

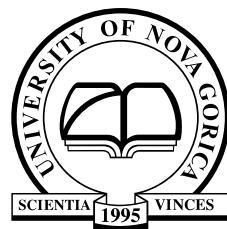
U N I V E R S I T Y O F N O V A G O R I C A



Annual Report of the University of Nova Gorica 2018

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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

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Institut

Direktor:

"Jožef Stefan" Ljubljana
doc. dr. Danilo Zavrtanik

Ustanovitveni seji senata so prisostvovali:

prof. dr. Franc Biziak
prof. dr. Andrej Čokl
doc. dr. Ana Gregorčič
prof. dr. Franc Gubensek
prof. dr. Nikola Kallay

prof. dr. Burton C. Gross
prof. dr. Ivan Marušič
prof. dr. Peter Stegnar
prof. dr. Janez Štupar
prof. dr. Boštjan Žekš

Title
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 University of Nova Gorica 2018**

Edited by
 Andreja Leban

Cover design
 A-media d.o.o., Šempeter pri Gorici

Text
 Rok Andres, Iztok Arčon, Artem Badasyan,
 Blaž Belec, Gvido Bratina, Irina Elena
 Cristea, Saim Emin, Mateja Eniko, Mattia
 Fanetti, Mladen Franko, Mirjana Frelih,
 Sandra Gardonio, Luigi Giacomazzi, Renata
 Kop, Dorota Korte, Danijel Stojković
 Kukulin, Andreja Leban, Uroš Luin, Ario
 de Marco, Franc Marušič, Martina Bergant
 Marušič, Vanja Mervič, Vanesa Valentinič
 Murovec, Tea Stibilj Nemec, Giovanni
 De Ninno, Željko Oset, Tanja Peric, Katja
 Mihurko Poniž, Boštjan Potokar, Aljaž
 Rener, Primož Rebernik Ribič, Rene Rusjan,
 Tina Smrekar, Samo Stanič, Penka Stateva,
 Artur Stepanov, Urška Lavrenčič Štangar,
 Nives Štefančič, Maja Terčon, Satyendra
 Tomar, Ana Toroš, Tanja Urbančič, Matjaž
 Valant, Aleš Vaupotič, Branka Mozetič
 Vodopivec, Danilo Zavrtanik, Sabina
 Zelinšček, Rok Žaucer, Urška Žvab

Photos, Graphs, Schemes
 Urban Ajdnik, Rok Andres, Anton Brancelj,
 Narvika Bovcon, Oliver Butterley, NASA/
 DOE/Fermi LAT Collaboration, Mateja
 Eniko, ESA, Mattia Fanetti, Katja Ferfolja,
 Miha Godec, Jana Laganis, Andreja Leban,
 Martin Knez, Ahmed Kreta, Radoš Kuk,
 Danijel Stojković Kukulin, Ario de Marco,
 Elisa Mazzega, Vanja Mervič, Petra Mišmaš,
 NASA, Željko Oset, Anja Paternoster,
 Robertina Šebjanič, Nika Simčič, Tina
 Smrekar, Samo Stanič, CasarsaGuru
 Photography, Katja Mihurko Poniž,
 Eléonore Roussel, Vadym Tkachuk,
 Satyendra Tomar, Merima Toromanovič,
 Ana Toroš, Aleš Vaupotič, A. Viel, Matjaž
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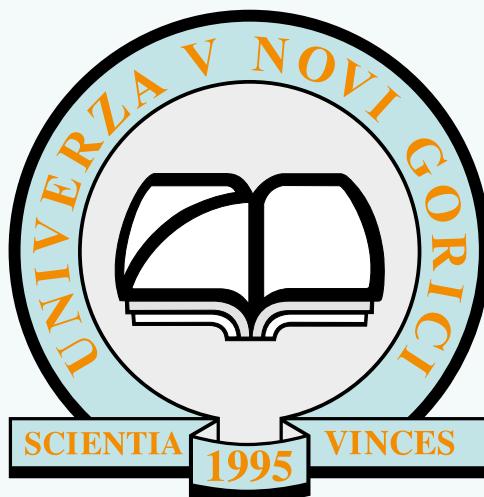
Introduction

In 2018, the activities of the University of Nova Gorica included graduate and post-graduate education, as well as activities in the fields of research, art and development. The educational activities were performed within seven schools. By the end of 2018, 216 people earned their PhDs, 362 got their Master's degree, and 871 completed their studies with a Bachelor's degree. Research activities were undertaken in six centres and four laboratories.

The University of Nova Gorica is quickly gaining an international character. In 2018, foreign students made up as much as 50% of the entire student population. They came from 51 different countries in Europe and other continents. The University of Nova Gorica is also becoming an attractive environment for foreign scientists and professors, resulting in a continuous increase in associates from other countries. By the end of 2018, 25% of all employees came from abroad.

In 2018, the excellence of the University was also recognised by the European Union, as it achieved above-average results in the global ranking of universities, U-Multirank 2018. The University of Nova Gorica achieved excellence, especially in the fields of research and internationality. It also achieved good results in the fields of education, pedagogy, and regional integration. The comparison between U-Multirank 2018 results for the University of Nova Gorica and the results of other universities in the wider region beyond Slovenian borders, confirms that our University is far above others when it comes to research excellence and internationalisation. Our results are not only better than those of all other Slovenian universities, but also better than those of older and larger universities in the region. According to the indicators of scientific performance, the University of Nova Gorica is at the very top of elite European and international universities.

We would like to underline the achievements of our associates who received awards for their



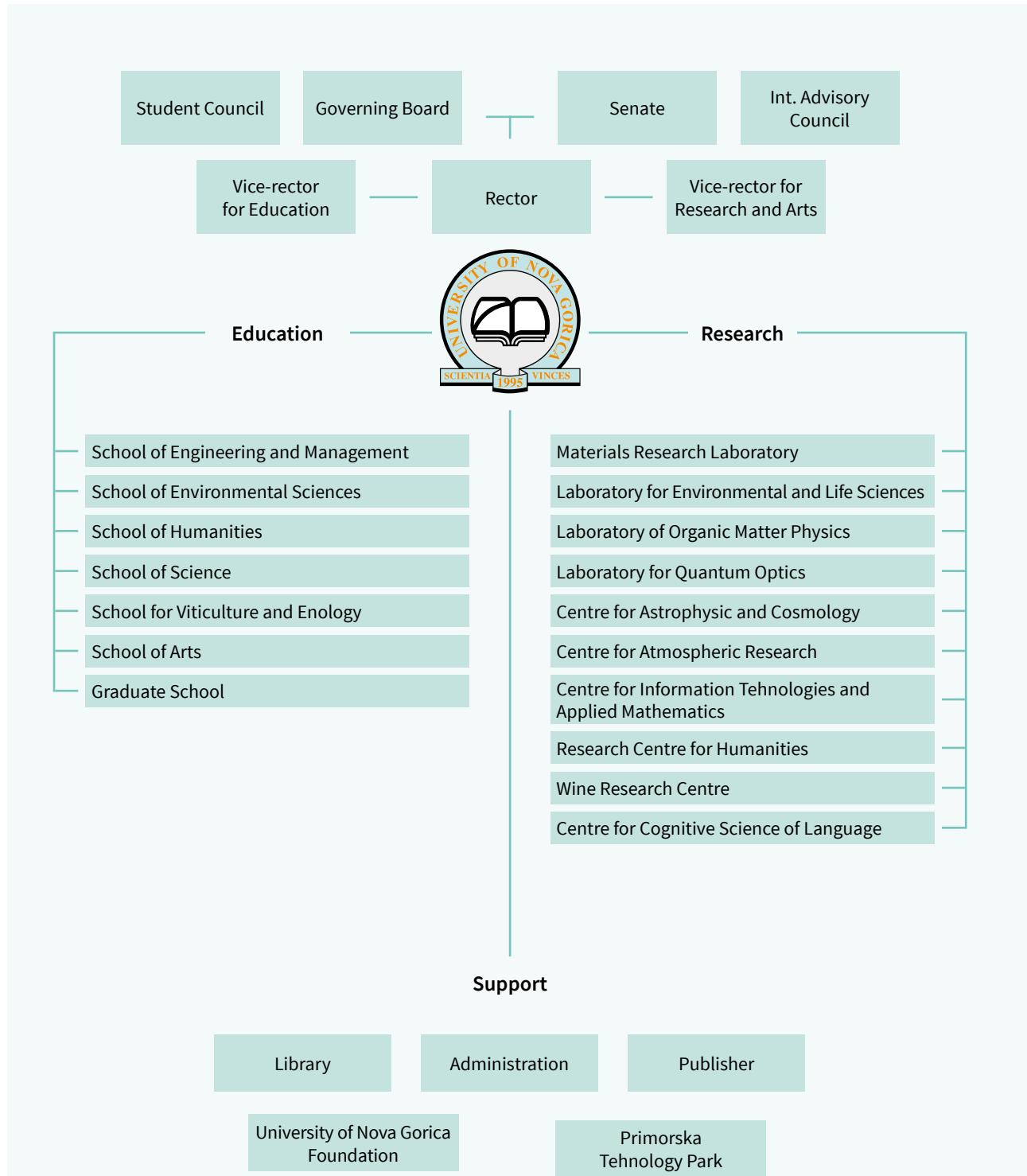
work in 2018. Prof. Dr. Gvida Bratina, vice-rector for research and art and head of the Laboratory of Organic Matter Physics, received the Pregl award for outstanding achievements in the field of basic or applied research in chemistry or related sciences. As written in the explanation, Prof. Dr. Bratina is one of the sharpest researchers in the field of electrical, optical and structural characteristics of thin organic semi-conducting layers and 2D materials. Academic Prof. Dr. Boštjan Žeks, who has been rector of our University for many years, and is a member of the board and professor emeritus, received the Zois award for life achievements in the field of theoretical physics.

In 2018, we also gained a new *Doctor Honoris Causa*, a new *Professor Emeritus* and a new *Honorary Member* of the University of Nova Gorica. The new *Doctor Honoris Causa* title went to the internationally acclaimed director Prof. Rajko Grlić for outstanding achievements in the field of film-making, and for enrichment of the global treasury of art. Prof. Dr. Jukka Jokilehto, international expert for heritage preservation, received the title of *Professor Emeritus* for his

contribution to international reputation and development of the University of Nova Gorica, and for his exemplary pedagogical work and mentoring skills. The title of the *Honorary Member* was awarded to Doc. Dr. Julij Nemanič, internationally renowned enologist and wine expert, for his outstanding contribution to the development of pedagogic and scientific activities of the University of Nova Gorica in the field of viticulture and enology.

The year 2018 will also be remembered by three extraordinary scientific discoveries achieved with the collaboration of the University of Nova Gorica. Our associate Dr. Gabrijela Zaharijaš is a member of the international FermiLAT group, which proved that supermassive black holes can produce high-energy neutrinos. Furthermore, the group used gamma radiation to measure the entire amount of light radiated by the stars in the last 90% of the history of the universe (the last 12 billion years). Another of our associates, dr. Tanja Petruševska, participated in a study led by astronomers from the California Institute of Technology (Caltech). They discovered an unusual supernova explosion that resulted in a system of two neutron stars.

Organisational Structure



Staff structure

As of December 2018, the University of Nova Gorica had a total of 141 regular staff members (of which 28 were shared employees with primary employment at another institution). This included 86 doctors of science, 12 research assistants, another 17 holders of bachelor's or master's degree, 20 administrative personnel, 3 librarians, 1 maintenance officer and 2 photocopy clerks; 35 staff members were foreign nationals.

	Regularly employed	Supplementary employed
2006	66	16
2007	89	22
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

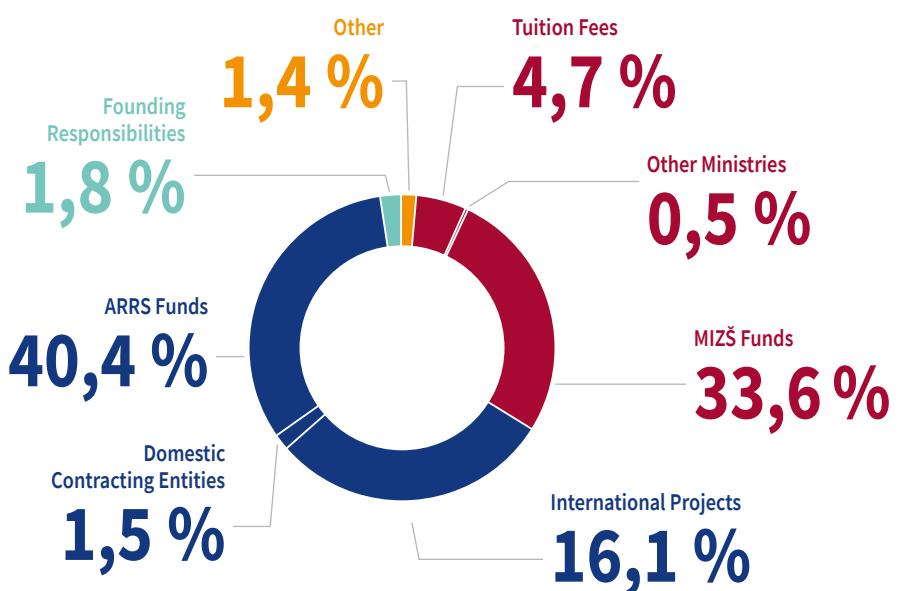
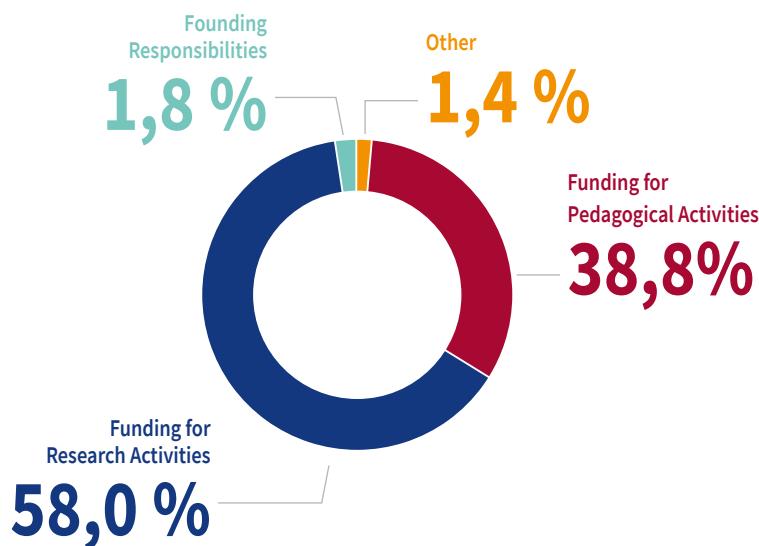
In addition, collaborating with the university were also over 200 adjunct faculty from other Slovenian universities and from universities outside of Slovenia.

State	Nr. collaborators
Austria	2
Bulgaria	1
Egypt	1
France	1
Croatia	1
India	1
Italy	14
Kazakhstan	1
China	1
North Macedonia	2
Netherland	1
Germany	1
Poland	1
Romania	1
Ukraine	4
Great Britain	1
United States of America	1
Total	35

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 2018, the University of Nova Gorica obtained about EUR 6,543 million of assets (cash flow) from the below listed sources:

Founding Responsibilities 1,8 %
Funding for Research Activities 58,0 %
ARRS Funds 40,4 %
Domestic Contracting Entities 1,5 %
International Projects 16,1 %
Funding for Pedagogical Activities 38,8 %
MIZŠ Funds 33,6 %
Other Ministries 0,5 %
Tuition Fees 4,7 %
Other 1,4 %
TOTAL 100,0 %



Prizes, Awards and Titles

Employee Prizes, Awards and Titles in 2018

Pregl Award, June 2018

Prof. Dr. Gvido Bratina

Vesna Award for the best animated film,
Festival of Slovenian Film, September 2018
Kolja Saksida

Honorary Citizen of the Municipality
of Miren-Kostanjevica, October 2018
Prof. Oskar Kogoj

Grand Cross of the Hungarian Order of Merit,
October 2018
Prof. Dr. Petra Svoljšak

Zois award for life achievements in the area of
theoretical physics, November 2018, State Award
for Science
Academic. Prof. Dr. Boštjan Žekš

Student Prizes, Awards and Titles in 2018

Ljubljana Capital City Award, May 2018
Aleksej Jurca

Award Lirikonov zlát, May 2018
Mariša Mugerli Lavrenčič

Award for the best experimental film, Progeny Film
Festival, September 2018
Sandra Jovanovska

Award for an animated project that is at this point
a work in progress, Slovenian Animated Film
Association Award, October 2018
Samo Bihar

Special notice for an animated project that is at
this point a work in progress, Slovenian Animated
Film Association Award, October 2018
Katarina Blažič

Award for the best student film, Cinedays Festival
of European Film Skopje, November 2018
Irena Gatej

Honorary Titles and Awards of the University of Nova Gorica

Doctor Honoris Causa

Prof. Rajko Grlić

Honorary Member

Doc. Dr. Julij Nemančić

Professor Emeritus

Prof. Dr. Jukka Jokilehto

Alumnus Primus Award

Eva Battistel

Peter Ferfoglia

Tanja Batkovič

Taja Košir Popovič

Alumnus Optimus Award

Peter Ferfoglia

Jure Krečič

Teja Cankar

Neža Orel

Tjaša Petrič

Luka Novinec

Neva Kumelj

Helene Thümmel

Vanesa Klinec

Important Events

Rector of the University of Nova Gorica, Prof. Dr. Danilo Zavrtanik (left) and Ambassador of the Czech Republic, her Excellency Věra Zemanová (right).





○ MARCH

The Opening of the Exhibition “The Emperor on Four Thrones – The Life Path of Karl IV”

On 20 March, the opening of the exhibition “Emperor on Four Thrones – A life journey of Charles IV in fourteen stops” took place at the University of Nova Gorica’s venue in Vipava, the Lanthieri Mansion.

The exhibition that organized by the Embassy of the Check Republic and the University of Nova Gorica was shown the life and work of one of the most important emperors of the late Middle Ages on fourteen colour panels. Karl IV had a strong impact on the European history. The exhibition is complemented by the busts of the emperor and his four wives.

The curators of the travelling exhibition that was shown not only in Prague but also in other European cities, such as Strasbourg, Munich, Mainz, Milan, Russian Nizhny Novgorod, the Slovakian town of Piešťany and elsewhere, are historians from the Charles University and from Prague’s National Gallery.

The exhibition was opened by the Ambassador of the Check Republic, her Excellency Věra Zemanová and the Rector of the University of Nova Gorica, Prof. Dr. Danilo Zavrtanik.



○ JUNE

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

On 31 May, 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.

At the School of Engineering and Management, four six students received their bachelor degrees this year, two students graduated from the School for Viticulture and Enology and the School of Arts and one student graduated from School of Humanities. There were also four master's students who finished their studies. Moreover, the Rector of the University of Nova Gorica, Prof. Dr. Danilo Zavrtanik, promoted seven new doctors of science who graduated from the Graduate School at the following study programs: Humanities, Environmental Sciences, Physics, Molecular Genetics and Biotechnology, and Karstology.



Vice-rector for Education Prof. Dr. Mladen Franko (left) and the Rector of the University of Bihać, Prof. Dr. Fadil Islamović (right).

○ JUNE

The Signing of Collaboration Agreement between the University of Nova Gorica and the University of Bihać

On 18 June, the University of Nova Gorica and the University of Bihać (Bosnia and Herzegovina) signed an agreement on the dual bachelor's degree of Environment Program (First Level) that is carried out by the School of Environmental Sciences (UNG).

University of Nova Gorica was represented by the Vice-rector for Education Prof. Dr. Mladen Franko, who signed the agreement, and the Rector of the University of Bihać, Prof. Dr. Fadil Islamović, represented the Bosnian university.

The agreement was signed as part of the international conference "JUNE 5th – WORLD ENVIRONMENT DAY" that takes place in Bihać on June 18th and June 19th. The Laboratory for Environmental and Life Sciences of the University of Nova Gorica co-organized the conference.

SEPTEMBER

The heads of the University of Nova Gorica visited the Vasyl Stefanyk Precarpathian National University

In September, the Rector of the University of Nova Gorica, Prof. Dr. Danilo Zavrtanik and the Vice-Rector for Education, Prof. Dr. Mladen Franko paid a formal visit to the Vasyl Stefanyk Precarpathian National University in the Ukraine.

At the Vasyl Stefanyk Precarpathian National University, they were greeted by the University's Rector Prof. Dr. Igor Tsependa. They discussed the possibilities of collaboration in the educational and research fields as well as the exchange of professors and students from both universities. During their visit, the Rector and Vice-Rector of the University of Nova Gorica were shown their hosts' faculties and laboratories. Moreover, as a guest of honour, Prof. Dr. Zavrtanik also greeted the students at the beginning of the new academic year.

