group project.

The study at the Environment, Level II takes four semesters to complete and is exceptionally interdisciplinary. It offers courses from all important fields of environmental sciences but also enables students to deepen their knowledge in their fields of interest by choosing from a large selection of the selective courses. On the Level II the project work is performed individually within a course Individual project. In 2019 six students has received the master thesis. For study achievements we awarded the student Gaja Tomsič with Alumnus Optimus

The School has been actively involved in international exchange of students and professors, which has mainly been organized within Erasmus program. Within this exchange three our students have travelled to perform studies in Turkey and UK. We accepted three students from Azerbaijan and Germany.



Visit at wastewater treatment plant Ajdovščina.

School of Engineering and Management

(Dean: Prof. Tanja Urbančič, PhD)



Study Programmes:

Bachelor's Study Programme Engineering and Management (First Level)

Master's Study Programme Engineering and Management (Second Level)

Bachelor's and Master's Programme of Engineering and Management are pursued at the School of Engineering and Management. Graduates are educated to identify and solve problems of economically efficient and sustainable business and industry based on their knowledge of technology, economy and management. Their student projects and theses are typically connected with concrete situations in companies, various institutions or local communities. This is important to maintain good connections between the school and its environment, contributing to the very high employability rate of programmes' graduates. The school with enrolled students from eleven different countries possesses increasingly international atmosphere.

The thirteenth generation was enrolled to the Bachelor's programme and the fourteenth generation came to the Master's programme at the School of Engineering and Management in year 2019. Educational activities of the school were carried out in the Lanthieri Mansion in Vipava.

109 students were enrolled in academic year 2018/2019, out of which 72 students to the Bachelor's programme and 37 students to the Master's programme. Similarly to previous years, a high proportion of students came from abroad. A possibility to learn Slovenian language was organised for them. In addition to the course for beginners, also the course at the continuation level was offered in 2019 for the first time.

In the previous years, the curriculum of the Bachelor's programme was modernised. The new programme has more elective courses, updated content and more emphasis on information technologies due to trends of digitalisation in business and industrial companies. The Master's programme was also modernised in a similar way. In academic year 2018/19, both study programmes were performed in accordance with these updates for all students. In January 2019, new changes were introduced to four courses in order to better prepare the graduates for their career in an international context. In May 2019, call courses were checked again and renovated if needed, where an emphasis was given also to the introduction of more active study methods.

The programme has until present always been implemented in accordance with the specifications. In the academic year 2018/19, from the list of elective students at the Bachelor's degree, *Human Resource Management, Mobile Technologies, English, and Information security* were performed, while this year Master's elective courses were *Business Communication Workshop, Contemporary measurement techniques, Decision support models and systems, Knowledge Management, Industrial design, Automatic Control Systems and Production Information Systems*.

The School of Engineering and Management is very active in the development and introduction of new methods and information technology support for teaching. This, together with the introduction of e-learning elements contributes to the better quality and availability of courses. E-platforms are used in increasing number of courses at the School. Consequently the study activities are mitigated for those students that are active athletes or part-time employed and need flexibility in their study curriculum. In cooperation with national and international experts, a new Master's Degree Program Leadership in Open Education was prepared in 2019 and has already received accreditation.



10 students successfully finished their study at the School of Engineering and Management in year 2019. Most of the staff members were active as their supervisors. 7 graduates come from the Bachelor's programme Economics and management of production and technological systems, first level, and 3 from the Master's programme Engineering and Management, second level. Cumulative number of the graduates of this school increased to 558 at the end of the year 2019. Their broad profile ensures an excellent employability rate that additionally increased in the last year. Taking into account the last three generations of graduates, the employability in 6 months after graduation is 90,91 % while in one year after graduation it comes to 93,33 %. The employability of graduates is enhanced by the competences that students acquire through project work within or outside the study program. For spreading awareness among potential employers, the school has a recorded round table where successful graduates present their professional profile and working experiences. However, high employability is mostly obtained by maintaining good cooperation between the school and companies, mostly by student internships in companies. In the year 2019, students were accepted by the companies Hit d.d., B22 d.o.o., LED Luks d.o.o., Mahle d.o.o., Kolektor orodjarna, B. Makovec transport d.o.o., Creanest d.o.o. for their internships. The school also collaborates with Primorska Technology Park in encouraging and preparing the students for entrepreneurship.



School of Science

Dean: prof. dr. Samo Stanič



Study programmes:

Bachelor's Study Programme Physics and astrophysics (First Level)

Master's Study Programme Physics and astrophysics (Second Level)

Master's Study Programme Materials Science (Second Level)

Physics addresses the phenomena in nature at its most fundamental levels on a variety of dimensional and energy scales. The goals of physics are to build on the current understanding of nature, using both experimentation and theoretical analysis, and to extend our understanding to more complicated systems, such as molecules, fluids, solids and galaxies. School of Science, supported by five research laboratories and centers of the University of Nova Gorica, provides research oriented programs »Bachelor in Physics and Astrophysics«, »Master in Physics and Astrophysics« and »Master in Materials Science«. We actively promote student creativity, originality and versatility; we consider the studies to be the competitive edge that may help our graduates in their professional careers. Our advantages are individual approach to students, international research experience, and a young, dynamic academic team.

We welcome foreign students, as all our lectures and other teaching activities are available in English. Pursuing Bachelor studies in physics and astrophysics requires no tuition for students from Slovenia, other EU member states, and countries signatories of bilateral agreements that waive tuitions in higher education (Serbia, Montenegro, Macedonia, Bosnia and Herzegovina, Kosovo and others). The school's involvement in the ERASMUS+ program provides a convenient possibility for students from Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine to pursue physics studies at the University of Nova Gorica. Our study programs are accredited by the Slovenian Quality Assurance Agency for Higher Education and our graduates obtain officially recognized academic degrees and diplomas, including the diploma supplement, prepared according to standards agreed to by the European Commission, the Council of Europe and UNESCO.

To provide high quality education and optimal conditions for either further studies or employment in the field of physics and astrophysics, the bachelor level program introduces general theoretical and experimental topics in a broad spectrum of physics fields, and gradually involves the students in actual research. The master level program in physics and astrophysics aims at profiling the students into narrower research fields, such as astrophysics and physics of materials, providing additional in-depth knowledge each of the modules. The students are also encouraged to become involved in international research collaborations and student exchanges with other universities and institutions. From 2018, Master program »Materials Science«, an interdisciplinary



and research-oriented 2-year study program was also offered. The common point of all programs is scientific excellence, direct individual approach in teaching and research and collegial relations between students.

School of Science is also active in dissemination activities promoting science among the youth. It co-organizes Slovenian high-school and elementary school level competitions in astronomy, provides support to the national team at international competitions, is involved in managing the Slovenian version of the popular science »Portal to the Universe« and organizes public lectures. Our students are welcome to participate. The service they give is very rewarding, as they obtain invaluable experience with giving lectures and presenting scientific ideas to general public.

