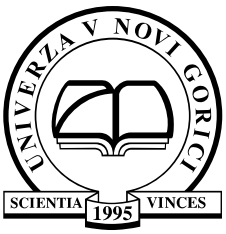
UNIVERSITY OF NOVA GORICA

# Annual Report of the University of Nova Gorica 2023




# Annual Report of the University of Nova Gorica 2023

# Fakulteta za znanosti o okolju v Novi Gorici

Ustanovljena: 24. 9. 1995

Ustanovitelja:

Mestna občina Nova Gorica

Župan Črtomir Špacapan dipl. oec

Institut "Jožef Štefan" Ljubljana

Direktor: doc. dr. Danilo Zavrtanik

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prof. dr. Andrej Čokl

doc. dr. Ana Gregorčič

prof. dr. Franc Gubenšek

prof. dr. Nikola Zallay

prof. dr. Burton T. Kross

prof. dr. Ivan Maruši č

prof. dr. Peter Stegnar

prof. dr. Janez Štupar

prof. dr. Boštjan Žekš

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# Introduction

The world of popular culture in 2023 was marked by the films Barbie and Oppenheimer. Very much in the spirit of the films, the global events were of an almost unimaginably wide spectrum. At the beginning of the year, the artificial intelligence application ChatGPT surpassed 100 million monthly users. The terrorist organization Hamas carried out a tragic attack on Israel, resulting in the extensive retaliation by the Israeli military and tens of thousands of casualties in Gaza. The Indian Space Research Organisation successfully sent its lunar lander to the Moon. The year was on average the hottest on record. In Slovenia, the World Championship in Nordic skiing took place in Planica in 2023, with an exceptional success of Slovenian athletes. In the middle of the year, we were struck by the worst floods in history.

In times when there is a general fear from all sides about unpredictable, possibly even dangerous changes in society, it is of paramount importance that the graduates of the University of Nova Gorica cherish within themselves a peaceful way of life, centering on a calm, academic view of the problems of the modern world. Such an approach, away from haste and focused on deliberation and scientifically supported argumentation, is necessary in all areas of our lives. This approach, with an awareness of the necessity of constructive cooperation with others, is what can alleviate the often unfounded fears of change.

In 2023, we awarded bachelor degrees to the 1,027th graduate of our first-cycle study programmes, the 466th masters degree of the second-cycle study programmes, and the 276th doctoral title. In collaboration with the National Institute of Chemistry, we promoted the first Doctor of Science at the postgraduate doctoral programme in Materials. I sincerely hope that all our graduates will successfully continue their careers in the manner mentioned above.

Life would have it that we, sadly, faced some painful losses. We were deeply saddened by the passing of Mr Borut Lavrič, the founder and long-time member and chairman of the university's management board. In an environment where most people were not educated in the field of law, nor did they truly value law as such, legal debates happened to be occasionally difficult; nevertheless Mr Lavrič successfully legally navigated the university through almost three decades.

As the revenue structure shows, at our university we understand the urgent and direct connection between cutting-edge scientific research and higher education. Our researchers demonstrate excellent research quality and take good care to actively involve students in the field of research.

We have colleagues who have distinguished themselves with five articles in the journals of the Nature group, and many others have published their research in the most prestigious international professional journals. We would like to point out that the leader of a research team and equipment of a highly significant project comes from our university; this is the project in which Matevž Lenarčič conducted another measurement of air pollution, mainly with black carbon, over India and the Middle East, using an ultralight aircraft. As part of a €10 million project SMASH on the use of machine learning methods in basic research across a wide range of fields, co-financed by the European Commission, we have employed the first few of the fifty postdoctoral researchers who will come to Slovenian research institutions over the next five years. At the same time, in cognitive language research, our colleagues developed the JERA test, the first Slovenian computer test of sentence comprehension abilities in the Slovenian language, useful for pedagogical and medical purposes.

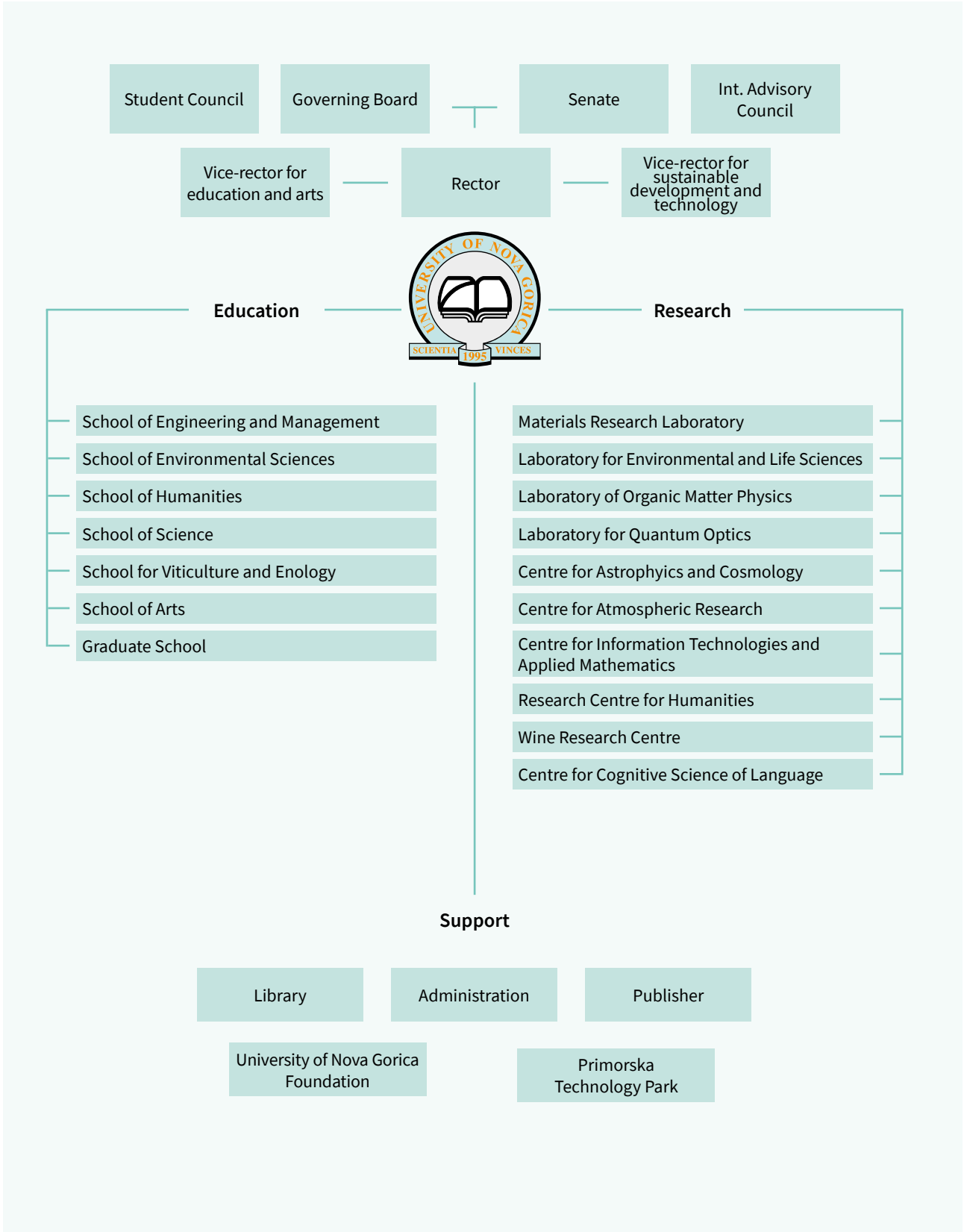
A Doctor of Science from the University of Nova Gorica received the Slovenian Chemical Society Award for the best doctoral thesis in the field of sustainable chemistry. The Technology Management Network awarded the best bachelor's degree title in the field of management technology to a graduate of the School of engineering and management. At the French film awards ceremony, the multiple-award-winning film Granny's Sexual Life by director Urška Djukić, a graduate of our university, received the César for the best short animated film. We also successfully implemented the Inspiro project, Innovative Student Projects in a Research Environment, in which students from all Slovenian higher education institutions carry out research projects with the help of the mentors from our university, thus becoming acquainted with a real scientific environment in the their research process.

These examples demonstrate the excellence of the scientific work of the University of Nova Gorica and the regular inclusion of methods and scientific findings into the university's study programmes. These achievements are well received in the Slovenian and international academic environment. In 2023, Professor Danilo Zavrtanik, the honorary rector of the University of Nova Gorica, deservedly received the Zois Award for Lifetime Achievements. Mr Rado Likon, a long-time colleague of the Academy of Arts, received a national award for Lifetime Achievements in the field of film creativity, the Milka and Metod Badjura Award. Professor Andreja Gomboc became a member of the Council of the European Astronomical Society, the umbrella organization of European astronomers.

We are aware that the mission of the university is to provide not only the study content but also the appropriate conditions for study. Hence through granting scholarships for non-concession study programmes, we strive to enable enrollment in these programmes for as many students as possible each year. Also, in co-operation with the local community, we aim to improve the university's infrastructure. The first steps, although slow and still uncertain, have been taken; here we keep in mind the words of Japanese writer Haruki Murakami, the honorary doctor of the University of Nova Gorica: "Step by step; do it again and again until you reach your destination."

Prof. Dr. Boštjan Golob
Rector of the University of Nova Gorica

# Organisational Structure



# Staff structure

As of December 2023, the University of Nova Gorica had a total of 191 regular staff members (of which 28 were shared employees with primary employment at another institution). This included 109 doctors of science, 18 research assistants, another 34 holders of bachelor's or master's degree, 24 administrative personnel, 3 librarians, 1 maintenance officer and 2 photocopy clerks; 51 staff members were foreign nationals.

| | Regularly employed | Supplementary employed |
|---|---|---|
| 2013 | 130 | 42 |
| 2014 | 147 | 37 |
| 2015 | 121 | 33 |
| 2016 | 117 | 29 |
| 2017 | 115 | 31 |
| 2018 | 113 | 28 |
| 2019 | 118 | 29 |
| 2020 | 132 | 26 |
| 2021 | 169 | 26 |
| 2022 | 149 | 28 |
| 2023 | 191 | 28 |

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

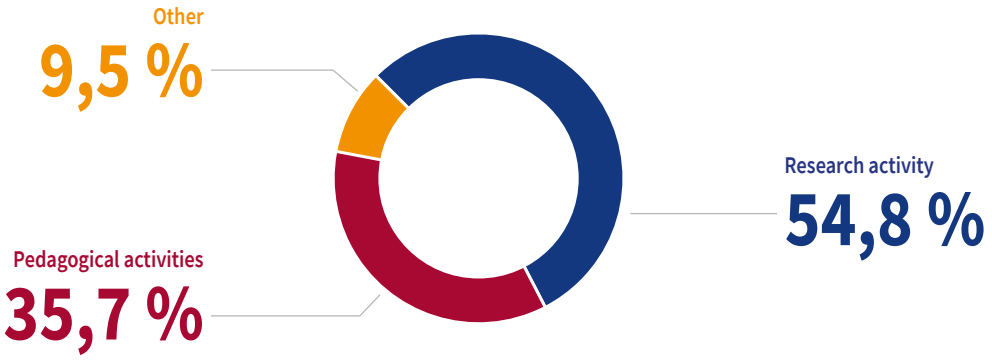
| State | Nr. collaborators |
|---|---|
| Armenia | 1 |
| Austria | 2 |
| Bulgaria | 2 |
| Bosnia and Hercegovina | 1 |
| Chile | 1 |
| Egypt | 1 |
| France | 1 |
| Greece | 2 |
| Croatia | 3 |
| India | 7 |
| Iran | 1 |
| Italy | 14 |
| Kazakhstan | 1 |
| Colombia | 1 |
| Nepal | 1 |
| Poland | 2 |
| Russian Federation | 2 |
| Slovakia | 1 |
| Serbia | 2 |
| Spain | 2 |
| Tunisia | 1 |
| Great Britain | 1 |
| United States of America | 1 |
| Total | 51 |

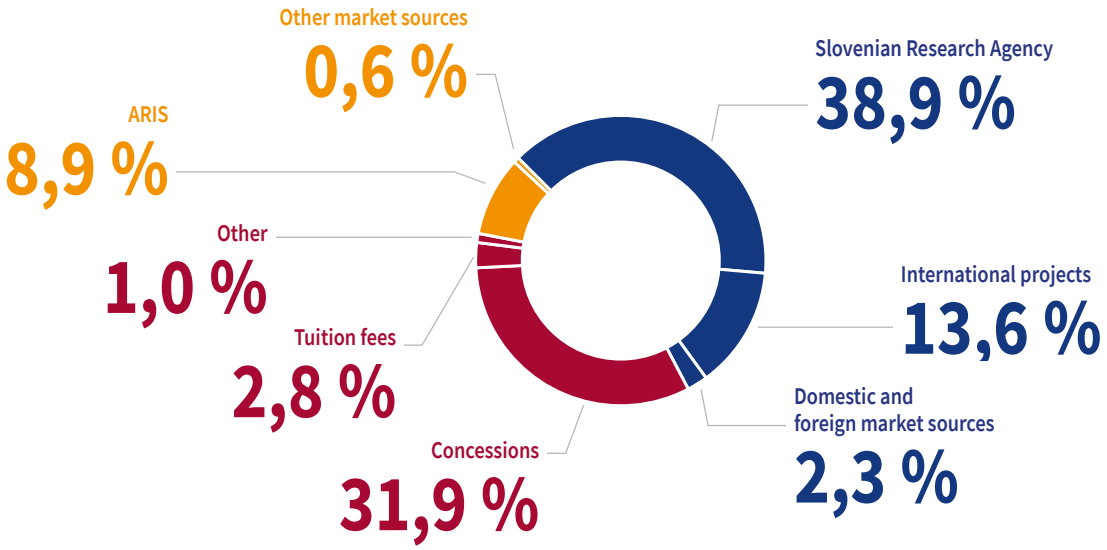
# Financial management

The University of Nova Gorica obtains funds for its operation from tuition fees, educational programme and research project funding from the Slovenian Research Agency and the Ministry of Education, Science and Sport, and from international and industrial projects and donors.

In 2023, the University of Nova Gorica acquired approximately EUR 12.791 million in funds (cash flow) for its operations from the sources listed below:

| CASH FLOW | 12,791 mio EUR | 100,0 % |
|---|---|---|
| **RAZISKOVALNA DEJAVNOST** | **7,011 mio EUR** | **54,8 %** |
| ARIS | 4,981 mio EUR | 38,9 % |
| International projects | 1,738 mio EUR | 13,6 % |
| Domestic and foreign market sources | 0,292 mio EUR | 2,3 % |
| **PEDAGOŠKA DEJAVNOST** | **4,565 mio EUR** | **35,7 %** |
| Concessions | 4,075 mio EUR | 31,9 % |
| Tuition fees | 0,353 mio EUR | 2,8 % |
| Other | 0,137 mio EUR | 1,0 % |
| **OSTALO** | **1,215 mio EUR** | **9,5 %** |
| ARIS | 1,134 mio EUR | 8,9 % |
| Other market sources | 0,081 mio EUR | 0,6 % |



# Awards, Titles and Recognitions

## Employee awards in 2023

*Zois Prize for lifetime achievement in the field of elementary particle physics and astrophysics*
**Prof. Dr. Danilo Zavrtanik**

*Best Personality in Publishing*
**Prof. Dr. Barbara Pregelj**

*Milka and Metod Badjura Award*
**Rado Likon**

## Student awards in 2023

*Pregl Award for outstanding doctoral work, Award of the National Institute of Chemistry*
**Kristijan Lorber**

*Special Note for student animation project in development, Award of the Slovenian Animated Film Association*
**Tamata Taskova**

*Award for student animation project in development, Award of the Slovenian Animated Film Association*
**Melita Sandrin**

*Award of the International Festival of Computer Arts*
**Tamara Kostrevc**

*Prize for the best PhD thesis and Prize for the highest potential for transfer to the economy, Prizes of the Slovenian Chemical Society and AquafilSLO*
**Gian Claudio Paolo Faussone**

*Award for the best bachelor's thesis in the field of management technology, Technology of Process Management (TVP) technological network*
**Nejra Ajanović**

## Awards of the University of Nova Gorica in 2023

**Doctor Honoris Causa**
*Ivo Boscarol*

**Professor Emeritus**
*Prof. Oskar Kogoj*

***Alumnus Primus Student Award***
*Ibrahim Mujezinović*
*Stefan Subotić*
*Amina Uglješa*
*Mojca Drevenšek*
*Lucijan Danijel Zgonik*
*Manuel Persoglia*
*Taja Petrič*
*Vinka Kovačević*
*Lara Vončina*
*Brankica Apostolova*
*Urban Hlade*
*Ivana Milivojević*
*Matija Gregorič*
*Una Savić*

***Alumnus Optimus Student Award***
*Matevž Gros*
*Amina Uglješa*
*Mojca Drevenšek*
*Lucijan Danijel Zgonik*
*Manuel Persoglia*
*Martina Larma*
*Ivana Milivojević*
*Miha Reja*

# Important Events

Prof. Dr. Danilo Zavrtanik, former rector of the University of Nova Gorica (left) and Prof. Dr. Boštjan Golob, rector of the University of Nova Gorica.

Prof. Dr. Danilo Zavrtanik, former rector of the University of Nova Gorica (left) and Prof. Dr. Boštjan Golob, rector of the University of Nova Gorica.

## FEBRUARY

**The unveiling of the portrait of the former rector of the University of Nova Gorica, Prof. Dr. Danilo Zavrtanik**

On 15 February, the unveiling of the portrait of the former rector of the University of Nova Gorica, now Honorary Rector, Prof. Dr. Danilo Zavrtanik, was held on University premises at Lanthieri Mansion.

At the ceremony, the rector of the University of Nova Gorica, Prof. Dr. Boštjan Golob, held a speech in which he pointed out that the most important part of the institution as such was in fact his colleagues, who built it up, managed it and played the biggest role in its development. »That's why it's only right to thank them by putting up their portrait. This is, after all, a long-standing, fine tradition at most major institutions, especially in the world of academia.«

Prof. Dr. Danilo Zavrtanik took over leadership of the School of Environmental Sciences, the University of Nova Gorica's predecessor, when it was founded in 1995. In 2006, when the University of Nova Gorica was established, he became its first rector. He completed his term in 2022, becoming Honorary Rector of the University of Nova Gorica the same year.

»As you probably already noticed, we have reached the moment at our university when generations are passing the torch. We are leaving this university in your hands now. I wish that in the future, you shall lead it even more successfully than we ever tried so hard to«, said Prof. Dr. Zavrtanik.

The portrait is the work of academic painter, Master of Fine Arts, Milena Gregorčič.

Častni rektor Univerze v Novi Gorici prof. dr. Danilo Zavrtanik.

From left to right: Suzana Martinez, Head of the Government Office for Slovenians Abroad, Prof. Dr. Matjaž Valant, Vice-rector for Education and Arts, Matej Arčon, Minister for Slovenians abroad, Prof. Dr. Boštjan Golob, Rector of the University of the Nova Gorica, Prof. Dr. Saša Dobričič, Director of postgraduate doctoral study programmes Cultural Heritage Studies.

Matej Arčon, Minister for Slovenians abroad.

# MARCH

**We received a visit from Matej Arčon, Minister for Slovenians abroad**

On 24 March, the University of Nova Gorica today hosted Matej Arčon, Minister for Slovenians abroad, and Suzana Martinez, Head of the Government Office for Slovenians Abroad.

Both guests were welcomed at the Lanthieri Mansion in Vipava by Prof. Dr. Boštjan Golob, Rector, Prof. Dr. Matjaž Valant, Vice-rector for Education and Arts, and Prof. Dr. Saša Dobričič, Director of postgraduate doctoral study programmes Cultural Heritage Studies.

The introductory part of the visit was intended for the presentation of the pedagogical and research activity of the University of Nova Gorica, followed by discussions about the current activities and ideas concerning the development of the university's infrastructure in the Urban Municipality of Nova Gorica, the Municipality of Ajdovščina and the Municipality of Vipava.

The rector also presented the initiative of the Slovenian Rectors Conference that is being prepared in cooperation with the Coordination of independent research institutes of Slovenia on the return of the established Slovenian researchers and professors from abroad back to Slovenia. As the Minister pointed out, a uniform strategy is being prepared on the state level in this area in what the Republic of Slovenia can do to bring young people back home.

The rector and Minister share the views of the respective topic, both of them have declared the intention to cooperate in further activities in the aforementioned areas.

# APRIL

**Dr. Jana Kolar visiting the University of Nova Gorica**

On 3 April, at the University of Nova Gorica, we hosted Dr. Jana Kolar, president of the European Strategy Forum for Research Infrastructure (ESFRI) and executive director of CERIC-ERIC.