The visit was initiated by His Excellency, Mr Mykhail F. Brodovych, the Ukrainian Ambassador in Slovenia, who visited our University last year.



A Gala Opening at
the Start of the New
Academic Year.



OCTOBER

Gala Opening of the New Academic Year

The main event at the opening of the 24th academic year took place on Thursday, 18 October at the Lanthieri Mansion in Vipava.

The rector of the University of Nova Gorica, Prof. Dr. Danilo Zavrtanik first greeted the guests: "When we charted the path of this university, we knew that it has to be a research institution that is internationally oriented and also of the highest quality. I am confident to say that as far as science goes, we have reached this goal. The university has been achieving top scientific results, it has excellent and internationally recognized researchers and, according to the European Commission estimates, it belongs to the very peak of European universities," Prof. Dr. Zavrtanik said in his introductory speech. "As far as the pedagogical work is concerned, we still have quite some work to do to achieve excellence. Our plan and goal is that we reach the level of excellency in terms of pedagogical work that can match the pedagogical excellency of other high quality universities, but mostly, we want to put the student at the center of the pedagogical process, so he/she can become an active part of the pedagogical process. I am convinced that we as a whole can do this and that we will reach this point in the future," Prof. Dr. Zavrtanik concluded his speech.

Today, the pedagogical activities of the university are spread around seven different Schools. Up until today, the University of Nova Gorica has produced 213 PhDs, 375 Master's degree graduates and 864 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 50% of the entire student population. They come from 51 different countries, from Europe and from other continents.

We were also honored by the presence of the Minister for Education, Science and Sports, Dr. Jernej Pikalo. In his speech, he pointed out that the University of Nova Gorica offers a good example of a school where excellent results can be achieved with relatively low funds. "The University of Nova Gorica is a typical example of how it is possible to create something big

out of something small, or rather how to create something very significant out of something rather small," Dr. Pikalo concluded his talking about the work of the university.

This year, the University of Nova Gorica collaborated in two incredible scientific discoveries. Dr. Gabrijela Zaharijaš is a member of the international group called FermiLAT; they have proven that supermassive black holes can produce high energy neutrinos. Another research was done together with the astronomers from the Caltech (the California Institute of Technology) and Dr. Tanja Petrushevska was a part of that research team. They found out an extraordinary and unusual explosion of the supernova which created a system of two neutron stars. Both articles were published in the most prestigious international magazine *Science*.

The guest of honor and also a speaker at the gala



Dr. Jernej Pikalo, Minister for Education, Science and Sports.



Dr. Mark Pleško, President of the Slovenian Academy of Engineering.



Awardees, Administration of the University of Nova Gorica, Minister for Education, Science and Sports Dr. Jernej Pikalo and President of the Slovenian Academy of Engineering Dr. Mark Pleško.

opening of the academic year, the President of the Slovenian Academy of Engineering, Dr. Mark Pleško, expressed his compliments and his praise for all the employed at the UNG and for them making the university what it is today. "When Slovenia was just being born, we jokingly remarked on why we would need to go to the Silicon Valley at all as we have our own Vipava Valley right here. We can built 200 houses so that foreign experts can come, we establish a university and we will be almost like Stanford University. That was a joke back then, but the University of Nova Gorica has shown that it has reached just that, with a lot of work, a lot of effort, a lot of networking and an incredible energy," Dr. Pleško said. He wished the students and all those present not easy but difficult and interesting lectures, full of challenges, as that is what fulfills a person and makes one learn the most.

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 17 May 2018, the Senate of the University of Nova Gorica made the decision to award the title of *Doctor Honoris Causa* to Prof. Rajko Grlić for his outstanding achievements in the field of film and the enrichment of the world treasury of art.

At its session on 4 July 2018, the Senate of the University of Nova Gorica reached the decision to award the title of *Professor Emeritus* of the University of Nova Gorica to Prof. Dr. Jukka Jokilehto 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 10 May 2017, the Senate of the University of Nova Gorica decided to grant Doc. Dr. Julij Nemančič the *Honorary Member* of the University of Nova Gorica award for his incredible contribution to the development of pedagogic and scientific activities in the field of Enology at the University of Nova Gorica.

We also awarded twelve male and female students. The *Alumnus Primus* award was given to those graduates who graduated first in their generation: Eva Battistel, Peter Ferfoglia, Tanja Batkovič and Taja Košir Popovič. Another award, *Alumnus Optimus*, was given to those who achieved the highest grade point average in each year of their studies: Peter Ferfoglia, Jure Krečič, Teja Cankar, Neža Orel, Tjaša Petrič, Luka Novinec, eva Kumelj, Helene Thümmel and Vanesa Klinec.



Professor Emeritus of the University of Nova Gorica, Prof. Dr. Jukka Jokilehto.



Honorary Member of the University of Nova Gorica, Assist. Prof. Dr. Julij Nemančič.



Doctor Honoris Causa of the University of Nova Gorica, Prof. Rajko Grlić.



NOVEMBER

A Visit of the Minister for Economic Development of the Guernsey island

On 18 November, the University of Nova Gorica received a visit by the Minister for Economic Development of the Guernsey island, Deputy Charles Parkinson.

At the University of Nova Gorica's venue at the Lanthieri Mansion in Vipava, the guest was welcomed by the Rector, Prof. Dr. Danilo Zavrtanik, and the Vice-rectors, Prof. Dr. Gvido Bratina and Prof. Dr. Mladen Franko.

During the first part of the visit, the Minister was acquainted with the work of the University of

Nova Gorica, then he had a tour of the Lanthieri Mansion, visiting all the faculties and centers that are located in Lanthieri. On the second day of the visit, the conversation revolved around the possibilities of cooperation in the areas of education connections and research ties between the University of Nova Gorica and the institutions at the Guernsey island. Both the Rector and the Minister evaluated the visit as a really positive one and expressed hope in regards to strengthening further collaboration.

The visit was organized by the Ministry of Foreign affairs of the Republic of Slovenia.



From left to right: Vice-rector for Research and Arts, Prof. Dr. Gvido Bratina, Minister for Economic Development of the Guernsey island, Deputy Charles Parkinson, Rector of the University of Nova Gorica, Prof. Dr. Danilo Zavrtanik and Vice-rector for Education, Prof. Dr. Mladen Franko.



5 December 2018.



6 December 2018.

○ DECEMBER

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

On 5 December and 6 December 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 nine Bachelor degrees, the School of Arts had seven Bachelor degrees, the School of Environmental Sciences had five Bachelor degrees, the School for Viticulture and Enology had three Bachelor degrees and the School of Humanities and the School of Science had two Bachelor degrees. Fifteen Master's students also received their official titles. In addition to that, the University's Rector, Prof. Dr. Danilo Zavrtanik conferred doctoral degrees to five graduate students, coming from the Physics (Third Level), Environmental Sciences (Third Level), Economics



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

and Techniques for the Conservation of the Architectural and Environmental Heritage (Third Level) and Molecular Genetics and Biotechnology graduate study programme (Third Level).



From left to right: Vice-rector for Research and Arts, Prof. Dr. Gvido Bratina, Dean of the School of Science and the Head of the Center for Atmospheric Research, Prof. Dr. Samo Stanič, Rector of the University of Nova Gorica, Prof. Dr. Danilo Zavrtanik and Japanese Ambassador to Slovenia, his Excellency, Masaharu Yoshida.

DECEMBER

Japanese Ambassador to Slovenia visited the University of Nova Gorica

On 17 December, the University of Nova Gorica got a visit from Japanese Ambassador to Slovenia, his Excellency, Masaharu Yoshida. Apart from the Ambassador, Yoshiaki Makino, the Head of the Department of the Economic and Political matters accompanied the Ambassador during this visit.

At the University of Nova Gorica's venue in Vipava, the Lanthieri Mansion, the guests were welcomed by the Rector of the University of Nova Gorica, Prof. Dr. Danilo Zavrtanik, the Vice-rector for Research and Arts, Prof. Dr. Gvido Bratina, and Prof. Dr. Samo Stanič, the Dean of the School of Science and the Head of the Center for Atmospheric Research.

After the initial presenting of the pedagogical and research activities of the University of Nova Gorica, the Ambassador was introduced to professional connections that the University of Nova Gorica has with Japanese academic and research institutions. At the same time, the talks also concerned the possibilities of further collaboration, also in the sphere of transferring the academic knowledge from the academic world into a more practical realm.

The Ambassador completed his visit by visiting the Wine Research Center at the Lanthieri Mansion, the Center for Atmospheric Research, the Laboratory of Organic Matter Physics, the Materials Research Laboratory, and the laboratory of Quantum Optics at the University's venue in Ajdovščina.

Organizing of Conferences, Colloquiums and Summer Schools, Workshops and Courses

International colloquium – Environmental Histories

15 January 2018, Joensuu, Finland

Environmental issues have a distinctive international character, hence in last 50 years, environmental activists have been collaborating on an academic level and in organizing protest activities as well, though activists' focus has been centered on their local environmental issues. With that in mind, we organized an international colloquium – Environmental Histories. The colloquium has been hosted by LYY seminar (the University of Eastern Finland, Joensuu campus, Finland) on January 15, 2018. After presentations of papers by prof. dr. Paula Schönach (Shifting emphases of water protection in post-war Finland), prof. dr. Ismo Björn (Old and new movements in mining and forestry since World War II in Finland) and Assist. Prof. Dr. Željko Oset (Environmental Activism during the Communist Era in Slovenia) a fruitful discussion ensued.



Summer School MedIM 'Mediterranean Imaginaries: Literature, Arts, Culture'

25 March – 9 April 2018, Malta

This credit-bearing programme results from collaboration between the University of Malta, which coordinates and organises the programme, and 6 universities: Goldsmiths College, University of Nova Gorica, University of Minho, University of Florence, University of Cagliari, and University of Carthage. Funded by ERASMUS+ Strategic Partnerships for Higher Education.



International scientific conference: the *Sixth International Scientific Conference “JUNE 5th - WORLD ENVIRONMENT DAY”*

18 – 19 June 2018, Bihać, Bosnia and Herzegovina

Laboratory for Environmental and Life Sciences was the co-organizer of the international scientific conference: the *Sixth International Scientific Conference “JUNE 5th - WORLD ENVIRONMENT DAY”*, dedicated to the World Environment Day, and we organized it together with the University of Bihać and the Ministry of Construction, Urban Development and Environmental Protection of the Republic Bosnia and Herzegovina. The conference was held in Bihać on 18th and 19th June 2018, with the participation of researchers, experts and students from the field of environmental protection from Bosnia and Herzegovina, Slovenia, Croatia and Serbia, as well as representatives of state institutions from BiH. The two-day program enabled the presentation of the results of research work and discussion in the fields of ecosystem protection, organic farming, waste management, forest management and renewable energy sources. We have already published a collection of abstracts from the conference contributions, which will be fully published after review.



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

2 – 6 July 2019, University of Nova Gorica, Vipava, Slovenia

There was a five day course on open education held from the 2nd till the 6th of July 2018 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 50 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, Bazil, Fiji, France, Greece, India, South African Republic, Canada, Kenia, Macedonia, Malesia, Malta, Germany, Uzbekistan, United Kingdom, USA). The course was organised as a closing event of the *Open Education for a Better World* international mentoring program

TEM hands-on training week

27 – 31 August 2018, University of Nova Gorica, Ajdovščina, Slovenia

The first edition of the microscopy summer school, “TEM hands-on training week @UNG”, has been organized by Material Research Laboratory (University of Nova Gorica, Ajdovščina). The 1-week workshop provided an intensive training for Transmission Electron Microscopy (TEM), both theory and practice, with two internationally recognized TEM experts as teachers, prof. Sašo Šturm from IJS and prof. Goran Dražić from KI. The small number of available sites allowed for real hands-on practical



training for each participant. Mostly, the participants have been PhD students, both from Slovenian and Italian institutions. According to the evaluation of the participants, the experience has been a complete success.



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

18 – 19 June 2018, Erice, Italy

We have organized the Summer school: Basic Photothermal and Photoacoustic Techniques:

Theory, Instrumentation and Application, which took place in the Ettore Majorana Centre for Scientific Culture in Erice, Sicily, from 6 to 12 September 2018. The Summer school was part of the 5th Mediterranean International Workshop on Photoacoustic & Photothermal Phenomena and was attended by 40 participants from Europe, Asia, South and North America, and Africa. The school was directed by prof. Mladen Franko who also delivered lectures together with internationally renowned experts from the field of photothermal and photoacoustic spectroscopy: Gerry Diebold (Brown University), Christ Glorius (Catholic University Lueven), Andreas Mandelis (University of Toronto), J. Miguel Rubí (University of Barcelona), Roberto Livoti (University La Sapienza).



Bilingualism Matters Workshop

23 November 2018, University of Nova Gorica, Rožna Dolina, Slovenia

To mark the 4th anniversary of UNG’s information center *Večjezičnost velja*, the Slovenian branch of the international network *Bilingualism Matters*, we hosted another workshop on multilingualism targeted towards the general public. Attendees were addressed by Antonella Sorace, the head of the Bilingualism Matters network, and they followed with great interest the talk on pragmatic abilities of mono- and bilinguals by Penka Stateva, the head of *Večjezičnost velja*, Matic Pavlič's talk on possible links between one's bilingualism and their sensitivity for selected aspects of music, and Karmen Brina Kodrič's overview presentation on why bilingualism gives children more than just two languages. The event drew a strong turnout from members of the Slovenian and Italian bilingualism professionals and teaching staff, as well as from bilingual families.

Important Achievements

○ JANUARY

Article by linguists from the University of Nova Gorica published in a very influential journal

Hierarchic structure versus distance in a linear order

Two linguists from the University of Nova Gorica, Prof. Franc Marušič and Tina Šuligoj, a recent Master's programme graduate, have just published study results in a very influential scientific journal *Proceedings of the National Academy of Sciences of the United States of America*. The study was undertaken in collaboration with colleagues from the University College London, University of Zagreb, University of Zadar, University of Sarajevo, University of Niš and University of Novi Sad, researching the behaviour of verb agreement in South Slavic languages, in examples with compound subjects.

As established by the long line of linguistic tradition, clauses are not simple sets of words, but words hierarchically ordered into smaller groups or phrases. The syntactic distance or closeness of two words is thus not measured by counting the words in a linear order, but by applying the hierarchy of the clause structure. By experimenting on carefully chosen clauses, we have shown that – contrary to the abovementioned general belief – when looking for agreement mor-

phology within coordinated subjects, the verbs in South Slavic languages more often take the value of the linearly closer, not hierarchically higher part of the compound subject. The large-scale research included six locations with different languages or dialects in the territory of ex-Yugoslavia, and has shown a remarkable consistency of this language phenomenon. Most of the differences were observed within individual speakers, which means that each individual can use several language systems at the same time, the most surprising of which is the system based on linear word order. The results of our study confirm that the "calculation" of agreement morphology is performed in several steps, at least one of which is partially independent from the hierarchical structure of the clause.

The research took place at the collaborating universities of Nova Gorica, Zagreb, Zadar, Sarajevo, Novi Sad and Niš, where we tested in total more than 300 students in the first and second year of non-linguistic programmes. In future, we will try to expand the research to other language groups which are known to use similar strategies of verb agreement with compound subjects.



○ MAY

University of Nova Gorica best ranked Slovene university, in 353th place in international Round University Ranking (RUR)

The latest international Round University Ranking considers the University of Nova Gorica best university in Slovenia and ranks it among the leading world universities.

According to the results of the international Round University Ranking system (RUR), performing evaluations and rankings of leading world universities, the University of Nova Gorica was ranked in 353th place in 2018, in 186th place in 2017 and in 203th place in 2016, thus ranked among the elite group of world's most renowned universities. 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.

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.

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.

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.

○ JULY

NASA's Fermi Mission Identifies Black Hole that Launched a Cosmic Neutrino

About 4 billion years ago, a super-massive black hole in the heart of a distant galaxy erupted a stream of extremely energetic particles in the direction of Earth. Now, an international team of researchers, including also a researcher from University of Nova Gorica, has revealed how one of these particles, elusive neutrinos, was detected and, with the help of NASA's Fermi Gamma-ray Space Telescope, linked back to its likely source.

This is the first time that we have a direct indication that astrophysical sources called blazars, or rather the super massive black holes that lie in their centers, are the power engines capable of accelerating neutrinos to energies up to million times their mass, much larger than anything we can produce at Earth.

Since they were first detected over one hundred years ago, cosmic rays – highly energetic particles that continuously rain down on Earth from space – have posed an enduring mystery: What are the sources capable of launching particles with the extreme energies across such vast distances? Where do they come from?

Because cosmic rays are charged particles, their paths cannot be traced directly back to their sources due to the powerful magnetic fields that fill space and warp their trajectories. But the cosmic accelerators that produce cosmic rays, will also produce neutrinos and photons (or light). Neutrinos and photons (among which gamma rays are the most energetic form of light) are uncharged particles and unaffected by even the most powerful magnetic field, they travel nearly undisturbed from their accelerators, giving scientists an almost direct pointer to their source.

Thanks to the rapid increase in the number of large-scale astrophysical experiments at the beginning of the XXI century, the astrophysical community finally

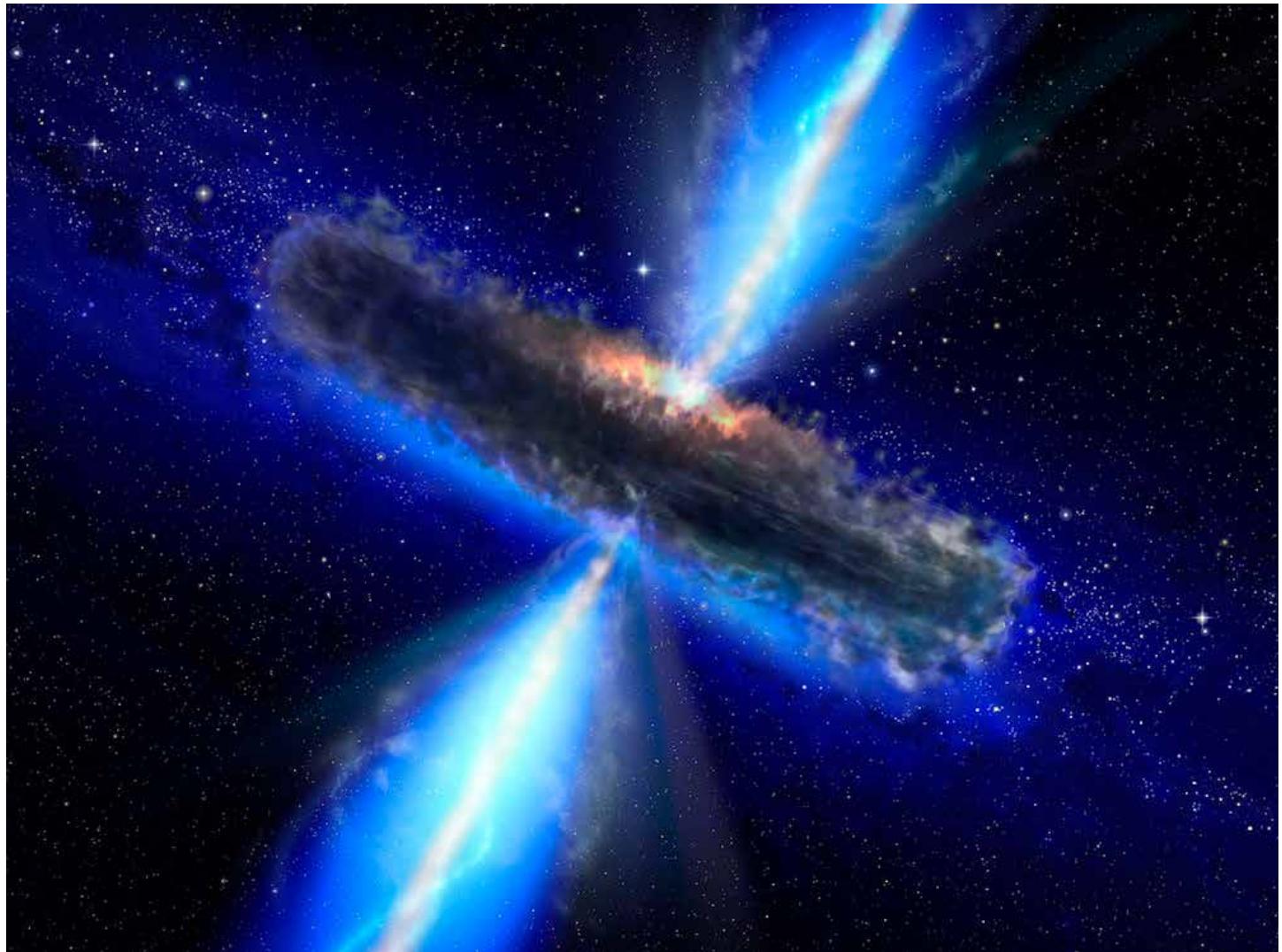
got the much-needed tools to answer the question about the origin of cosmic rays. The indirect evidence that astrophysical sources called blazars, or more precisely, violent environments surrounding super massive black holes that lay at their centers, could be the power engines capable of producing the most energetic cosmic rays we detect at the Earth, was building over the years.