Bachelor program

»Physics and astrophysics«

The duration of the bachelor program »Physics and astrophysics« is three years, requiring a total of 180 ECTS points. The courses aim to provide general theoretical and experimental knowledge in a broad spectrum of physics fields, required for research work, and to gradually involve the students in actual research. Theoretical courses are complemented with research activities in laboratories and centers of the University of Nova Gorica. Although general orientation of the program is towards astrophysics and solid state physics, it nevertheless provides a broad enough knowledge base for the graduates to be able to pursue further studies or employment in any field of physics.



Master program »Physics and astrophysics«

Master studies of »Physics and astrophysics« provide specialist knowledge in the fields of astrophysics and solid state physics. The program's duration is two years and requires a total of 120 ECTS points. Student activities within research laboratories and centers of the University of Nova Gorica are the basis for their master theses, which are often published in international scientific journals. Hands-on experience in international environment and with state-of-the-art technologies is pursued to increase the competitiveness of our graduates in their further careers.

Master program »Materials Science«

Master program »Materials Science« is an interdisciplinary and research-oriented 2-year study program, requiring a total of 120 ECTS points, that is being offered from academic year 2018/2019. It is based on research excellence of the University of Nova Gorica and its partner, National Institute of Chemistry from Ljubljana, in the fields of physics and chemistry of materials, materials characterization, as well as materials technologies and development of innovative products and services, including the protection of intellectual property.

School of Humanities



The School of Humanities offers study programmes of the first and second levels. Graduates of our second-level programmes can pursue further studies at the Graduate School of the University of Nova Gorica, at the doctoral (third-level) programmes Humanities and Cognitive Science of Language.

At the Bachelor's level (first-level), the School offers study programmes Slovene Studies and Cultural History. The study areas of the programme Slovene Studies are linguistics, literary theory and history, and the qualification title awarded to the graduate is a Bachelor's degree in Slovene Studies (UN). We upgrade the traditional division into linguistic and literary contents by introducing basic and elective subjects in the fields of general linguistics, literary theory, film and performance arts.

Study programmes:

Bachelor's Study Programme Slovene Studies (First Level)

Bachelor's Study Programme Cultural history (First Level)

(Programme directress: Prof. Dr. Petra Svoljšak) (until October 2019)

Master's Study Programme Slovene Studies (Second Level)

Pedagogical Master in Slovene Studies (Second Level)

European Master in Migration and Intercultural Relations (Second Level)

(Programme directress: Prof. Dr. Marina Lukšič Hacin)

Master's Study Programme Digital Humanities (Second Level)

The School of Humanities follows the motto: "We bring together the humanistic tradition and the contemporary knowledge with the future in mind". In collaboration with the Research Centre for Humanities, the Centre for Cognitive Science of Language and multiple partners we link top scientific research work with teaching; in this manner we introduce students into research and professional practice.

The study area of the programme of Cultural History enables the students to obtain a broad fundamental knowledge, while additional attention is devoted to the cultural and political specifics of the environment in which the programme was created. The graduate acquires the professional title of graduate historian – a Bachelor's degree in history (UN). The director of the programme of Cultural History is Prof. Dr. Petra Svoltjšak.

In the 2018/2019 academic year, the School of Humanities conducted three second-level study programmes: Slovene Studies – with the orientations Linguistics and Literary Science, the Pedagogical Master in Slovene Studies and the international Master's study programme European Master in Migration and Intercultural Relations (Erasmus Mundus).

While the second-level study programme Slovene Studies covers the main study areas of the Slovene language and the Slovene literature, its students also obtain fundamental theoretical and methodological knowledge in the fields of literary science and linguistics. The study orientation Linguistics gives the students extensive fundamental knowledge in the field of the study of language, in structural-theoretic, applied and interdisciplinary linguistics, as well as in other areas of humanities and social sciences. The direction Literary Science allows the students to obtain a comprehensive insight into the Slovenian literature, focusing on the comparative approach to literary science. The acquired title in both programmes is Master in Slovene Studies.

In the year 2019, all the first-generation students of the second-level study programme Pedagogical Master in Slovene Studies graduated. The study programme covers the areas of educational sciences and education of teachers, literary and linguistic sciences, in an equal proportion. The acquired qualification title is Master Professor of Slovene Studies. The graduates are able to teach the subject Slovenian language in primary and secondary schools, teach Slovene as a second or foreign language and deal with the complex issues of the Slovenian language and literature.



Migration and Intercultural Relations is an international programme focusing on human rights, democratic values, the welfare state, the labour market and the challenges which the Member States of the European Union as well as a global world have been facing. The study programme is run with the support of the elite programme for international cooperation and exchange of students and teachers in higher education, Erasmus Mundus. The study areas covered by the programme are: migration studies, history, political science, sociology, anthropology and education; the qualification title: Master of Arts in Migration and Intercultural Relations. The study process is carried out at several universities in the English language.

In the year 2017, the interdisciplinary Master's study programme Digital Humanities was accredited, covering the study areas of humanities, computing, multimedia design (in the proportions of 40, 40, 20 percent). The School of Humanities also offers various language courses, both in foreign languages and the Slovene language.

We devote special attention to projects in which the students acquire the knowledge and skills that help the students in their professional careers. In the 2018/2019 academic year, the School of Humanities obtained and coordinated the project Grape seeds – source of pollution and a business opportunity. The students, under the supervision of the two academic mentors (Assist. Prof. Dr. Željko Oset and Prof. Dr. Branka Mozetič Vodopivec) and the professional mentor (Katjuša Reja Mozetič; owner of the company Nona Luisa, production of natural cosmetics and liqueurs) addressed the question of the disposal of grape seeds obtained after the grape pressing process. By studying this issue, the students working on the project gained an insight into environmental aspects and standards in the geographical area of Goriška Brda. The project activities, carried out from 1st February to 30th June 2019, were financially supported by the Public Scholarship, Development, Disability and Maintenance Fund of the Republic of Slovenia.

At various events promoting the School of Humanities we offered the so-called mobile language consulting services. The answers to the questions contributed by the visitors of the events were later published on our social media.

School for Viticulture and Enology

(Dean: Prof. Dr. Branka Mozetič Vodopivec)

Study programme:

Bachelor's Study Programme Viticulture and Enology (First Level)

The University of Nova Gorica's School of Viticulture and Enology provides multidisciplinary higher-education expertise in viticulture, enology, and wine marketing following the OIV guidelines for higher education of oenologes. It has been offering a uniform and specialised first-cycle (Bachelor's) programme since 2006, and in the 2019/2020 academic year it also launched a second-cycle (Master's) programme in viticulture and enology. Through its practical and international orientation, recognised national and international experts serving as guest lecturers, and close cooperation with the University of Nova Gorica's Wine Research Centre, the school ensures the continuous inflow of the latest knowledge and skills, and the acquisition of valuable experience that helps its graduates find jobs in their area of expertise.