The meeting with the University's management was aimed at discussing the possibilities of contributing to CERIC-ERIC and strengthening research cooperation with the Elettra Sincrotrone multidisciplinary research centre near Trieste.

As part of the visit, dr. Kolar was also shown around the laboratories and research facilities of the University Centre in Ajdovščina.

# MAY

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

25 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 students received their bachelor degrees this year and three students graduated from the School of Arts. There were also three master's students who finished their studies.

Moreover, the Rector of the University of Nova Gorica, Prof. Dr. Boštjan Golob, promoted four new doctors of science who graduated from the Graduate School at the following study programs: Physics, Environmental Sciences and Materials.

# MAY

**New Doctors of Science, 25 May**

On 25 May, the University of Nova Gorica Rector, Prof. Dr. Boštjan Golob, awarded Doctor of Science degrees to the following Graduate School graduates.

Doctoral study programme Environmental Sciences

- Manel Machreki
  PhD thesis title: Oxygen vacancies engineering in metal oxide nanomaterials for efficient photo-electrocatalytic degradation of organic pollutants and chemical transformations
  Mentor: Prof. Dr. Gvido Bratina

Doctoral study programme Physics

- Grega Belšak
  PhD thesis title: Numerical simulations of nozzles with gas and liquid focusing for production of micro-jets
  Mentor: Prof. Dr. Božidar Šarler
- Zipporah Rini Benher
  PhD thesis title: Electronic and chemical surface properties of Bi2Se3 derived compounds
  Mentor: Prof. Dr. Sandra Gardonio

Doctoral study programme Materials

- Uroš Luin
  PhD thesis title: Efficiency of the grid energy storage technology based on iron-chloride material cycle
  Mentor: Prof. Dr. Matjaž Valant

Dr. Manel Machreki (left) and Prof. Dr. Boštjan Golob (right).

Dr. Grega Belšak (left) and Prof. Dr. Boštjan Golob (right).

Dr. Zipporah Rini Benher (left) and Prof. Dr. Boštjan Golob (right).

Dr. Uroš Luin (left) and Prof. Dr. Boštjan Golob (right).

Nj. eksc. dr. Krzysztof Olendzki (levo) in prof. dr. Boštjan Golob (desno).

# AUGUST

**The University of Nova Gorica hosted the ambassador of the Republic of Poland**

2 Agust, the University of Nova Gorica was visited by the ambassador of the Republic of Poland, His Excellency Dr. Krzysztof Olendzki with his spouse, at the Lanthieri Mansion in Vipava.

The ambassador spoke with the rector of the University of Nova Gorica, Prof. Dr. Boštjan Golob, about the university's teaching and research activities and partnerships that the university has in place with Polish universities and institutes.

During the meeting, which was also attended by Prof. Dr. Andreja Gomboc from the Centre for Astrophysics and Cosmology, and Prof. Dr. Dorota Korte from the Laboratory for Environmental and Life Sciences, the participants spoke about the Polish scientist and astronomer Nicolaus Copernicus. To commemorate the anniversary of his birth, Poland declared this year as the Copernicus Year. During the meeting, the ambassador also visited the Wine Research Centre.

Both sides will strive to further strengthen the cooperation between the Polish academic and research institutions and the University of Nova Gorica. At the initiative of the ambassador, the University of Nova Gorica will gladly participate in the festivities of the Copernicus Year through certain events and education sessions. The ambassador and the rector also exchanged some ideas which could contribute to the science and art in 2025, when Nova Gorica will become the European Capital of Culture.

Awardees, Rector of the University of Nova Gorica Prof. Dr. Boštjan Golob and Former President of the Republic of Slovenia Mr. Borut Pahor.

# OCTOBER

**Opening ceremony of the 2023/2024 academic year**

The main academy for the start of the 28th academic year at the University of Nova Gorica was held on 12 October at the Lanthieri Mansion in Vipava.

We were also honoured by the presence of the Former President of the Republic of Slovenia, Mr. Borut Pahor and Ministerof Digital Transformation, Dr. Emilija Stojmenova Duh.

The attendees were addressed by the Rector of the University of Nova Gorica, Prof. Dr. Boštjan Golob: »Another year has passed and we are starting a new academic year. Like every year at all universities, we are starting this year with enthusiasm, with new or renewed programmes, with new freshers, who I hope are eager to learn, with new students, and with new notes under our arms as we enter the lecture halls. We are aware that higher education is not a sprint, but a marathon. That is why we start the year at a bearable pace, determined to ensure that when crossing the finish line, all students in our programmes have the knowledge and competencies they need for a successful professional career. Or in the words of the Honorary Doctor of the University of Nova Gorica, the Japanese writer Haruki Murakami: »One foot in front of the other. Repeat as often as necessary to finish.«

Today, the University's teaching activities are carried out within six schools, including the School of Arts. To date, 275 doctors of science, 529 masters and 1,046 bachelors have graduated from the University of Nova Gorica. Research activities take place in six centres and four laboratories equipped with state-of-the-art research facilities. We are involved in small and large international projects and collaborate with institutions of the highest repute. International students make up 60% of the student body and come from 47 countries, both from Europe and other continents.

»The University of Nova Gorica is a small, some often use the term »boutique«, university. We try to use our small size, »boutiqueness« if you like, to make the relationship between the teachers and students in our programmes as direct as possible. We try to keep the doors of our teachers and teaching assistants open to our students' questions, problems and ideas. This is not easy, as all of us working in education and science are faced with an increasing amount of work that is not directly related to teaching and research. This is particularly true for our university, as we need to have everything that the big ones have. I am grateful to my colleagues for all these efforts. Thanks to their efforts, University of Nova Gorica can boast, among other things, the Order of Merit for the exceptional development and outstanding achievements that has enriched the Slovenian higher education landscape. This honor was bestowed upon University of Nova Gorica by the former President of the Republic of Slovenia, Mr. Borut Pahor, on the occasion of its twentieth anniversary. Through the efforts of University of Nova Gorica's staff,

Prof. Dr. Boštjan Golob, Rector of the University of Nova Gorica.

Honorary doctor of the University of Nova Gorica – doctor honoris causa – Mr. Ivo Boscarol.

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

the university contributes a small but significant piece to the mosaic of Slovenian higher education and scientific research. It is thanks to them that Universityofnovagorica contributes a small but significant piece to the mosaic of Slovenian higher education and scientific research. The quality of Slovenian higher education and scientific research, normalized for the size of the country in terms of personnel and financial resources, is indeed impressive on a global scale,« Prof. Dr. Golob pointed out in his address.

The University of Nova Gorica is continuously upgrading and supplementing its study programmes. Starting from this academic year, the University is introducing the master's course track in Histories and Cultures of Crossborder Spaces, which will be offered for the first time in the 2023/24 academic year as a part of the renewed master's degree programme in Humanities Studies. We are also working on novelties to be offered at other schools.

Professor Emeritus of the University of Nova Gorica Prof. Oskar Kogoj.

»Just as the University of Nova Gorica is boutique in Slovenia, Slovenia is boutique in the world. Just as elsewhere in Slovenia, the University of Nova Gorica cultivates imagination and strives for the realisation of our ideas. We do not see our small size as a handicap holding us back. On the contrary. We know that every piece of the mosaic contributes to its splendour. At the University of Nova Gorica, we pride ourselves on the quality of what we do, and are not afraid to use our imagination for further development. I am convinced that these values can also be found in all of today's laureates. Please allow me to congratulate all of you and to express my hopes that we will continue walking together on the path of development of our university for times to come,« concluded the Rector of the University of Nova Gorica.

As part of the opening ceremony of the new academic year, two honorary degrees of the University of Nova Gorica were conferred. The Rector of the University of Nova Gorica, Prof. Dr. Boštjan Golob, awarded the title of honorary doctor of the University of Nova Gorica – Doctor Honoris Causa – to the founder of the world-famous company for the design and manufacture of ultralight aircraft and an ardent supporter of research in the field of alternative propulsion systems for aircraft, Mr. Ivo Boscarol, for his outstanding scientific and professional achievements in the field of aviation and entrepreneurship in Slovenia, and for his contribution to the preservation of the environment. For his significant contribution to the development of artistic activity and for his exemplary work as a teacher and mentor, the University of Nova Gorica awarded the title of Professor Emeritus of the University of Nova Gorica to the internationally and nationally acclaimed industrial designer, Prof. Oskar Kogoj.

We also awarded twelve graduates. The alumnus primus award was given to graduates who graduated as the first of their generation of enrolled students, namely Ibrahim Mujezinović, Stefan Subotić, Amina Uglješa, Mojca Drevenšek, Lucijan Danijel Zgonik, Manuel Persoglia, Taja Petrič, Vinka Kovačević, Lara Vončina, Brankica Apostolova, Urban Hlade, Ivana Milivojević, Matija Gregorič and Una Savić, with the alumnus optimus award going to the graduates who achieved the highest average study grade in the individual academic year, namely Matevž Gros, Amina Uglješa, Mojca Drevenšek, Lucijan Danijel Zgonik, Manuel Persoglia, Martina Larma, Ivana Milivojević and Miha Reja.


Awardees, Management of the University of Nova Gorica Foundation and Honorary Rector of the University of Nova Gorica.

# OCTOBER

**Conferral of the Commemorative Document, Awards and Scholarships of the University of Nova Gorica Foundation**

On 19 October 2023, the conferral of the commemorative document, awards and scholarships of the University of Nova Gorica Foundation (FUNG) took place at the Lanthieri Mansion in Vipava. The new donors and the recipients of the scholarships and awards are a testament to the success of the FUNG's work.

As the President of the FUNG Management Board, Prof. Dr. Mladen Franko, said in his address, the management of the FUNG has set high goals for itself: »On one hand, they are related to increasing the number of scholarships for students studying at the University of Nova Gorica, which on the other hand, requires a lot of commitment in attracting new donors and donations. At the same time, I am pleased to see that in 2023, we have been able to carry out both planned calls for applications for the scholarships of the "Edvard Rusjan" Fund for Talented Students and for the scholarships of the "Matija Franko" Scholarship Fund for Student Athletes, and also to select the recipients of the Jožko Markič Awards.«

Prof. Dr. Mladen Franko, President of the Management Board of the University of Nova Gorica Foundation.

The commemorative document was presented during the continuation of the event. The title of Silver Donor was awarded to Prof. Dr. Tanja Urbančič. »I believe that we can do a lot of good by creating and supporting pathways to knowledge. I have dedicated most of my work at the University of Nova Gorica to this, and I am glad that through my collaboration with FUNG, I can also help others who are striving towards the same goal«, summed up Prof. Dr. Urbančič upon receiving the commemorative document.

Prof. Dr. Tanja Urbančič is also the founder of the Fund for Development and Innovation in Education, which provides scholarships for students in the field of open education, and supports innovation activities of teaching staff, and thereby the development of staff, methods, tools and other advanced solutions for increasing access to knowledge and quality education.

The conferral of the commemorative document was followed by the presentation of scholarships and awards to students of the University of Nova Gorica. Awarded for the first time ever, the scholarship of the "Edvard Rusjan" Fund for Talented Students was granted to a student of the School of Science, Amalija Rafaj Škriljevečki.

»I am extremely honoured to be the recipient of this scholarship, and of course I would like to express my sincere gratitude to the University of Nova Gorica Foundation for awarding me this scholarship, and for recognising and rewarding talented students. I am delighted that my efforts so far have been rewarded, and this scholarship is an additional motivation to continue my successful studies. I plan to use the scholarship to cover the costs of my student life, and if there is any money left over, I will be happy to save it for future plans«, said Amalija Rafaj Škriljevečki.

Ena Đurić**,** a student of the School for Viticulture and Enology and member of the women's team of the ND Primorje Ajdovščina football club, is this year's recipient of the scholarship of the "Matija Franko" Scholarship Fund for Student Athletes for the 2023/2024 academic year.

She said she was very honoured to receive the scholarship: »Having been involved in football for many years, and having dedicated a lot of my time to improving in the sport as much as possible, I see this scholarship as an even bigger inspiration for future success. I want to use it to cover my accommodation costs and the costs of travelling to the School, and to buy some sports equipment. This university is a great place for me to develop all my interests, because in addition to the programme I'm enrolled in, it is very understanding towards student athletes.«

Awarded for the fourth year in a row, the Jožko Markič Awards for the 2022/2023 academic year were handed out to School of Arts students Karin Likar and Luka Carlevaris.

Karin Likar was very happy to receive the award, which was donated by A-media, d.o.o., in memory of its co-founder Jožko Markič. »I will invest the award in buying equipment that will

Conferral of commemorative documents, awards and scholarships of the University of Nova Gorica Foundation.

Prof. Dr. Tanja Urbančič, Silver Donor (left) and Prof. Dr. Mladen Franko, President of the Management Board of the University of Nova Gorica Foundation.

Student Amalija Rafaj Škriljevečki (left) and Prof. Dr. Juš Kocijan, President of the Scientific Board of the University of Nova Gorica Foundation (right).

Student Ena Đurić (left) and Jurij Franko (right).

Student Karin Likar (left) and Prof. Boštjan Potokar, dean of the School of Arts (right).

Student Luka Carlevaris (left) and Prof. Boštjan Potokar, dean of the School of Arts (right).

allow me to continue working on my study and extracurricular projects, which I really have a lot of this year.«

»I am sincerely grateful and excited to have made a good impression with my work at the School of Arts. My efforts have paid off, but my professors and all the classmates I worked with during my studies also played a big role. This also gives me a lot of motivation to continue working on my master's degree, which I am completing this year. The award will help me develop the final project, and will be a nice addition to my CV«, said Luka Carlevaris on receiving the award.

Finally, Prof. Dr. Franko thanked all the donors, both the University of Nova Gorica colleagues as well as the companies. He stressed that the success in raising donations is also a great incentive for the FUNG Management Board, which is therefore setting high goals for itself. »One of them is to get FUNG back on the list of institutions that are entitled to a fraction of the Slovenian taxpayers' personal income tax in order to finance the organisations eligible for donations. Another priority of the FUNG Management Board is to attract regular and long-term donors, especially from the economic sector. In 2024 and 2025, we plan to provide scholarships and financial support for as many as 17 students. We also plan to introduce new forms of support for promising young scientists and artists for postdoctoral training, participation in major scientific meetings, art festivals or residencies, and for additional incentives for individuals in important research projects. In view of these goals, one of the priorities of the FUNG Management Board remains, of course, to attract regular and long-term donors, especially from the economic sector.«

New graduates, masters, and doctors of science, 6 December.

New graduates, masters, and doctors of science, 7 December.

# DECEMBER

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

On 6 and 7 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 Bachelor degrees was awarded to:
- 11 students of the School of Environmental Sciences
- 8 students of the School of Engineering and Management
- 6 students of the School for Viticulture and Enology
- 5 students of the School of Arts
- 5 students of the School of Science
- 3 students of the School of Humanities

The Master degrees was awarded to:
- 7 students of the School of Engineering and Management
- 2 students of the School of Humanities
- 2 students of the School of Environmental Sciences

Moreover, the Rector of the University of Nova Gorica, Prof. Dr. Boštjan Golob, promoted six new doctors of science who graduated from the Graduate School at the following study programs: Physics, Karstology and Materials.

# DECEMBER

**New Doctors of Science, 6 December**

On 6 December, the University of Nova Gorica Rector, Prof. Dr. Boštjan Golob, awarded Doctor of Science degrees to the following Graduate School graduates.

Doctoral study programme Materials
• Gian Claudio Paolo Faussone
PhD thesis title: Thermochemical conversion of marine litter into fuels and chemicals
Mentor: Prof. Dr. Miha Grilc
• Kristijan Lorber
PhD thesis title: Thermal and combined photo-thermal dry reforming of methane (DRM) over nanoshaped Ni/CeO2 catalysts
Mentor: Prof. Dr. Petar Djinović

Doctoral study programme Karstology
• Lara Valentić
PhD thesis title: Microplastics in karst ecosystems and their impact on drinking water quality
Mentors: Prof. Dr. Tanja Pipan and Prof. Dr. Oliver Bajt

Rector of the University of Nova Gorica, Prof. Dr. Boštjan Golob (left) and Dr. Gian Claudio Paolo Faussone (right).

Rector of the University of Nova Gorica, Prof. Dr. Boštjan Golob (left) and Dr. Kristijan Lorber (right).

Rector of the University of Nova Gorica, Prof. Dr. Boštjan Golob (left) and Dr. Lara Valentić (right).

Rector of the University of Nova Gorica, Prof. Dr. Boštjan Golob (left) and Dr. Tanusree Saha (right).

Rector of the University of Nova Gorica, Prof. Dr. Boštjan Golob (left) and Dr. Taj Jankovič (right).

Rector of the University of Nova Gorica, Prof. Dr. Boštjan Golob (left) and Dr. Miha Živec (right).

# DECEMBER

**New Doctors of Science, 7 December**

On 7 December, the University of Nova Gorica Rector, Prof. Dr. Boštjan Golob, awarded Doctor of Science degrees to the following Graduate School graduates.

Doctoral study programme Physics
• Tanusree Saha
PhD thesis title: Ultrafast electron dynamics in correlated systems probed by time-resolved photoemission spectroscopy
Mentors: Prof. Dr. Giovanni De Ninno and Prof. Dr. Kalobaran Maiti
• Taj Jankovič
PhD thesis title: Relativistic tidal disruptions of realistic stars by supermassive black holes
Mentorja: Prof. Dr. Andreja Gomboc and Prof. Dr. Clément Bonnerot
• Miha Živec
PhD thesis title: Characterization of atmospheric properties over the Cherenkov Telescope Array at La Palma
Mentor: Prof. Dr. Samo Stanič

# Organizing of Conferences, Syposiums, Summer Schools and Workshops

### Exploring the uniqueness of Zelen – workshop with degustation

*25 April 2023, Vipava, Slovenia*

The origin of the sensory Zelen uniqueness is still poorly understood. The Wine Research Centre tackled this topic through the project, "Uncorking Rural Heritage: Indigenous Production of Fermented Beverages for Local, Cultural and Environmental Sustainability". With the aim of presenting a new perspective on Zelen wine typicality, a workshop took place on 25. 4. 2023 at Lanthieri Mansion. Dr. G. Antalick (CRV), through sensory experience presented aromatic compounds involved in the aromatic Zelen uniqueness. This was followed by a degustation of Zelen wines, during which participants became acquainted with various styles of Zelen wine. The degustation was led by Matej Lavrenčič (Faladur), Primož Lavrenčič (Burja), oenologist Nika Gregorič (Vipava 1894), sommelier Erik Žabar (Krhne), and dr. Guillaume Antalick.


### Symposium on "Hypercompositional Algebra – new Developments and Applications (HAnDA)"

12 June – 14 June 2023

The third edition of the Symposium on "Hypercompositional Algebra – new Developments and Applications (HAnDA)" was organized in a hybrid way, in the period 12-14 June, by the Centre for Information Technologies and Applied Mathematics in collaboration with the National and Kapodistrian University of Athens, Greece. The event joined PhD students and researchers from 7 European countries: Slovenia, Greece, Romania, Poland, Czech Republic, Montenegro and Italy. HAnDA aims to be the natural progression in the dissemination of research findings on the Algebraic Hypercompositional Structures and their Applications.


**REGINNA 4.0 First Summer School**
3 July – 14 July 2023, Nova Gorica, Slovenija

"Deep Tech Training with Impact on Entrepreneurship and Innovation", which took place from 3rd–14th July 2023 in Nova Gorica and was focused on the training of talents in the technological areas of Nanotechnology and Industry 4.0. This event connected students with academics, businesses and public bodies to explore innovations, business development and transfer of ideas from laboratory to the market. The event took place in hybrid format, with 44 people attending in presence and 165 online. Most of the attending students were from Ukraine, with Slovenian and Spanish students following. At the end, students were given an exam and after successfully passing, they received a certificate of attendance issued by the European Institute of Innovation & Technology (EIT).


**Summer School "Formal, Computational and Experimental Approaches in Linguistics 2023"**
31 July – 4 August 2023, Chemnitz, Germany

Between July 7th and August 4th members of Center of Cognitive Science of Language and and Center for Information and Applied Mathematics of the University of Nova Gorica teamed up with colleagues from the University of Craiova and the University of Udine in organizing the *Formal, Computational and Experimental Approaches in Linguistics 2023*. The event took place at the Chemnitz University of Technology, financed by the ACROSS alliance and DAAD. The summer school featured 11 instructors from 3 different universities of the ACROSS network and was attended by 14 students on-site and an additional 10 online. The students learned about various research topics of modern linguistics from the perspective of two approaches: a formal approach, represented by theoretical linguists and mathematicians, and an experimental approach, represented by linguists with an eye on general cognition, by statisticians, and by computer scientists.