Thanks to the international team of scientists, which worked closely across different high-energy astrophysics experiments, we finally might have the first direct proof of this conjecture! The paper published in Science July 12th presents the first evidence of a match between the source position of a high-energy cosmic neutrino, as measured by the IceCube experiment, with a known gamma-ray blazar TXS 0506+056, which is currently in its active state (as first noticed by the Fermi LAT collaboration, in which Dr. Gabrijela Zuharijas from University of Nova Gorica participates), and then confirmed with many observatories around the globe.

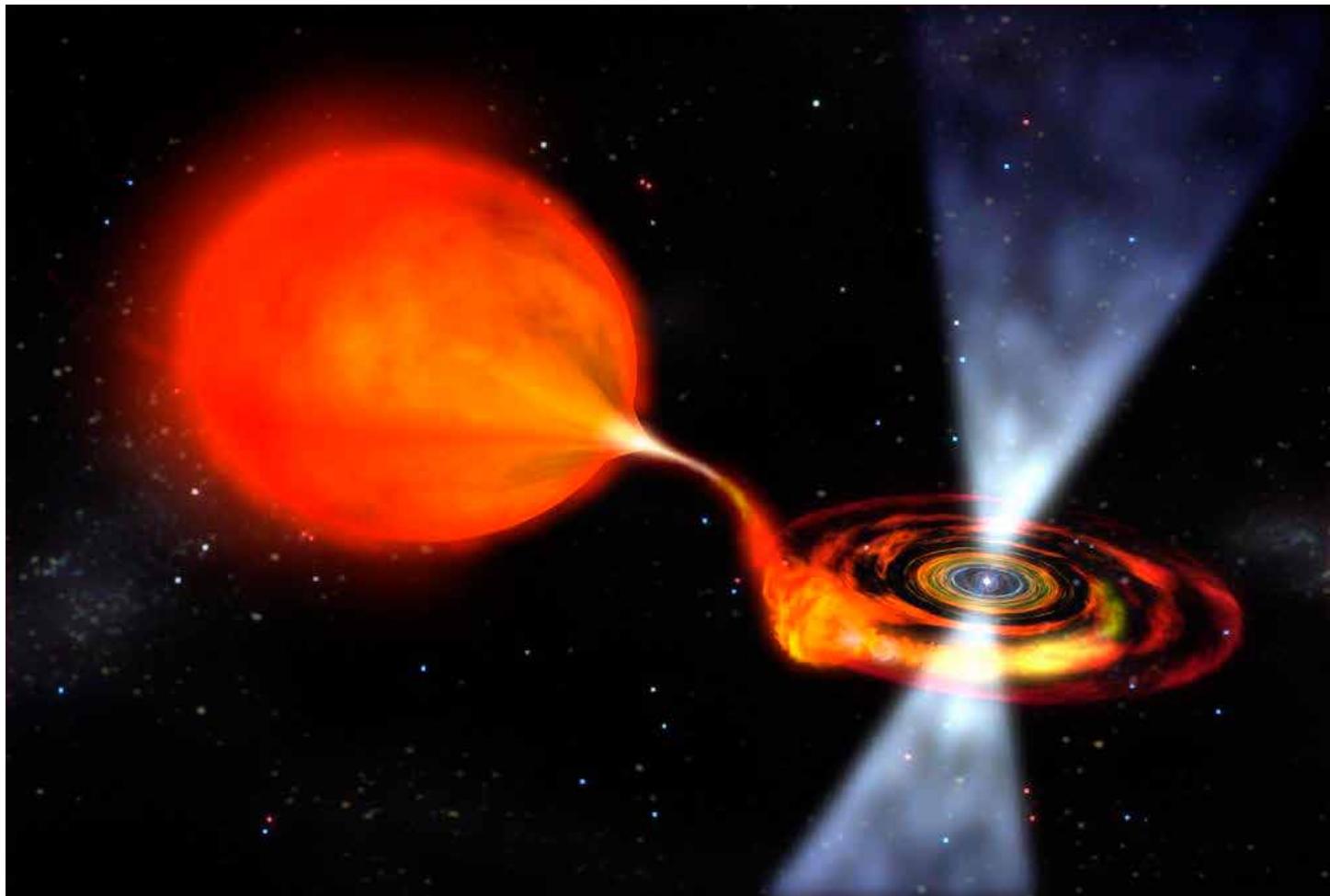
"Today we are announcing that Fermi's gamma-ray eyes have detected light from the same distant galaxy from which a high energy neutrino was detected," said Paul Hertz, director of the Astrophysics Division at NASA Headquarters in Washington. "This is another giant leap in the growing field of multi-messenger astronomy, following Fermi's detection last year of light connected to a gravitational-wave event caused by the merging of two neutron stars."

This coincidence of the detection with two different cosmic ray messengers (energetic photons and neutrinos) singles out the blazar as the source of this most energetic neutrino emission and sheds further light on details of the physics mechanisms happening in the vicinity of the black holes.





Artistic vision of the environment surrounding a super-massive black hole. Dark region is the accretion disk, heated as the material approaches the black hole. The light region marks the jet, which are formed by the entangled magnetic fields, surrounding rotating black holes. Jets are believed to emit high-energy particles (protons, nuclei...).



The star, which exploded as a supernova named iPTF 14gqr, seems to have a neutron star accompanying it, which had stolen material with its gravitational force. The illustration shows the flow of matter from a normal star to a neutron star.

OCTOBER

The death of a massive star and the birth of a compact neutron star binary

A Caltech-led team of researchers that included a researcher from the Center for Astrophysics and Cosmology of the University of Nova Gorica Dr. Tanja Petrushevska, has observed the peculiar death of a massive star that exploded in a surprisingly faint and rapidly fading supernova.

These observations suggest that the star has an unseen companion, gravitationally siphoning away the star's mass to leave behind a stripped star that exploded in a quick supernova. The explosion is believed to have resulted in a dead neutron star orbiting around its dense and compact companion, suggesting that, for the first time, scientists have witnessed the birth of a compact neutron star binary system. The study was published in *Science*.

When a massive star—at least eight times the mass of the sun—runs out of fuel to burn in its core, the core collapses inwards upon itself and then rebounds outward in a powerful explosion called a supernova. After the explosion, all of the star's outer layers have been blasted away, leaving behind a dense neutron star—about the size of a small city but containing more mass than the sun. A teaspoon of a neutron star would weigh as much as a mountain.

During a supernova, the dying star blasts away all of the material in its outer layers. Usually, this is a few times the mass of the sun. However, the event that Petrushevska and her colleagues observed, dubbed iPTF 14gqr, ejected matter only one fifth of the mass of the sun. The fact that the star exploded at all implies that it must have previously been enveloped in lots of material, or its core would never have become heavy enough to collapse. But where, then, was the missing mass?

The researchers inferred that the mass must have been stolen—the star must have some kind of dense, compact companion, either a white dwarf, neutron star, or black hole—close enough to gravitationally siphon away its mass before it exploded. The neutron star that was left behind from the supernova must have then been born into orbit with that dense companion. Observing iPTF 14gqr was actually observing the birth of a compact neutron star binary. Because this new neutron star and its companion are so close together, they will eventually merge in a collision similar to the 2017 event that produced both gravitational waves and electromagnetic waves.

Not only is iPTF 14gqr a notable event, the fact that it was observed at all was fortuitous since these phenomena are both rare and short-lived. Indeed, it was only through the observations of the supernova's early phases that the researchers could deduce the explosion's origins as a massive star.

The event was first seen at Palomar Observatory as part of the intermediate Palomar Transient Factory (iPTF), a nightly survey of the sky to look for transient, or short-lived, cosmic events like supernovae. Because the iPTF survey keeps such a close eye on the sky, iPTF 14gqr was observed in the very first hours after it had exploded. As the earth rotated and the Palomar telescope moved out of range, astronomers around the world collaborated to monitor iPTF 14gqr, continuously observing its evolution with a number of telescopes that today form the GROWTH network of observatories.

Moving forward, the astrophysicists at the Center for Astrophysics and Cosmology at UNG are preparing for the Large Synoptic Survey Telescope (LSST). The LSST will be a ground-based survey with an impressive 8.4-meter telescope in Chile, aimed to continuously scan the sky in search for transient explosions. The LSST camera is the largest digital camera ever constructed; therefore they will be scanning the sky as never before.

NOVEMBER

Fermi Satellite Team Traces the History of Starlight Across the Cosmic history

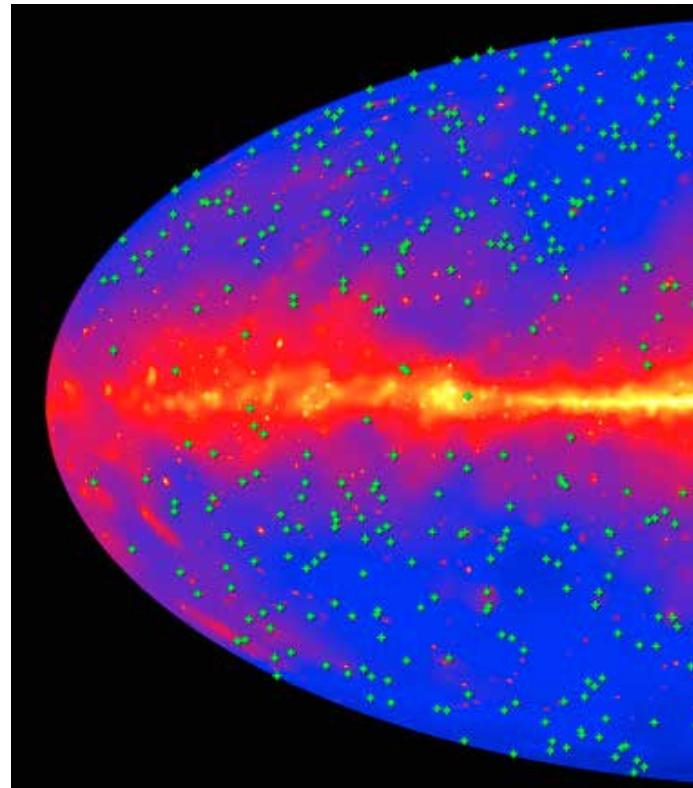
In a research, performed by the Fermi LAT collaboration, with participation from Dr. Gabrijela Zaharijas, from the Centre for Astrophysics and Cosmology at the University of Nova Gorica, scientists used gamma rays to measure the total amount of starlight produced over the last 90% of the Universe's history (last 12 billion years).

The measurement revealed that the peak period of star formation happened around 10 billion years ago and provided important information about the period when the first stars were born, filling the Universe with their light. A paper describing the new starlight measurement was published in the Nov. 30 edition of *Science* and is now available online.

Stars create most of the light we see. In addition, all the elements heavier than helium (which is made out of two protons and two neutrons), that we have in the Universe today, were produced in atomic fusion inside the stars. That was noted famously by Carl Sagan who said "Our planet, our society, and we ourselves are built of star stuff."

It is therefore clear that understanding how the Universe evolved depends in large part on our understanding of how stars evolved. One way to study this is to measure the total amount of cosmic fog composed of the light stars have created over the Universe's history, the so-called *extragalactic background light* (EBL).

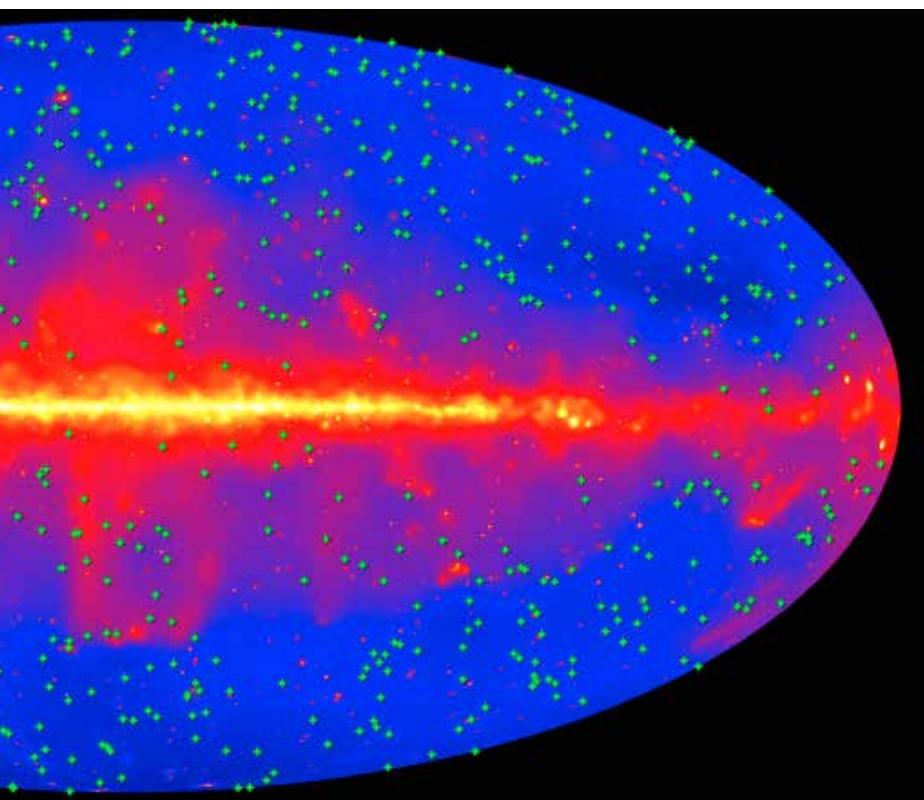
One of the main goals of the Fermi mission, which celebrated its 10th anniversary in orbit this year, was indeed to assess the *extragalactic background light* (EBL). Fermi satellite measures gamma-rays (which is the highest-energy form of light), coming to us from energetic processes in the Universe. But, how studying gamma rays can tell us about the star-light, which is made of low-energy light, like the one we see with our eyes?



What actually happens is that, when an energetic gamma-rays hit the star-light, the energy released in this collision is in fact enough to create particles! This happens via the Einstein's famous equation, $E=mc^2$, and as a result, a pair of particles, electron and positron (an 'anti-electron') is created. As a consequence, gamma-rays coming from far-away gamma-ray sources effectively dimmen, like fog dulling a car's headlights.

The Fermi LAT scientists examined gamma-ray signals from 739 blazars — galaxies with monster black holes at their centers (shown with dots in Fig 2), collected over nine years by Fermi's Large Area Telescope (LAT). From the absorption of the light of these blazars, by the starlight they measured how the EBL changes over time, revealing that the peak period of star formation happened around 10 billion years ago. This measurement also provides important confirmation of previous estimates of star formation from missions that analyze many individual sources in deep galaxy surveys, like the Hubble Space Telescope.

This measurement can also help guide future surveys from missions like the James Webb Space Telescope. One of Webb's primary objectives is to unravel what happened in the first billion years after the big bang, when the first stars were born. The measurement of the Fermi LAT team limits the amount of starlight we can expect to see in those first billion years and provides a benchmark for future studies.



○ DECEMBER

A list of ten most prominent articles in 2018

A list of ten articles published by the faculty members of the University of Nova Gorica in journals with the highest Impact factor.

Number	Journal	Authors, University of Nova Gorica members	The Impact Factor
1	SCIENCE	Gabrijela Zaharijas	41,058
2	SCIENCE	Tanja Petrushevska	41,058
3	SCIENCE	Gabrijela Zaharijas	41,058
4	ADVANCED MATERIALS	Egon Pavlica, Gvido Bratina	21,950
5	APPLIED CATALYSIS B: ENVIRONMENTAL	Saim Emin	11,698
6	APPLIED CATALYSIS B: ENVIRONMENTAL	Iztok Arčon	11,698
7	JOURNAL OF MATERIALS CHEMISTRY A	Nataša Zubukovec Logar	9,931
8	JOURNAL OF MATERIALS CHEMISTRY A	Iztok Arčon, Urška Lavrenčič Štangar, Nataša Novak Tušar	9,931
9	PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES	Franc Marušič	9,504
10	PHYSICAL REVIEW LETTERS	Giovanni De Ninno	8,839

The next meeting of the Fermi LAT collaboration (which is made by institutions in the USA, France, Germany, Japan, Italy...) will be hosted by the University of Nova Gorica, during the period March 12-15, at Bled. During that time, the Slovenian public will get an opportunity to attend a public talk by a senior Fermi LAT scientists, covering this and other important astrophysics results, at the UNG Lanthieri Mansion in Vipava.

Research of Dr. Gabrijela Zaharijas is co-financed by the Slovenian National Research Agency via research program P1-0031, infrastructure program I0-0033 and research project J1-8136.

This map of the entire sky shows the location of 739 blazars used in the Fermi Gamma-ray Space Telescope's measurement of the extragalactic background light (EBL). The background shows the sky as it appears in gamma rays with energies above 10 billion electron volts, constructed from nine years of observations by Fermi's Large Area Telescope. The plane of our Milky Way galaxy runs along the middle of the plot.



Research

In 2018, 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)



Menthor and young researcher working with the TLS spectrometer.

The laboratory for Environmental and Life Sciences (LELS) enables intensive collaboration of ecologists, analytical chemists, environmental chemists, biochemists, molecular biologists, and toxicologists. Investigations conducted at LELS include development of novel and unique ultrasensitive laser-based analytical methods, study of the fate, transport and transformations of pollutants in terrestrial and aquatic environments, biomedical diagnostic tools, as well as identification of recombinant antibodies specific for cell 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 development and applications of ultrasensitive laser-based analytical techniques the photothermal beam deflection spectrometry (BDS) was used for non destructive characterization, as well as determinig the thermal properties and porosity of silicon/zirconium hybrid anticorrosion layers for medical implants, as well as the examination of cerium content influence on these properties. In another study, the thickness of subsurface layers in aerogels coatings of chitosan for protection of steel implants and the concentration of pharmaceuticals in the layers, was determined on the basis of thermal conductivity and diffusivity measurement by BDS.

Furthermore, the characterization of soil samples was performed by measuring their thermal diffusivities (Sod-podzolic, Chernozem, Light chestnut). Differences in the composition and properties of soils were revealed based on the differences in the values of their thermal parameters.

One of the important contributions of the group is also the new instrumentation, developed for ophothermal spectrometry. The BDS spectrometer was upgraded with microscopic optics and resonant cavity for both the excitation and pump beam (Fig. 1) to provide better spatial resolution and higher sensitivity. In case of excitation beam this will enable the use of low power lasers, whereas for probe beam and enhanced intensity change in the field of induced thermal wave (thermal lens), thus further increase the sensitivity of the technique.

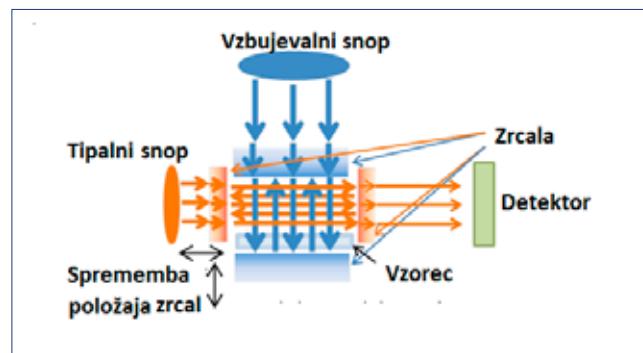
The group also participated in development and application of novel thermal lens spectrometer (TLS) in which a polychromatic light source and resonator cavity enable sensitive measurements of absorption spectra in solutions (1 mm sample cell) and in thin transparent solid nanocomposite materials. In addition, we used TLS to investigate the ionic and nono-silver in pharmaceuticals and have developed a new method for determination of total haemoglobin in body fluids after addition of polyethylene glycol.

Photocatalytic studies were performed within two research projects: *Thermo- and photo-active coatings for windows and Development of advanced TiO₂-based photocatalyst for the degradation of organic pollutants in wastewater*. We performed detailed structural and functional studies of transition metal (Cu, Zr, Ni) modified TiO₂ photocatalysts and investigated the efficiency and stability of thermo and photo-active coatings on sample windows exposed to natural factors in different environments and climatic conditions (Nova Gorica, Ljubljana, Žiri).