The School of viticulture and enology conducts a professional 1st cycle (BSc) course Viticulture and enology. In 2018/2019 four BSc students have completed their studies. In March 2019 we finally received the national accreditation for the 2nd cycle (MSc) Viticulture and enology programme and opened it for the admission for the first time in 2019/2020. In the middle of 2019 the procedures for the transformation of the School of viticulture and enology into the Faculty of viticulture and enology were also initiated, but have not yet been completed on a national level.



Both programs are held in Vipava, in the modern lecture halls and laboratories of Lanthierij Mansion, which were supplemented in the 2018/2019 academic year by a new tasting room with a preparation place.

The BSc course prepares students for the independent organization, management and marketing of small wine estates and enables those who wish to take up employment in the larger wineries specializing either in viticulture or in enology and marketing. MSc course enables students to acquire knowledge that will enable them to master the more demanding and responsible work processes in viticulture and enology - in the production and processing of grapes and wine, in analytical and research laboratories and in administrative and control areas.

The school also has a university estate in the nearby Manče (1.2 hectares of vineyards of the Zelen and Pinela varieties), and we currently work with more than 40 partner companies / wineries, wine shops and various wine analyzing labs in practical training of students. At both levels, students learn the practical contents also through field trips in the Primorska and other Slovenian wine regions, nearby Italian trans-border region and Italy. We take our students also to companies that are indirectly involved in wine production: barrels and other winemaking equipment, stoppers, bottles, nurseries, laboratories, consulting firms, distributors and marketing agencies. Moreover, we regularly invite experts to give lectures as well. Last year our students could listen mag. Francois Botton of the Laffort and Domaine Slapšak estate - a sparkling wine expert, mag. Janja Klanjčar Žajdela - wine production HACCP specialist from Pukavec Family Wines and also mag. Andreja But, the head of Slovenian wine inspection service.

This year we have also included students in wine festivals, where they promoted university wines (Univerzitetni Zelen, Univerzitetno Rdeče, Univerzitetna Pinela and Rektorjev izbor) and school as well (Festival Zelen, Okusi Vipavske, Slovenian Wine Festival, Vinski Univerzum). At the end of November 2018, the students of the 2nd year were actively present at Slovenian Wine Festival in Ljubljana, as competitors of the Lidl Young Winemaker 2018 competition. Vrhpolje Vine Selection Center (Nova Gorica Agricultural Forestry Institute) and Nursery Vrhpolje hosted us on their micro-vinification equipment and infrastructure and we hope that for the next academic year we will already be able to conduct such experiments in our own fermentation laboratory in Lantieri Mansion.

At the end of May 2019 we opened the doors for the 12th Student Wine Festival hosting also Croatian students of similar courses of the Colleges Požega, Križevci and Rijeka (Agricultural department Poreč).

The promotion of our school on a national and international level is supported greatly by the staff of the Wine Research Center with their scientific and professional publications and contributions, as well as by constant advertising campaigns in which we involve our own students. We also participate in the annual OENO-VITI International Partner Meetings, which this year took place in Athens, Greece. Our pedagogical staff is constantly being trained at the university and abroad in scientific and pedagogical field, but we take care and constantly welcome foreign professors and researchers who bring a different breadth to our pedagogical process.



School of Arts

(Dean: prof. Boštjan Potokar)



Fashion studio photography workshop with artist and photographer Miha Godec.

Study Programmes:

Bachelor's Study Programme Digital Arts and Practices (First Level)

(Programme directress: Prof. Rene Rusjan)

Master's Study Programme Media Arts and Practices (Second Level)

(Programme directress: Prof. Rene Rusjan)

University of Nova Gorica School of Arts has been educating in the field of arts since 2009. Within the University it started functioning as a BA school and in seven years developed into a fully accredited Academy. This is the first university level academy in Slovenia in 71 years. In English it retains the naming as the *School of Arts*. BA and MA programmes cover the following fields:

- Animation (*animated film, animation in creative industries*)
- Videofilm (*fiction, documentary, experimental film, art video*)
- Photography (*author, functional*)
- New Media (*creative use of new technologies*)
- Scenographic Spaces (*film, theatre scenography*)
- Contemporary Art Practices (*combination of different media*)

After 2008, when we prepared the first study programme in the field of arts, the school saw a gradual but firm development into an art academy:

- March 2011 - The Slovenian Quality Assurance Agency (SQAA) accredits the UNG School of Arts with decision no. 6033-86/2009/8.
- September 2012 - SQAA accredits the Bachelor's programme in Digital Arts and Practices with decision no. 6033-97/2001/19.
- September 2014 - SQAA accredits the Master's programme in Media Arts and Practices with decision no. 6033-117/2013/20.
- September 2016 - the School is awarded accreditation as an Academy by the SQAA in decision no. 6032-11/2015/19. In English it retains the naming as the School of Arts.
- October 2016 - the University of Nova Gorica School of Arts, is written into the List of Accredited Slovenian Higher Education Institutions with the new Slovenian name Akademija umetnosti Univerze v Novi Gorici with decision no. 6033-475/2016/8 at the Ministry of Education, Science and Sport.

The Programme structure at the UNG School of Arts enables combining media and fields thereby opening a range of professional pathways, from becoming an author to developing a distinct professional identity. In 2009 we opened the Bachelor's programme in Digital Arts and Practices. Our MA programme was developed within the ADRIART EU supported project, together with partners from Croatia, Austria and Italy. As leading partner of the ADRIART project at the UNG School of Arts we were able to offer continuing education for our BA graduates an MA programme in in 2012/13 - Media Arts and Practices, with a pilot run in that year and a full launch the following year.

In the 2018/19 study year 52 students are immatriculated at the UNG School of Arts. The student structure is international – on BA level more than half of the students are foreign, while the MA level is distinctly international as the majority of the students are foreigners. Several are from EU countries while some come from more distant parts of the world. The entire educational activity of UNG School of Arts was held at the premises of the Palazzo Alvarez in the center of Gorizia, Italy. The school occupied in total 800m2 intended exclusively for educational activities and additional 200m2 service spaces. Within the study year 2019/2020 we are moving into existing spaces of University of Nova Gorica in Rožna Dolina, Nova Gorica. Through various projects and co-production activities we have in recent years been able to acquire the much needed equipment for film, animation and photography production and postproduction. Students thus now have a modern studio environment where they can work throughout the day.



Experimental form workshop on immersive space with artist Valerie Wolf Gang.

In addition to individual careers of mentors and other UNG School of Arts collaborators, all of whom are nationally and internationally renowned artists, a lot of energy is invested in cooperations with various festivals and other ways of presenting student work.