**Summer School - ERICE 2023**
24 September – 1 Oktober 2023, Erice, Italy

The International Summer School on "Basic Photothermal and Photoacoustic Techniques: Theory, Instrumentation and Application" was organized by the University of Nova Goriza, in cooperation with the Ettore Majorana foundation, the Centre for Scientific Culture International School Of Quantum Electronics and the International Photoacoustic and Photothermal Association. The International School was held in Erice, Italy from 24th September till 1st October 2023. There were lectures in various fields within photoacoustic and photothermal techniques and instrumentation, such as: Thermal Lens Spectroscopy, Photothermal Beam Deflection Spectroscopy, Photoacoustic Phenomena, Infrared Radiometry, Non Destructive Evaluation & Testing, Biomedical and Biological PA & PT Application, Photothermal Interferometry and Quartz Enhanced PAS.

### The second Student Symposium of the INSPIRO

*5 October 2023, Vipava, Slovenia*

On October 5th 2023, we organized the second Student Symposium of the INSPIRO project, which took place in the Lanthieri Mansion in Vipava. The symposium is a meeting for students who devote themselves to scientific research activities during their studies, and their mentors. Eleven students from the University of Nova Gorica, the University of Ljubljana and the University of Maribor actively participated in the symposium. They either carried out their research projects within the framework of the *INSPIRO* project - *Innovative student projects in a research environment*, or performed individual research work in laboratories and research centers at the University of Nova Gorica. This year, they were also joined by authors of high-quality diploma or master's theses, which were the result of the research work of students from the Faculty of Engineering and management.

The symposium covered the following areas:
- advanced materials and environmental technologies,
- organic semiconductors,
- quantum optics,
- astrophysics and cosmology,
- laser optothermal spectrometry,
- literary studies,
- open education, and
- engineering and management.


Participants to the Student symposium of the INSPIRO project 2023 with their mentors.

### "Škrabčevi dnevi" linguistics conference

*20 October 2023, Nova Gorica, Slovenia*

On October 20th, 2023, the University of Nova Gorica and the Research Center of the Slovenian Academy of Sciences and Arts co-hosted Škrabčevi dnevi 13. Škrabčevi dnevi is the only linguistic conference in Slovenia that imposes no restrictions with respect to the subdiscipline, topic, investigated language, framework or methodology of the reported research, with which the biannual event attempts to serve as an all-inclusive umbrella meeting for Slovenian linguists. Its 12th edition offered 15 talks by linguists from Slovenia and abroad which covered topics as diverse as morphology, phonology, syntax, language standardization, didactics and etymology. The conference will be completed in 2024 with the publication of the conference proceedings published by the University of Nova Gorica Press.

### Final conference of the project "Uncorking rural heritage: indigenous production of fermented beverages for local and environmental sustainability"

*14 November 2023, Vipava, Slovenia*

On 14 November 2023, the Wine Research Centre organized a press conference and the final conference of the project "**Uncorking rural heritage: indigenous production of fermented beverages for local and environmental sustainability**", where the results were presented. The project is funded by Iceland, Liechtenstein, and Norway through the EEA and Norway Grants Fund for Regional Cooperation. During the event, representatives from the UNG, the Embassy of the Kingdom of Norway, the Financial Mechanism Office, and the Fund Operator addressed the audience. A presentation on the exchange of good practices and knowledge that occurred during the project in Slovenia, N. Macedonia, Croatia, and Norway followed. The presentation also covered how studies of local products, based on science, contributed to the regions and what their potential impact could be in the future.

### Workshop on cider production with guided tasting

*15 November 2023, Rodik, Slovenia*

Wine Research Centre, in collaboration with ORA Krasa and Brkinov, organized a workshop on cider production as part of the AGROTUR+ project, held 15 November2023 in Rodik. The project is co-financed by the EU under the Interreg VI-A Italy-Slovenia Program. The workshop aimed to present best practices and knowledge in the production of the Norwegian cider, covering production technology and its impact on tourism in Hardanger owing to the rise of the cider. Both Norwegian partners and Slovenian producers presented ciders with guided tasting to facilitate the exchange of opinions and experiences. The visit of Norwegian partners to Slovenia took place within the framework of the project Uncorking rural heritage: indigenous production of fermented beverages for local and environmental sustainability, which is further detailed in the report.

### International symposium of young Slavists and humanities students, Philoslavica 2023

1 December – 2 December 2023, Nova Gorica, Slovenia

On 1 and 2 December 2023, we co-organised an international symposium of young Slavists and humanities students, Philoslavica 2023, at the School of Humanities of the University of Nova Gorica. The sympoisum was organised by the Student Section of the Association of Slavic Societies of Slovenia in co-operation with the School of Humanities of the University of Nova Gorica, the Research Centre for Humanities and the Centre for Cognitive Science of Language. Many young researchers took part and presented their contributions on versatile humanistic themes, while at the same time both of our two centres presented their work at the symposium.

# Overview of the most prominent achievements and articles

Overview of the most prominent achievements of colleagues from the University of Nova Gorica:

| Number | Description | Reference |
|---|---|---|
| 1. | Zois Lifetime Achievement Award | Danilo Zavrtanik, Honorary Rector of UNG, received the Zois Lifetime Achievement Award. |
| 2. | The first Slovenian computer test of comprehension of sentences in Slovenian, available in the form of the JERA online application | STEPANOV, Artur, PAVLIČ, Matic, PUŠENJAK DORNIK, Nika, STATEVA, Penka. 2023. JERA: Test sposobnosti razumevanja stavkov v slovenskem jeziku. Nova Gorica: Založba Univerze v Novi Gorici. |
| 3. | Article in the reference section | MARUŠIČ, Franc. 2023. Circumfixation. V P. Ackema s sod. (ur.) The Wiley Blackwell Companion to Morphology. |
| 4. | Membership of a UNESCO committee | In January 2023, Franc Marušič became a member of the UNESCO Ad-Hoc Expert Committee of the World Atlas of Languages. |
| 5. | PISMA website with new features | Inclusion of the Humanities Research Centre and this website in the Slovenian and European network of civic sciences, and presentation of the project as an example of good practice at the network's conference. |
| 6. | Publication of a dictionary | Terminological dictionary of automatic control, systems and robotics , KARBA, Rihard, KOCIJAN, Juš, BAJD, Tadej, ŽAGAR KARER, Mojca, KARER, Gorazd. Springer, 2023. Intelligent systems, control and automation, vol. 104. |
| 7. | Milka and Metod Badjura Lifetime Achievement Award 2023 | The recipient of this year's highest national award in the field of film is cinematographer Rado Likon. Since 2009, he has been sharing his knowledge and valuable experience in the field of film and video technology with students at the School of Arts. |
| 8. | Venice Architecture Biennale | Saša Dobričič organised the 1st Research Forum on African Landscapes at the Venice Architecture Biennale in cooperation with the European university network UNISCAPE. |
| 9. | International Federation of Landscape Architect-Associazione Ialiana Architetti Paesaggisti | As a guest speaker, Saša Dobričič presented the cross-border green spatial strategies of the European Capital of Culture 2025. |

Overview of the most prominent articles of colleagues from the University of Nova Gorica

| Number | Reference | Authors | IF |
|---|---|---|---|
| 1. | J Allergy Clin Immunol | A de Marco | 14,3 |
| 2. | Nature Photonics | E Allaria, G De Ninno | 39,7 |
| 3. | Nature communications | X. Mengjun, .... A. Mavrič, M. Valant, et al. | 16,6 |
| 4. | Nature communications | Q. Wu, .... A. Mavrič, M. Valant, et al. | 16,6 |
| 5. | Nature Photonics | PK Maroju, … G. De Ninno, et al. | 39,7 |
| 6. | Nature Methods | DJ Nieves, .... A de Marco et al. | 48,0 |
| 7. | Advanced Energy Materials | K.C. Ranjeesh,... T. Škorjanc et al. | 27,8 |
| 8. | Advanced Science | K.C. Ranjeesh,... T. Škorjanc et al. | 15,1 |
| 9. | Physical Review X | D Faccialà,... G. De Ninno, et al. | 14,4 |
| 10. | Journal of Hazardous Materials | N. Elmerhi, ... T. Škorjanc et al. | 13,6 |

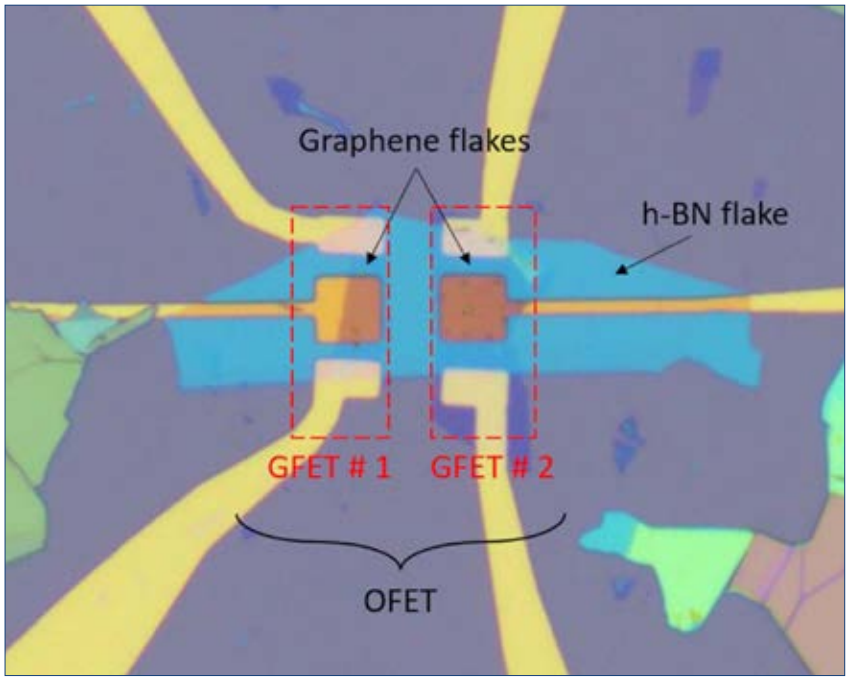
# Research Activity

In 2023, the research work at the University of Nova Gorica was organized at four research laboratories and six research centers: 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 of Organic Matter Physics

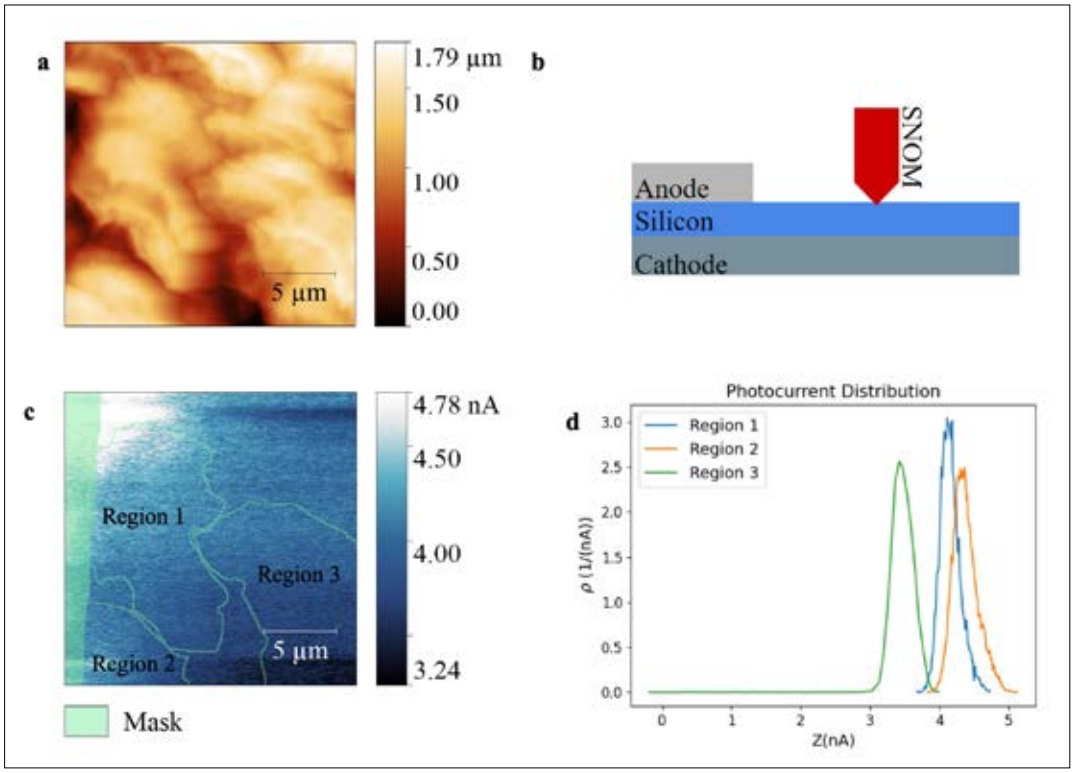
Head: Prof. Dr. Egon Pavlica

Main focus of research activities in 2023 was devoted to the study of charge transport in two-dimensional (2D) materials and their heterostructures. We have discovered a layer of randomly oriented network of 2D MXene flakes, which exhibits record-high charge mobility and has great application potential in modern electronics. In addition, the layer was casted from water solution and hence fulfills European Green Deal policy, and is scalable. Laboratory activities comprised charge transport studies through quasi-2D polyacetylenes and novel 2D heterostructures combined with organic semiconductors. We have successfully concluded research on nanostructured materials for pressure sensor applications within Flag-era project PROSPECT.




Heterostructure of two-dimensional layers to study the resistivity of contacts between layers of organic semiconductors and graphene electrodes.

We measured record-high charge mobility in randomly oriented multilayered network of two-dimensional MXenes (J. Urbančič et al in *Diamond and Related Materials* 2023). $Ti_3C_2$ was studied using time-of-flight photoconductivity (TOFP) method. We prepared samples comprising $Ti_3C_2$ with thickness of 12 nm or 6-monolayers. MXene flakes of size up to 16 µm were randomly deposited on the surface by spin-coating from water solution. Using TOFP, we have measured electron mobility that reached values up to 279 $cm^2$/Vs and increase with electric-field in a Poole-Frenkel manner. These values are approximately 50 times higher than previously reported field-effect mobility. Interestingly, our zero-electric field extrapolate approaches electron mobility measured using terahertz absorption method, which represents intra-flake transport. Our data suggest that macroscopic charge transport is governed by two distinct mechanisms. The high mobility values are characteristic for the intra-flake charge transport via the manifold of delocalized states. On the other hand, the observed Poole-Frenkel dependence of charge carrier mobility on the electric field is typical for the disordered materials and suggest the existence of an important contribution of inter-flake hopping to the overall charge transport.




Imaging the photoconductivity of a Si solar cell using scanning near-field microscopy (SNOM).

In our laboratory, we have successfully fabricated a Van der Waals heterostructure which assimilates a combination of two graphene field-effect transistors (GFETs). Each GFET has its drain, source, gate electrodes, and h-BN flake interconnecting both GFETs as a substrate for epitaxial growth of organic molecules (Figure 1). This research addresses the problem of parasitic contact resistance, which represents a bottleneck in charge transport in novel electronic applications of two-dimensional semiconductors.

We have used scanning near-field microscopy (SNOM) to precisely map the topography and photocurrent of Si-based solar cell (Figure 2). Topography is characterized by the intricate surface irregularities providing a sense of surface complexity and structural diversity (a), whereas the photocurrent map (c) lacks clearly defined grain edges (masked area in (c)) hindering their visibility emphasizing its limited influence on carrier collection efficiency. The photocurrent distributions (d) of mapped data are analyzed from regions proximate to (region 1 and 2 from (c)) and distant from the electrodes (region 3 from (c)). Photocurrent distribution (d) near the electrodes reflects an elevated photocurrent value showcasing the likelihood of lower charge carrier recombination and hence efficient charge carrier transport.

On the other hand, the distribution away from the electrode (region 3) indicates a lower photocurrent resulting from the suboptimal charge carrier collection from this region. This study provides valuable insights into the role of grain boundaries in charge carrier dynamics.

Within the framework of the ARIS-funded postdoctoral project "Charge Transport Properties of Two-Dimensional Conjugated Polymers" (Z1-3189; 2021-2024), we investigated the structural, optical, and transport properties of quasi-2D polyacetylene (q2DPA). q2DPA was synthesized by surfactant-assisted synthesis by our collaborators at Dresden University of Technology. We applied the time-of-flight photoconductivity method to study charge transport as a function of the laser intensity, wavelength, bias voltage, and temperature. High charge carrier mobility in the range of 250 to 350 $cm^2/Vs$ along the polymer chains with an electrode spacing of 250 µm was obtained. Near-field optical microscopy was used to study the optical transmission. Large domains with a size of a few tens of micrometers were observed.

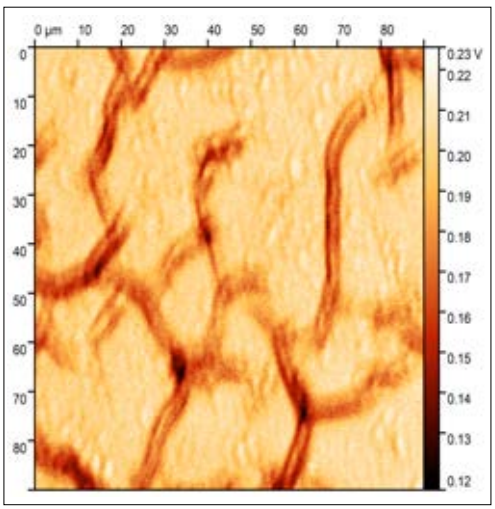
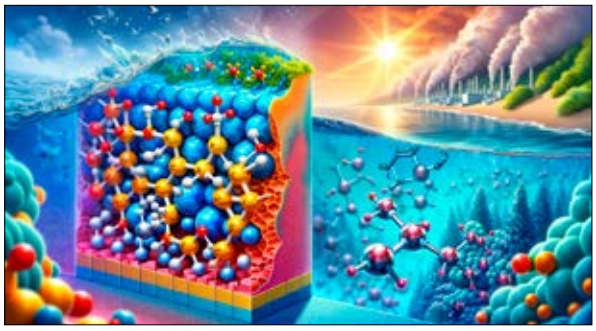


Image of optical transparency of quasi-2D polyacetylene by scanning near-field microscopy (SNOM-AFM).

# Materials Research Laboratory

## Head: Prof. Dr. Matjaž Valant



*Visualization of the produced catalytic materials. Left: the phenanthroline-incorporated cobalt oxyhydroxide catalytic layer with active water oxidation. Right: the nickel-cobalt-iron oxyhydroxide catalyst, in a seawater environment, suppressing chlorine evolution and stabilizing seawater oxidation.*

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

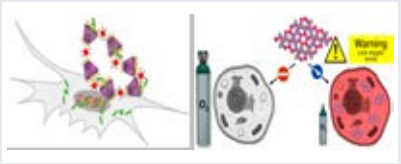
In the previous year, we were actively exploring transition metal hydroxides and oxyhydroxides for energy storage and energy conversion. We continue our efforts in the characterization of water oxidation electrocatalysts and their stability. Embedding phenanthroline ligand into cobalt oxyhydroxide catalytic layer promotes Co oxidation to high-valence species favorable for water oxidation. Additionally, the ligand is responsible for the dissolution of the inactive catalyst layer during rest periods, which can be redeposited in situ, effectively prolonging the catalyst's lifetime. To remove the need for high-purity electrolytes in the electrochemical water splitting, we investigated borate-intercalated nickel–cobalt–iron oxyhydroxide in the simulated seawater environment. By suppressing the competitive chlorine evolution reaction and precipitating the alkaline-earth metal ions through an alkaline treatment of the seawater, stable seawater oxidation is achieved owing to the self-healing ability of the catalyst, paving the way for industrial large-scale seawater electrolysis.

In addition to electrocatalysis, metal hydroxides were used to develop supercapacitors based on the pseudocapacitive behavior of $Co(OH)_2$ and $Ni(OH)_2$. We used cation exchange, intercalation of organic anions, and manipulation of morphology to improve supercapacitor performance. The double-layered hydroxide containing intimately mixed metal cations in the hydroxide form was used as a precursor for the Cu/ZnO catalytic system supported on disordered AlMg□oxide phase for carbon dioxide hydrogenation to methanol. High yield and selectivity were achieved. This is attributed to the low number of acid sites and an increased number of weak basic sites on the catalyst surface, which is favorable for methanol formation. In addition, the increased reducibility of the metallic Cu during the hydrogenation reaction was responsible for long-term stability.

In October 2023 we started a project (Synergistic Effect of Noble Metal Dispersion and Metal-Support Interactions in Anion-Exchanged Layered Metal Hydroxides for Efficient $CO_2$ Hydrogenation Catalysis) that will explore the potential of layered double hydroxides as precursors for palladium-based $CO_2$ hydrogenation catalysts supported on metal oxides. The project will focus on improving noble metal dispersion and interactions with the metal oxide support, to increase activity, selectivity, and stability.