In the field of biotechnology we continued the research on how different pollutants affect the physiological parameters of human cells. Testing the water samples from the abandoned gold mine of Freixeda (Portugal), we have shown that even the concentrations of arsenic within the prescribed limits can adversely affect human cells when combined with other pollutants.

We also advanced our basic research in the field of viral infections, where we studied the impact of APOBEC protein family on the infectivity and proliferation of HPV host cells. We determined a set of most relevant APOBEC proteins that will be used in further studies of HPV-related oncogenicity.

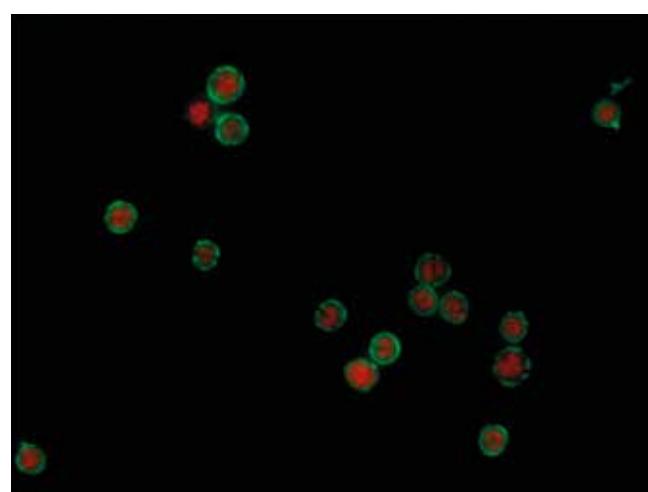
Furthermore, research activity was also focused on: i) identification of nanobodies useful to characterize extracellular vesicles; ii) identification of nanobodies for the detection of toxic microalgae and cyanobacteria; iii) development of technologies for forest and environmental immunodiagnostics. Furthermore, the lab collaborates with several EU groups by providing its expertise in nanobody phage display technology and in protein quality assessment.



Geometry of the upgraded BDS system with microscopic optics and resonant cavity. The upgraded system was used for iron detection in passive samplers on the basis of the diffusion gradients in thin film (DGT) technique, in which Fe(II) and Fe(III) are bounded to ion exchange resin ($LOD = 12 \text{ nmol L}^{-1}$).



Immunochemical determination of proteins APOBEC.



Alexandrium minutum double staining: red - photosynthetic pigments; green -fluorescent nanobodies specific for a surface antigen.

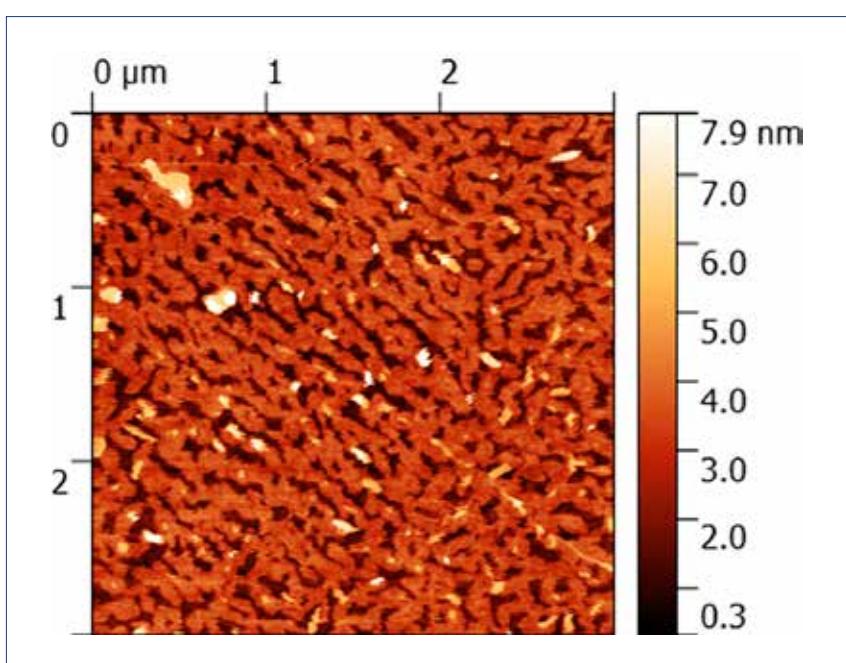
LELS also participates in the international research project *EcoLamb - Holistic Production to Reduce the Ecological Footprint of Meat* (EU program ERANET SuSan). Within the framework of the project, we are studying ways of producing healthy and quality lamb meat with a low ecological footprint, in line with the initiatives of sustainable livestock production in Europe. In addition to conserving biodiversity, through the comprehensive approach of the EcoLamb project, we want to enforce higher animal welfare standards, which at the same time improve the quality and safety of meat, and contribute to greater acceptability and competitiveness of sheep farming among consumers.

Laboratory of Organic Matter Physics

(Head: Prof. Dr. Gvido Bratina)

The Laboratory for organic matter physics has been active in the year of 2018 in the area of novel two-dimensional (2D) materials, graphene-based electronic devices and graphene-based membranes for fuel cells. In the area of 2D materials, we have performed initial transport measurements of MXenes as part of one of the workpackages within the MX-OSMOPED FLAG-ERA project, which we are coordinating. Our preliminary results indicate relatively high charge carrier mobility in thin films of these materials. Using laser lithography we have fabricated the first graphene-based field-effect transistors comprising submonolayer-thick high-mobility organic semiconductors. Within the M-ERA.Net project Nanoelmem we have performed a systematic structural and electric characterization of graphene-based membranes that will be used in novel fuel cells.

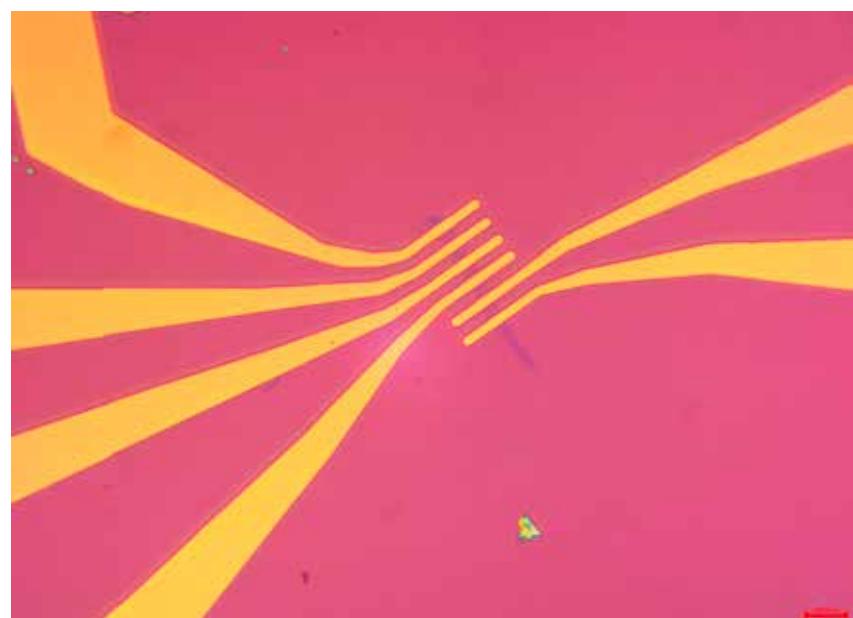
In 2018 we began with the research activities within the project MX-OSMOPED which is funded from the FLAG-ERA programme of the European Commission. We are the coordinators of the project and University of Strasbourg, France, University Mons, Belgium, and Technical University Dresden, Germany are partners. We began the characterization of transport properties of solution processable thin films composed from flakes of the novel 2D MXene material. In order to undertake this, we optimized the processing of both drop-cast and filter-pressed MXene films that were received from Technical University Dresden, Germany. Compositional analysis of the layers was performed via X-ray Photoemission Spectroscopy (XPS) as well as charge transport characterization using coplanar time-of-flight measurements. Using XPS we found that the Ti_3C_2 MXene flakes were minimally contaminated and functionalized as $Ti_3C_2X_2$ where X is a combination of Oxygen, Fluorine, and Hydroxide groups. In our samples, this functionalization had the approximate ratios of 65% O, 13% F, and 22% OH. These ratios can be controlled via variations in material processing and likely influence the work function of the material. From time-of-flight measurements, we found that holes are the primary charge carrier in MXene thin films. Our measurements show a high hole mobility, of approximately $100\text{ cm}^2/\text{Vs}$, for the thin film of electrochemically exfoliated MXenes, and suggest an electron mobility on the order of $30\text{ cm}^2/\text{Vs}$.



$3 \times 3 \mu\text{m}^2$ atomic force microscopy topography image of graphene flake covered with high-carrier-mobility organic semiconductor, using molecular-beam epitaxy. Brighter tones represent higher elevations. The effective coverage is one molecular layer with a second layer in the nucleation phase (bright features).

In the area of graphene-based electronic devices we mastered manufacturing of electronic devices, such as field-effect transistors based on exfoliated graphene flakes using laser lithography. Onto such samples we have deposited via molecular beam epitaxy (MBE) monolayers of high carrier mobility organic semiconductors, such as N,N'-1H,1H-perfluorobutyl dicyanoperelylenediimide (PDIF-CN₂). The morphology of PDIF-CN₂ on graphene flakes deposited by MBE has been studied by atomic force microscopy. The results of this study suggest that the morphology of PDIF-CN₂ depends on the number of layers of graphene and has a different growth mechanism and structure for the first and subsequent layers. The effect of PDIF-CN₂ on the conductivity of graphene field-effect transistors was also investigated. Measurements of the current-voltage characteristics have shown that the presence of the PDIF-CN₂ increases the current through the transistor under equivalent voltages, thereby increasing the conductivity by about 35%. In addition, the results of measurements of current-voltage characteristics suggest that the effect of PDIF-CN₂ may be in charge transfer at the PDIF-CN₂/graphene interface causing an increased p-type doping of graphene.

In 2018 we have also initiated activities within the M-ERA-NET project „Designing new renewable nanostructured electrode and membrane materials for direct alkaline ethanol fuel cells“ (NanoELMem), coordinated by the University of Maribor. Besides the University of Nova Gorica the partners are Abalonix and Norwegian University of Science and Technology from Norway and Chang Gung

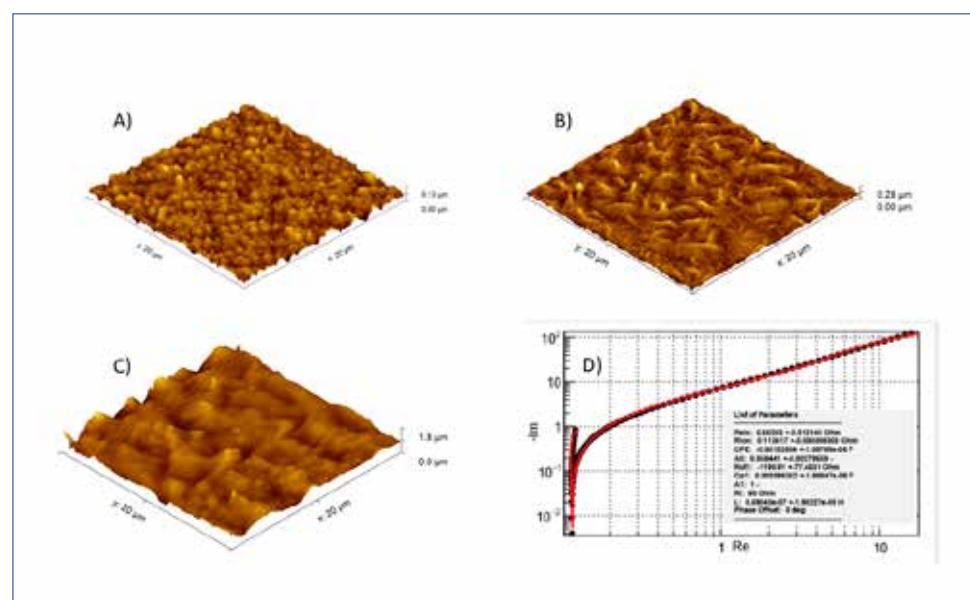


Optical micrograph of the single-layer graphene, obtained by the method of mechanical exfoliation from a bulk piece of graphite, on a silicon dioxide wafer and gold electrodes (yellow colour) on it, fabricated by means of laser lithography. The resulting graphene field-effect transistor was used to study charge transport properties of graphene.

University from Taiwan. In this regard we performed a series of experiments targeted to characterize graphene-based membranes to be used in alkaline fuel cells. The membranes were prepared by embedding graphene oxide before and after functionalizing it into polymers as a solution. Atomic force microscopy measurements were carried out to study the structure of the prepared membranes, and revealed that the topography of the prepared materials depends on the method used for preparation rather than the concentration

of graphene oxide in the solution. With the purpose of understanding the conduction and charge (electronic and ionic) transport through the membrane, electrical impedance spectroscopy measurements were carried out on a wide spectrum of graphene-based membranes with different concentration. The measured electrical impedance spectroscopy data were modelled, and we are in the process of validating the model and understanding the conduction mechanism.

Morphology of the graphene oxide/polymer membranes obtained by atomic force microscopy (a-c) and their electronic properties (d). a) the surface of a polymer layer without graphene oxide. b) Surface of a layer obtained by spin-coating of a 0.1 wt% solution of graphene oxide/polymer. c) Surface of a layer obtained by drop-casting of a 0.1 wt% solution of graphene oxide/polymer. d) Typical electrical impedance spectroscopy data of a membrane. The black line represents measurements data, and the red line represents the results of a numerical model.



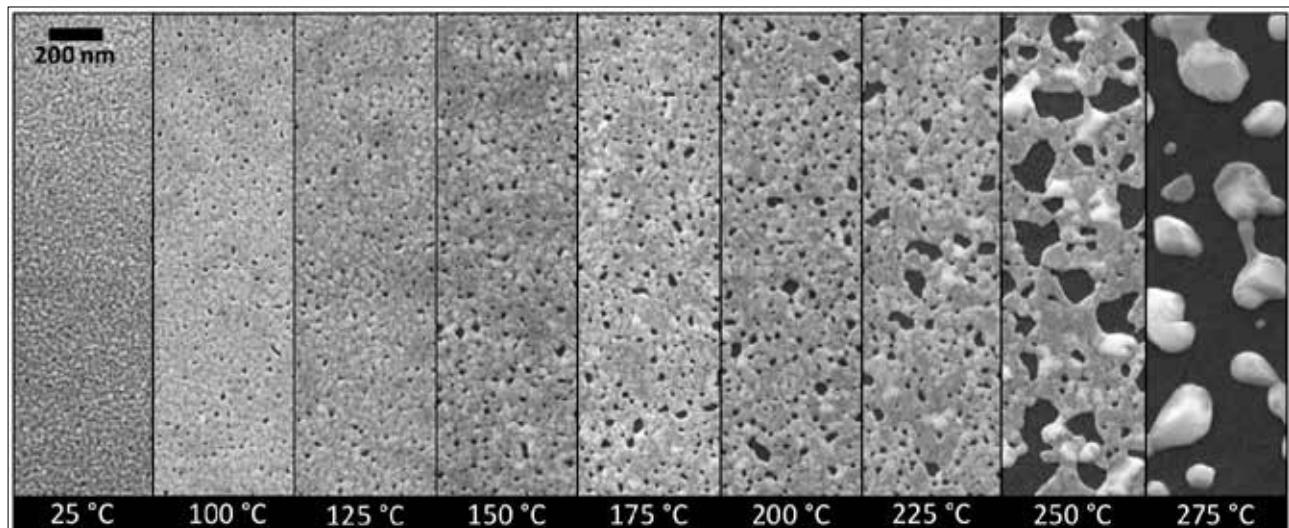
Materials Research Laboratory

(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, biocompatible materials, nanostructured photo-catalysts and materials in extreme environments. The joint efforts of the team members again resulted in some exciting discoveries and developments.

Research activity

The investigation on thin metallic films deposited on topological insulators (TI) has continued. The Au/Bi₂Se₃ interface, previously studied from morphological and electronic point of view, has been characterized by means of SEM *in-situ* thermal treatment, which allowed the direct observation of the coalescence process of the Au film at temperature range: 100–400°C.



Temperature evolution of the Au film on the Bi₂Se₃ substrate.

We synthesized the Bi_2Se_3 nanoplatelets with a simple hydrothermal method (HM) and found, that the HM synthesis can be performed at the similar conditions as the solvothermal method (SM). We proved that the HM and SM synthesized Bi_2Se_3 nanoplatelets are different in surface properties, due to an absence of adsorbed organic layer on HM particles. We verified that with zeta-potential and TG-MS measurements. Furthermore, On the HM particles we observed presence of plasmonic resonance, which make them potentially applicable for medicine.

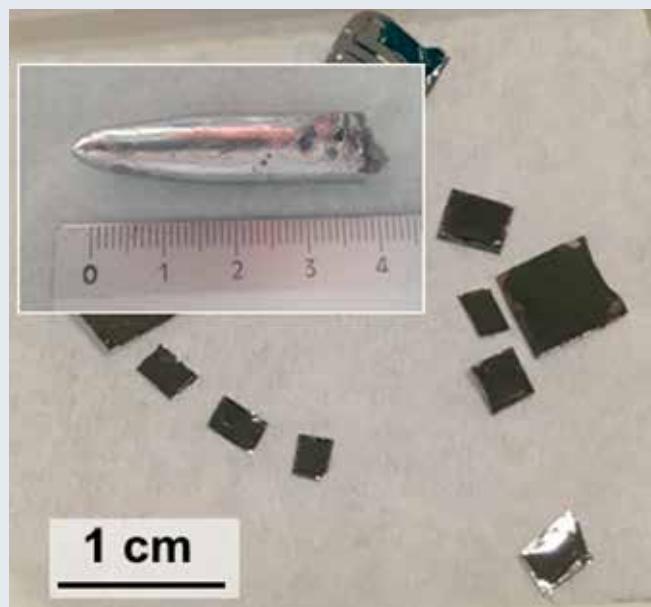
Investigation of the properties of doped optical fibres, within a collaboration with the group of Prof. Sylvain Girard (University of Saint Etienne, France), continued with studies on Ge-doped glass nanoparticles produced by laser ablation. The role of our laboratory has been the characterization of the obtained nanoparticles by SEM/EDX, CL, TEM and STEM.

Within the Biomag ARRS project activities have focused on the electron microscopy of the micro-structure of Mg alloys, which underwent different kind of (high pressure torsion and thermal treatments). We developed an understanding of the influence of the thermal treatment conditions on formation of different types of precipitates. Moreover, single crystals of Mg/Zn alloys have been investigated with synchrotron radiation to highlight the oxidation mechanism of the alloy surface.

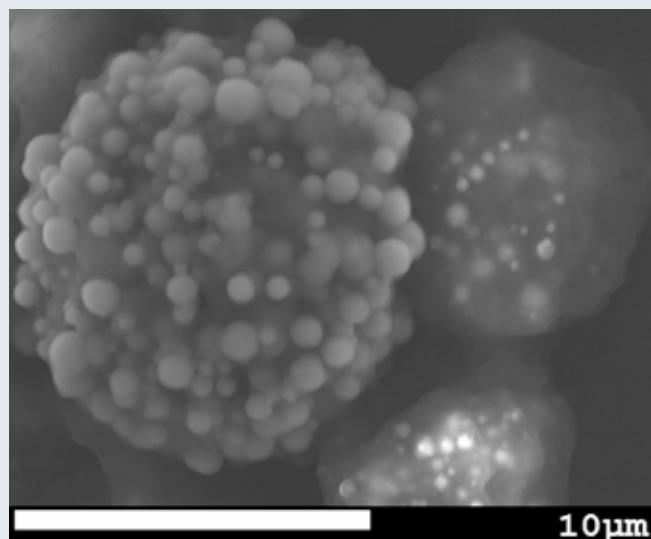
A paper about fabrication of solar cells based on inorganic-organic perovskite films with a formula $\text{CH}_3\text{NH}_3\text{PbI}_3$ was published. We have shown that the electron mobility of organic-inorganic perovskites in the planar direction is high which could be useful for development of sensors, LED devices or solar cells.

In collaboration with SISSA (Italy) and CEA (France) we have studied, by means of *ab initio* calculations, the vibrational spectra of vitreous phosphorus pentoxide ($v\text{-P}_2\text{O}_5$) and P_2O_5 doped silica. The research has led to an improved understanding of the atomic structure of these glasses. Furthermore, our *ab initio* investigation of the neutron vibrational density of states (vDOS) of vitreous GeSe_2 , has provided a theoretical validation of a new experimental methodology to extract the partial vDOS in disordered materials.

Zimm-Bragg model for helix-coil transition in proteins has been formulated based on microscopic Hamiltonian, that includes water-polypeptide interactions. A formula for the helicity degree depending on microscopic variables has been derived, allowing the fit



Layered Bi_2Se_3 single crystals synthesized by the Bridgman method. The single crystal flakes were separated from the ingot shown in the insert.