- At the 22nd edition of the Festival of Slovenian Film we took part with 3 films, while the MA graduation film "Soma" by Sandra Jovanovska received an award;
- The same MA student Sandra Jovanovska received a Best Short Film Award at the K3 Short Film Festival in Villach, Austria;
- At the MFRU International festival of computer arts in Maribor BA students Denis Perčič and Matija Ternovec were awarded with one of four scholarships;
- At the Speculum Aratum Festival in Trbovlje our films made one slot within the DigitalBigScreen programme and the project »David's Gaze« by Valerija Zabret and Miha Godec, our MA graduate and student, respectively, was exhibited;
- DSAF, the Slovene Animated Film Association for the second time awarded best student films. Both awards in this section went to our students, the Award for Best Student Animated Film went to

Sandra Jovanovska for "Soma" while the Award for Best Student Animated Film in Development was given to our BA student Anja Resman for her graduation project "The Mask";

- At the FeKK Short Film Festival in Ljubljana one film of our students were shown;
- At the 2018 Cinedays Festival of European Film in Skopje five films of our students were shown;
- As previously also this year our students collaborated at the Pixelpoint Contemporary Arts Festival in Nova Gorica;
- At the ANIMATEKA 2019 International Festival of Animated Film in Ljubljana University of Nova Gorica has, together with University of Ljubljana, sponsored the »Young Talent Award« for the best European student film. One film was chosen for the Competition Programme and one within the Panorama section.

We believe our most important showcase are our students and graduates – their products are valued high enough by professionals to represent Slovenia at diverse exhibitions, festivals and selections around the globe.



Flipbook animation workshop with Serbian director and professor Rastko Čirić.

Graduate School

(Dean: Prof. Dr. Iztok Arčon)



Research work of doctoral students in UNG laboratories.

Graduate School

(Dean: Prof. Dr. Iztok Arčon)

Doctoral Study Programmes (Third Level):

Environmental Sciences

(Programme director: Prof. Dr. Anton Brancelj)

Karstology

(Programme director: Prof. Dr. Martin Knez)

Physics

(Programme directress: Prof. Dr. Sandra Gardonio)

Materials

(Programme directress: Prof. Dr. Nataša Novak Tušar)

Humanities

(Programme directress: prof. Dr. Ana Toroš)

Cultural Heritage Studies

(Programme directress: Prof. Dr. Saša Dobričič)

Molecular Genetics and Biotechnology graduate study programme

(Programme directress: Doc. Dr. Martina Bergant Marušič)

Cognitive Science of Language

(Programme director: Prof. Dr. Artur Stepanov)

Graduate School at the University of Nova Gorica (UNG) hosts and carries out all doctoral study programmes (third level), regardless of their scientific discipline. All study programmes are internationally orientated and closely linked to UNG's research laboratories and centres, and to other research institutions in Slovenia and abroad, which enables graduate students to conduct their research work required by their studies and to participate in international research activities and projects.

All study programmes are internationally oriented and closely linked to UNG's research units, and to other research institutions in Slovenia and abroad, where graduate students can conduct their research work required and can participate in international research projects. Among many external partners we should point out those with which we have established long term collaborations. The programme Karstology is carried out in close association with the Karst Research Institute of the Centre of the Slovenian Academy of Sciences and Arts. The links between the two institutions were further strengthened in 2014 with the establishment of the UNESCO Chair on Karst Education at UNG. Doctoral programme Cultural heritage Studies, which includes a one-year specialization (second-level Master), is implemented in close cooperation with Università IUAV di Venezia, and offers a possibility of double doctoral diploma. We closely collaborate and run two EU Horizon H2020 projects with several European universities. Doctoral programme Molecular Genetics and Biotechnology is carried out in collaboration with the International Centre for Genetic Engineering and Biotechnology (ICGEB) from Trieste, Italy.

Implementation of doctoral study programmes is financed through tuition fees. Premises and equipment for the implementation of graduate study programmes are adequate. Director with Scientific Board of the programme is the expert head of an individual programme.



Cultural heritage studies: Healthy corridors as drivers for social housing neighbourhoods (HORIZON2020 EU project).

We continuously improve and upgrade all our doctoral programs, to guarantee the quality and topicality of the contents and teaching methods, and to provide doctoral students necessary up-to-date knowledge and skills for solving new challenges in science. In 2019 a new doctoral program Materials was accredited, which we prepared in close collaboration with National Institute of Chemistry. The first generation of students was enrolled in this program in academic year 2019/2020.

All programmes are conducted successfully, in a high-quality manner and effectively, which is visible in the success of students in their studies and individual research work. The quality of graduate studies is reflected in successful defences of high-quality doctoral theses, and in numerous publications of student research results in reputable international scientific journals: 32 scientific and professional articles, 52 papers and published proceedings from conferences, and 45 other scientific publications in the academic year of 2018/2019. In this year UNG promoted 20 new doctors of science.

The interest in the doctoral programmes is high. In academic year 2018/2019 there were a total of 55 students enrolled in all doctoral programmes, of which more than 60% were from abroad. Number of international student exchanges and number of visiting professors and mentors from foreign universities and research institutions is also very high. The language of dissertation is English, to ensure that all doctoral students gain necessary language competences, to be able to present sovereignly and independently their research results to international audience in English. The committee for the assessment of doctoral dissertation always includes at least two members from foreign universities to assure that the quality of doctoral degrees is comparable to international standards. Internationalisation of doctoral studies remains one of the central strategic directions of graduate school also in the future.



Research in the field of energy and environmental applications.



Other Activities

For the researchers, students, and general public, all the professional (research) and study literature is available at the very modern *University Library*, while the *Publisher of UNG* is in charge of the publication of text books, lecture notes, collections of scientific papers and other works. The university also has a *Student Office* that helps both undergraduate and graduate students, as well as all those interested in obtaining information about the study at the UNG. The *International Office* is there for coordinating international projects, and the *Project Office* gives administrative support for carrying out international projects. Apart from that, the University of Nova Gorica also has a *Career Center* that creates a link between the university, the students and potential employers. Lastly, there the *Alumni Club* that joins alumni from all generations of graduates, of both graduate and undergraduate programs. It basically connects all individuals who have contributed in any way to the development of the University of Nova Gorica.



University Library

(Head: Vanesa Valentinčič Murovec)



University library of University of Nova Gorica is open to all students and staff, as well as to all other visitors who are interested in the materials offered by the library. We collect material from all areas of science, mostly for educational and research activities of UNG.

Library collection includes more than 22.300 book titles, 70 titles of periodicals, 600 items of non-book materials and e-edition of scientific journals, reachable over services like ScienceDirect, Springer Link, APS Journals, EIFL Direct-podatkovne zbirke EBSCOhost, ACS Publications, JSTOR, ORP-index, CREDO online, "Window of Shanghai" e-book service. Our users can access databases such as Web of Science, Scopus, MathSciNet itn.