In the last year, we explored two biological applications of covalent organic polymers and frameworks, namely bioimaging and drug delivery. We reported a fluorescent covalent organic framework which was post-synthetically modified to contain a targeting molecule for hypoxia. We used this material to image hypoxic (low oxygen) environments in cancer cells (Chem Commun, 2023, 59, 5753-5756).

In collaboration with Magdeburg University (Germany), we also developed a cyclodextrin-based porous polymer and used it to deliver DNA intercalator metal complexes to cells (ACS Appl. Nano Mater, 2023, DOI: 10.1021/acsanm.3c04219).

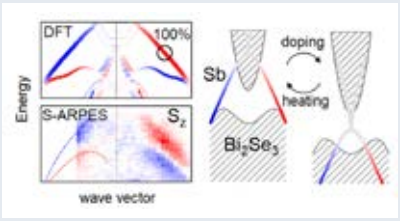


*Left: Cyclodextrin porous polymer as a delivery system for anti-cancer anthraquinone-functionalized metal complexes. Right: Nitroimidazole-decorated covalent organic frameworks for fluorescence imaging of hypoxia.*

During the year 2023, we successfully implemented an algorithm for Differential Scanning Calorimetry (DSC) of proteins. The procedure based on the Zimm-Bragg model, returns the values of hydrogen bonding energy, and results in excellent fitting with the experimental data. Each hydrogen bond strength is found to be on the order of 1-8 kJ/mol, in agreement with the references, and a paper was submitted to the Journal of Chemical Information and Modeling. Besides, a comparison between the quadratic and logarithmic formulas for the specific heat of the two-state model has been performed. Another line of research is devoted to the melting theory of heteropolymer DNA. With the help of a one-dimensional random Potts-like model, we study the origins of fine structure observed on differential melting profiles of double-stranded DNA. Our results re-confirm the smearing out of the fine structure with the increase of chain length for all types of sequence arrangements and suggest a fine structure to be a finite-size effect. We have found, that the fine structure in chains comprised of blocks with the correlation in sequence is more persistent, probably, because of the increased sequence disorder the blocks introduce. The paper is submitted to the Frontiers in Nanotechnology.

In the year 2023, our research line about the interfaces between metals and topological insulators (TI) has been completed. We carried out further analysis of the behavior of a Pt film deposited on the surface of a $Bi_2Se_3$ TI. The investigation unraveled more details about the thermal stability of the interface and about the structure and the composition of the interfacial phase, which have been included in a recently submitted paper to the Journal of Applied Surface Science Advances.

As part of an international team of researchers led by CNR-ISM (Italy), we have shown by spin-resolved photoemission spectroscopy that the topological surface states (TSS) of a topological insulator connected to an antimony bilayer exhibit nearly complete out-of-plane spin polarization within the substrate energy gap. These results pave the way for advanced spintronic applications that exploit the giant out-of-plane spin polarization of TSSs.




*Giant and Tunable Out-of-Plane Spin Polarization of Topological Antimonene*

Our last year's research has been focused on exploring new potential applications of topological insulators and their heterostructures. One of the intriguing materials we have synthesized is a heterostructure comprising a TI ($Bi_2Se_3$) and a semiconductor (CdSe). The primary objective was to fabricate a self-assembled heterostructure of $Bi_2Se_3$ and CdSe, aiming to enhance the usability of the materials without depending on costly and low-yield growth techniques such as MBE or pulsed laser deposition. The successful synthesis of the material has been achieved, and we are currently investigating its potential for various applications. One of the promising new research fields is the photothermal effect due to the existence of plasmonic resonance in TI nanoparticles. In collaboration with Jožef Stefan Institute researchers, we prepared laser-coated $Bi_2Se_3$ nanoparticles with different thicknesses of porous silica. Measurements showed that the coated nanoparticles preserved their original optical properties while exhibiting a 10 – 100 times higher photothermal effect than their uncoated counterparts. The findings were published in the journal Nanomaterials.

In the field of electrochemistry, we found a promising way to improve the electrical and catalytic characteristics of α-$Fe_2O_3$ based photoelectrode by introducing oxygen vacancies (OVs). We developed a novel method for preparing porous Sn-doped α-$Fe_2O_3$ thin films with intrinsic OVs. X-ray photoelectron spectroscopy and photoelectrochemical (PEC) measurements demonstrated the role of Sn dopant on the optoelectronic properties of α-$Fe_2O_3$. The prepared Sn: $Fe_2O_3$ thin films were applied as a dual-function catalyst in PEC water oxidation and ibuprofen (IBF) degradation using peroxymonosulfate as an activator. Liquid chromatography with mass-spectrometry was used to confirm the degradation of IBF and the formation of new products. The phytotoxicity test indicates that PEC-treated wastewater with IBF shows reduced toxicity.

Last year, our members actively participated in the UNG spin-off institution - the Green Technology Center for Sustainable Research and Development. The first project of solarization of the xMobil was completed successfully. xMobil is a customized multipurpose car trailer equipped for performing audio/video events and supporting field research, driven solely on renewable energy, achieved by using roof-mounted solar cells, onboard energy storage via $LiFePO_4$ batteries and a fully hybrid inverter system. Among the other events, the xMobil was used as an energy-sustainable river-side stage at the Sajeta Festival in Tolmin. It will play an important role in numerous upcoming public events within the framework of the GO!2025 (European Capital of Culture Nova

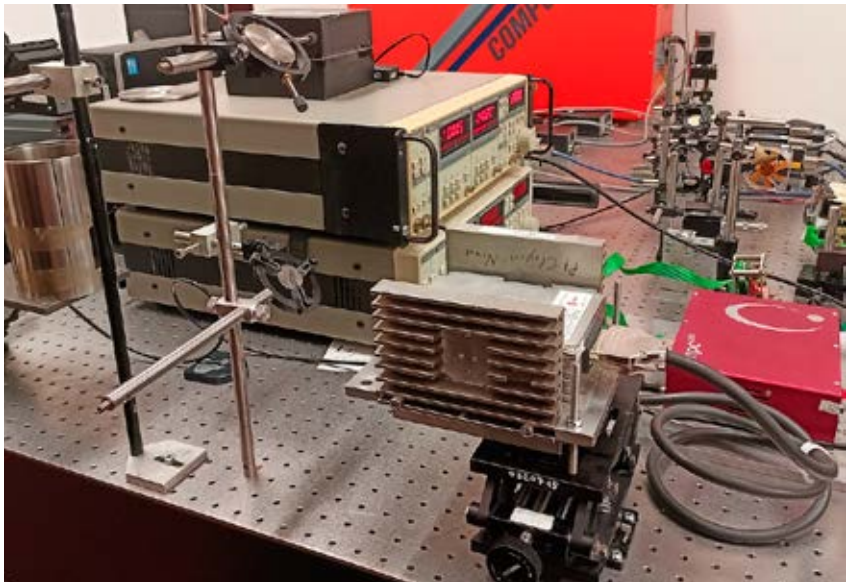

*The energy-sustainable xMobil trailer upgraded with a fully hybrid PV inverter system for the production, utilization, and storage of renewable energy.*

Gorica – Gorizia). Alongside all the mentioned, members of MRL continue our successful long-standing cooperation with the company Seven Refractories d.o.o. from Divača, for which we perform quality analysis of their bitumen samples.

# Laboratory for Environmental and Life Sciences

Head: Doc. Dr. Iain Robert White

The Laboratory for Environmental and Life Sciences (LELS) provides the grounds for intensive research collaboration among analytical chemists, environmental chemists and technologists, biochemists, molecular biologists, toxicologists and material scientists. LELS focuses on developing novel and unique ultrasensitive laser-based analytical techniques, the study of the fate and transformations of pollutants in atmosphere, terrestrial and aquatic environments, food quality and safety, characterization of novel materials, biomedical diagnostic tools, as well as identification of recombinant antibodies specific for tumour biomarkers. The laboratory has extensive collaboration with research groups from all over the world.

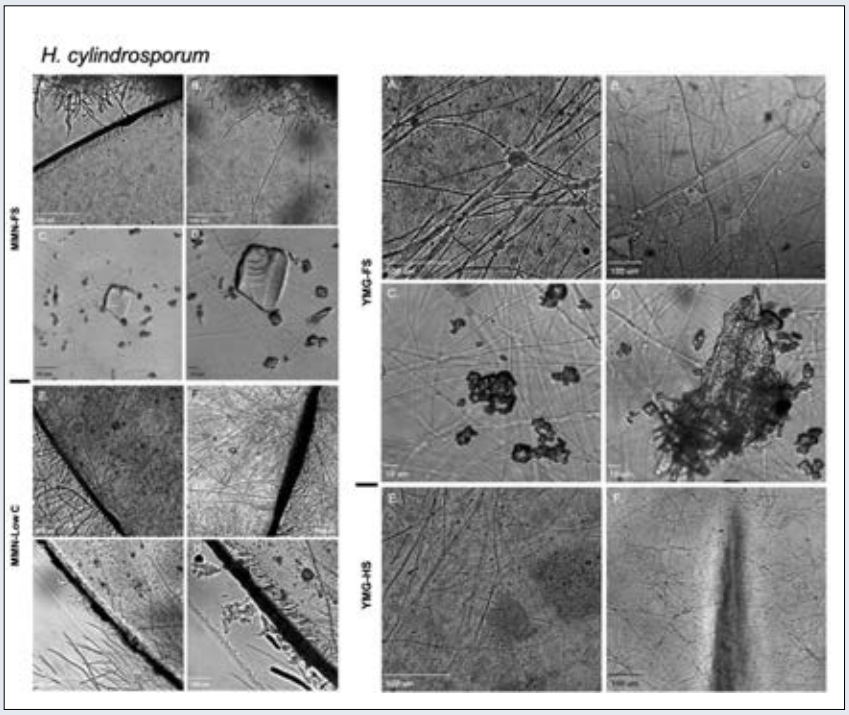


The PPE system.

**Research activity**

As part of our ongoing studies into environmental pollution, we have been conducting experiments to investigate polystyrene degradation by ectomycorrhizal fungi. The need for an environmentally friendly process to break down plastic has never been greater and given that polystyrene is typically non-biodegradable, a solution such as this would be of tremendous benefit. This year also involved significant capacity building to support our research into the chemical characterisation of air pollution, encompassing the analysis of metal components. This is in parallel with the development of new methods to target specific biomarkers for pollution exposure in breath. In the field of laser-based analytical techniques, we developed a new method, relying on thermal lens spectrometry (TLS), for the determination of Cr(III) formed during the photocatalytic reduction of Cr(VI) with $TiO_2$ as a photocatalyst. TLS provides a lower limit of detection for Cr(III) at 0.3 ng/mL. The results of our research confirmed a slower photocatalytic reduction of Cr(VI) than predicted by the results in scientific literature, which were based on the photocatalytic decomposition of the Cr-DPC complex. Our findings are important for the development of safer and more efficient photocatalytic processes for the removal of toxic metal ions in water.

Our photopyroelectric (PPE) experimental setup was used to perform simultaneous measurements of the thermal effusivity and diffusivity of solid samples. Our method

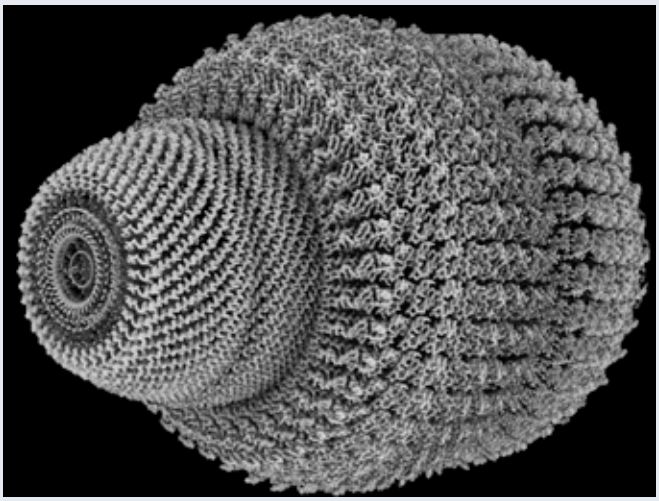



Microscopy images of a polystyrene surface after 6 weeks of *H. cylindrosporum* hyphal colonization.

expands the applicability of PPE calorimetric investigations, particularly in the study of porous building materials and cellulose-based samples, previously overlooked in PPE studies. Beam deflection spectrometry was applied for determination of the thermal properties of PVDF materials modified by incorporating carbon compounds. Our analysis revealed significant variations in the values of thermal diffusivity (TD) and heat trap mechanism of carbon allotropes, offering insight into a potential methodology to modify the thermal diffusivity in PVDF.

The TLS technique was also used to examine the antibiotic release rate from biocomposite-based materials made of chitosan and cellulose, containing various amounts of pollen. We determined that TLS can provide sufficiently high sensitivities that enable the detection of the early phases of drug release processes from biocomposite materials developed for use in medicine for the treatment of chronic wounds.

This year we completed our project on the role of APOBEC3 (A3) proteins in HPV oncogenesis. Silencing of A3A and A3B in HPV host cells HFK showed that both proteins contribute to cell proliferation, migration and invasion in wild-type and HPV16-transformed cells, with A3B having a stronger effect. Gene expression analysis of the target genes confirmed our *in silico* analysis of patients with head and neck cancer and cervical cancer from TCGA.



High-resolution structure of the vault particle at 3.3 Å.

In addition, a model system for HPV genome integration in HFK cells was successfully completed, allowing us to analyse the patterns and timing of genetic and epigenetic changes that occur in the process of HPV-induced cell transformation. In other studies, this year we resolved the structure of the human vault particle to 3.3 Ångstrom. This protein, the largest protein particle in mammalian cells, was produced in yeast and imaged by cryoelectron microscopy. Additionally, we partially determined the binding site and the affinity of interaction between the vault and the human onco-suppressor protein PTEN.

Within the group we also completed a validation of our conceptually innovative adhiron library, we enhanced our proficiency in binder functionalization and fluorescent protein exploitation for advanced microscopy, we developed diagnostic biosensors based on innovative technologies, we implemented the production of recombinant proteins in yeast and reinforced the structures for a systematic study of rare cancers exploiting a comparative oncology approach. The rationale behind comparative oncology is that dogs develop spontaneous tumours that are often similar to equivalent human cancers. This allows direct data and reagent exchange between patients of the two species so that both humans and dogs can obtain diagnostics and therapeutic reagents that would otherwise have never been developed.

# Laboratory of Quantum Optics

## Head: Prof. Dr. Giovanni De Ninno

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

During the year 2023, the activities focused on the following topics:

**Investigation the charge density wave (CDW)-Mott insulator 1T-$TaS_2$ in terms of the photoinduced transient phase and the recovery of dynamics of its ground state using femtosecond time and angle-resolved photoelectron spectroscopy.**

Evident similarities were noticed between the band structures of both the transient phase and the equilibrium one with, evidence of the coexistence of the low-temperature Mott insulating phase and the high-temperature metallic phase. From the study of the transient phase, it was concluded that the restorations of the Mott and CDW orders begin around the same time, which proves that the Mott transition is tied to CDW structural distortions that inherently contradicts earlier studies. Interestingly, as the suppressed order starts to recover, a metastable phase emerges before the recovery of the material to the ground state. It was also demonstrated that the CDW lattice order drives the material into this metastable phase. It was found that the metastable phase emerges only under strong photoexcitation (~3.6 mJ/cm$^2$) and has does not show up when the photoexcitation strength is weak (~1.2 mJ/cm$^2$).

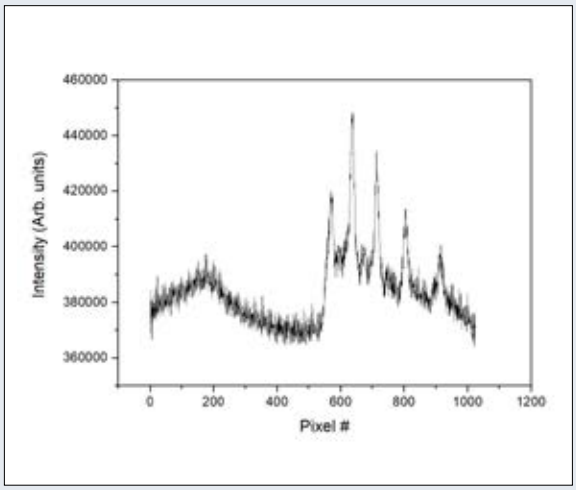
**Characterization of the atomic structure of different new functional nanomaterials with X-ray absorption spectroscopy (XAS) methods, namely X-ray absorption near-edge structure (XANES) and extended X-ray absorption fine structure (EXAFS).**

For characterization of atomic structure of different new functional nanomaterials with X-ray absorption spectroscopy (XAS) methods XANES and EXAFS we obtained in 2023 six international research projects at three synchrotron radiation laboratories (Elettra, Trieste; Soleil, Pariz, PETRA III, DESY, Hamburg). As part of a long-term collaboration with the Institute of Chemistry (IC), we performed operando XANES and EXAFS analysis of nano-structured (Mn, Cu, Fe)/$SiO_2$ photocatalysts for low-temperature catalytic oxidation of volatile organic compounds, and operando XAS analysis of Ir-based catalysts for oxygen evolution reaction. In collaboration with IC and IJS we analysed atomic structure of Na-carbon batteries in different states during charging and discharging of the battery with RIXS method. In cooperation with Faculty of chemistry (University of Ljubljana) we published results of research of photocatalytic $TiO_2$ coatings, intended for wastewater treatment, and results of the analysis of superstructures in PtCu3 nanoparticles used as fuel cell electrocatalysts. In cooperation with the Katholieke Universiteit Leuven, Belgium, we performed in situ XAS research on the extraction of cobalt in non-aqueous solutions in the temperature range up to 100°C, aimed at improving the process of liquid extraction of technologically important metals in the recycling of waste materials. Using a combination of X-ray spectroscopy and X-ray microscopy, we analysed archaeological bronze finds from the 5th century BC, associated to Vinica culture in Bela Krajina, Slovenia. In 2023 we published research results in six scientific articles in international journals, based on the described research with X-ray synchrotron light.

**Detection of the transient gratings created using laser pump pulses.**

A series of experiments were scheduled to determine the feasibility of producing transient gratings using a pump pulse in order to probe sample's properties using HHG. Those experiments were performed in collaboration

with scientists from Elettra's SPRINT FERMI's TIMEX's beamlines, where they have a similar setup but lack of flexibility that is offered at the CITIUS beamline in LKO. Preliminary runs were executed to modify the scattering chamber to be used in the grazing configuration. The modification of the beamline was successful. After the preliminary runs, harmonics were detected from a fixed grating, imprinted on the sample using high pump fluence. This confirmed the geometry of the detection. A sample of harmonics created using Ar gas for HHG that was detected after interaction with the permanent transient grating on a Permalloy sample is shown in Fig. 1.




*Harmonics generated using Ar gas detected after being spatially separated using a grating permanently imprinted onto a Permalloy sample, using high pump fluence.*

**Commissioning of a new scheme to generate XUV FEL pulses and ptychography experiments at FERMI.**

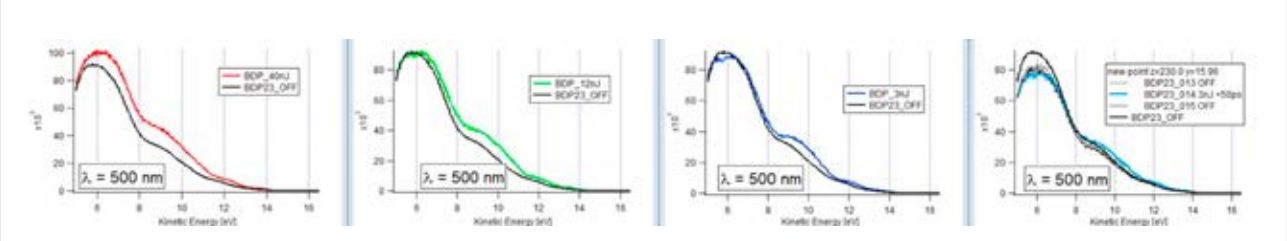
We have participated in the commissioning of a new free-electron laser (FEL) scheme, called Echo-Enhanced Harmonic Generation (EEHG) [P. R. Ribič et al., Nature Photonics 13, 555 (2019)]. The EEHG setup is based on double seeding a relativistic electron beam and allows to generate ultra-short (femtosecond) FEL pulses, with both transverse and longitudinal coherence as well as adjustable polarisation, in the spectral range of 20-7 nm. EEHG light is characterized by unprecedented spectral and temporal stability. We have been also involved in an experiment, that made use of the light possessing orbital angular momentum (OAM) to perform single shot per position ptychography on a nanostructured object. For that purpose, we generated OAM light in the extreme ultraviolet at FERMI, with variable topological charge ℓ, by means of a set of spiral zone plates. By controlling ℓ, we demonstrated that the structural features of the OAM beam profile determine an improvement of about 30% in image resolution, with respect to conventional Gaussian beam illumination. This result extends the capabilities of coherent diffraction imaging techniques and paves the way for achieving time-resolved high-resolution (below 100 nm) microscopy on large-area samples.