Copper structures on the algae surface.

to the experimental Circular Dichroism data for both heat and cold denaturation. The formula has been checked over several sets of experimental data and shows a significantly better fit as compared to existing approaches.

Our studies of polymer nanoparticle sizes in solution have continued and the comparison between the Dynamic Light Scattering (DLS) and Size Exclusion Chromatography (SEC) methods for determining polymer sizes in solution has been critically assessed. Based on the results of our poly-silane measurements, we came to a conclusion that DLS provides more reliable results than SEC for the dilute solution of globules. General implications for the size measurements of NPs in solutions are discussed.

We studied the effects of toxic concentrations of copper ions on *Chlamydomonas reinhardtii*

algae. In order to protect themselves algae use various metabolic mechanisms for reducing the ions and thereby lower the toxicity. With different experimental conditions (e.g. anaerobic conditions or use of antioxidants), the algae succeeded to convert the ionic copper to elemental copper on their cell surface and surroundings.

In the cooperation with the Municipal Housing Company Ajdovščina d.o.o. the conditions for efficient bioremediation of the waste waters contaminated with copper were examined. Copper accumulates excessively in the sewage sludge of the municipal wastewater treatment plant, and thus lowering its quality. With the help of the model algae *Chlamydomonas reinhardtii*, we can efficiently produce hydrogen, which was used as a reducing agent in the transformations of copper ions in the nutrient media.

Laboratory of Quantum Optics

(Leader: Prof. Dr. Giovanni De Ninno)



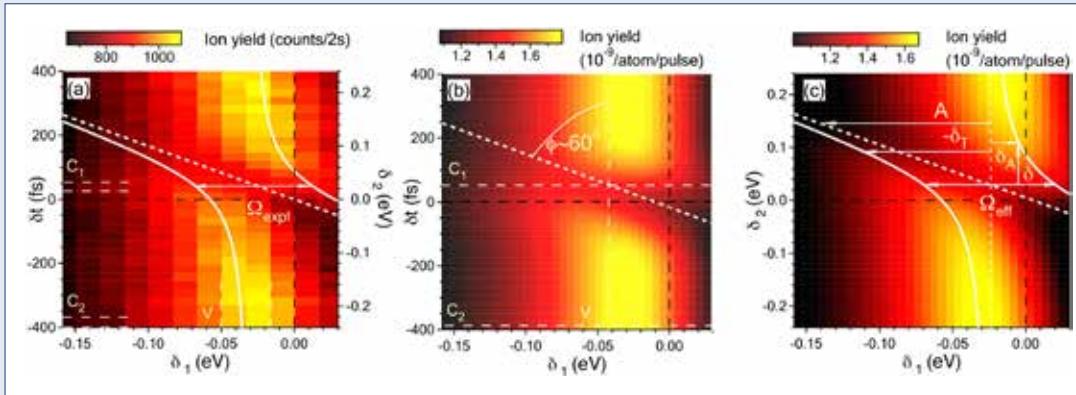
LKO focuses on investigating ultrafast response of electrons in semiconductors, topological insulators, superconductors, and metal/organic interfaces, with potential use, e.g., in spintronics and energy harvesting. In addition, LKO uses X-ray synchrotron radiation at different laboratories in the EU (Elettra, ESRF, PETRA III at DESY, ESRF, ALBA) for characterization of atomic and molecular structure of new functional nano-materials (e.g., Li-ion batteries, catalysts) 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 unique opportunities for exploring the structure and transient states of condensed, soft and low-density matter.

Researchers at the Laboratory of Quantum Optics (LKO) use ultrashort laser pulses, spanning the spectrum from the visible to the x-ray region, for basic and applied research in physics and material science. When such pulses interact with matter, they induce ultrafast electronic, structural or chemical changes, which provide information about 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 studying the response of solid and gaseous samples excited by ultrashort pulses. In the first experiment, we investigated electron dynamics in CaFe_2As_2 , a parent Fe-based superconductor, using time- and angle-resolved photoemission spectroscopy (tr-ARPES). The material exhibits concomitant structural and spin density wave transitions below 170 K. We selectively excited electrons of various symmetries exploiting the polarization of the pump pulse and thereby induced selective melting of the magnetic order without disturbing the lattice order. Demonstration of ultrafast decoupling of magnetic and structural phases in these materials may have significant implications in the study of the origin of superconductivity in unconventional systems.

In the second experiment, we observed Autler-Townes splitting in helium by measuring autoionization from two laser-coupled doubly excited states. Typically, such an experiment is performed by varying the wavelengths of both the pump (visible) and probe (XUV) pulses. We simplified the experiment by mimicking the scan over one of the wavelengths by chirping the pump pulse and performing the measurement by varying the delay between the two pulses. The scheme can be used to retrieve the cross-correlation between the pump and probe pulses and the linear chirp parameter of the pump pulse directly in the experimental chamber. The approach could be used in the future as a tool to disentangle and control molecular decay dynamics. The results are under review in the journal *Physical Review Letters*.



Measured (a) and calculated (b) ion yield maps of the $2s2p\ ^1P_1$ resonance in He, as a function of the XUV pulse frequency detuning δ_1 from the 60.152 eV excitation energy and delay δt with respect to the chirped visible laser pulse, tuned to the $2s2p\ ^1P_1 - 2p^2\ ^1S^0$ transition at 1.938 eV. (c) Calculated two-color map showing the standard Autler-Townes splitting.

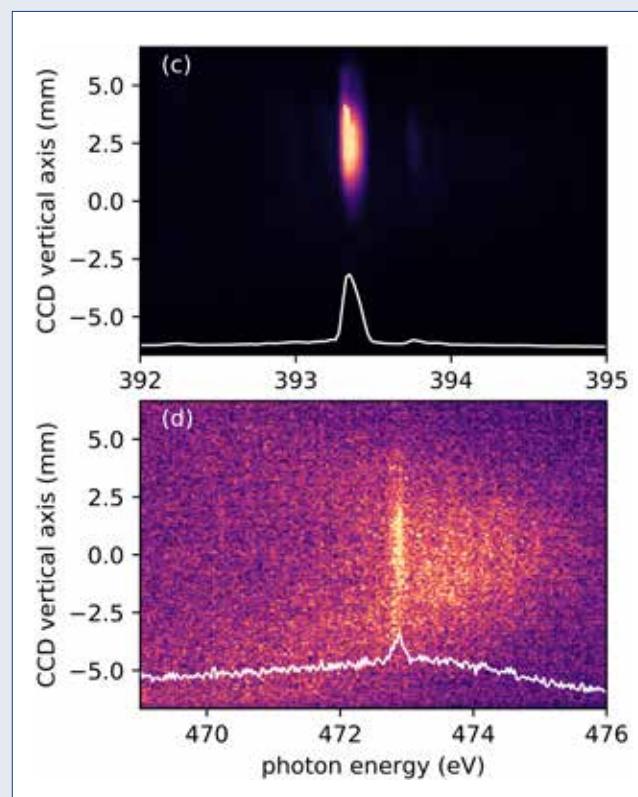
Part of the work was devoted to the development of the CITIUS laboratory light source, in particular to improving the temporal resolution in pump-probe experiments. We started activities in order to decrease the duration of the driving Ti:Sa laser pulses from the nominal 35 fs to 10 fs or less by means of spectral pulse broadening (through self-phase modulation in a hollow-core optical fiber) and compression of the resulting broadband pulses with chirped mirrors. Such a setup will allow us to address fundamental ultra-fast phenomena in solids by means of tr-ARPES.

LKO members are actively involved in the development of the FERMI free-electron laser (FEL) in Trieste, Italy. In a recent experiment, we employed a technique called Echo-Enabled Harmonic Generation (EEHG) to extend the generation of intense, fully-coherent, and stable femtosecond pulses to very short wavelengths (4 nm and below). When fully implemented, such improved capabilities of the FERMI FEL will allow extracting new information about many-body effects in electronic structure and excitations of molecules and materials.

For characterization of atomic structure of different new materials and biological samples with X-ray absorption spectroscopy methods (micro)XANES and EXAFS we realized four research projects at different European SR-laboratories (ESRF, Grenoble, France; Elettra, Trieste, Italy; PETRA III at DESY, Hamburg, Germany; ALBA in Barcelona, Spain). We performed in-situ and in-operando XAS analysis of different cathode materials for Li-ion, and

Li- and Mg-S batteries with high energy density, different (photo)catalytic materials for water cleaning and catalysts for other technological processes. To resolve detoxification problems due to environmental pollution with heavy metals (Hg, Cd, Pb, Se), and to increase concentrations of essential elements (Mn, Fe, Zn, Cu) in the edible plant parts, we used a

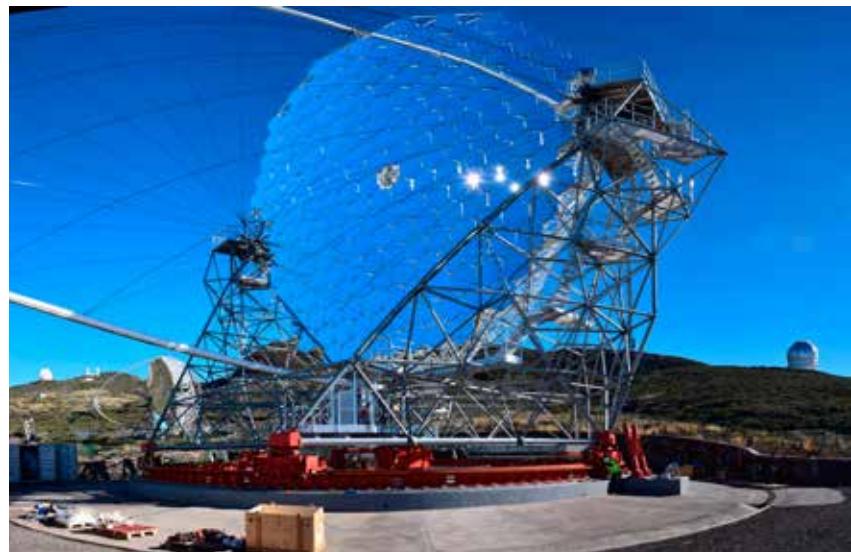
combination of X-ray spectroscopy and sub-micron X-ray microscopy to efficiently assess metal bioavailability and their toxicity, and gain more knowledge on the mechanisms of metal uptake, accumulation and detoxification in living organisms. We published the results in six scientific articles in high impact factor international journals.



Coherent harmonic emission spectra of the FERMI FEL working in the EEHG configuration at (top) 3.1 nm (394 eV) and (bottom) 2.6 nm (474 eV).

Center for Astrophysics and Cosmology

(Head: Prof. Dr. Danilo Zavrtanik)



The first completed large telescope (LST-1) of the CTA North observatory at La Palma, Spain, in December 2018.

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 astrophysical sites and the suppression of their flux due to interactions with cosmic microwave background. In 2018, 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 and on searches for ultra-high energy neutrinos via possible correlations of Auger events with astrophysical sources or remarkable transients.

Complementary studies of the phenomena on the extremely large and the extremely small scales via astrophysical observations of the Universe provides 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 2018, members of the Center for Astrophysics and Cosmology published three papers in the scientific journal *Science*.

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 2020. 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 (INFN Trieste).

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 2018, professor Gabrijela Zaharijas co-authored Fermi LAT research results in two Science papers entitled *A gamma-ray determination of the Universe's star formation history* and *Multimessenger observations of a flaring blazar coincident with high-energy neutrino IceCube-170922A*.



The mirror size of world's largest optical telescope, GTC at La Palma, Spain, is as large as 10.4 meters. It is one of the instruments used by the members of the Center for astrophysics and cosmology in their research.

Astrophysical transients

Our team is active in international 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 and to the Large Synoptic Survey Telescope project, which will provide the biggest and most ambitious sky-survey so far, observing 20 billion stars and detecting numerous transient events. The most important achievement in 2018 was the publication of a paper entitled *A hot and fast ultra-stripped supernova that likely formed a compact neutron star binary* by an international research team, which includes our colleague dr. Tanja Petrushevska, in the journal *Science*.

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 2018 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.



Simulation of a tidal disruption event, which takes place if a star approaches an extremely massive black hole.

Center for atmospheric research

(Head: Prof. Dr. Samo Stanič)



Center for atmospheric research team takes part in the development of the prototype of the Raman lidar for the Cherenkov Telescope Array (CTA) observatory. The lidar, which is being built at *Universitat Autònoma de Barcelona* (UAB), is required to provide atmospheric optical properties up to 20 km height in less than a minute.

The atmosphere, our planet's envelope of gasses and suspended microscopic particles, the so called aerosols, is crucial for sustaining life on Earth. Center for Atmospheric Research (CRA) focuses on the study of physical processes in the atmosphere using remote sensing and in-situ measurements as well as on modeling of atmospheric phenomena. Our research activities include the investigation of aerosol sources, propagation, influence on the atmospheric optical properties, the dynamics of atmospheric structures and the impact of atmospheric conditions on astrophysical observations. 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 and the Cherenkov Telescope Array Observatory, in particular in the construction of the CTA Raman lidar.

Lidar research

Lidar-based remote sensing of atmospheric properties and their temporal dynamics is a powerful tool for the investigation of local and regional aerosol transport, for the study of structures within the planetary boundary layer and for the understanding of air-flows in complex terrain. Center for Atmospheric Research currently uses two lidar systems to pursue the above goals: a mobile elastic lidar with the capability of three-dimensional scanning of the atmosphere and a stationary polarization Raman lidar, in operation at the CRA laboratory in Ajdovščina. In 2018, we focused on the studies of spatial and temporal distributions, composition and sources of aerosols in the Vipava valley, both via remote sensing and by using complementary in-situ black carbon content and aerosol size measurements.

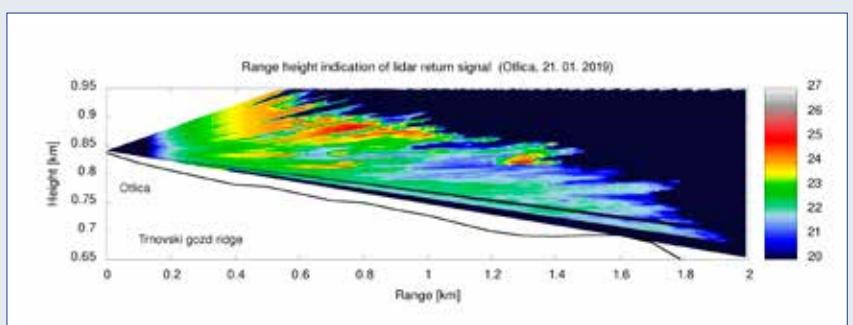
The findings, first of a kind in Slovenia, were published as a paper entitled *Retrieval of Vertical Mass Concentration Distributions – Vipava Valley Case Study* in the open access journal *Remote Sensing*. Based on the above research work our colleague Dr. Longlong Wang in September 2018 successfully defended his dissertation entitled *Study of atmospheric aerosol properties in the Vipava valley*.

Bora wind studies

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 is generally referred to as Bora wind. 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. Of particular importance to Bora studies is continuous monitoring wind properties with temporal with high temporal resolution, which we perform since February 2015, and regular lidar measurements of atmospheric structure and its dynamics, using aerosols as tracers for airmass motion. In 2018, performing simultaneous measurements with both Otlica and Ajdovščina lidars, we focused on the characterization of Bora wind flows across the mountain barrier and the accompanying phenomena, such as the appearance of periodic structures within and above the planetary boundary layer. In addition to remote sensing, we also studied the effects of Bora-like winds on structures by the means of CFD simulation and modeling.



Atmospheric observatory at Otlica in winter conditions.



Results of spatial scanning of aerosol loading in the atmosphere during a strong Bora wind event. Higher loading values are depicted in red and lower in blue.

Applicative 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 Environmental Agency, and a member of the European Virtual Alpine Observatory. Standard monitoring data for temperature, humidity, wind speed and direction, ozone concentration and solar irradiation, are available online at the Agency's and Center's web portals, as well as a live web camera oriented towards the south-west, which allows us to observe the approach of weather fronts. The observatory also hosts an aethalometer that monitors the presence of black carbon (in collaboration with Aerosol d.o.o.), light pollution monitor (in collaboration with Universidad Compultense 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).

Wine Research Centre

(Head: Doc. Dr. Melita Sternad Lemut)



Introduction of plant system based on using in vitro grapevine plants for performing tests with
biocontrol yeasts.

In cooperation with the Materials Research Laboratory, the Wine Research Centre (CRV) started with a new ARRS bilateral project Israel-Slovenia entitled »A multidisciplinary approach to the treatment and application of wastewater to agriculture«. In the same year, a project financed by Laffort Oenology company also started, and work continued on projects EnViRoS and AGROTUR II.

The project, carried out in cooperation with local cider producers and Research Institute NIBIO (Ullensvang), ended in 2018 with the final presentation of the project results on improvements of Norwegian cider from Hardanger area. With the wish to continue with this fruitfull cooperation, we submitted together with Norwegian partners two applications.

Within ARRS postdoctoral project we investigated the potential of more sustainable controlling of grapevine biotic diseases. In particular we focused to *Botrytis cinerea* infection control on disease sensitive Pinots varieties. We started exploring the potential of CRV yeast collection as biological agents in combination with selected viticulture techniques. This work continues with a doctoral project, where we mainly study different mode of actions of biocontrol yeasts against pathogenic strains *B. cinerea*.

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.

In cooperation with University of Udine (UNIUD) and BOKU University of Vienna we carried out the second year of research studying the consequences of short and long-term water deficit on grapevine physiology and grape metabolites. The main aim is trying to understand the behaviour of a grapevine in two different environments (cool, warm) subjected to identical water constraints. First experiments were carried out in 2017 on potted Gruner Veltliner vines and 2018 was the second vintage of experiments. A bilateral Austria-Slovenia project on this topic involving BOKU University and KIS has been submitted.

Within the EnViRoS project we studied the effect of irrigation on the soil microbiome, these experiments are carried out in cooperation with the UNIUD. In the framework of the AGROTUR II project, we were monitoring water stress in the cross-border Karst region, isolating lactic acid bacteria from grapes and wines, and determining biogenic amines in wines.

Another doctoral project, in cooperation with LELS, is focusing on introduction of new analytical approaches for rapid quantitative analysis of bioactive compounds arising during and after alcoholic fermentation (piranoanthocyanins) and malolactic fermentation (biogenic amines). In the project yeasts were characterised, which could be exploited for improvement of colour stability of Pinot Noir wines. With selected strains fermentations were performed in synthetic grape medium, and results showed that implementation of non-*Saccharomyces* strains in the fermentation can have a positive effect on the synthesis of stable pigments, pyranoanthocyanins, in wines. For the monitoring of these processes new method, based on detection with lasers (TLS), were implemented. The yeast



Qualitative detection of biogenic amine production (histamine) in lactic acid bacteria, isolated from grape in the frame of AGROTUR II project.

that synthesised the highest concentrations of stable pigments was used for synthesis and isolation of reference pyranoanthocyanin compounds, as they are not commercially available. Isolation of compounds was performed with semi-preparative liquid chromatography in the co-operation with Faculty of Food Technology and Biotechnology at the University of Zagreb.

In the project financed by Laffort Oenology company, we performed in collaboration with

the Agricultural Institute of Slovenia (KIS) a sensory and chemical characterisation of atypical ageing in white wines. We investigated the sensory contribution of few potential markers of ATA (2-aminoacetophenone, indole and skatole) to white wine aromas. These investigations open new perspectives of research on the influence of metal ions (copper, iron and manganese) on white wine aromatic quality, and preliminary study in collaboration with the Chemical Institute (KI) was performed. Since the Laffort scientific comity assessed this study, they supported submission of an ARRS applicative project in collaboration with KIS and KI.



Measuring total titratable acidity in grape juice with automatic titrator.