In 2019 we have got access to the Credo Online Reference Service, Academic Core Collection.

Library collection is almost completely open access and organized by UDC classification. We offer on-line searches from databases and through interlibrary loan we provide material that is not in our collection. We provide bibliographic service for our researchers and other institutions. The library is full member of the Slovene library co-operative online bibliographic system & service, COBISS. Through our website we offer e-learning of search skills we also provide information literacy courses. The library is open 48 hours a week. Users can use a reading room with 50 reading places, 5 computers in the computer room and there is option to connect your own computer for easier access to electronic materials, archives and databases. Students from the dislocated faculties can use library loan by the courier service. Repository of the University of Nova Gorica, RUNG is one of the Open Science Slovenia portal "openaccess.si" partners. In 2019 we revised Rules on the general conditions of operation as it was required by the current legislation and library reorganisation.

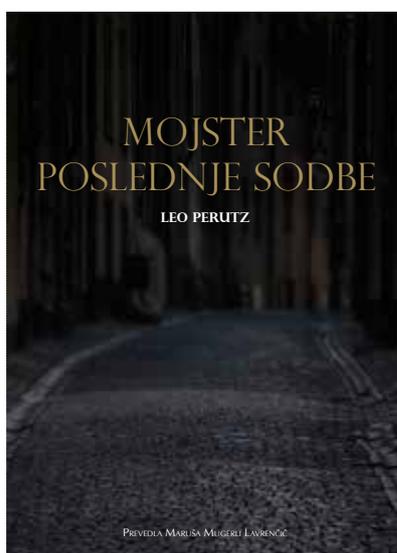
Publisher of UNG

(Head: Mirjana Frelj)



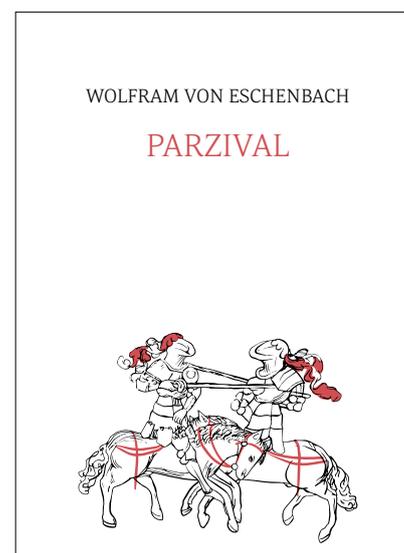
University of Nova Gorica started its publishing activity in 2001. We publish textbooks and study materials for the academic courses available at our institution, as well as research and scientific works. Publishing is regulated by the *Rules of publishing activities*, for quality is responsible *Commission for publishing*.

So far, we have published 46 publications. Among them there are teaching materials with instructions for exercises for undergraduate students of the University of Nova Gorica, university textbooks for students and professors, conference proceedings, scientific and other monographs.



In 2019 we published the scientific monograph »Vprašanje realizma« by Aleš Vaupotič. The print edition of the book was published with the support of the Slovenian Research Agency. We have also received grant for scientific monograph »Porajanje Jugoslavije. Doživljaji Ljubljančana (Miljutina Zarnika) leta 1918« by Željko Oset and Kristina Ferk that is still in the publishing process.

The second reprint of the textbook »Kemijsko računanje« has been published. The textbook was first printed in 2010 and first reprinted in 2016.



The great novelty this year is two Slovenian translations of novels from German. In July was first published the medieval knight romance »Parzival / Wolfram von Eschenbach« translated by Simon Širca. In November was published the crime novel »Mojster poslednje sodbe / Leo Perutz« translated by Marusa Mugerli Lavrencic.

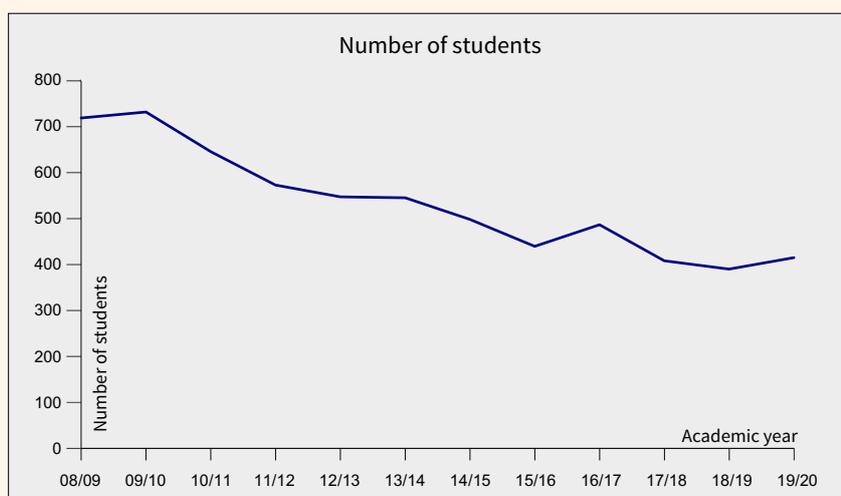
Student Office

(Head: Renata Kop)

Student Office of University of Nova Gorica was founded in the year 2002 and serves both undergraduate and postgraduate students as well as those interested in information about the studies at our institution. The objective of the Student Office is to support students and candidates for study in academic and extracurricular activities. The Student Office has an office available in Nova Gorica and Vipava. Part of the Student Office is also Higher Education Application-Information Service, which was founded in the year 2007.

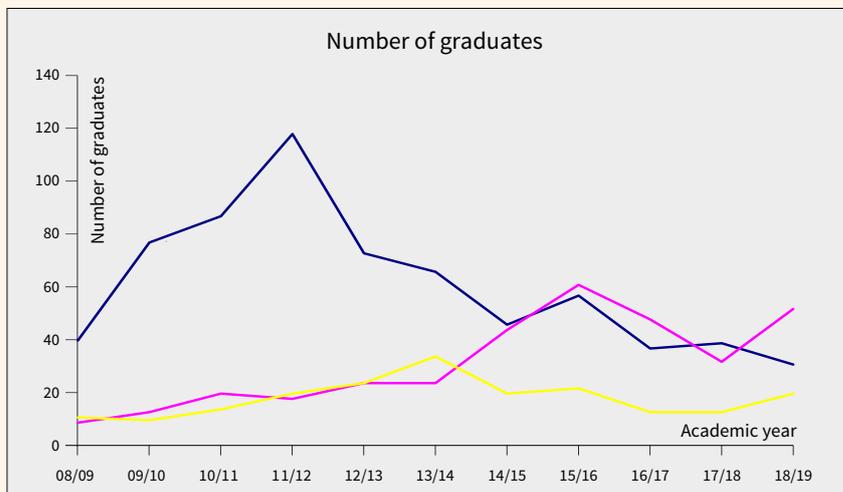
Student Office offers information about enrolment, conditions for enrolment, information about academic programmes, and other information concerning studies at University of Nova Gorica; arranges application and selection procedures and organizes and implements call for enrolment, application and enrolment processes; issues certificates and prepares diploma papers; manages and regulates student databases; processes and analyzes students data; organizes medical examinations for students, assists in finding accommodation including organization of housing in Lanthieri Mansion Student Dorm; manages the processes and prepares decisions of recognition of education for the purpose of access to education.