**Preparing and examining some structural and optical properties of the Ti3C2Tx MXene phase:**

The $Ti_3C_2T_x$ MXene samples were prepared by our collaborators from the Technical University of Dresden (TUD), Germany, and the National Institute for Standards (NIS), Egypt using the etching approach of the aluminum (Al) element out of the corresponding $Ti_3AlC_2$ MAX phase using hydrofluoric acid (HF). MXene thin films were prepared with our collaborators from the Organic Matter Physics Laboratory, University of Nova Gorica (UNG), Slovenia using a spin coater placed inside a nitrogen-filled glove box. Some structural analyses were conducted using X-ray Photoelectron Spectroscopy (XPS) and Extended X-ray Absorption Fine Structure (EXAFS) with our collaborators from Elettra Synchrotron, Italy. Other ones were implemented using X-ray Diffraction (XRD) and Transmission Electron Microscopy (TEM) with our collaborators from NIS, Egypt. Optical characterization has been implemented using the UV-Vis absorption technique to determine where the resonance is for our sample in order to be used later as an indicator for the excitation wavelength while performing our pump-probe experiments.

**Characterization of the electronic properties of thin films of BODIPY:**

The BODIPY class of molecules, when excited under certain wavelengths, are known to break the Kasha rule according to which, only the lowest excited state contributes to the photoemission or other photoinduced processes, causing a waste of photoenergy and a limitation of application scenarios. The main aim of the research project was to measure the valence band spectra of thin films of the material in the pump-probe configuration, i.e., exciting the films by visible laser pulses and probing by wavelength-selected XUV pulses, following the relaxation of the photoelectron spectra of both ground and excited states in real-time, to follow transient electronic structures. The research work done in collaboration with the Institute of Physics in Zagreb, which is providing the samples, and the CNR IOM in Trieste. Preliminary results are shown in Fig. 2 below, where modifications of the valence band are visible during the laser excitation, it is believed that the increase of the photoemission signal is due to the break of the BODIPY molecule and subsequent release of the quinone methide group.




*Valence band spectra of a BODIPY thin film upon excitation at different laser fluences at wavelength 500 nm.*

# Center for Astrophysics and Cosmology

Head: Prof. Dr. Samo Stanič

Research activities of the center contribute to a unified and clearer view of the Universe, its constituents, their interactions and high-energy processes. Combining the information obtained from different cosmic messengers - photons, charged cosmic particles, neutrinos and gravitational waves - is the key for achieving this objective. Our primary goal is to investigate phenomena related to extreme energies in nature and push forward the knowledge frontier. With our active participation in leading international research collaborations in this field (observatories Pierre Auger, Cherenkov Telescope Array and Vera C. Rubin, Fermi-LAT, Gaia, Liverpool telescope and ENGRAVE collaborations) we contribute to cutting-edge science in searches for extremely energetic astrophysical sources, transient astrophysical phenomena, dark matter and possible mechanisms responsible for the matter - anti-matter asymmetry in the Universe. The research is supported by both national and international research and infrastructure grants, most notably the “Multi-messenger astrophysics” research program and the ESFRI CTA infrastructure project, funded by the Slovenian research and innovation agency.

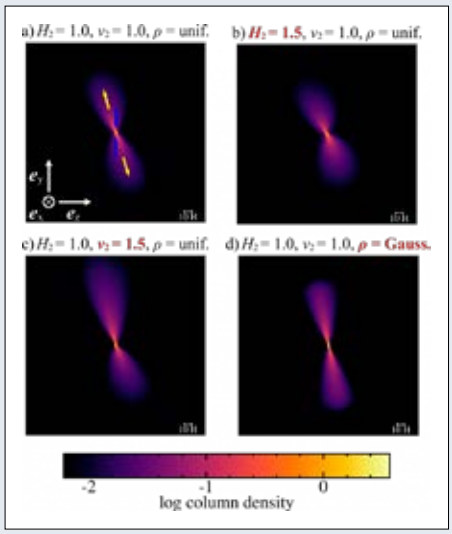
LST-1, the first telescope of the upcoming Cherenkov Telescope Array Observatory during the testing observation in 2023 at La Palma, Spain.

**Pierre Auger Collaboration**

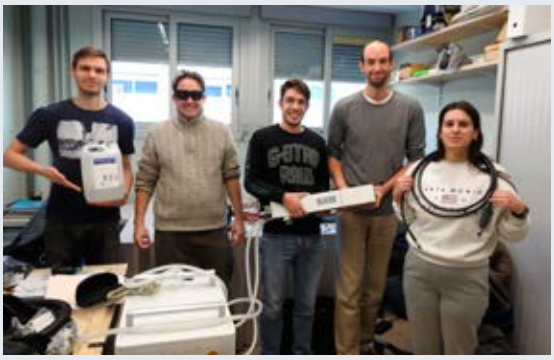
The research related to ultra-high energy cosmic particles is conducted with the world's largest cosmic ray detector, the Pierre Auger Observatory, located in the vast plain known as the Pampa Amarilla (yellow prairie) in western Argentina. Huge showers of charged particles, created upon collisions of incident primary cosmic particles with nuclei of gases in the Earth's atmosphere are used to identify their properties. The observatory combines data from a grid of 1660 surface water Cherenkov detectors with data from four fluorescence telescope sites, observing excited nitrogen molecules along the shower path. Auger results support the hypothesis that extremely energetic cosmic particles accelerate at extragalactic astrophysical sites and that their flux is suppressed due to interactions with cosmic microwave background. In the year 2023, our research group focused on upgrading the observatory (AugerPrime), enabling the identification of the type of individual primary cosmic particles. This emphasis was particularly placed on the development of analytical methods and the implementation of machine learning techniques in the identification of primary cosmic particles. As shifters, we also contributed to successful operation of the observatory’s fluorescent and surface detectors.

### 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 2023, we were actively involved in the analysis of the CTAN Raman Lidar Pathfinder atmospheric data from the northern CTA observatory site in La Palma (with Universidad Autónoma de Barcelona) and preparation of joint publications, identification procedures for ultra-high energy cosmic ray sources among active galactic nuclei (with U. of Innsbruck) and sensitivity studies for the search of dark matter in the Galactic center and for galactic and extragalactic astrophysical sources.




Gas column density of the outflow in the $zy$ plane launched by the self-crossing shock in stellar tidal disruption events obtained from hydrodynamics simulations. Blue and yellow arrows are aligned with the directions of incoming streams and the centers of mass of the outflow components, respectively. Length units are expressed in the units of the width $H$ of the stream moving along $-\boldsymbol{e}_y$ direction. We vary the properties of the stream moving along the $+\boldsymbol{e}_y$ direction, including the width $H_2$ (panel b), velocity $v_2$ (panel c), and density profile $\rho$ (panel d), where we consider uniform (panels a, b, c) and Gaussian (panel d) density profiles. The panel a) corresponds to a situation where the properties of the streams are identical and the streams have a uniform density profile.



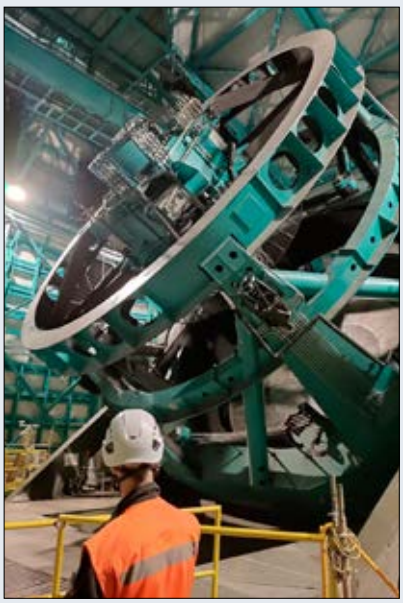
CAC students and staff participated in the first phase of the CTAN Raman Lidar construction at the Universitat Autònoma de Barcelona. This device will enable atmospheric characterization above Cherenkov Telescope Array at Observatorio del Roque de los Muchachos in La Palma.

### 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 more than 300 GeV, Fermi LAT so far discovered more than 5000 gamma ray sources, which is more than an order of magnitude more than what was previously known. Unexpectedly, it also discovered a large bubble-like structure stemming from the center of the Milky Way above and below the Galactic plane, called the Fermi bubbles, that are almost as tall as half of the whole Galactic disk radius. It also provided strong constraints on the nature of dark matter particles by investigating their decay or annihilation signatures in astrophysical objects. Starting from 2019, the results of Fermi LAT experiments provided crucial information for a series of multi-messenger discoveries, in particular related to the origin of ultra-high energy neutrinos and high energy emissions from the gamma ray bursts.

### Astrophysical transients

Our team is active in international collaborations studying astrophysical transient sources, which include gamma ray bursts, tidal disruption events and supernovae. In 2023, most of our activities were related to the NSF Vera C. Rubin Observatory, which will with its huge wide field camera provide the most extensive sky survey so far and is expected to detect numerous transient events. In particular, we used simulations to predict the discovery potential of the Rubin Observatory for detecting tidal disruption events and strongly lensed supernovae, we participated in the observations of the strongly gravitationally lensed supernova type Ia 2022qmx and the subsequent data analysis, which contributed to the improvement of gravitational lensing models. As part of the activities at the Rubin Observatory we made a longer visit to the University of Washington in Seattle. The exchange was extremely important for our future work in the field of astrophysical transients.



The heart of the Vera C. Rubin Observatory is its telescope with 8.4m diameter of its primary mirrir and a wide-field camera, designed to deliver images over a very wide 3.5-degree diameter field of view.

# Center for atmospheric research

Head: Prof. Dr. Griša Močnik

*Measurement station in Nova Gorica / Solkan.*

The Center for Atmospheric Research (CAR) focuses on the study of physical processes in the atmosphere using in-situ and remote measurements and modeling of atmospheric phenomena. Our research includes studies of fundamental aerosol properties, the influence of aerosols on the climate, the investigation of aerosol sources, their dispersion in the atmosphere and vertical profiles. We investigate atmospheric structures, how aerosols interact with the clouds, and use these data for validation of satellite measurements. The key question is, how aerosols influence the atmospheric optical properties though scattering and absorption of solar radiation. Scattering cools the atmosphere, while absorption warms it – aerosol black carbon is the second most important climate forcer, and dust and organic aerosols increase this effect.
We also conduct research on the sources of air pollution, identifying and quantifying the contributions of domestic heating with biomass, industry and traffic to the local and regional air pollution. These activities are a mixture of techniques to determine the aerosol chemical composition and their physical properties, and sophisticated statistical methods to obtain the source profiles and their contributions to particulate air pollution. We develop new methodologies and compare them with the state-of-the-art.
The Center is located at the University of Nova Gorica Ajdovščina site and is involved in the activities of the European Space Agency and field campaigns around the globe. The atmospheric observatory at Otlica is part of the Center and functions within the Virtual Alpine Observatory.

*Field measurements of the aerosol absorption coefficient in Athens, Greece – the instrument of the Slovenian manufacturer Haze Instruments d.o.o. is shown below.*

### Airborne research

We have continued our work on the measurements of the atmospheric heating rate of complex mixtures of dust and black carbon in the atmosphere over the tropical Atlantic. The calibration and validation of the Aeolus satellite mission above Cape Verde islands provided a unique opportunity for different types of scientific endeavors. We have analyzed data from the 2021 and 2022 campaigns. The Aeolus satellite of the European Space Agency is carrying a UV Doppler lidar ALADIN, which was validated with lidar measurements from the ground and in-situ aerosol measurements. These data have been analyzed to perform optical closure between remote and in-situ measurements of aerosol optical properties, with results showing spectacular agreement. Using the newly developed inlet and the instrumentation payload for the light aircraft flown by Matevž Lenarčič in close cooperation with the industrial partners, we measured the aerosol absorption and scattering coefficients, and size distributions in-situ. Aerosol absorption in different size fractions has been used to determine the atmospheric heating rates of these fractions for direct and diffuse radiation. We exploited the coordinated flights with NASA Boeing DC-8 and DLR and CNRS Dassault Falcon aircrafts. Preliminary results were presented at ESA EarthCARE pre-launch Symposium, European Aerosol Conference and other international conferences.

### Determination of sources of air pollution

We continue with our local and regional source apportionment activities. The results from Kanal ob Soči were finalized and publications submitted. The results show that while the majority of particulate matter is due to biomass combustion, the oxidative potential might have also large industrial sources. We started a new campaign in Nova Gorica and Solkan (see figure on the left). The measurements, taking place in close cooperation with the School of Environmental Sciences at our university, enable students to participate in hands-on research.

### Aerosol measurement methods

Our work on new measurement techniques of aerosol light absorption was conducted in close cooperation with the commercial and international partners (Drinovec et al., 2022). We have used the novel photo-thermal interferometer PTAAM-2, measuring the aerosol absorption coefficient directly at two wavelengths, in field campaigns in Eastern and Western Mediterranean (see figure above for the installation in Athens).

### Applied research

The observatory at Otlica above Ajdovščina (965 m above sea level) is a node in the national grid of meteorological and environmental stations, administered by the Slovenian Environment Agency, and a member of the European Virtual Alpine Observatory, with continuous monitoring of temperature, humidity, wind speed and direction, ozone concentration and solar irradiation, all available on line at the Agency's and Center's web portals. The observatory is involved in numerous dedicated international collaborations.

# Wine Research Centre

## Head: Doc. Dr. Melita Sternad Lemut

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 winemaking technologies; sustainable agriculture; fruits, grape and wine analytics; microbiology and molecular biology of yeasts, grapes and wine and other fermented drinks; biotechnology). We operate in the modern equipped laboratories in Lanthieri Mansion, Vipava and in the experimental fields, including the University's own vineyard. Our primary studied plant is grapevine (with the processing from grapes to wine) but we also study 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.

Measurement of grapevine leaf photosynthetic activity and stomatal conductance with an infrared gas analyzer (in cooperation with the Agricultural Institute of Slovenia).

In 2023, the Wine Research Centre (CRV) held many final works on expiring projects: ARIS (basic, postdoctoral, bilateral), the international project of the Norwegian mechanism, and the industrial project with Norwegian partners. In parallel, In the fall, we started working on several newly acquired projects, where we cooperate as partners: ARIS (basic, applied), two Interreg projects, and an industrial project related to the analysis of apples for the production of cider.

Within the framework of the international NFM project "Exploring Rural Heritage: Indigenous Production of Fermented Beverages for Local Cultural and Environmental Sustainability", coordinated by CRV and financed by Iceland, Liechtenstein and Norway through the EEA and Norway Grants Fund for Regional Cooperation, we completed analyses to determine aromatic compounds in wines and ciders using GC/MS. The tasting panel established as part of the project devoted itself to sensory analyses of wines of the Zelen and Pinela varieties. We presented the results at seminars and workshops in Vipava Valley, Slavonia, and Tikveš. During the visit of the partners and the final event with a press conference, a workshop on cider production with a guided tasting took place in Rodik. This workshop was also part of the new Interreg project "AGROTUR+".

In June, the applied ARIS project with the partner BioLaffort entitled "The influence of metals on white wines aging" was completed. In addition to new information on the influence of observed metals on wine aroma, the project significantly contributed to the development of unique knowledge in the field of wine aroma analysis in Slovenia/Balkan. As part of the (extended) bilateral project "Exploring grapevine metabolic plasticity under drought", we prepared samples from the pot experiment for metabolomic analyses. Analysis and processing of data from physiological measurements and climatological data also took place.

Doctoral student U. Česnik successfully summarized his years of work together with his mentors and colleagues in the article "Functional Characterization of Saccharomyces Yeasts from Cider Produced in Hardanger". A young researcher D. Martinez also joined the CRV (and LELS) group at the beginning of the year. Her doctoral research work is aimed at continuing the study of the influence of metals on the aroma of wine.

In September, the post-doctoral ARIS project "Does the presence of microplastic particles change the dynamics of copper in contaminated vineyard soils?" ended. The aim was investigating changes in the fractionation, bioavailability and mobility of copper, as well as the activity and structure of microbial communities in vineyard soils. The results contribute important new insights into the effects of introducing microplastic particles into soil.

At the introductory meetings of the partners of the CRP project "Knowledge Hub for Green, Sustainable and Innovative Mediterranean Agriculture", we set the work and distributed tasks for the first activities aimed at identifying the needs of knowledge users.

Towards the end of the year, we started implementing the applied ARIS research project "Wine provenance: geo-climatic, microbiological or human construct? Example of Slovene blaufrankish wines". In autumn 2023, in cooperation with the Institute of Chemistry and the Faculty of Pharmacy, we also started work on the basic ARIS project "Valorization of Impatiens glandular wastes for the development of bioactive extracts with potential protective activity on the human vascular system".

Working meeting with training for the members of the Sensory panel established within NFM Project "Exploring Rural Heritage "Indigenous Production of Fermented Beverages for Local Cultural and Environmental Sustainability".

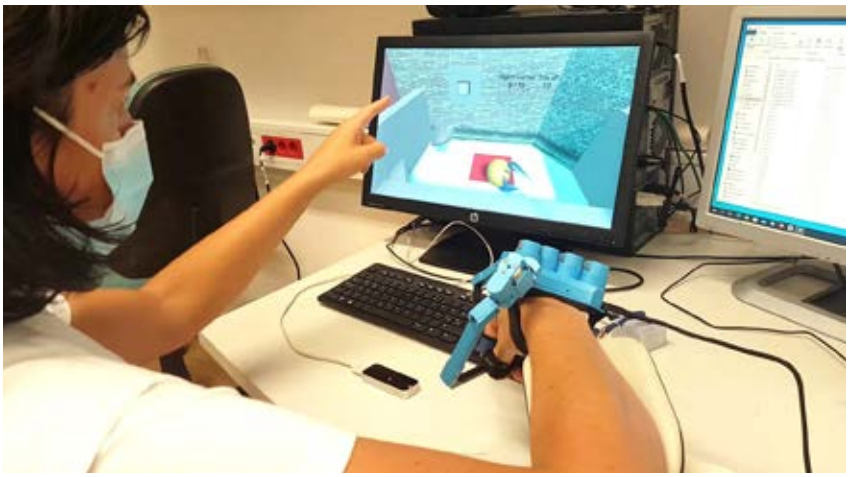
Fermentation experiment on the Pinela variety must – studying the effect of different DAP concentrations addition on the final wine quality.

Introductory activities with the organization of trainings took place as well on a project in collaboration with the Movimento Turismo del Vino Friuli Venezia Giulia partner: "ENO(SATIRE) - Sustainable wine tourism: cultural landscape, wine and satire", financed from the Small Projects Fund GO! 2025, managed by EZTS GO and financed by the Interreg VI-A cooperation program Italy-Slovenia 2021-2027. The purpose of the project is to contribute to the strengthening and transmission of the wine culture of the cross-border area by recognizing the potential of sustainable wine tourism. Just before the end of the year, we obtained two more projects, financed by the EU from the European Agricultural Fund for Rural Development and the Republic of Slovenia: "Pilot alcoholic beverage using haskap berries" and "Testing the use of dogwood berries in the production of fruit wines".

# Center for Information Technologies and Applied Mathematics

Head: Prof. Dr. Irina Elena Cristea

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



The haptic system for two-handed manipulation of virtual objects has great potential for motor development in people with neuromotor impairment or disease.

In 2023 the Centre employed 9 researchers, working on interdisciplinary fields related to knowledge discovery, open education, discrete mathematics, rehabilitation robotics and integration of virtual reality and AI into robotics, theoretical and applied operations research, discrete optimization, Gaussian-process models, and renewable energy sources.

In the area of knowledge discovery for open education, we published the results of investigations that focused on the questions of following, encouraging and enhancing active learning with data analytics. During the observed learning process, students interacted on a social network Mastodon. Their posts and interactions were extracted and analysed to understand student engagement over time, opening up new avenues for dialogue between students and professors. The results were presented in a chapter of a book published by Springer.

As part of our research collaboration at URI Soča, we have developed a system for two-handed grasping and manipulation of virtual objects for patients with neuromotor injury or disease. We have also carried out a randomised study on healthy volunteers, where we have investigated motor control and goal-directed performance of 3D or 2D virtual tasks. At the same time, we developed a haptic cobot guidance for upper limb rehabilitation. In this study, we examined upper limb muscle activity

under different types of neuromotor feedback (visual information, haptic information and a combination of both).

In the framework of hypergroup theory, we continued our research on the theory of dependence relations, by elaborating a procedure to measure the strength of the influence of an element on another with respect to a given dependence relation. Besides, we studied the Euler's totient function in the framework of finite complete hypergroups, stating a formula that relates the Euler's totient function defined on a complete hypergroup to the same function applied to its subhypergroups. During 2023 the research on Krasner hyperfields and their multivalued additive structure has culminated with the almost 30 pages paper, accepted for publication. The investigations came to an intersection with work on Quantum theories and formalism, which brought to a renovated interest for both the geometric aspects and an approach to hypercompositional structures based on the modern language of category theory. In the field of hypermodules, torsion and torsionable elements were investigated in an Abelian category instead of the category of hypermodule by using the normal injective and projective hypermodules.