Center for Information Technologies and Applied Mathematics

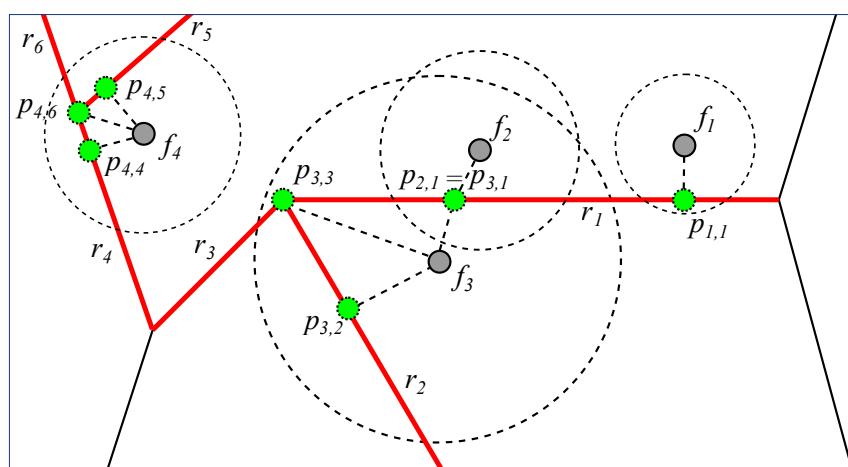
(Acting Head: Prof. Dr. Irina Elena Cristea)

The Center for Information Technologies and Applied Mathematics is an interdisciplinary research group with the activities at the intersection of computer science and informatics, mathematics, control systems technologies, and process engineering. It develops novel approaches to modeling and applies them to a wide range of problems, from industrial engineering practice to education and biomedicine. 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 mathematics, we contribute mainly in the following fields: (1) study of algebraic hyperstructures, (2) study of dynamical systems, and (3) development of novel computational methods for surgical simulations.

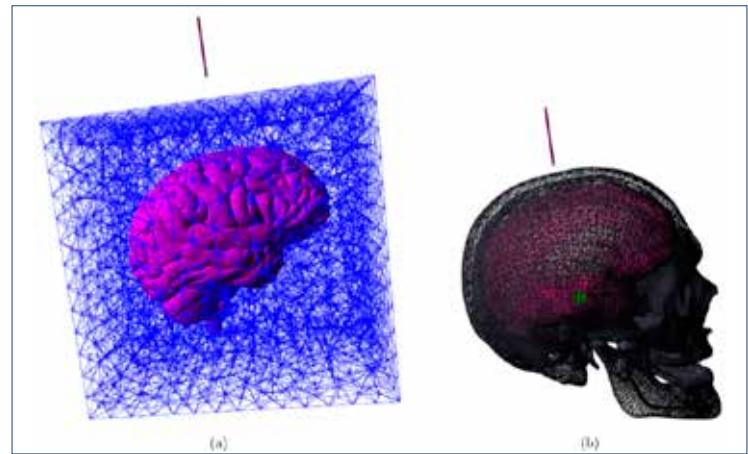
In 2018 the Center employed 8 researchers, working on different topics in the framework of knowledge discovery, computational methods for surgical simulations, algebraic hyperstructures, dynamical systems, Gaussian-process models, open education, and renewable energy sources.

In the field of geographic information system and spatio-temporal databases, we continued to work on positioning and tracking systems. In collaboration with the University of Udine and international companies, we proceeded analysing the cellular networks on a general modeling based on observations collected by positioning systems, focusing on spatio-temporal changes and different granularity levels. Moreover, focusing on mobile devices, we proposed a new map-matching algorithm, that exploits the well-known Hidden Markov Model and Random Forests to successfully deal with noisy and sparse cellular observations.

The center continued to focus on the study and the development of innovative methods in biomedical applications. In collaboration with the Jožef Stefan Institute, we started studying semantic data mining for linked open data science.



Map-matching algorithm: an example of the process of computing the emission probability.



Input background mesh used for simulation of brain behaviour (a); during simulation, the brain has interaction with the skull, and the displacement is measured at the point shown in green colour (b).

In the context of the real-time error controlled surgical simulation methods, we focussed on the development of corotational Cut Finite Element Method for real-time surgical simulation. Our numerical results show that, while retaining the accuracy of the standard FEM, the proposed method can (1) make the discretisation independent from geometric description, (2) avoid the complexity of mesh generation for complex geometries, and (3) provide computational speed suitable for real-time simulations. This research has been primarily conducted in collaboration with colleagues in Luxembourg and France.

In the field of algebraic hyperstructures we focussed our research on both pure and fuzzy hyperstructures. Based on the concept of composition ring, we studied the hyperrings with n -ary composition hyperoperation. Moreover we dealt with the theory of hypernear-rings, defining and studying those hypernear-rings with a defect of distributivity. Standard algebraic properties, as cyclicity, symmetry, existence of fundamental relations, have been also investigated for hypergroups, hyperrings or BCK-semilattices. In the framework of fuzzy hyperstructure theory, we have defined and characterized lower and upper fuzzy topological subpolygroups. In this context, the center was

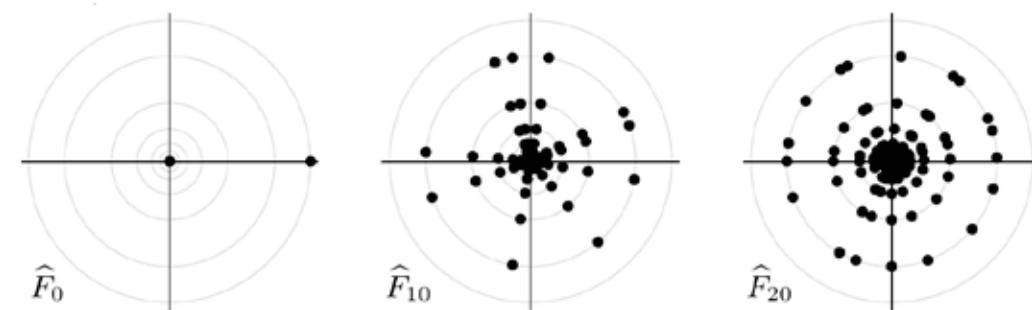
collaborating with researchers from Iran, Czech Republic, Montenegro, China and Saudi Arabia.

Working in the field of dynamical systems, the statistical properties of parabolic flows (polynomial divergence of orbits) have been studied. New ideas which involve studying the spectrum of operators related to the system allow the possibility to extend results to many new settings. Besides, we focussed on rates of decay of correlations for a large class of flows. The research has been conducted in collaboration with colleagues from Hungary, Italy and the UK.

The research on modelling of dynamic systems and applications of these models was pursued in the framework of research projects at Jošef Stefan Institute. Research activities were pursued in the direction of the atmospheric variables modelling with Gaussian-process models. The main focus was on Gaussian-process modelling method and processing of very large amounts of measurement data.

We continued to participate in research projects that are mainly related to the development of the energy supply systems for the buildings, and the adaptation of fiscal policies of local communities to promote use of renewable energy sources.

We also continued researching the process of transformation of educational activities towards more flexible and open forms. We carried out case studies, analysing several aspects connected with education based on information and communication technologies, most relevant for the transformation being in progress at our university. A comparative analysis of bridging mathematics courses at the University of Nova Gorica and University of Udine have been published. Experimental analysis of chosen web conferencing tools has been performed to identify their benefits and difficulties and to guide their future integrations into the e-learning platform already available at the University of Nova Gorica.



Structure of the spectrum of operators associated to partially hyperbolic automorphisms.

Research Centre for Humanities

(Head: Prof. Dr. Aleš Vaupotič)



Prof Katja Mihurko Poniž project presentation, Kromberk Castle.

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

Aleš Vaupotič, Assoc. 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.

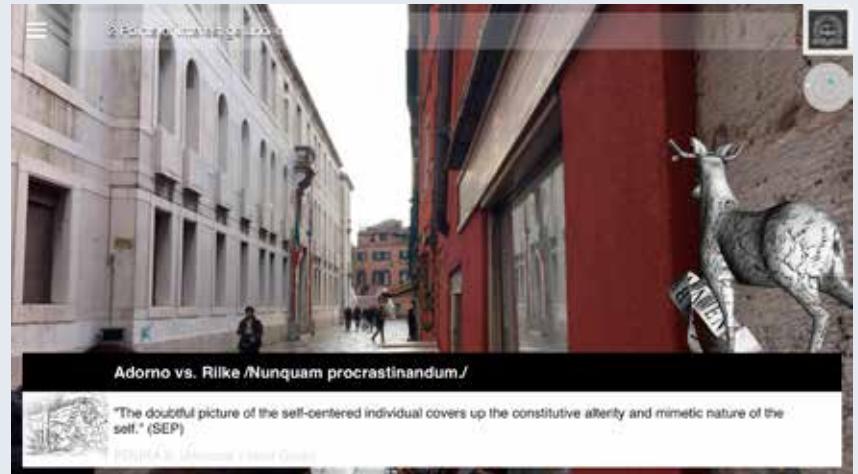
In the year 2018 Katja Mihurko Poniž, Prof., PhD, continued to lead the research activities in the field of women's literary authorship in connection with digital humanities. We have been active in a working group within Dariah network (Women Writers in History). The centre is taking part in the COST 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 studies, which overcomes the boundaries of national literary histories, as well as focussing on minority literature, including the methodological and theoretical aspects of literary imagoLOGY. From September 2017 she is the project leader within the INTERREG Slovenia-Italia project EDUKA 2, the University of Nova Gorica being one of the project partners. She is leading the research activities that involve colleagues from the Research centre for humanities and the humanities students at our university.

The third field represents exploring the relationship between literature and new media in the perspective of the macro changes in world history. In this context, attention is devoted to the rapidly evolving field of digital humanities and to the review of new media writers from Slovenia and globally, particularly their attitude towards new media art at the borders of verbal language. Aleš Vaupotič, Assoc. Prof., PhD, is directing his research towards issues of research organization of interdisciplinary cooperation. Within his doctoral research young researcher Rok Andres has associated literature with plural media-language of theatre.

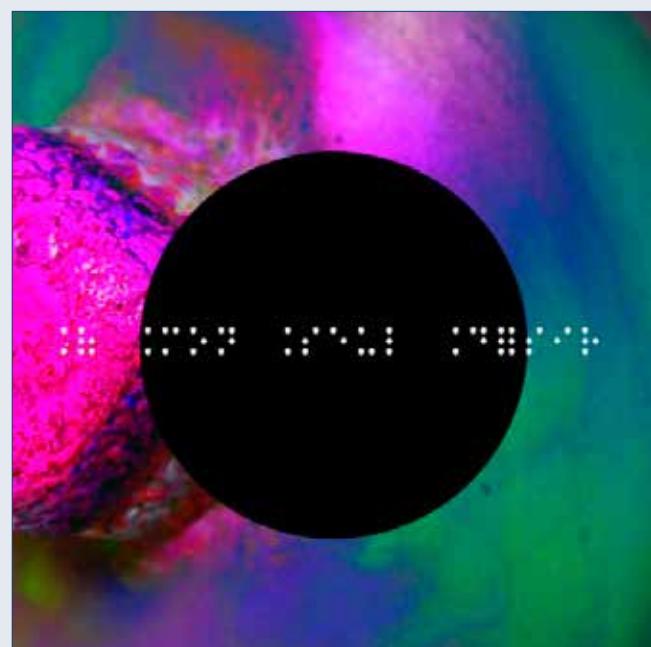
Željko Oset, Assist. Prof., PhD, in the field of cultural history has studied two sets of issues of contemporary cultural history: the history of the Slovenian Academy of Sciences and Arts (in 2018, the Academy celebrated its 80th anniversary) and the social image Teharje kosezi community from the Middle Ages to the First World War (project *Social and identity mobility in the Slovenian territory between the late Middle Ages and the disintegration of the Habsburg Monarchy*). He studies the presence and development of ecological awareness in Slovenia during the communist period. Oset also collects scattered resources about environmental activism as dissident activity as a member of the project *Connecting collections: Cultural Opposition – Understanding the CultuRAL HERITAGE of Dissent in the Former Socialist Countries (COURAGE)*, and thus enabling further and more detailed research about environmental activism in Slovenia. In January 2018, he concluded his 6-months research at the University of Eastern Finland (in Joensuu). As member of the management board of COST action European Network for Environment Citizenship, he is has



EDUKA 2 project presentation in Venice (augmented reality).

been engaged in preparation of a new EU-wide environmental education model. In 2018, Oset edited two publications: a monograph *Goriški izobraženci skozi zgodovino/Intellectuals through history in Gorizia county* (University of Nova Gorica Press) and a special thematic issue of the Journal Contribution of Contemporary History (no. 3) titled *Dissidents and various forms of social criticism in Slovenia and Croatia in the socialist period*.

In the centre there are employed young researchers Rok Andres and Mateja Eniko. Mateja Eniko focuses on the study of Slovenian and foreign contemporary poetry, within her doctoral research especially on the image of the artist, auto-thematism and poetic self-reflection in the poetry after the Second World War. From January to April Rok Andres conducted his doctoral research on the reception of East-European and American playwrights in Slovene literature and theatre after the Second World War. He was a working at the Centre as a young researcher till April.



Visual modes of argumentation and beyond, women writers reception database visualization (graphic print by Vanja Mervič).

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 and bilingualism.

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 behavioral experiments (e.g. sentence production for comparing models of morphosyntactic agreement, reaction times in wh-word analysis, developmental tasks for studying the pragmatic abilities of children).

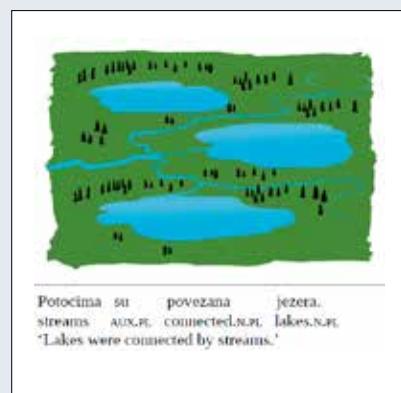
The *Center for Cognitive Science of Language* group specializes in formal generative linguistics, especially syntax and semantics/pragmatics, and uses this as a foundation for engaging in other domains of language-related cognitive science – especially language processing, language acquisition and bilingualism.

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

In the context of the EU FP7 large-scale project ‘ATHHEME’, which deals with various aspects of multilingualism in the individual and the society, 2018 saw us continue the active collaboration with our two main partner labs. Together with the Lyon Institute of Cognitive Sciences (Laboratory of Language, Brain and Cognition) we completed a pioneering investigation of negative transfer in the pragmatic domain, concentrating on investigating cross-linguistic variants of the presuppositional trigger “only” in first and second language acquisition. In collaboration with colleagues from the University of the Basque Country, we also completed work on the processing of complex syntax by advanced second language learners, concentrating on aspects of syntactic learning in the domains of syntactic “islands” and clitics in early Slovenian learners of Italian. In addition, building on earlier work we also began exploring monolingual and bilingual children’s working memory, specifically those aspects thereof which play a role in discriminating prosodic patterns corresponding to different syntactic structures.



We played an integral role in the international project 'Coordinated Research in the Experimental Morphosyntax of South Slavic Languages', which concluded in mid-2018, and embraced a similar role in the project 'Agreement Mismatches in Experimental Syntax: from Slavic to Bantu', which directly succeeded the former project (both headquartered at University College London). In the project that ended we ran 4 large-scale experiments testing the combinatorial possibilities of the South-Slavic number and gender agreement system. In two 2018 papers that report the findings of this research we show that a popular analysis of the phenomenon of closest conjunct agreement cannot be applied to South Slavic data. In the new project we are trying to transfer the knowledge and experience we got studying South Slavic languages to similar phenomena in Bantu languages.



Potocima su povezana jezera.
streams AUX.PTCP connected.NPL lakes.N.PL
‘Lakes were connected by streams.’

Within the Slovenian Research Agency-funded project on the cognitive basis of the cartographic hierarchy of functional projections in the noun phrase, we explored categorization and perception prominence of nonlinguistic concepts of color, size and shape. We then tested how these results compare with the results that had been independently obtained with linguistic methods in theoretical linguistics, thus looking for potential cognitive basis for theoretical linguistic postulates.



Other work recently conducted in the Center includes the following:

2018 was the fourth year that saw us run the outreach center 'Vecjezičnost velja' (<http://vecjezinost.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 2019 to 2023, which was being prepared by the Slovenian Language Office of the Ministry of Culture of the Republic of Slovenia.

Two members of the Center became 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.



Education

In 2018, the education 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

(Dekan: Prof. Dr. Matjaž Valant)



Field work at Marine Ecology course.

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 Bologne 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. Among others, we have introduced obligatory practical training for the I. level students and substitute a diploma thesis with a diploma seminar. In addition, we have introduced up-to-date contents among mandatory courses on the II. Level.

The School has agreed with University of Bihać a double degree program that started in 2017/2018 school year. Students that decide for this possibility fulfill the student obligations at both universities, according to the agreement, and receive a diploma certificate from both universities.

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 2018/2019 school year we enrolled an twelfth 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.

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 Sport Society Sonček we have successfully finished ŠIPK project called Environmental Awareness of Children with Experiences in Nature. The project was supervised by prof. dr. Mladen Frank, prof. dr. Aleš Vaupotič and prof. dr. Peter Purg. The promotional event was organized on 24.8.2018 as a part of the final day of Summer by Soča festival. The students, who had participated in the project, children and their parents, guest from Nova Gorica municipality and media representatives have attended the event. At the promotional event we presented the content, work done and results of the project. We have also launched the new web site ŠD Sonček

On the study program Environment Level I we have graduated 5 students in 2018. For study achievements we awarded the students Teja Cankar in Neža Orel with Alumnus Optimus and



Field work at Biology course.

the student Tanji Batkovič with Alumnus Primus

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 2018 nine students has received the master thesis.

The School has been actively involved in international exchange of students and professors, which has mainly been organized within Erasmus program. Within this exchange two our students have travelled to perform studies in Portugal and The Nederland. We accepted four students from Czech Republic and Turkey.



Sample check before the Ecology Hour event dedicated to benthic invertebrates.

School of Engineering and Management

(Dean: Prof. Dr. Tanja Urbančič)



The twelfth generation was enrolled to the Batchelors programme and the thirteenth generation to the Master's programme at the School of Engineering and Management in year 2018. The Bachelor's programme in English language is started in parallel to Slovene language programme in the same year. School activities were moved to a new location in the Lanthieri Mansion in Vipava in 2018.

123 students were enrolled in academic year 2017/2018, out of which 98 students in the Bachelor's programme and 25 students in the Master's programme. Again, the number of enrolled new students from abroad was high. Besides Erasmus+ exchanges, the internationalisation gained a new dimension through two visiting professors from abroad, taking part in three different courses.

In the previous year, 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 has also been modernised in a similar manner. In academic year 2017/18, the updated study programme was performed for the first year.

Study Programmes:

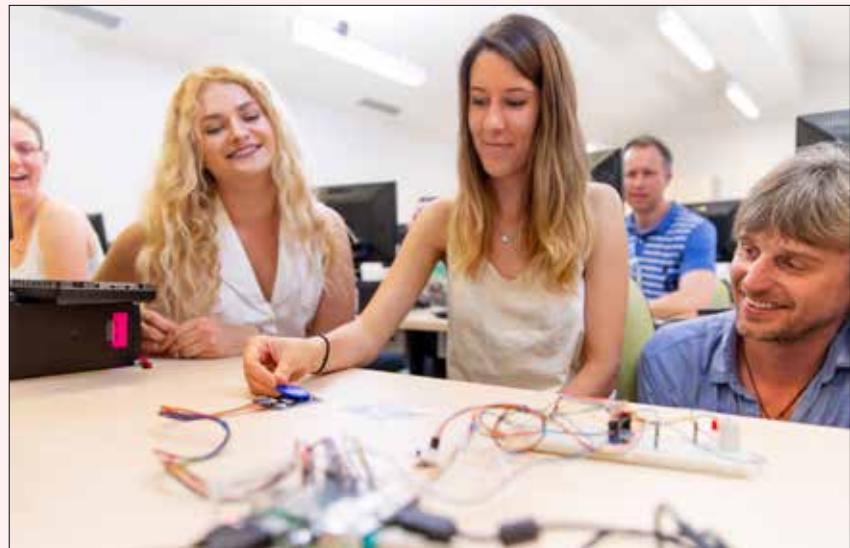
Bachelor's Study Programme Engineering and Management (First Level)
Master's Study Programme Engineering and Management (Second Level)

Bachelor's and Master's Programme of Engineering and Management are pursued at the School of Engineering and Management. Graduates there are educated to identify and solve problems of economically efficient and sustainable business and industry based on their knowledge of technology, economy and management. Relations with companies, various institutions and local community are crucial for the school. These relations enable exposure of students to realistic problems within academic curricula and provide conditions for high employability of programmes' graduates. The school with enrolled students from twelve different countries possesses increasingly international atmosphere. Students of the School of Engineering and Management are awarded repeatedly in student competitions organised by various companies and professional societies.

and second students of both degrees, while in the autumn 2018 also third year students were included.

The programme has until present always been implemented completely. In the academic year 2017/18, students selected Bachelor's elective courses *Entrepreneurship Seminar, Logistics, Sociology of Organisation and Business Communication, and Computer programming*, while Master's elective courses were *Robotics, Optimization of resources and processes, Open Source Information Systems, Data Mining, Business English and Internet of things*.