In the academic year 2019/2020 we enrolled 416 students, 243 students on first level study programmes, 116 students on second level study programmes and 57 students on third level study programmes.

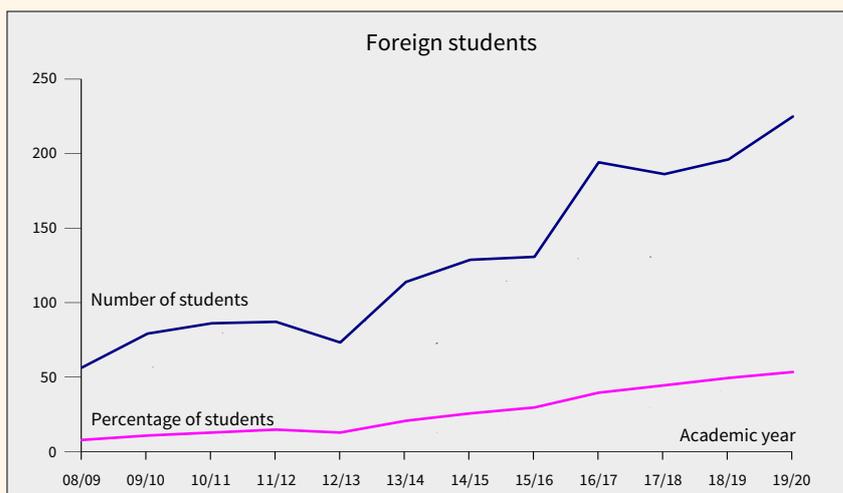


Number of graduates by level of programme in academic year 2018/2019:

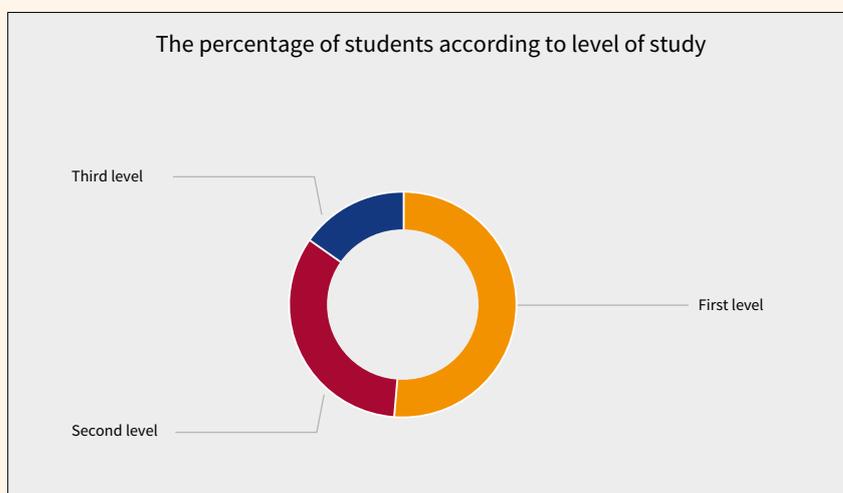
- 31 on bachelor's study programmes,
- 52 on master's study programmes,
- 20 on doctorate's study programmes.



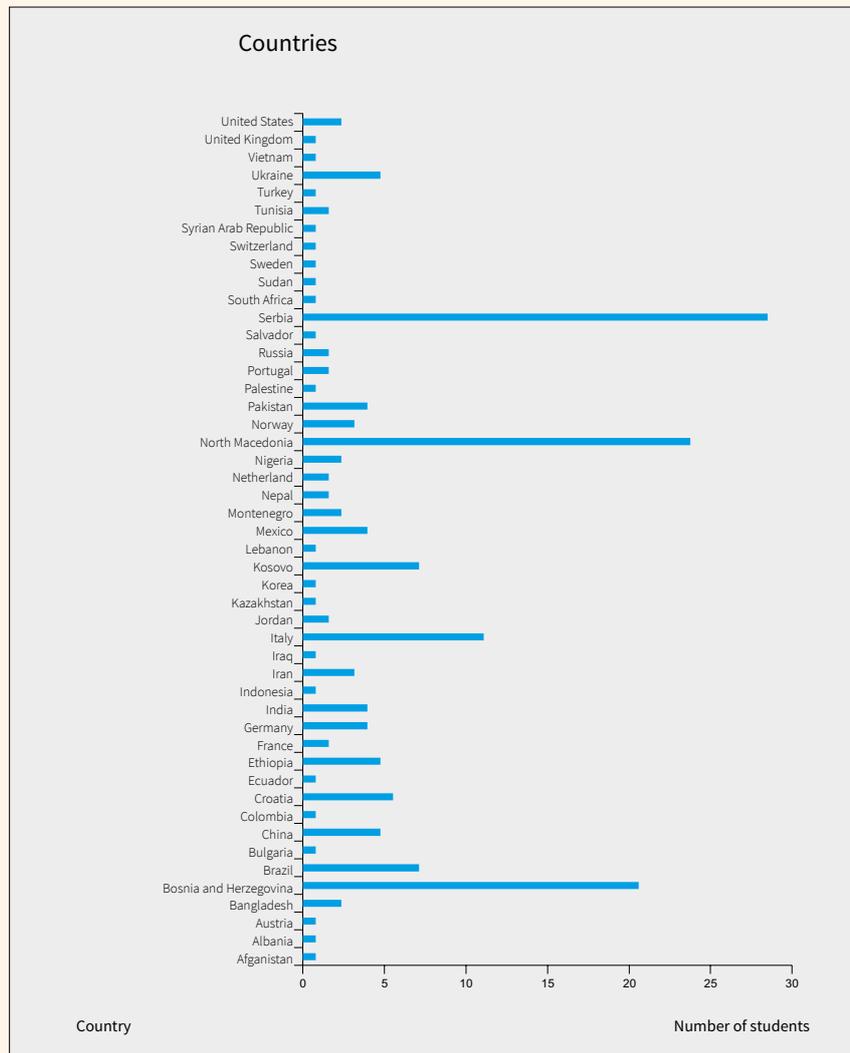
The number of foreign students in academic year 2019/2020 increased compared to academic year 2018/2019, higher is also the percentage of foreign students according to the total number of students, this is 54%.