We have continued also with research in Ordered algebra, in particular on positive implicative cubic intuitionistic ideals in BCK-algebras. Finally, inspired by a multi-aspect Γ-ring system, a novel mathematical method of intuitionistic fuzzy Γ-subring (IFΓR) was established for modelling and analysis of the procedure of advanced automotive AI systems.

Research activities across diverse domains, particularly at the convergence of Operational Research, Industrial Engineering, and Computer Science were pursued, with a focus on theoretical foundations, design methodologies, and practical implementation. The contributions of these efforts were impactful, resulting in publications in the areas of Transportation, and Forest Engineering, Logistics and Location Problems. Additionally, with a focus on Data Analysis, advanced Statistical Methods and Data Analytics tools were utilized to extract meaningful insights from intricate data sets in Viticulture Department.

Symposium HAnDA 2023.

Research activities on dynamic systems were pursued in the direction of the modelling of chaotic systems, distributed predictive control and the method for the simulation of approximated autoregressive models and modelling of air pollution above complex terrains using methods of decision trees and Gaussian-process models.

In the field of surface functionalization, the influence of micro- and nanomorphology (superhydrophilic and superhydrophobic state) of the surface for the enhanced pool boiling heat transfer was analysed. The nanometer self-assembled monolayers of fluorinated silane were used in combination with $TiO_2$-water nanofluid.

The centre has collaborated with colleagues from Slovenia, Bulgaria, Czech Republic, Italy, Germany, Brazil, France, Sweden, Greece, Montenegro, Poland, Turkey, Iran and India. In June we organized in a hybrid way the third edition of the Symposium "Hypercompositional Algebra – new Developments and Applications (HAnDA)".

In the framework of the Erasmus+ program, the center hosted prof. dr. Michal Novak, from Brno University of technology, Czech Republic.

We have successfully concluded the first Erasmus+ project KA107 with the University of Montenegro and started a second one, with a duration of 3 years.

Research visit of prof. dr. Michal Novak, Brno University of Technology.

# Research Centre for Humanities

## Head: Prof. Dr. Katja Mihurko

The Research Center for Humanities works in the fields of literary sciences, cultural history, women studies, visual culture, intercultural studies and digital humanities. The common basis of research areas and their research methodologies is the focus on exploring forms of complex living conditions and human creativity through a historical perspective. Research approaches complement each other - comparative research into literary media, for example, provides reflection on the complexity of interpersonal communication throughout history, while cultural history expands historical research into questions of modern and contemporary cultural practice.

Literary walk “Cross_border_bold women”.

In 2023, the Research Centre for Humanities recruited two young researchers working in the field of literature (Darko Ilin and Tery Žeželj). In 2023, researchers from the Research Centre for Humanities participated in a number of international conferences and published a number of scientific papers in various fields of scientific research.

In the past year, they co-organised two conferences: Big Data, Small Literatures (together with the Institute of Slovenian Literature and Literary Studies and the Slovenian Society for Comparative Literature) and Philoslavica (together with the Centre for Cognitive Science of Language at UNG and the Student Section of the Slovenian Association of Slavic Societies).

The Research Centre for Humanities has become a member of the Slovenian and European Citizen Science Network with the webportal Letters. We organised several events aimed at the general public: the literary walk “Cross_border bold women«, the round table “Women in Goriška region” and the discussion evening “Letters, Alexandrian Women and Citizen Science”.

Assist. Darko Ilin, M.A. presented research from the field of his doctoral dissertation at a scientific symposium in Zagreb, organized by the Sexuality Research Network of the European Sociological Association. He also presented the results of his research at the Andrićeva Publicistika

Symposium in Maribor and submitted the article for publication.

Prof. Dr. Katja Mihurko has coordinated as Editor-in-Chief of the Pisma webportal many research and promotional activities related to it. She presented the webportal at the first conference of the Citizen Science Network. She has participated in several symposia in Slovenia and abroad. She was awarded a project under the Call for (co) funding for tailored research projects under the Complementary Scheme for Applications to European Research Council (ERC). She was co-editor of the thematic issue Censorship, Intimacy and Gender of the journal Primerjalna književnost.

Asst. Professor Primož Mlačnik published an original scientific article entitled "The Poetics of Murder in Popular Slovenian Crime Fiction from the Perspectives of Criminological Theories" (*Slavia Centralis*) and an expert article "On the Cultural Essence of Slovenian Crime Fiction" in the collection *Memento umori II* (Goga Publishing House). He presented his scientific paper "Why write at all : class melancholy and neoliberalism in Dijana Matković's novel" at the 42nd Symposium of *Obdobja* in Ljubljana and participated in the round table of the Festival of Reading Culture "Prepišno uredništvo: Mešano na žanru" (LUD Literatura).

Asst. Dr. Milan Mrđenović co-authored two papers with Prof. Matjaž Klemenčič. One in the renowned


Pisma web portal.

Philoslavica symposium

Slovenian literary journal Slavia Centralis, entitled: Echoes of Adamić's The Native's Return in the American press; and the other in the international collection The changing tide of immigration and emigration during the last three centuries, entitled: Slovenian settlements in the USA since 1870s until present. He was also the author of the accompanying text of the first volume of Adamić's autobiography Moja Amerika and at the same time the peer reviewer of the translation.

Asst. mag. Nikita Peresin Meden published a paper entitled "Afforestation in the Karst: Violation of the Forest Law" in the scientific monograph Forest and People - Relations and History, which she also presented at the scientific symposium organised by the Institute for Contemporary History.

Associate Prof. Dr. Kristina Pranjić has presented her research at the international conferences of IUAV University, ISEA 2023, TTT in Art & Science 2023, Media Art History RE:SOURCE 2023. She gave an invited lecture at the University of Graz conference "Green cultures in Eastern Europe: representation practice, knowledge". With Assoc. Prof. Dr. Peter Purg, she published two papers on environmental humanities and art, and e-literature. She has successfully obtained Slovenian Research Agency (ARIS) funding for the active participation of outstanding young Slovenian researchers in prominent international programs.

Assoc. prof. dr. Peter Purg, in collaboration with researchers from the University of Chemnitz, Erasmus Mundus students of the EMMIR program from nine countries, and artist Abiral Khadka produced the project *Imaginary Hospitality - Atithi Deva*. Also as part of the Go!2025 European Capital of Culture he curated the exhibition *CrypoMinding, Postindustrial Data Activism*. At the *Taboo, transgression, transcendence in art & science* conference he presented a performance lecture *Unlearning Taboo*, while at the *Conference on the Histories of Media Art, Science and Technology* his contribution was on *Investigative Arts as Grassroots Empowerment to Environmental Research*.

Assist. dr. Daša Tepina, together with dr. Petja Grafenauer, published a scientific article in an international scientific journal The international journal of cultural policy. She also contributed to two international conferences in Zagreb and Pula. She co-organised and contributed to a conference in Ljubljana as part of the project Protest, Artistic Practices and the Culture of Memory in the Post-Yugoslav Context.

Within the framework of the interdisciplinary research project Sustainable Digital Preservation of Slovenian New Media Art (ARRS J7-3158), dr. Aleš Vaupotič, senior research associate, together with the project team, presented pilot projects for the reconstruction of the works of Vuk Ćosić and Srečo Dragan at several conferences and festivals. Both reconstructions were presented in the Museum of Contemporary Art Metelkova, which is part of the Museum of Modern Art in Ljubljana.

Assist. prof. dr. Ivana Zajc presented the CoBLaLT model at the European Conference on Education in London. She co-organized the international conference Big data, small literatures and co-edited the proceedings. Together with her colleagues, she prepared a paper on the electronic collection of »Pisma« at this conference, and independently a paper on stylometry. She was a co-organizer of the Philoslavica Symposium of Young Slavists at UNG. At the Period Symposium, she spoke about contemporary drama by women authors. She has published three scientific articles, a scientific monograph with the UNG Press, and a university textbook with co-author Peter Purg. She is on the editorial board of the collection *Letters*. She co-created the Letters and Food event at the Rethinkable Festival.

# Center for Cognitive Science of Language

## Head: Prof. Dr. Rok Žaucer

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

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

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

**Basic research** in 2023:
Our main focus in 2023 was on research within seven projects financed by the Slovenian Research & Innovation Agency, two of which concluded and three of which just started in 2023. The first of the closing projects was 'More than Agreement', a collaboration with the University of Geneva, in which we investigated the psycholinguistic aspects of syntactic feature assignment, and the second closing project was 'Linguistic transfer in the pragmatic domain: Slovenian speakers in a multilingual environment', in which we studied negative transfer of pragmatic features in language acquisition in multilinguals; one of our approaches to this was through a contrastive investigation of the semantics/pragmatics of the plural number in languages with a singular-plural grammar and in languages with a singular-dual-plural grammar.

In 'The limits of freedom: A permutational approach to word order in South Slavic languages' we worked on a new methodology of analyzing word order variability in the South Slavic languages and applied it to probe the limits of this variability in the context of a fixed sentence size. This allows us to re-assess a number of known syntactic phenomena that bear on the freedom of word order as well as to identify new, previously unexplored, word order patterns in these languages. In 'Acquiring minority languages in a multilingual setting', we studied the nature of intergenerational transfer of Slovenian as a minority language in Italy, with the goal of developing a specialized tool for testing competence in Slovenian as a minority language.

2023 also saw us start work on three new 3-year Slovenian Research & Innovation Agency-funded projects. In 'Multifunctionality in Morphology' we are joining forces with colleagues from the University of Graz in investigating multifunctional affixes, i.e. affixes which have little or no stable meaning and can appear in various, at first sight unrelated contexts.


In 'The Behavior of Czech and Slovenian Clitics' we teamed up with colleagues from the Masaryk University in Brno to design a series of experiments which will provide new experimental data from the syntax, morphology, phonology, and prosody of clitics, thereby allowing us to gain better insight into the language-specific properties of clitics in Czech and Slovenian and into the general grammar of clitics.

In 'Slovenian word-prevalence: an online mega-study of word knowledge', a collaboration between us, ZRC SAZU, U. of Ljubljana's Faculty of Education, and University Medical Center Ljubljana, we will conduct a large-scale study using lexical decision and word–picture matching tasks to collect word-prevalence norm data for Slovenian, which is crucial for psycholinguistic studies, for clinical assessment tests, for materials level assessment in language pedagogy, etc.

Outside of research funded by the Slovenian Research Agency, we used brain-imaging to study word structure processing in Slovenian and Serbian within the multipartner 'SAVANT' project coordinated by Queen Mary University, UK. And in collaboration with the Technological university of Varna and the Varna Dolphinarium, Bulgaria, we conducted a joint investigation of aspects of dolphin communication.

**Applied projects** in 2023:
We collaborated in the multipartner project 'Development of Slovene in a Digital Environment', whose main goals include meeting the needs for products and services in Slovenian language technologies. Within a project for the Ministry of Culture we set up the public web portal 'SlovSTvo', with which the general public will gets a tool for online self-assessment of the level of, and identification of the weaker parts of, one's knowledge of

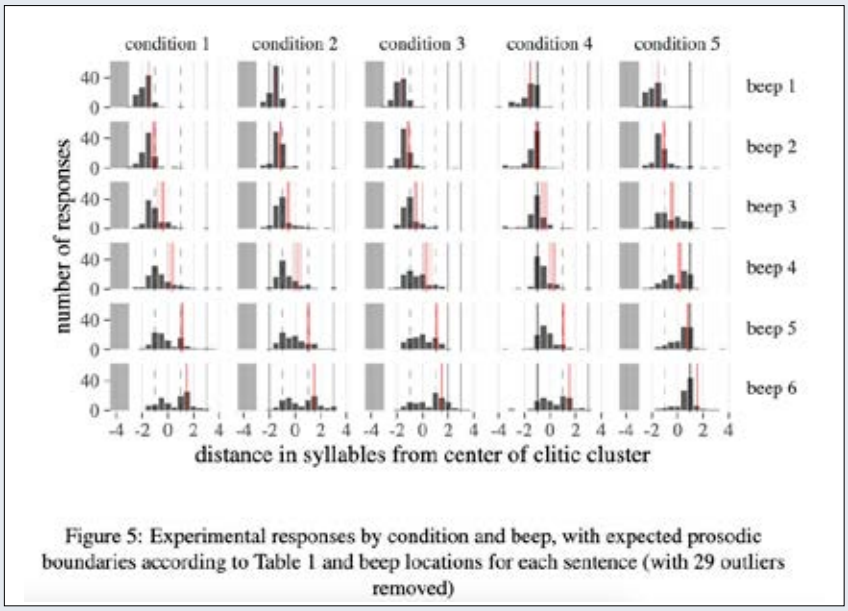



Figure 5: Experimental responses by condition and beep, with expected prosodic boundaries according to Table 1 and beep locations for each sentence (with 29 outliers removed)

Slovenian, as well as an online Q-&-A service aimed specifically at in-depth, rather than quick-fix, language consulting about the structure and use of Slovenian.

### *Jezik & Linguistics Colloquia* of the Center for Cognitive Science of Language

The Center for Cognitive Science of Language continued invited lecture series that it established in 2022. In 2023 the *Jezik & Linguistics Colloquia* featured 7 invited speakers from 6 different European research institutions, with their talks also streamed live online for those who wanted to attend the talks from elsewhere. In addition the Center for Cognitive Science of Language also hosted a public lecture on gender-inclusive language by Boris Kern, rented Trgovski dom in Gorizia (Italy) to host a round table discussion on the topic of place names in the Slovenian ethnic territory in Italy, teamed up with colleagues from the U. of Ljubljana's Faculty of Arts to lecture on the role of Slovenian in neuroscience at E-hiša's 2023 science fest, hosted a public demonstration of the JERA language assessment application to mark the publication of its accompanying monograph, participated in the *Festival Goric in govoric* with a presentation of the *SlovSTvo language assessment and Q-&-A platform*, and prepared a public debate on the topic of Slovenian language in science for the Faculty of Humanities' event series *Dialogi_čez*.

# Pedagogical Work

In 2023, the pedagogical work at the University of Nova Gorica was done within seven schools: 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.

# School of Environmental Sciences

Dean: Prof. Dr. Griša Močnik

Students carrying out field measurements – studies of resuspension of particles PM10.

Study Pogrammes:
**Bachelor's Study Programme Environment**
**Master's Study Programme Environment**

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

Individual project work in the laboratories of the School for Environmental Science.

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 the school year 2023/2024 we enrolled the seventeenth 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 modern approaches to education through project work. Emphasizes are on solving practical problems related to environment and working in a multidisciplinary group. During 2021, students took part in several projects, within which they investigated topics from environment remediation, pollution monitoring, waste management etc. They also studied influence of the biological waste in agriculture. Among others, the results suggest that by regulating easily-variable parameters such as e.g. extraction time, pH and temperature, the extraction of specific elements for use in fertilizers with a safe impurity content may be possible through alkaline leaching, the most economically efficient extraction method currently available. Reducing the amount of by-product that needs to be transported to landfills would have a significant societal benefit, both due to the favorable environmental impact of reducing the amount of landfilled waste and reducing the carbon footprint of waste transport.

The study at the Environment, Level II, takes four semesters to complete and is exceptionally interdisciplinary and research oriented. 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. Four new students enrolled in the school year 2023/2024. During the Level II studies, the project work is performed individually within the Individual project course. The students performed field research to determine the contribution of resuspended dust to air pollution with particles PM10.

# School of Engineering and Management

## Dean: Prof. Dr. Imre Cikajlo

Study Programmes:
**Bachelor's Study Programme Engineering and Management (First Level)**
**Master's Study Programme Engineering and Management (Second Level)**
**Master's Study Programme Master in Leadership in Open Education (Second Level)**

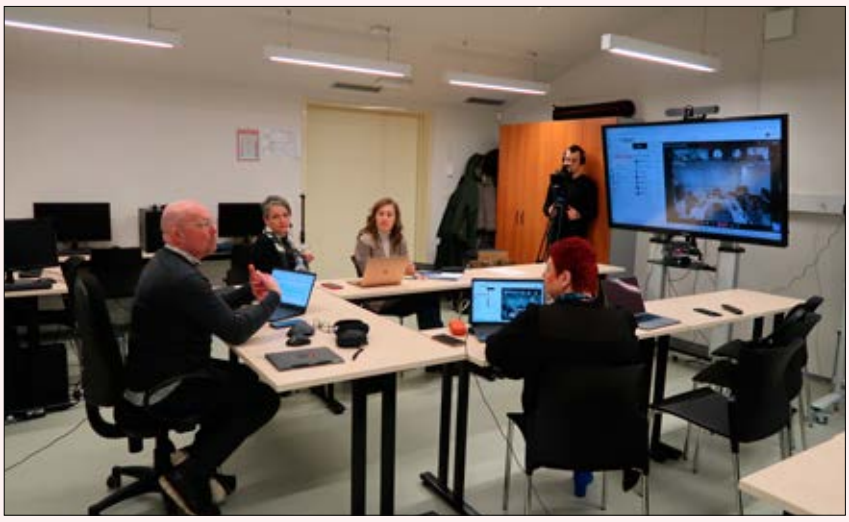
The School of Engineering and Management offers first- and second-level study programmes in Engineering and Management, from 2020, also an international Master's programme in Leadership in Open Education. It educates broadly qualified staff who, on the basis of their technological, economic and organisational competences, are able to identify and solve problems in ensuring economically viable and socially responsible production and business. In their project, bachelor's and master's theses, students of the School of Engineering and Management usually solve specific problems in the companies, other institutions or local communities, thus strengthening the faculty's links with the environment. Ambitious students are employed by high-tech companies in the local area, and the faculty has a very high overall employability rate for graduates.

In the academic year 2022/2023, a total of 140 students were enrolled in the programmes of the School of Engineering and Management, including 70 students in the 1st cycle Bachelor's degree programme Engineering and Management, 45 students in the 2nd cycle Master's degree programme Engineering and Management and 25 students in the international Master's programme in Leadership in Open Education. In the academic year 2022/23, we also recorded a high enrolment in the Bachelor's degree programme Engineering and Management.


ACROSS Alliance Summer School.

The School of Engineering and Management's teaching activities took place at the Lanthieri Manor in Vipava, and in exceptional cases also remotely. The latter is used by lecturers who have unavoidable commitments abroad, but it also facilitates the studies of those students who, due to employment, active involvement in sport or other reasons, need a certain flexibility in the performance of their study obligations. The School of Engineering and Management is very active in the development and implementation of new methods and support the teaching with information technology. It strives to increase the quality and accessibility of studies by introducing elements of e-learning and open learning. This has also resulted in a high employability rate, which, according to May 2023 data, was 77.8% within one year of graduation, while 15.9% of students decided to continue their studies. The high employability rate of the graduates of the School of Engineering and Management is also a contribution of competences acquired by the students through project works within or beyond the study programme. Within the project work and practical training of third-year students, we have cooperated with the following companies: Mahle Electric Drives Slovenija d.o.o., Primorski Tehnološki Park d.o.o., Incom d.o.o., LED Luks d.o.o., GOAP d.o.o., Instrumentation Technologies d.o.o., Business Solutions d.o.o. , Saop d.o.o., Tosla d.o.o, Arctur d.o.o. and RLS Merilna tehnika d.o.o.

In May 2023, the School of Engineering and Management established a consultative body, the Council of the School of Engineering and Management, consisting of a collaborator from the University of Maribor, the Ajdovščina Regional Chamber of Commerce and Industry, Primorski Tehnološki Park, Mahle Electric Drives Slovenija d.o.o. and LED Luks, and a project collaborator from the Slovenian Chamber of Commerce and Industry. The Council will help the faculty management to identify the needs of the local environment and to strive for improvements. The School of Engineering and Management celebrated its existence at the crossroads of technology and entrepreneurship in November at the faculty's formal academic assembly, which was opened by the Dean, followed by a lecture by Prof. Dr. Saša Dobričić on the pedagogical work of professor and designer Oskar Kogoj. The Academic Assembly was also attended by the Rector, Prof. Boštjan Golob, the long-standing Dean of the Faculty, Prof. Dr. Tanja Urbančič, and the Honorary Rector of the University of Nova Gorica, Prof. Dr. Danilo Zavrtanik.



The team for e-education of the programme Leadership in Open Education at work.

In December 2023, the Rectors' Conference of the Republic of Slovenia organised an event entitled Inclusive University Educational Environment as a Generator of Success Stories, which was attended by the Dean, Prof. Dr. Imre Cikajlo, as a speaker. He presented the key points of the Rules on Students with Disabilities and the possibilities of adapting the study or using the ICT platform in combination with medical-technical aids for access to study materials.