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. Moodle software is 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. A series of lectures from selected courses has been video taped in cooperation with Josef Stefan Institute, subtitled in Slovene and English language and made available to students to facilitate their study for exams. As concluded from interviews with candidates for studies and with students, these possibilities have noticeably contributed to the increased number of enrolled students.



20 students successfully finished their study at the School of Engineering and Management in year 2018. Most of the staff members were active as their supervisors. 13 graduates come from the Bachelor's programme Economics and management of production and technological systems, first level, and 7 from the Master's programme Engineering and Management, second level. Cumulative number of the graduates of this school increased to 548 at the end of the year 2018. 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 87,18 %, while in one year after graduation it comes to 94,52 %. 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 2018, students were accepted by the companies Agromehanika d.d., Gallo d.o.o., LED Luks d.o.o., Hidria d.o.o., PE Tolmin, Hidria d.o.o., PE Tolmin in VRC d.o.o. for their internships. The school also collaborates with Primorska Technology Park, Regional Developmental Agency of Northern Primorska and Technology Park Ljubljana in encouraging and preparing the students for entrepreneurship.



School of Science

(Dean: Prof. Dr. Samo Stanič)



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.

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.

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 re-



search-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.

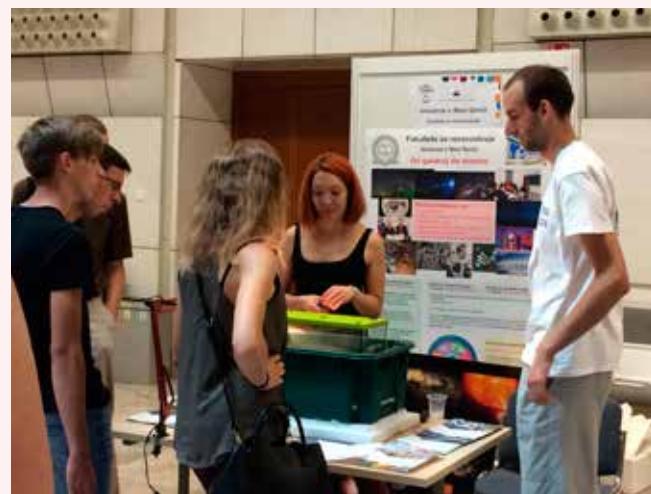
School of Science is also active in dissemination activities promoting science among the youth. It co-organizes Slovenian high-school and elementary school level competitions in astronomy, provides support to the national team at international competitions, is involved in managing the Slovenian version 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.

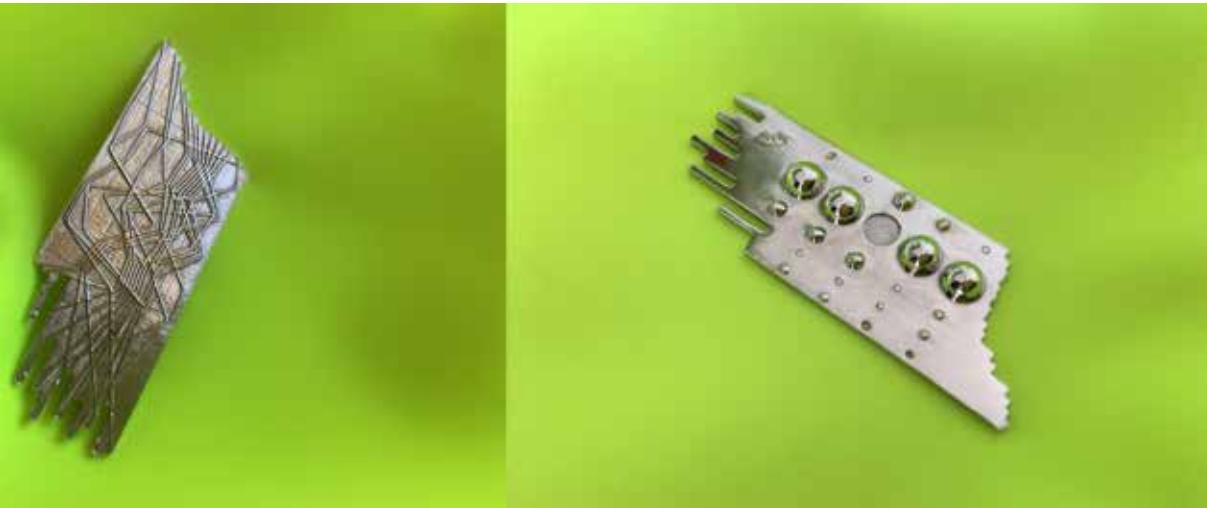
Master program

»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 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

(Dean: Prof. Dr. Aleš Vaupotič)



Statistical diagram about Slovene women writers (visualization by Narvika Bovcon and Aleš Vaupotič).

Study programmes:

Bachelor's Study Programme Slovene Studies (First Level)

Bachelor's Study Programme Cultural history (First Level)

(Programme directress: Prof. Dr. Petra Svoljšak)

Master's Study Programme Slovene Studies (Second Level)

Master's Study Programme Digital Humanities (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)

We follow the motto: "We link humanistic tradition and modern knowledge with the future in mind," at the School of Humanities. In collaboration with the Research Centre for Humanities and the Centre for Cognitive Science of language and multiple partners we link top scientific research work with teaching; this way we introduce students into research and professional practice. In 2017/2018 we have conducted Pedagogical Master in Slovene Studies (second level) for the second time. We have also prepared an interdisciplinary master programme Digital Humanities, which will be implemented in the next academic year. We have been a partner in the implementation of the international study programme European Master in Migration and Intercultural Relations (Erasmus Mundus) for several years.

At the School of Humanities we offer programmes of first and second level. We enable the students of these programs to continue their studies at the University of Nova Gorica on the third level at the Graduate School, on the programs Humanities and Cognitive Science of Language.

Bachelor's study programmes (first level) are Slovene Studies and Cultural History. Study fields of Slovene Studies are linguistics, literary theory and history, the qualification title that the student acquires, is a degree in Slovene Studies (UN). We upgrade the traditional division into linguistic and literary contents with introducing the basic and elective subjects in the field of general linguistics and literary theory.

The study area of the programme of Cultural History are historical sciences, it enables the students to obtain a broad fundamental knowledge, additional attention is devoted to the specifics of the cultural and political environment in which the programme was created. The student acquires the professional title of graduate historian (UN). The director of the programme of Cultural History is Prof. Dr. Petra Svoljšak.

Programs of second level at the School of Humanities are Master of Slovene Studies - the direction of Linguistics and Literary Science -, from 2016 the new programme Pedagogical Master in Slovene Studies and international programme European Master in Migration and Intercultural Relations (Erasmus Mundus). Master of Slovene Studies (second level) introduces to all students knowledge of the Slovenian language and Slovenian literature as well as theoretical and methodological basis of literary science and linguistics. Study direction of Linguistics enables to obtain extensive fundamental knowledge in the field of the study of language, structural-theoretic, applied and interdisciplinary linguistics and other related humanistic and social sciences. Literary Studies enable to obtain a comprehensive insight into the Slovenian literature with the stressed comparative approach to the literary science. The acquired title in both programmes is Master of Slovene Studies.

Since 2016/2017 Pedagogical Master in Slovene Studies (second level) has been running. It links educational sciences and education of teachers, literary and linguistic sciences in the same proportion. The acquired qualification title is the Professor of Slovene Studies. The graduates are able to carry out the teaching process at the subject of 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 after their graduate.

Migrations and Intercultural Relations is an international programme that focuses on human rights, democratic values, the welfare state, the labor market and the challenges with which the Member States of the European Union as well as a global world have been facing. It is running with the support of the elite programme for international cooperation and exchange of students and teachers in higher education, Erasmus Mundus. Study areas: migration studies, history, political science, sociology, anthropolo-



The language of emblems (video by Narka Bovcon and Aleš Vaupotič).

gy, education; Qualification title: Master of Arts in Migration and Intercultural Relations. Study is running at several universities in English language. Director of the programme is Prof. Dr. Marina Lukšič Hacin.

The interdisciplinary master's study programme Digital Humanities has been accredited in 2017, which covers fields of humanities, computing, multimedia design (in proportions of 40, 40, 20 percent). School of Humanities is also running courses of different languages, both foreign languages and Slovenian language.



Augmented reality in the Gorica twin city (EDUKA 2 project).

School for Viticulture and Enology

(Dean: Prof. Dr. Branka Mozetič Vodopivec)

Study programme:

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

The School of Viticulture and Enology is offering practically oriented BSc study program Viticulture and Enology, an unique interdisciplinary program in Slovenia, that integrates grape-growing, winemaking and wine marketing and is consistent with the guidelines and recommendations of the OIV for the education of Oenologists. Our lecturers are excellent experts with multidisciplinary practical and research experiences. The School for Viticulture and Enology is located in the center of vine-growing area; therefore constant integration with practical knowledge is enabled to the students and researchers. Students can gain their practical skills on our University estate as well as with respected winemakers of the local and wider area, and are also included in the ongoing university Wine Research Center projects.

School of Viticulture and Enology (SV) offers BSC program Viticulture and Enology. In the academic year 2017/2018 the 13th generation of students has been admitted and 5 new graduates finished the BSc program. We have started of first accreditation of our new Master study program Viticulture and Enology according to new rules at national agency for accreditation of study programs NAKVIS, which, however, has not been completed by the end of the academic year, and thus had not resulted in the planned change of School status to Faculty of Viticulture and Enology.



The program BSc program of Viticulture and Enology is carried out in Lanthieri Mansion in Vipava as well as on the University Estate in Manče (1.2 ha of the new vineyard (planted local vine varieties *Zelen* and *Pinela*). In this year Pinela wine has been produced for the first time, completing the existing brand of *University wines*. Practical training is an important part of our studies. Our students have possibility to get practical skills at almost 40 partner institutions of different kind: viticulture estates, cellars, wine shops, wine labs, institutes but also through field exercises. During the latter students visit important winegrowers and winemakers of Primorska wine growing region, as well as those from other wine growing regions of Slovenia and nearby trans border region (Italy). We also visit important wine festivals in Slovenia and different companies, indirectly engaged in wine production: wood barrel producers, wine certification labs, consulting companies, wine shops, distributors and marketing agencies.

At the SVV we give great emphasis to theoretical and practical marketing and promotional knowledge and skills. Our students are regularly involved in the promotion actions of University wines (*Univerzitetni Zelen*, *Univerzitetno Rdeče*, *Rektorjev izbor*) and the study program at different wine festivals (*Festival vin Šempas*, *Festival Zelen, Okusi Vipavske, Slovenski festival vin, Vinski Univerzum*). At the end of November 2017 our 2nd year students also presented themselves and their wines, produced in Lidlov mladi vinar 2017 competition, in Ljubljana Slovenski festival vin. Vinification of their competition wines and also the wine producing experiments for BSc thesis were done in Trsnica Vrhpolje and with the vinification equipment of Vine Selection and Nursery Center Vrhpolje (Agricultural and Forestry Institute of Nova Gorica).

Last Thursday in May 2018 we have opened the doors of the 11th Student Wine Festival, hosting our students and students from similar study programs of Požega Colledge (Croatia) (Viticulture, enology and horticulture) and from University of Ljubljana (Biotechnical Faculty).

Promotion of our SVV, both at the national and international level, is also greatly contributed by the staff of the *Wine Research Centre* with their scientific and professional contributions, as well as with their promotional efforts in which we also include our BSc students. We have also attended the annual meeting of *OENOVITI International* partners, which in 2018 took place in Argentina, at the University Cuyo in Mendoza.

Our teaching staff are constantly being trained abroad and Slovenia on scientific and pedagogical level, they visit other institutions as guest teachers (BOKU Austria, Agricultural State University of Azerbaijan). We also host foreign teachers who bring a different width to our teaching process. In 2018 dr. Gulshan Aliyeva from Agricultural State University Azerbaijan came to SVV for 2 months training and we also hosted prof.dr. Tohru Okuda from Yamanashi University from Japan for couple of days.

In this study year the UNG filled the remaining parts of Lanthieri Mansion. In 2017/2018 we have thus significantly upgraded the existing studying conditions of the residential part of Lanthieri Mansion. Namely, we have acquired new classrooms, a large computer room, as well as a biological and geological classrooms. Lanthieri Mansion has finally got also more students, which significantly contributed to a better student life in Vipava.



School of Arts

(Dean: Prof. Boštjan Potokar)



Film the MA graduation film *Cold Meat* by Rajat Sharma.

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 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 53 students are immatriculated at the UNG School of Arts. The students structure is international with some Italian and Croatian students on BA level, 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 is held at the premises of the Palazzo Alvarez in the center of Gorizia, Italy. The school occupies in total 800m² intended exclusively for educational activities and additional 200m² service spaces. 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.

Workshop in field recording of sound with Boštjan Peroviček and Robertina Šebjanič, was in progress even in the rain.



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 21st edition of the Festival of Slovenian Film we took part with 6 films.
- At the MFRU International festival of computer arts in Maribor the project *installation with a scenography for an animated film* by the MA student Sandra Jovanovska was awarded with one of four scholarships.
- The same MA student Sandra Jovanovska was received a Best Experimental Film Award at the Progeny Short Film Festival in Virginia.
- At the FeKK Short Film Festival in Ljubljana two films of our students were shown.
- At the 2018 Cinedays Festival of European Film in Skopje the film "Drive, A Poem For My Father" of our student Irena Gatej received the Best Student Fiction Film Award.
- As previously also this year our students collaborated at the Pixelpoint New Media Festival in Nova Gorica;
- DSAF, the Slovene Animated Film Association for the first time awarded best student films. The Award for Best Student Animated Film in Development was given to our MA student Samo Bihar while a Special Mention in the same section was given to our BA student Katarina Blažič.

- At the ANIMATEKA 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.



First version of Palingenesis of Fluvial dialects in Anthropocene, a kinetic sound and visual installation using water as its main medium, presented at the Semester Show by its author, MA student Miha Godec.

Graduate School

(Dean: Prof. Dr. Iztok Arčon)



Research of doctoral students in isolation of recombinant antibodies.

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)

Humanities

(Programme directress: prof. Dr. Ana Toroš)

Cultural Heritage Studies

(Programme directress: Prof. Dr. Saša Dobričič)

Molecular Genetics and Biotechnology

(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.

Graduate School at the University of Nova Gorica (UNG) hosts and carries out all doctoral study programmes (third level), regardless of their scientific discipline. Such a closely connected and homogeneous organization of graduate school proved to be very effective, enabling high effectiveness and interdisciplinarity in designing individual doctoral study programmes. Students are also allowed to perform part of their study obligations in related study programmes at other universities in Slovenia and abroad, which encourages the mobility of students. In this way, each student's programme can be designed on an individual basis.

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 for Scientific Research of the Slovene 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.



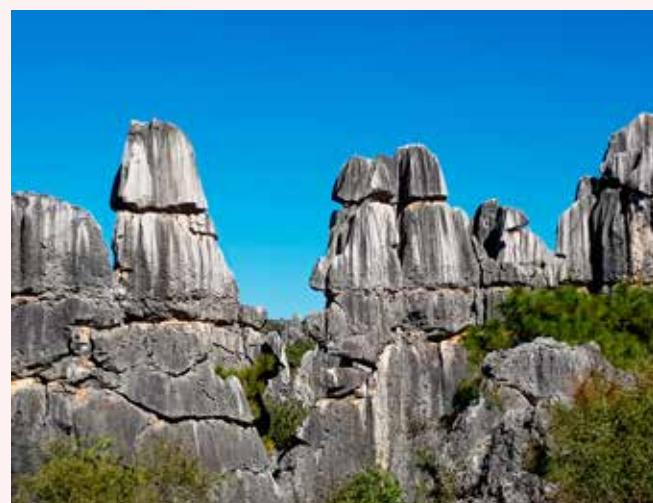
With knowledge
to continuous
assurance of safe
drinking water.

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 2018 we prepared and accredited, in close collaboration with Chemistry institute of Ljubljana, a new doctoral program Materials. In 2019 we will enrol a first generation of students in this program.

The interest in the doctoral programmes is high. In academic year 2017/2018 there were a total of 66 students enrolled in all doctoral programmes, of which 68% were from abroad. Number of international student exchanges and number of visiting professors from abroad 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. Internationalisation of doctoral studies remains one of the central strategic directions of graduate school also in the future.

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. 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. In academic year 2017/2018, UNG promoted 14 new doctors of science. The committee for the assessment of doctoral dissertation always includes at least one member from a foreign university to assure that the quality of doctoral degrees is comparable to international standards.

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: 49 scientific and professional articles, 75 papers and published proceedings from conferences, and 58 other scientific publications in the academic year of 2018/2019.



Reserch of Karst phenomena in the province of Junan, China: the stone forest (shilin) a UNESCO World Heritage Site.



Univerza v Novi Gorici

Študijski programi



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.

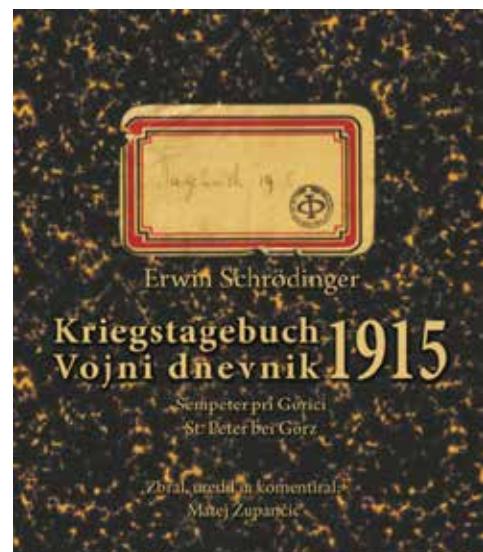
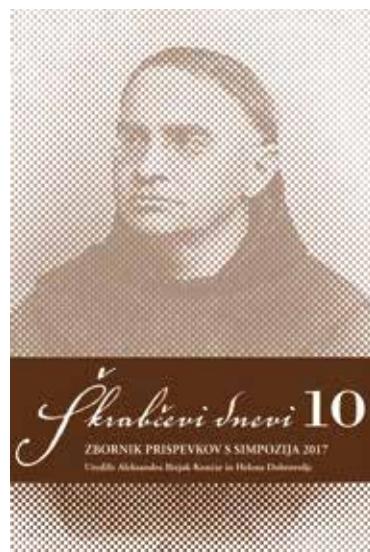
Library collection includes more than 21.700 book titles, 60 titles of periodicals, 620 items of non-book materials and e-edition of scientific journals, reachable over services like ScienceDirect, Springer Link, APS Journals, EIFL Direct, ACS Publications and JSTOR. Our users can access databases such as Web of Science, Scopus, MathSciNet itn.

In 2018 we have got access to the Window of Shanghai e-book service and the ORP Index (Directory of Ongoing Research Projects in European Countries).

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. In 2018 5 new computers were installed in the computer room and there is option to connect your own computer for easier access to electronic materials, archives and databases. Repository of the University of Nova Gorica, (RUNG) is one of the Open Science Slovenia portal "openaccess.si" partners. In 2018 we arranged the archive of researchers' bibliographies. During the summer time, we have cleaned up the entire collection of book material.

Publisher of UNG

(Head: Mirjana Frelih)



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 42 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 2018 we published biography »Kriegstagebuch = Vojni dnevnik« by Erwin Schrödinger in German with a parallel Slovene translation.

With the support of the Slovenian Research Agency, we published a scientific monograph »Goriški izobraženci skozi zgodovino« in printed and electronic form under the Creative Commons license.

Proceedings of peer-reviewed scientific conference contributions »Škrabčeva dnevi. 10. Proceedings from the symposium 2017« was published only in electronic form on the UNG press website as well as the previous proceedings Škrabčevi dnevi 7-9.

At the end of the year, we wrote off seven titles of publications due to outdated content in a total amount of 1077 copies.

Student Office

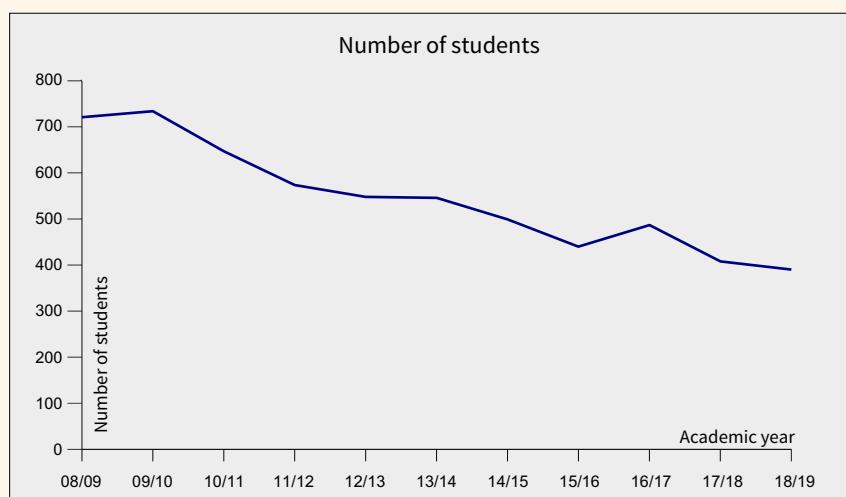
(Head: Renata Kop)

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.