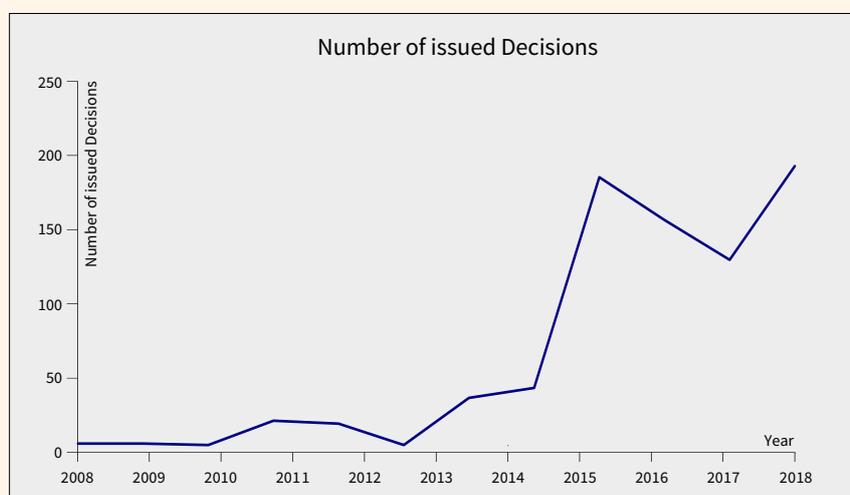
The majority of foreign students in academic year 2019/2020 study on bachelor's (first level) study programmes, in particular on Bachelor's study programme Engineering and Management (first level)



In academic year 2019/2020 foreign students come from 48 different countries:



The Student Office completed 201 processes of recognition of education for the purpose of access to education and issued 103 positive decisions in year 2019.



Project Office

(Head: Aljaž Renner)

Project office of UNG is providing administrative support of international research project's implementation. It involves two people (head of project office and project coordinator).

The Office ensures support to the researcher and other employees also in the process of project proposal preparation and application. The support is focused on financial, administrative and legal aspects of proposal applications.

The Office is monitoring relevant open calls and is frequently informing UNG staff about funding possibilities through the list of relevant calls published on Office's webpage. The list is accessible for UNG's employees. New calls are included twice per week which ensures timely information.

Work in the office in 2019 was focused on supporting applications of proposals to the calls of the financial period 2014-2020 and on ensuring administrative and financial support to the implementation of ongoing projects at UNG. In this field we spent most of the time preparing financial reports for INTERREG and ERA-NET projects.

In 2019 there were 18 project proposals submitted from UNG:

- 10 proposals within Horizon 2020 (2 to the ERC calls),
- 2 proposals to the call for projects of INTERREG V-A Italija Slovenija programme,
- 1 proposal to the call for projects of INTERREG DANUBE programme,
- 1 proposal to the call for projects if INTERREG MED programme,
- 4 proposals to other European programmes or initiatives (UIA, Flag-ERA, Norwegian Mechanism, etc.)

In 2019 the Office ensured administrative and financial support to the following projects at UNG:

- ATHEME - Advancing the European Multilingual Experience (FP7)
- NFFA EUROPE – Integration and opening existing national and regional research infrastructures of European interest (Horizon 2020)
- Biological remediation of water contaminated with heavy metals (Call of MIZŠ Researchers at the beginning of their careers 2.0)
- Metalization of polymer surfaces using algae (Call of MIZŠ Researchers at the beginning of their careers 2.0) - - - EnViRoS - Opportunities for environmentally friendly viticulture: optimization of irrigation and introduction of new genotypes of wines (ERA-NET ARIMNET2)
- EcoLamb - Holistic Production to Reduce the Ecological Footprint of Meat (ERA-NET SUSAN)
- NanoElMem – Designing new renewable nano-structured electrode and membrane materials for direct alkaline (M.ERA-net)
- MX OSMOPED – MXene organic semiconductor blends for high-mobility printed organic electronic devices (FLAG ERA JTC)
- CLIC - Circular models Leveraging Investments in Cultural heritage adaptive reuse (Horizont 2020)
- URBINAT – Healthy corridors as drivers of social housing neighbourhoods for the co-creation of social, environmental and marketable NBS (Horizont 2020)
- RETINA - Opening research laboratories to innovative industrial applications (INTERREG V-A Slovenija – Avstrija)
- AGROTUR II - Sustainable development of agriculture and tourism on crossborder Kras (INTERREG V-A Slovenija – Italija)
- EDUKA2 - Crossborder management of education (INTERREG V-A Slovenija – Italija)
- MEMORI-NET - Network for Mental Rehabilitation and Motors of the Ictus (INTERREG V-A Slovenija – Italija)
- MAST – Master Module in Art, Science and Technology (EC DG Connect Pilot Call)
- HERMES-SP – High Energy Rapid Modular Ensemble od Satellites (Horizon 2020)
- Kons – Platform for contemporary research arts (call of Ministry RS for culture)



International Office

(Head: Sabina Zelinšček)

For many years the University of Nova Gorica has been actively involved in various programs supporting international mobility and interinstitutional projects in the field of education and training.

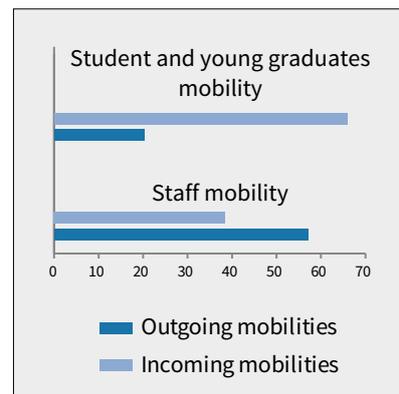
In 2019, the International Office coordinated the implementation of seven projects in the field of education and training, while in others, it provided various administrative support both for applications and reporting as well as for organizing mobility.

Projects carried out in 2019:

- MIZŠ, Tuji strokovnjaki in prožne oblike učenja za boljše znanje, spretnosti in kompetence ter boljše zaposljivost študentov Univerze v Novi Gorici (2019 - 2022),
- Erasmus+ 2019, KA107: Mobilnost v visokošolskem sektorju: Visokošolsko izobraževanje med programskimi in partnerskimi državami (2019 - 2022),
- Erasmus+ 2019, KA103: Mobilnost v visokošolskem sektorju: Visokošolsko izobraževanje med državami programa (2019 - 2020),
- Erasmus+ 2018, KA107: Mobilnost v visokošolskem sektorju: Visokošolsko izobraževanje med programskimi in partnerskimi državami (2018-2020),
- Erasmus+ 2018, KA103: Mobilnost v visokošolskem sektorju: Visokošolsko izobraževanje med državami programa (2018 - 2020),
- Ad-futura za študijske obiske študentov v okviru programa Erasmus+ v tujino za leto 2018 (2018 - 2019),
- CEEPUS, Multi-messenger Astrophysics in Central Europe - Astro.CE (2019 - 2020),
- CEEPUS, Multi-messenger Astrophysics in Central Europe - Astro.CE, Umbrella (2018 - 2019),
- CEEPUS, Advanced Trends in Education and Research of Biochemistry, Biophysics and Biotechnology of Macromolecules (2019 - 2020),
- CEEPUS, Advanced Trends in Education and Research of Biochemistry, Biophysics and Biotechnology of Macromolecules, Umbrella (2018 - 2019),
- CEEPUS, Food Safety for Healthy Living, Umbrella (2019 - 2020),
- CEEPUS, Food Safety for Healthy Living (2018 - 2019),
- CEEPUS, ADRIART.CE (2018 - 2019, 2019 - 2020),
- CEEPUS, Education of Modern Analytical and Bioanalytical Methods (2018 - 2019, 2019 - 2020),
- CEEPUS, Research and Education in the Field of Graphic Engineering and Design (2018 - 2019, 2019 - 2020),
- CEEPUS, Multidisciplinary Approach to Education and Research in the Field of Digital Media Production (2018 - 2019, 2019 - 2020),
- Erasmus+, KA2: Strategic Partnerships, EMINDS - Development of an Entrepreneurial MindSet in Higher Education (2017 - 2020),
- Erasmus+ 2017, Visokošolsko izobraževanje med programskimi in partnerskimi državami (2017 - 2019),
- Erasmus+, KA2: Strategic Partnerships, CDICAE - Collaboration to Design an Innovative Curriculum for Animation Education (2017 - 2019).

There were 157 exchanges of students, young graduates and staff. For all participants, the International Office provided before, during and after mobility all necessary support - both information and organizational.

The office also monitored and informed UNG collaborators about the open calls under the programs for which it is competent, provided support for concluding interinstitutional agreements, and took care of the promotion of programs and projects and their results. At the UNG level, the Head of the International Office organized two informative meetings, numerous individual and an event "Cross-cultural differences" within the "University of Nova Gorica Week" organized by the University of Nova Gorica.



The Head of the International Office regularly edited the internal database "Projects and Contracts", the list of agreements and international memberships on the UNG website, the blog "UNG Mobility Blog" and the website of the International Office, where interested people can get general information about international activities.

Career Center

(Head: Nives Štefančič)



Activities in 2019:

Activities in the context of practical training; Participation in the presentations of interim reports of the practical training of students of School of Engineering and Management in companies MAHLE Letrika d.o.o., Kolektor Orodjarna d.o.o., LED LUX d.o.o., B. Makovec transport d.o.o., Creanest d.o.o. and Lipro d.o.o. Contacts with employers; 6 meetings with employers - participation at the 7 presentations of interim reports of the practical training of students of School of Engineering and Management.

Organisation and participation at following events:

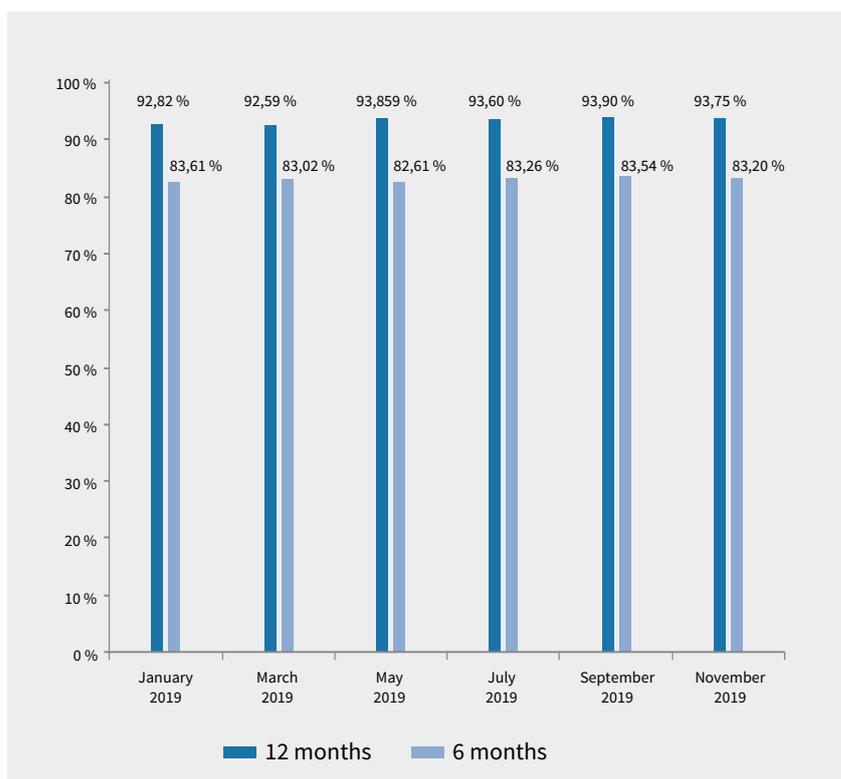
- organisation of Informativa 2019,
- organisation of Info days for 1st and 2nd level study in February and May 2019,
- participation of Career Center at the Business and Technical Fair in Nova Gorica,
- participation of Center at Fair of Scholarships and Higher Education in Rijeka,
- coordination of round table at School of Engineering and Management titled "Economic engineer - profession of the future",
- presentation of Career Center at the event »Choose Your Study« in Nova Gorica.

Graphical presentation of the employability of graduates UNG 6 and 12 months after finishing of study (2018).

Education:

- Participation at Ksenija Benedetti's workshop "Preparation and implementation of events",
- participation in the presentation of the project "Establishment of a system for monitoring the employability of higher education graduates in Slovenia and modernization of the eVS system" at the Ministry of Education,
- participation at the regional conference of alumni relations organized by the University of Ljubljana,
- participation at two-days workshop of career counselors on the topic "Successful communication with students".

Informing students and graduates of suitable job vacancies, internships, current events, tenders; published over 160 job vacancies, which correspond to profiles of UNG graduates. We released 2 career news, sent to 607 e-mail addresses of students and graduates. Periodically checking the employability of graduates six months and one year after graduation; in January 2019, March 2019, May 2019, July 2019, September 2019, November 2019.



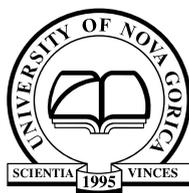
Alumni Club

(Head: Nives Štefančič)



Alumni Club of the University of Nova Gorica in 2019 continued with activities to increase connection between University and Alumni:

- We upgraded informations about Alumni and informed them about activities of Alumni Club,
- we invited them to become promotors within their schools, at variety promotional events.
- we informed Alumni about scholarships, competitions, opportunities for postgraduate studies at home and abroad.
- we informed them about the possibility of acquiring the Diners Club FUNG Card.
- We informed them about job vacancies and events organized by the Primorski tehnološki park.
- We invited them to different events of the University of Nova Gorica (scientific evenings, information days, University of Nova Gorica week, semester and annual exhibitions, student wine festival, etc.).



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