Student activities

The School of Engineering and Management of the University of Nova Gorica, in cooperation with the Miren Kras Public Institute, presented the results of the project "Framework research on tourism development potentials of the fire-affected area in the Miren-Kostanjevica Municipality", which was supervised by Prof. Aneta Ivanovska, PhD Silvester Vončina, dipl. oec. and mag. Tomice Dumančič and successfully acomplished by students of the Master's degree programme Engineering and Management at the School of Engineering and Management, University of Nova Gorica.

The Master's degree programme Leadership in Open Education celebrated the first defence of the Master's degree entitled "Strengthening Energy and Climate Literacy with Microlearning and Open Educational Resources", successfully defended by Mojca Drevenšek. From May, 29 to June, 5 2023, the School of Engineering and Management hosted the 2nd campus, supported by the UNESCO Chair of the »Jožef Stefan« Institute, in a hybrid format with participants from several countries. Students presented Open Educational Resources (OER) projects and two workshops were held: »Data and Ethics in Artificial Intelligence« and »Artificial Intelligence in Education and the Role of ChatGPT«. A panel discussion addressed issues of access, ethics and the future of ChatGPT. The workshops were attended by 64 participants via the e-learning platform MiTeam.

The Summer School »Bridging gaps: formal, computational and experimental approaches in linguistics« (FEAL) 2023 took place from July, 31 to the August, 4 in Chemnitz, Germany, in a framework of the ACROSS Alliance. Two colleagues from the School of Engineering and Management were members of the Organising Committee of the summer school together with colleagues of ACROSS partner University of Craiova, Romania. Fourteen students came in person to Chemnitz and participate to the activities offered by the summer school. Students who came from ACROSS partner universities (University of Udine, University of Ruse, Technical University of Chemnitz) were entitled with a scholarship from the German Academic Exchange Service (DAAD), covering part of travel and accommodation expenses. Students from non-ACROSS universities participated remotely.

# School of Science

## Dean: Prof. Dr. Sandra Gardonio

At the School of Science students are from Slovenia and all around the world.

Study Programmes:
**Bachelor's Study Programme Physics and astrophysics**
**Master's Study Programme Physics and astrophysics**
**Master's Study Programme Materials Science**

The School of Science is a hub of students, researchers, assistants and professors from Slovenia and all around the world. United by common passions, that range from atoms, molecules, materials, devices, to the understanding of our atmosphere, the stars, galaxies and the Universe as a whole. The School of Science offers research-oriented BSc, MSc degrees, supported by our labs and research centers. Furthermore, students have the unique possibility to remotely perform astronomical observations with the GoChile telescope located under the dark sky of Chile. At the UNG Graduate School, there is the possibility to continue to doctoral studies in the field of Astrophysics, Physics or Materials Science.

The aim of the bachelor program "Physics and astrophysics" is 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 in senior years.

Lectures are given in small groups, exploiting the possibility of international exchange through the ERASMUS+ and other programs. Students have the possibility to transfer ECTS credit points between same level programs at the University of Nova Gorica and other universities accredited in the EU.

In their first year students take elementary courses in mathematics and physics as well as a course on experimental methods, which is needed for student laboratories. In the second and third year, the courses increasingly focus on specific core study areas, and are complemented by research work. These lectures are as a rule implemented in concentrated, two months long courses.

As seniors, students have the opportunity to become involved in actual research in state-of-the-art research laboratories and centers of the UNG. They conclude their studies with a diploma seminar.

The aim of master program "Physics and astrophysics" is to provide detailed knowledge in the fields of a) astrophysics or b) solid state physics, which are selectable as modules.

An essential aspect of the studies are research activities in the supporting research laboratories and centers of the University of Nova Gorica (Center for Astrophysics and Cosmology, Center for Atmospheric Research, Laboratory of Organic Matter Physics, Materials Research Laboratory and Laboratory for Quantum Optics).

Research in state-of-the-art laboratories and centers forms the basis for student's master theses, which are often related to research within international collaborations and observatories, such as Pierre Auger, Cherenkov Telescope Array, Elettra light source, and published in international scientific journals. We believe that working experience in international environment and with state-of-the-art technologies increases the competitiveness of our graduates in their further careers.

Master program "Materials Science" 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.

The emphasis of the program is on acquiring practical skills in the synthesis of advanced materials and their characterization (hands-on training). More than a half of student activities within compulsory courses are reserved for laboratory work and seminar exercises, and a range of elective courses will be provided to allow in-depth studies in selected fields of materials science.

Small number of students will allow them to obtain specific hands-on experience on the most advanced instruments for materials characterization available for research. In all courses a strong emphasis will be given to skills such as communication, self-confidence, awareness and team-work abilities. Students will be able to gain practical knowledge and skills in synthesis and characterization of the state-of-the-art materials and will also actively participate in actual ongoing research projects at research laboratories of the University of Nova Gorica and its partner institutions, the National Institute of Chemistry and the Jožef Stefan Institute.

*At the School of Science students have the opportunity to become involved in actual research in state-of-the-art research laboratories and centers of the of the University of Nova Gorica and its partner institutions, the National Institute of Chemistry, the Jožef Stefan Institute and Elettra-Sincrotrone Trieste.*

*At the School of Science students have the unique possibility to remotely perform astronomical observations with the GoChile telescope located under the dark sky of Chile.*

# School of Humanities

## Dean: Prof. Dr. Peter Purg

Study Programmes:
**Bachelor's Study Programme Slovene Studies**
**Bachelor's Study Programme Cultural history**
**Master's Study Programme Humanities studies**
**European Master in Migration and Intercultural Relations (Erasmus Mundus)**

With our manifold activities at the School of Humanities of the University of Nova Gorica we aim to enrich Goriška, Slovenia and international regions with new humanistic insights and thus contribute to the process of connecting the academic community and society. Our study programmes have a high level of scientific, professional and pedagogical qualities, educating students for their further university education and their research and professional work in Slovenia and abroad.

Our visibility within the local and international environment has increased during the year of 2023. We have organised our, now well established, **public events** Dialogues_beyond_, which included the themes such as boundless space and Slovenian as a language of science; at the same time, in co-operation with the Nova Gorica Xcentre, we organised the thirteenth symposium of linguistic events Škrabčevi dnevi (Days of Father Stanislav Škrabec); on 8 March, we organised an event Walking_across the border: the path of audacious women writers: Gorica, and a round table Women in Goriška through time.

We also organised a rich programme at the Cross-border **festival** of transformative economies and communities, known as ReThinkable, through creating a big cross-border event at Delpinova street in Nova Gorica. We were included in many events of the European capital of culture **Go! 2025** programme, and the School's staff also contributed to numerous **conferences**, such as Histories of Media Art, Science and Technology in Venice and the ISEA symposium of electronic art in Paris. We continued with our care to organise workshops, increasing mobility in the **international university network ACROSS**, whose member the University of Nova Gorica became in 2022; within the network, we have intensive co-operation with our university partners in Chemnitz (Germany) and Udine (Italy).

The University of Nova Gorica has published an **innovative textbook** *Digital humanities and literature* by the authors Ivana Zajc and Peter Purg, which supports, and also indicates, the development of some of the study programmes. In 2022 we established the **Council of the**

**School of Humanities**, whose work was further consolidated in 2023 with its distinguished members, who serve as the leaders of our important partner institutions. The Council of the School of Humanities helps the school with its development vision, study programmes and projects, reflecting its place in the social and professional environment; the Council is also interested in the issue of employability of the graduated students. The Council members come from a wide, representative range of professional and scientific profiles; as such, they ensure the national, regional and international presence and coverage of all programmes and academic fields of the School of Humanities of the University of Nova Gorica.

**Our study programmes** cover versatile fields of humanities: at the first degree level, Slovene studies develop contemporary competences within the fields of literary studies and linguistics, while Cultural history brings an interdisciplinary view of the history of the border regions. In the masters Migration and intercultural relations programme (Erasmus Mundus), students from some twenty countries truly and really „think beyond" each academic year, as our motto goes. All the study contents are embraced by our offer of three masters programme tracks within the Humanities studies programme: Linguistics, Literary studies and History and cultures of crossborder spaces.

The undergraduate study programme in **Slovene Studies** at the University of Nova Gorica upgrades the traditional Slovene studies division of language and literary contents by introducing the core and elective subjects in the fields of general linguistics and literary theory, as well as performative arts and cultural history; after the recent study programme reform, it also includes the study contents such as film art, visual cultures and the new field of digital humanities.

The study programme in **Cultural History** offers the students an in-depth knowledge of social, political and cultural processes which shaped the historical image of Europe from antiquity, the Middle Ages, modern and post-modern times. A special emphasis is given to an interdisciplinary connection with the related disciplines (anthropology, ethnology, sociology, cultural studies) and the specific features of the border position of the northern Primorska region and its development within the tides of history. Within the recent study programmes upgrade, an emphasis was given to the study contents in the fields of multiculturalism, memory, heritage, migrations and tourism, as well as the processes and interpretations of the past which are related to them.

The now expiring masters study programme in **Slovene studies**, this year, in its final year, provides knowledge in the fields of Slovene language and Slovene literature; it also offers the foundations in literary studies, linguistic theories and methodology. In 2020 the study course in Linguistics was upgraded with an agreement between the University of Nova Gorica and Ca' Foscari University in Venice, offering students an opportunity to obtain **a double degree**.

In 2022 we thoroughly reformed the masters study programme, which is now named **Humanities studies**; it comprises three study courses: **Literary studies**, **Linguistics** and **Histories and cultures of cross-border spaces**. Within these modules, the obligatory subjects offer foundational theoretical knowledge of the mentioned disciplines, while the joint elective subjects offer interdisciplinary connections and carefully selected additions. The key aim of the new study course in Histories and cultures of the cross-border spaces is to provide a comprehensive insight into the cultural-historical themes of the border regions, with an emphasis on the scientific approach to research, planning, reflection and use of cultural practices on the basis of interdisciplinary connections and multiple understandings of relevant discourses.

**The masters study programme in Migrations and intercultural relations** is an international programme focused on human rights, democratic values, social state and labour market, and the challenges with which the European Union members and the global world are faced. We carry out the study programme with the support of Erasmus Mundus, a high quality programme mechanism for international cooperation and exchange of students and professors in the field of higher education; at the end of 2021, the programme was given a renewed financial support from the European Commission for the next five years. The study programme is carried out at several European universities and is taught in English.

Upon completing their masters study programmes, students have an opportunity to continue their studies at the doctoral programmes of the University of Nova Gorica. Within the Graduate School of the University of Nova Gorica, students can choose between two study programmes in the field of humanities (third degree programmes): **Cognitive science of language** and **Humanities**, with the modules **Literary studies**, **History** and **Migration and intercultural relations**.

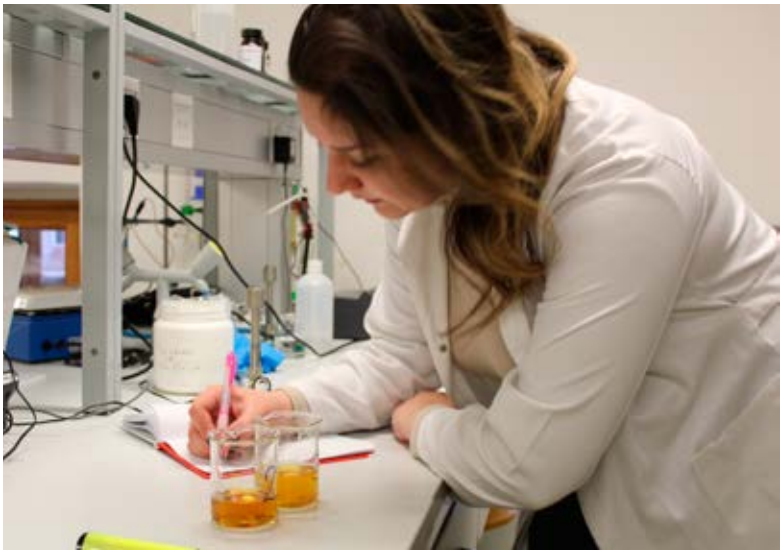
The School of Humanities offers **lectorates** in a variety of languages, both foreign and Slovene, the latter being adapted particularly to university students who would like to learn Slovene. In 2023, we set up a Language centre, which (strategically) unites the versatile language lectorates and promotes them region-wide.

# School for Viticulture and Enology

## Dean: Prof. Dr. Branka Mozetič Vodopivec

Study Programmes:
**Bachelor's Study Programme Viticulture and Enology**
**Master's Study Programme Viticulture and Enology**

The School for Viticulture and Enology offers undergraduate and postgraduate programs in Viticulture and Enology, with lecturers primarily from the Wine Research Centre at the University of Nova Gorica. In the 2022/23 academic year two new MSc and 33 new BASc students were admitted, 7 BASc students graduated. School participated in NFM/EGP »Uncorking rural heritage: indigenous production of fermented beverages for local cultural and environmental sustainability» project field trips to Croatian Slavonia and North Macedonia wine cellars and to organised lecture seminars and workshops. Upgrades to student laboratory equipment were enabled by the Slovenian Ministry for Agriculture, Forestry and Food funds. University Senate awarded our students with 3 Alumnus Primus and one Alumnus Optimus prizes.



Student analysing wine

The School of Viticulture and Enology offers BASc and MSc programs in Viticulture and Enology. These programs are conducted at the Lanthieri Mansion in Vipava and at the school estate in Manče, as well as with various internship partners that enhance the educational experience for our students.

The majority of students are enrolled in the Bachelor's degree program (BASc), and in the 2022/23 academic year, two students were enrolled in the Master's degree program (MSc).

The faculty lecturers come mainly from the Wine Research Center of the University of Nova Gorica, which is also located in Vipava. The program is also performed by various external colleagues from domestic and foreign institutions. Last year, we hosted various guest speakers, such as Dr. Nives Ogrinc from the Jožef Stefan Institute, who spoke about her research findings on the determination of wine adulteration. Neža Skrt, a renowned Slovenian oenologist based abroad, presented lectures and tastings of fortified wines Porto and Sherry. In addition, experts such as Dr. Sophie Tempere from ISVV (University of Bordeaux, France), Dr. Anne Pelegrino from Montpellier SupAgro (France) and Dr. Natko Ćurko from the University of Zagreb (Faculty of Food Technology and Biotechnology) also enriched the academic environment of our school with their expertise.

The school actively participated in the NFM/EGP project „Uncorking rural heritage: indigenous production of fermented beverages for local cultural and environmental sustainability" activities. In January 2023 we participated to the seminars performed by respectable Dr. Sabina Pasamonti and Dr. Pierre Luis Teissedre the field of wine and health topics. In cooperation with the NFM/EGP project partners, the 3rd year BASc students visited Požega, Croatia in March 2023 and explored local wine and distillate production. In April 2023, the students explored Norwegian, English and French ciders with visiting Dr. Ovsthus Ingunn from Nibio Ullensvang, Norway. In April 2023, a workshop on Zelen wine was organized, and in June, a student wine festival under the motto »Uncorking rural herritage ..«, the project wines Zelen, Pinela from the Vipava Valley, Graševina wines from Slavonija, Croatia, and Tikveš Winery wines from North Macedonia were presented. In June 2023 2nd year BASc students travelled to a field trip to North Macedonia to explore the geoclimatic characteristics of viticulture and enology of this country.

The upgrade of the students' laboratory equipment, funded by the Ministry of Agriculture, Food and Forestry, improved the possibilities of data analysis for wine and grape analysis.

Active promotional efforts by the school and university resulted in increased enrollment for the 2023/24 academic year (33 new BASc students), although the master's program has had limited success despite attractive scholarship offers from the UNG Scholarship Fund for university master students. Promotional efforts extend to social media, participation to local events such as the Tastes of Vipava Valley and the Zelen Wine Festival.

Students on the event DegustAkcija in wine shop Delise in Maribor in January 2023 (from left to right Matic Greif, Matija Gregorič, Urban Hlade, Lara Javornik).

Student experimental fermentations of wine in fermentation lab in Lanthieri Mansion.

Professor Antalick is preparing his blog on the Ovinu.si portal on a regular basis. The school has launched a new event with students - DegustAkcija (organizing a tasting in a real wine shop). A lecture presentation at the Agra fair 2023 underlined the commitment of the school's professors to real viticulture issues for the general public.

Students, staff and the rector warmly welcomed the first-year students at a special welcome event at the beginning of the academic year. Finally, a new student room was set up on the ground floor of Lanthieri Mansion. Active support from student tutors helped the students to make better progress in their studies.

In the academic year 2022/23, 7 BASc students graduated, and the UNG Senate awarded the Alumnus Primus Award to Urban Hlade, Ivana Milivojević and Gregorič Matija. Ivana Milivojević also received the Alumnus Optimus Award.

# School of Arts

## Dean: Prof. Boštjan Potokar

Exhibition of animated films and set designs, models with other preparatory materials by students of the UNG School of Arts in the framework of the International Animation Film Festival Animafest Zagreb in June 2023.

Study Programmes:
**Bachelor's programme in Digital Arts and Practices**
**Master's programme in Media Arts and Practices**

The School of Arts has been educating in the field of arts since 2008 within the University. It began 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. In 2022 the School received concession (state funding) for implementing the bachelor's professional degree programme in Digital Arts and Practices. Together with the master's degree programme in Media Arts and Practices the studies 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)*
- Contemporary Art Practices *(combining different media)*
- Scenographic Spaces *(film, theatre scenography)*
- Art-Science-Technology *(connecting diverse fields)*

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:

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 ADRIART, an 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 in 2012/13 able to offer our BA graduates a continuing of education - the MA programme - Media Arts and Practices, with a pilot run in that year and a full launch the following year. Since several years we are thus able to conduct the whole vertical of education in the field of arts, which is possible in Slovenia.

In the 2022/23 study year 64 students are immatriculated at the UNG School of Arts. The most significant development with the 2022/23 study year marks the beggining of state concession of the first cycle programme Digital Arts and Practices. 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. In the premises in Rožna Dolina we have started the renovation of additional spaces, which will be solely dedicated to the specific uses of the academy, i.a. a film/photo studio, a screening room, a technical room. Last year we have been able to acquire further much needed equipment for film, animation and photography production and postproduction. Students thus now have a contemporary studio environment where they can work throughout the day.

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.

To begin with, we should not forget the greatest success of Slovenian film, which was achieved by our alumna **Urška Djukič** with her short animated film *»Grandma's Sex Life«*:

- **36th European Film Awards** (EFA European Film Awards) - in the short film category, the award for Best Film went to the award-winning short animated-documentary *»Grandma's Sex Life«*, Reykjavik, December 2022.
- **French César Award** - the animated-documentary short *»Grandma's Sex Life«* won the César in the Best Animated Short Film category, Paris, February 2023

With student works, we highlight the participation in the following events:

- At the **26th edition of the Festival of Slovenian Film** we took part with seven student films (three in the student competition and four in the panorama section) .
  - **Tamara Kirina**, experimental film *»I'm Thinking«* - Special Jury Mention
- **Ars Electronica 2023** - Festival for Art, Technology & Society, Linz, Austria. We participated for the second year. This year the festival took place face to face. The title of the whole UNG AU installation was ***»Me, Us.«*** We presented seven student projects:
  - *»Fluvia dialects«*, **Miha Godec**; *»Grayspaces«*, **Anastasija Kojić**; *»5476«*, **Ana Logar** and **Anastasija Kojić**; *»Micro need for speed«*, **Luka Carlevaris**; *»Cycle fragments«*, **Tamara Taskova**; *»Littering/ Echoing«*, **Tamara Kostrevc** and **Lazar Mihajlović**

From the making of Ana Logar's graduation film *»Alternative Transport«*.

Annual Show of UNG School of Arts student works in May 2023.