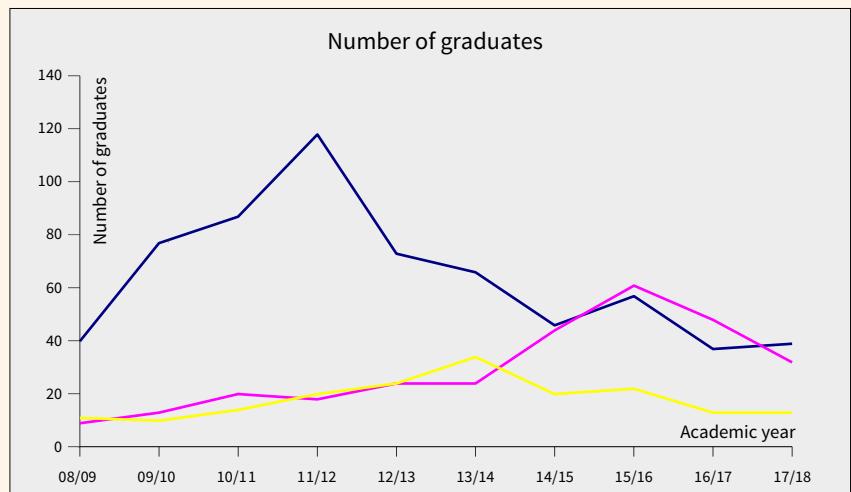
In the academic year 2018/2019 we enrolled 391 students, 210 students on first level study programmes, 126 students on second level study programmes and 55 students on third level study programmes.

The number of students falls slightly, which coincides with generation decreasing.

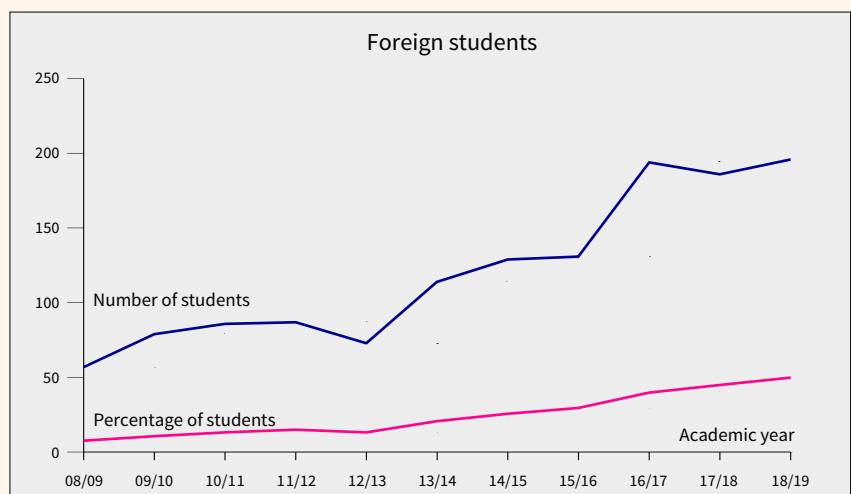


Number of graduates by level of programme in academic year 2017/2018:

- 37 on bachelor's study programmes,
- 31 on master's study programmes,
- 14 on doctorate's study programmes.

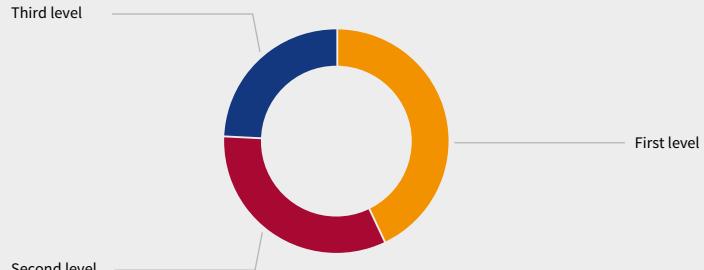


The number of foreign students in academic year 2018/2019 increased compared to academic year 2017/2018, higher is also the percentage of foreign students according to the total number of students, this is 50%.

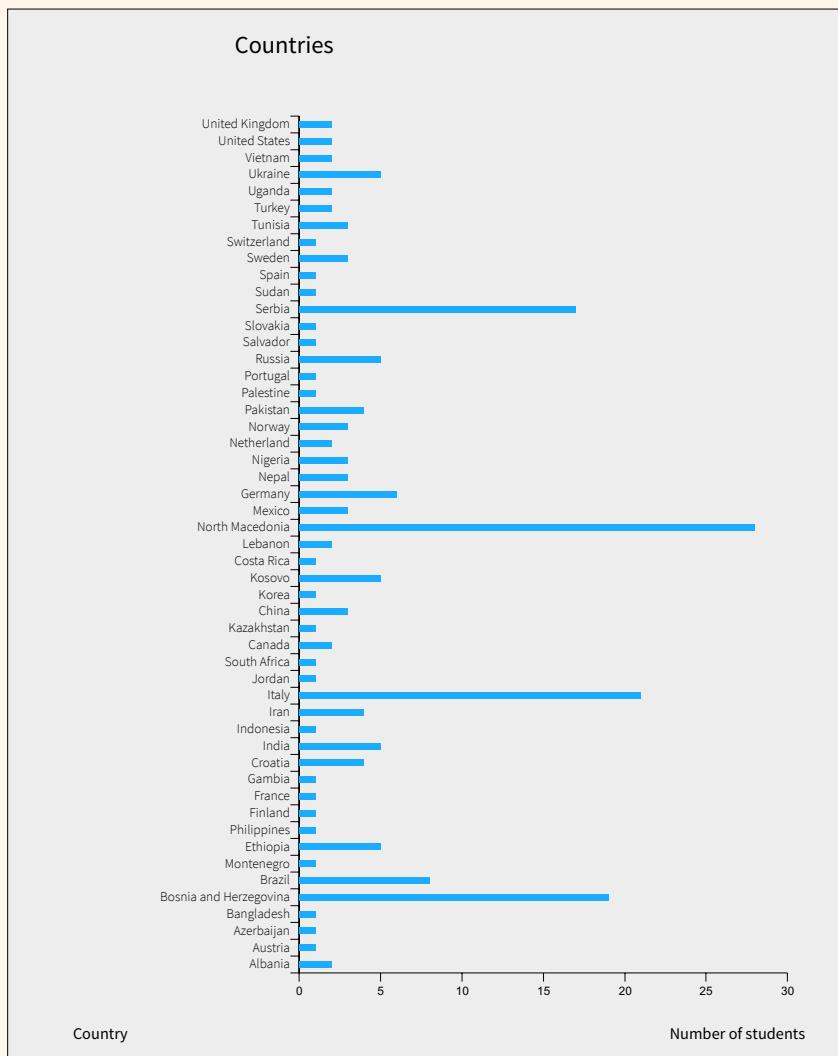


The majority of foreign students in academic year 2018/2019 study on bachelor's (first level) study programmes, in particular on Bachelor's study programme Engineering and Management (first level).

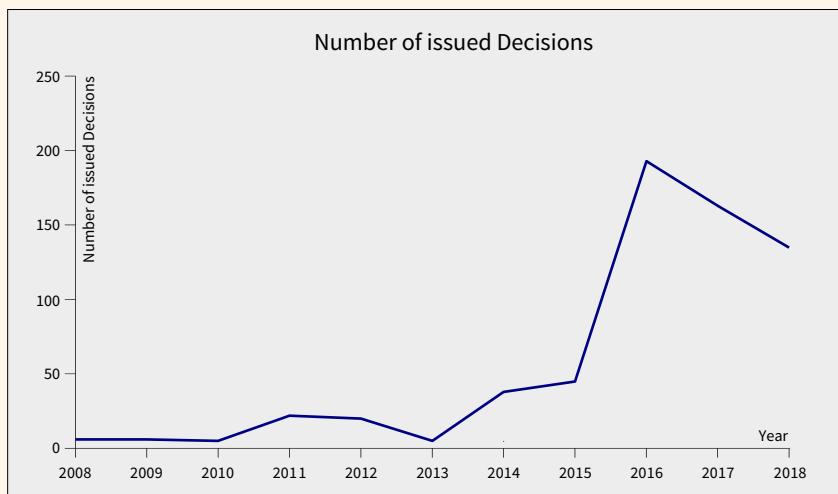
The percentage of students according to level of study



In academic year 2018/2019 foreign students come from 51 different countries:



The Student Office completed 135 processes of recognition of education for the purpose of access to education and issued 72 positive decisions in year 2018.



Project Office

(Head: Aljaž Rener)

Project office of UNG is providing administrative support to the 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.

In 2018 we refreshed Office's webpage that now includes also the access to the ORP Index (Directory of Ongoing research projects in European Countries) which is a database of more than 180.000 research projects under implementation in European countries and more than 400.000 organizations connected to those projects. The database enables searching of similar research projects to those at UNG. In this way it is possible to avoid proposing of already financed activities, achieve greater impact and creation of synergies

Work in the office in 2018 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 projects. In 2018 there were 24 project proposals submitted from UNG: 8 proposals within Horizon 2020, 3 proposals to the call for strategic projects of INTERREG VA Italija Slovenija, 2 proposals to the INTERREG EUROPE, 1 proposal to the INTERREG ADRION, 1 proposal to the INTERREG Central EUROPE in 9 proposals to other European programmes or initiatives (PRIMA, ESFRI, etc.)

In 2018 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)

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 2018, 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.

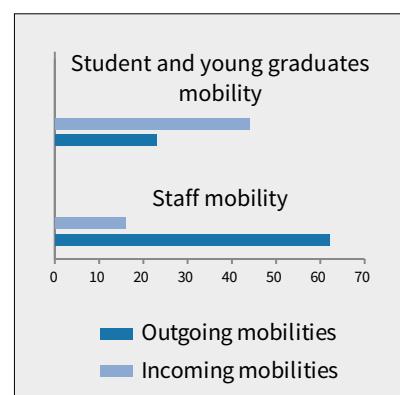
Projects carried out in 2018:

- Erasmus+ 2018, KA103: Mobilnost v visokošolskem sektorju, Visokošolsko izobraževanje med državami programa (2018 - 2019)
- Erasmus+ 2017, KA103: Mobilnost v visokošolskem sektorju, Visokošolsko izobraževanje med državami programa (2017 - 2018)
- Javni sklad Republike Slovenije za razvoj kadrov in štipendije, Ad-futura za študijske obiske študentov v okviru programa Erasmus+ v tujino za leto 2018 (2018 - 2019)
- Javni sklad Republike Slovenije za razvoj kadrov in štipendije, Ad-futura za študijske obiske študentov v okviru programa Erasmus+ v tujino za leto 2017 (2017 - 2018)
- Erasmus+ 2017, KA107: Mobilnost v visokošolskem sektorju, Visokošolsko izobraževanje med programskimi in partnerskimi državami (2017 - 2019)
- Erasmus+ 2016, KA107: Mobilnost v visokošolskem sektorju, Visokošolsko izobraževanje med programskimi in partnerskimi državami (2016 - 2018)
- Erasmus+, KA2: Strategic Partnerships, EmindS - Development of a Entrepreneurial Mindset In Higher Education (2017 - 2020)
- Erasmus+, KA2: Strategic Partnerships, CDICAE – Collaboration to Design an Innovative Curriculum for Animation Education (2017 - 2019)
- Erasmus+, KA2: Strategic Partnerships, MedIm – Mediterranean Imaginaries: Literature, Arts, and Culture (2016 - 2018)
- MIZŠ, Gostovanja tujih strokovnjakov (2016 - 2018)
- Creative Europe, PAIC – Udeležbena umetnost za nevidne skupnosti / Participatory Art for Invisible Communities (2016 - 2018)
- Ceepus, Multidisciplinary Approach to Education and Research in the Field of Digital Media Production (2018 - 2019)
- Ceepus, Multi-messenger Astrophysics in Central Europe - Astro.CE (2018 - 2019)
- Ceepus, Advanced Trends in Education and Research of Biochemistry, Biophysics and Biotechnology of Macromolecules (2018 - 2019)
- Ceepus, Food Safety for Healthy Living (2017 - 2018, 2018 - 2019)
- Ceepus, ADRIART.CE (2017 - 2018, 2018 - 2019)
- Ceepus, Education of Modern Analytical and Bioanalytical Methods (2017 - 2018, 2018 - 2019)
- Ceepus, Research and Education in the Field of Graphic Engineering and Design (2017 - 2018, 2018 - 2019)
- Ceepus, Training and research in environmental chemistry and toxicology (2017 - 2018).

There were 145 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 "Intercultural Market" within the "Week of the University" 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 2018:

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 Hit d.d., SAOP d.o.o., Gostol - Gopan d.o.o., Overlog s.r.l. Italija, Led Luks d.o.o., Hidria AET Tolmin d.o.o., Arctur d.o.o., Agromehanika d.o.o., VRC d.o.o., QUBO GORICA d.o.o., CODOGNOTTO TRANSPORT d.o.o., Luka Koper d.d. in Gallo d.o.o..

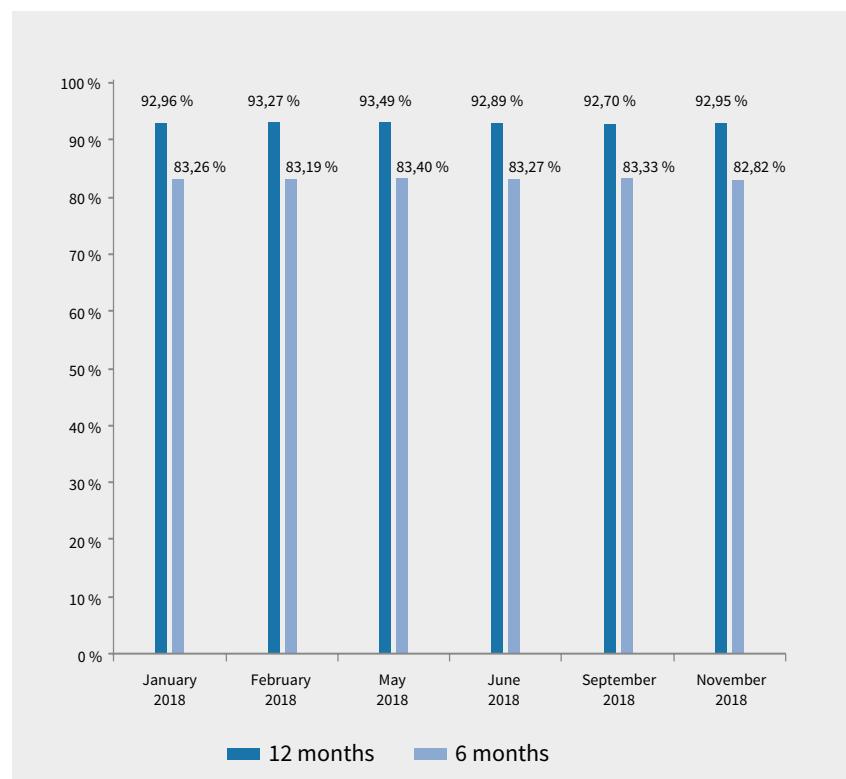
Contacts with employers; 12 meetings with employers - participation in the presentations of interim reports of the practical training of students of School of Engineering and Management.

Promoting the University and Career Center; at Informativa 2018, Info days for 1st and 2nd level study in February and June 2018. In October, the Career Center participated at the Bazaar in Ajdovščina and at the fair of Scholarship and higher education in Rijeka, Croatia. The Career Center also coordinated and coached a round table at the School of Engineering and Management "Economic engineer - profession of the future". In November Career Center presented the University of Nova Gorica and the work of the Career Center at the Vič Gymnasium.

Education; meeting at the Ministry of education, science and sport on the topic of monitoring the employability of graduates, two-day training of Career centers on the topic of organizing events, education of the e-MA system for the project of Ministry of education, science and sport, meeting with the EURES representatives, attendance at the meeting of Career Centers at the University of Ljubljana.

Informing students and graduates of suitable job vacancies, internships, current events, tenders; published over 130 job vacancies, which correspond to profiles of UNG graduates. We released 4 career news, sent to 573 e-mail addresses of students and graduates.

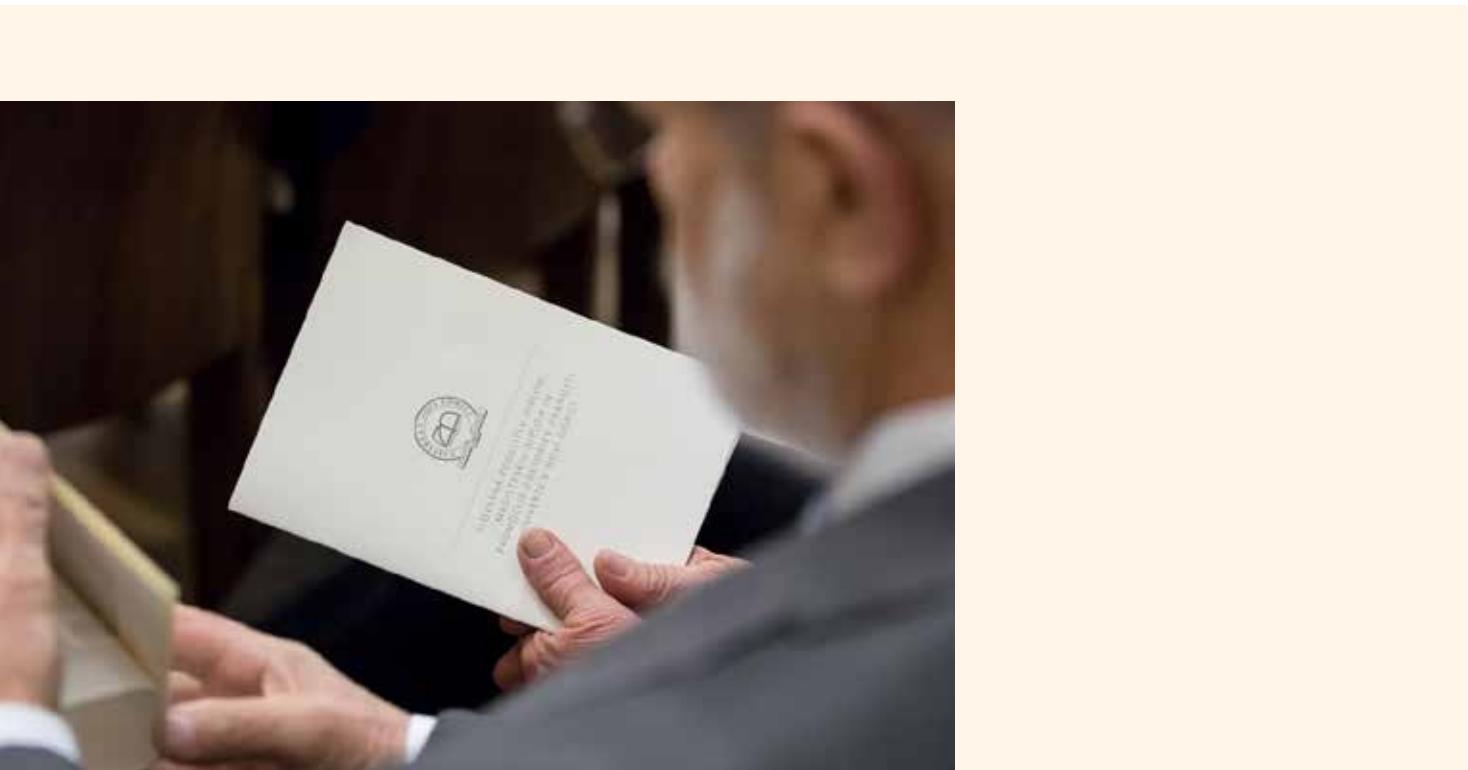
Periodically checking the employability of graduates for six months and one year after graduation; in January 2018, February 2018, May 2018, June 2018, September 2018 and November 2018.



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

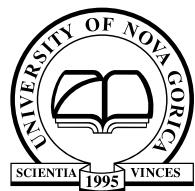
Alumni Club

(Head: Nives Štefančič)



Alumni Club of the University of Nova Gorica in 2018 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 promotor 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).
- We published Alumni News, in March 2018.



University of Nova Gorica

Vipavska 13
Rožna Dolina
SI-5000 Nova Gorica
Phone: +385 5 6205 820
E-mail: info@ung.si
www.ung.si/en/