  - **»Animated«** - a selected programme of seven animated films: *»Last Laugh«* **Domen Sajovic**; *»Kiwi«*, **Karin Likar**; *»Dismorphya«*, **Amadeja Kirbiš**; *»Kurent«*, **Miha Reja**; *»Bucket Full Of Crabs«*, **Katarina Blažič**; *»Encounter«*, **several authors** and *»A Bone to Pick With«*, **Nika Karner**
- We were invited to the **International Animated Film Festival Animafest Zagreb** with a "solo" exhibition at **Šira Gallery**. We presented graduation films of Miha Reja, Anja Paternoster, Katarina Blažič, Amadeja Kirbiš and Nika Karner, as well as the MA graduation film of Sandra Jovanovska. The projects of current students Dragana Stanković, Domna Sajović, Melita Sandrin, Tamara Taskova, Neda Ivanović and Anđelina Petrović were still in progress and were presented with set designs, dismantled puppets, animation sequences and AR drafts.
- **DSAF Slovene Animated Film Association** awarded students for finished films and projects in development. This year our students received:
  - **Melita Sandrin**, graduation animation film project *»Arachnophobia«* - DSAF Award for Student Animation Project in Development 2023
  - **Tamara Taskova**, animation project *»Cycle Fragments«* - DSAF Special Mention for Student Animation Project in Development 2023
- At the **Isola Cinema Festival** we presented an exhibition of students' works; several student films were also accepted into the Video on the Beach programme section
- **Tribute to a Vision Festival**, Nova Gorica/ Gorica – exhibiton, presentation of the school and screening of films within the selected programme **First Crossings/Prvi poleti**
  - **Ana Logar, Una Savić in Karin Likar**, curator of the AU programme at the festival
- At the **International Festival of New Media Speculum Artium** Festival in Trbovlje our films formed one slot within the DigitalBigScreen programme
- At the **International Computer Art Festival MFRU** 2023 in Maribo r
  - MA students **Tamara Kostrevc** and **Lazar Mihajlović** received the 3rd Student Prize for their new media project ***»Can You Feel It?«***
- At the **Animateka 2022 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.
  - Three of our students' films were selected for the festival programme, two in competition and two in panorama. *»Let Me Breathe«*, **Katarina Brglez** in the Young Talent Competition programme; in the panorama programme *»Chill Stacy, chill«*, **Tamara Taskove** and *»Sabotage«*, **Neda Ivanović**
- **Neum Animation Film Festival** 2023
  - **Miha Reja**, graduation animation *»Kurent«* - Dušan Vukotić Award
- **21. Zagreb Film Festival** 2023 Zagreb
  - MA student **Aleksandra Stošić (Trajković)** won the Youth Industry pitching with her MA diploma film in development ***»Hunger«***.
- **Special screening of films by our students for Women's Day**, the Slovenian Film Base BSF on Women's Day traditionally presents the creativity of Slovenian female filmmakers with a special screening. In 2023, the list of films included two projects by our students – *»Zbulimi«*, a film by **Arta Kroni** and *»I reflect«*, a film by **Tamara Kirina**

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.

# Graduate School

## Dean: Prof. Dr. Iztok Arčon

Mushroom-shaped carbonate pillar, the result of aeolian erosion.
White Desert at Farafra, Western Desert in Egypt.

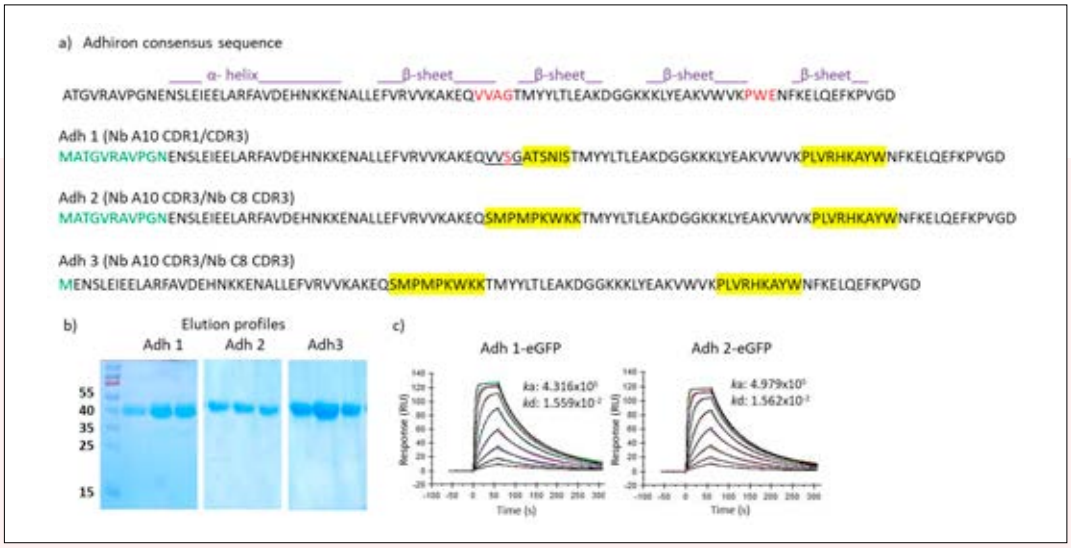
Graduate School at UNG hosts and carries out all doctoral study programmes, regardless of their scientific discipline. The range is very wide, covering fields from science and technology to the humanities and interdisciplinary sciences. Such a closely connected and homogeneous organization of graduate school proved to be very effective, enabling high electiveness and interdisciplinarity in designing individual doctoral study programmes.

In the academic year 2021/2022 there were a total of 61 student enrolled in eight doctoral programs. 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 and can participate in international research projects. Among many external

Study Programmes:

**Doctoral Study Programme Environmental Sciences**
**Doctoral Study Programme Karstology**
**Doctoral Study Programme Physics**
**Doctoral Study Programme Materials**
**Doctoral Study Programme Humanities**
**Doctoral Study Programme Cultural Heritage Studies**
**Doctoral Study Programme Molecular Genetics and Biotechnology**
**Doctoral Study Programme Cognitive Science of Language**

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 doctoral students to conduct their research work required by their studies and to participate in international research activities and projects.




Design of the Adhiron Phage Display Library (published in Biomolecules 2023, 13, 1533. https://doi.org/10.3390/biom13101533).

partners we should point out those with which we have established long term collaborations. The programme *Karstology* is carried out in close association with the Karst Research Institute of the Centre of the Slovenian Academy of Sciences and Arts. The links between the two institutions were further strengthened in 2014 with the establishment of the UNESCO Chair on Karst Education at UNG. Doctoral programme *Cultural heritage Studies* is implemented in close cooperation with Università IUAV di Venezia, and offers a possibility of double doctoral diploma, and a one-year specialization (second-level Master). Doctoral programme *Molecular Genetics and Biotechnology* is carried out in collaboration with the International Centre for Genetic Engineering and Biotechnology (ICGEB) from Trieste, Italy. The doctoral program Materials was prepared and is carried out in close collaboration with National Institute of Chemistry.

An important strategic orientation of Graduate School is the internationalization of doctoral studies. This is reflected in the high share of enrolled foreign students (multi-year average is over 60%). Number of international student exchanges and number of visiting professors and mentors from foreign universities and research institutions is also very high. The committee for the assessment of doctoral dissertation always includes at least two members from foreign universities to assure that the quality of doctoral degrees is comparable to international standards.

All programmes are conducted successfully, in a high-quality manner and effectively, which is visible in the success of students in their studies and individual research work.

The quality of graduate studies is reflected in successful defences of high-quality doctoral theses, and in numerous publications of student research results in reputable international scientific journals. In the academic year of 2022/2023 students published 76 scientific and professional articles, 224 contributions at scientific conferences, and 21 other scientific publications. In this year 11 students finished their doctoral studies.

We continuously improve and upgrade the content and quality of the execution of all our doctoral programs, to guarantee the quality and topicality of the programs and teaching methods, and to provide doctoral students necessary up-to-date knowledge and skills for solving new challenges in science. In the 2022/2023 academic year we renewed the procedures for monitoring and improving the quality of doctoral study programs and self-evaluation procedures, considering also the suggestions for improvements given by the international experts.

Implementation of doctoral study programmes is financed through tuition fees. Premises and equipment for the implementation of graduate study programmes are adequate. The directors of the programs together with the scientific councils of the programs take care of the professional management of doctoral programs. External stakeholders, representatives of employers, research institutions, the public sector, the local environment, and representatives of graduates of the study program also participate in making strategic decisions in the development and changes of individual study programs.

From the field to the laboratory – analysis of sediment and water samples, Erasmus+ exchange programme Montanuniversität Leoben, Austria,


SCIENTIA VINCES

# 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 and Project Office* is there for coordinating international projects and 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 material offered by the library. We collect material from all areas of science, mostly for educational and research activities of UNG.

Library collection includes about 25.000 book titles, 52 titles of periodicals, 750 items of non-book material and e-edition of scientific journals, reachable over services like ScienceDirect, Springer-Nature, Web of Science, MathSciNet, Scopus, APS Journals, EBSCO, ACS Publications, JSTOR, CREDO online, IOPscience, Taylor & Francis - Science & Technology, ProQuest Dissertation & Theses Global ...

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. Throug our website we offer e-learning of search skills. We also provide information literacy courses. The library is open 48 hours per week. Users can use a reading room with computers and option to connect to Wi-Fi their own devices for easier access to electronic material, archives and databases. Students from the dislocated faculties can use library loan by the courier service. Repository of the University of Nova Gorica (RUNG) is one of the Open Science Slovenia portal's "openaccess.si" partners.

In 2023, we continued updating lists of basic study literature, we also published lists of literature for individual subjects on the library's website. Each reference is provided with a link to the catalogue and to the e-material where it exists. This year, we enriched the library collection with around 800 new units of basic study literature. The library material was rearranged within UDC structure notation and now is more logic and user-friendly. In accordance with the "Pravilnik o pogojih za izvajanje knjižnične dejavnosti kot javne službe", we prepared the document "Izgradnja, razvoj in upravljanje knjižnične zbirke ter zagotavljanje dostopa do elektronskih informacijskih virov v Univerzitetni Knjižnici Univerze v Novi Gorici".

The maintenance work in the computer room was delayed and it has not yet been fully renovated, but we prepared the reading room and installed two computers for users. In the reading room, the literature collection of the Academy of Arts has been re-established.

In 2023, the repository was updated in accordance with the "Uredbo o izvajanju znanstvenoraziskovalnega dela v skladu z načeli odprte znanosti". Researchers can also submit research data to the repository, large files can be uploaded to the iRODS server, project data can be entered, permanent identifiers (PID) can be assigned etc.

We successfully provided training and information literacy courses for students of several faculties. Our employees participated in several trainings in the field of librarianship and open science.

# Publisher of UNG

## Head: Mirjana Frelih




University of Nova Gorica started its publishing activity in 2001. We publish textbooks and study material 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 64 publications. Among them there are teaching material 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 2023, we published two scientific monographs. The first »Kaj je literarna zmožnost in kako jo preverjamo z maturitetnim esejem« by Ivana Zajc was published in printed form with the support of the Slovenian Research Agency. The second »JERA - JEzikovno Razumevanje: test sposobnosti razumevanja stavkov v slovenskem jeziku« by Artur Stepanov and others, was published in both printed and e-form under a Creative Commons license. We also published two proceedings of scientific conference contributions in open access. We published »Škrabčevi dnevi 12« by editors Danila Zuljan and Helena Dobrovoljc, already the sixth proceedings of Skrabec in a row and "Proceedings of the International Summer School of Bilingualism and Multilingualism (ISSBM2022)" by editors Greta Mazzaggio and Paolo Lorusso which was made using the Pressbooks tool. We published two university textbooks, both in open access. First one in English translation: "Modelling Dynamic Systems with Artificial Neural Networks" by Juš Kocijan, originally published by the UNG in 2007. "Digital Humanities and Literature" by Ivana Zajc and Peter Purg, was also made using the Pressbooks tool.

In 2023, for the first time, more books were published in open access than in print.

# Student Office

## Head: Renata Kop

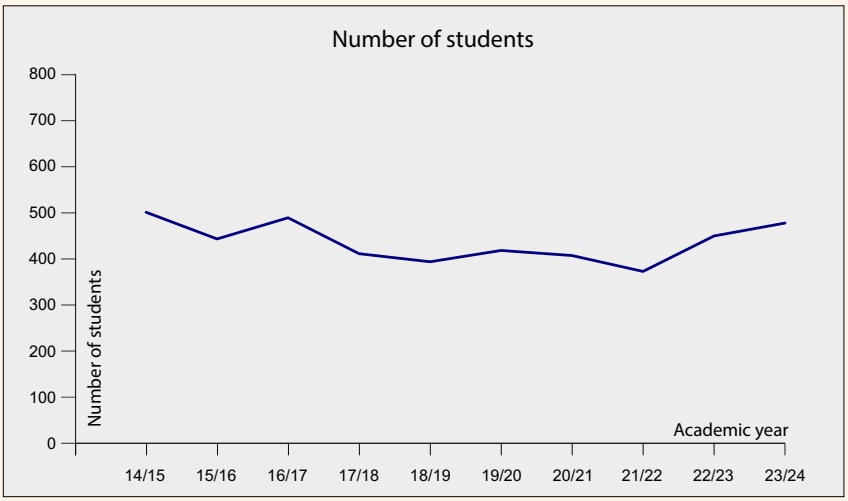
The Student Office of the University of Nova Gorica was founded in the year 2002 and serves both undergraduate and postgraduate students as well as those interested in information about the studies at our institution. The objective of the Student Office is to support the students and the candidates for study in academic and extracurricular activities. The Student Office has offices 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.

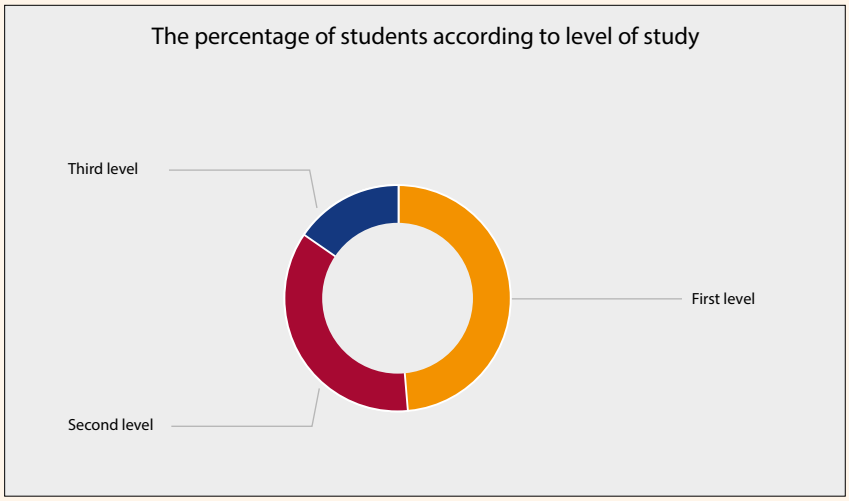
The tasks of the student office are study counseling (application process and application deadlines); administrative processing of applications (review of applications, informing candidates about missing documents and deadlines for submission, keeping records); managing candidates from application to enrollment (evidence, notification, notification and selection decisions, invitations to enroll, first enrollment of candidates); education recognition process (review of applications, collection of evidence, information, advice, formal and substantive assessment of applications, preparation of decisions, decision-making, record keeping); enrollment of students (organization and management of enrollment: enrollment in the higher year, repetition of the year, data entry, preparation of data for other university services); issuance of certificates (issuance of acceptance, enrollment, evaluation certificates, etc.); entry of grades (exams, diplomas); assistance and advice to Student Committee (if necessary); other counseling (accommodation, transport, food, health insurance, bank, tax number); organization of systematic medical examinations; assistance, guidance and advice in the process of obtaining a residence permit (foreigners); management of student records and archives; cooperation in the preparation of university regulations, preparation of diploma documents (preparation of diploma and diploma supplement, printing of diploma supplement, procurement of diploma documents and folders, assistance in legalization of documents, record keeping); regulating the legalization of diplomas; organization of the preparation of the tender for enrollment and submission of the tender to the ministry; entry of the tender (registration deadlines, vacancies, etc.) into eVš; cooperation in the preparation of the schedule and common provisions (concessional undergraduate programs); members of the VPIS Coordination; preparation of analyzes and statistical data on students, graduates, applications, enrollment and study programs for the needs of faculties, universities, ministries and others - as necessary; editing the website in the field of application, tender, enrollment, extracurricular activities, price list; management of the student dormitory (rooms in the Lanthieri Mansion): preparation of the invitation for admission and residence, preparation of contracts, installation, check-in and check-out of the residence and record keeping, control over defects, defects, order and cleaning; coordination of private accommodation offers.

Education and training in 2023:
- consultations, seminars, trainings in the field of enrollment services
- legislation and good practices in the field of recognition of education
- legislation in the field of obtaining residence permits for foreigners
- education organized by the Ministry of Education, Science and Sport and ENIC-NARIC
- legislation in the field of higher education
- intercultural competences.

Examples of training courses:
- Working meetings of the VPIS Coordination
- eVŠ workshop - upgrades: definition of a study course for program encryption
- ZViS-M - news regarding enrollment procedures and new data that will be collected in eVŠ
- Lecture on sexual and other forms of harassment
- TPG-LRC CoRE online focus group on quality of recognition
- Erasmus+ mobility for the purpose of training (Portugal)

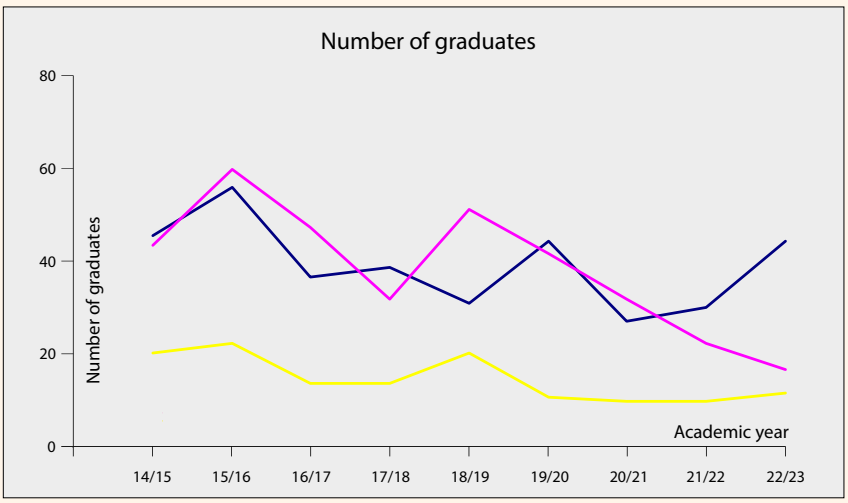
In the academic year 2023/2024 we have 476 students: 233 students of the bachelor`s degree study programmes, 169 students of the master`s degree study programmes and 74 students of the doctoral degree study programmes.



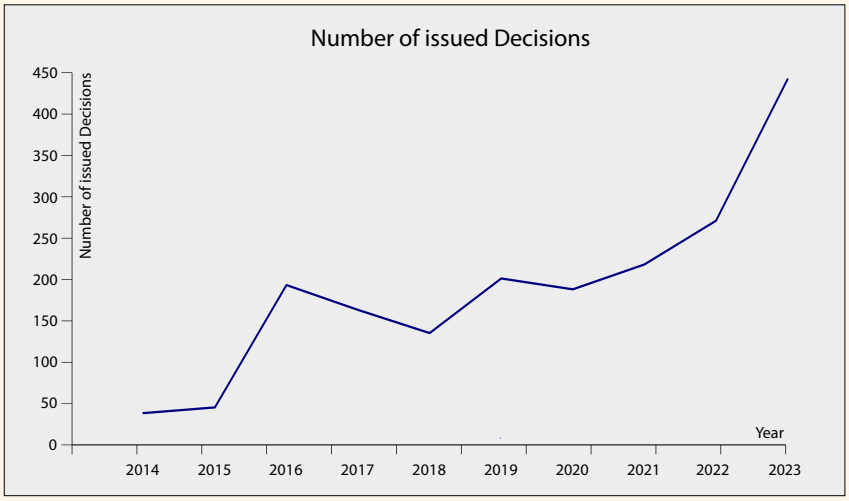




The number of graduates by the level of the programme in academic year 2022/2023:

- 45 on the bachelor's study programmes,
- 16 on the master's study programmes,
- 11 on the doctorate study programmes.

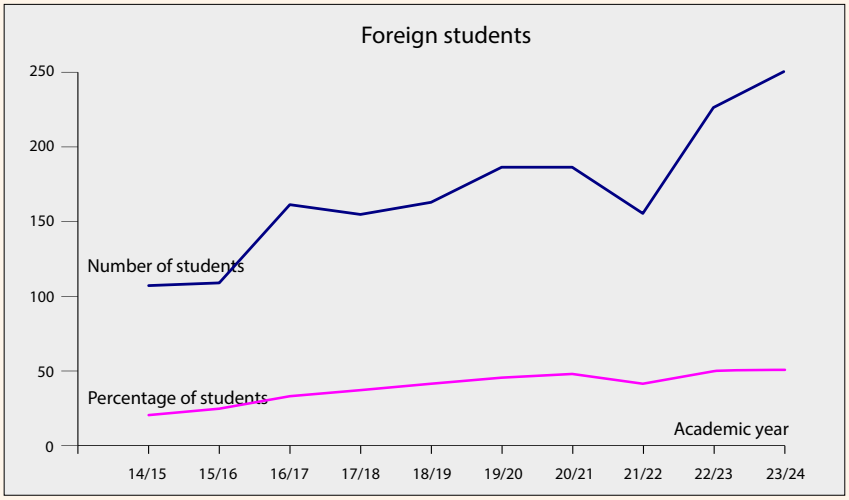


The Student Office completed 442 processes of the recognition of foreign education and issued 327 positive decisions in the year 2023.

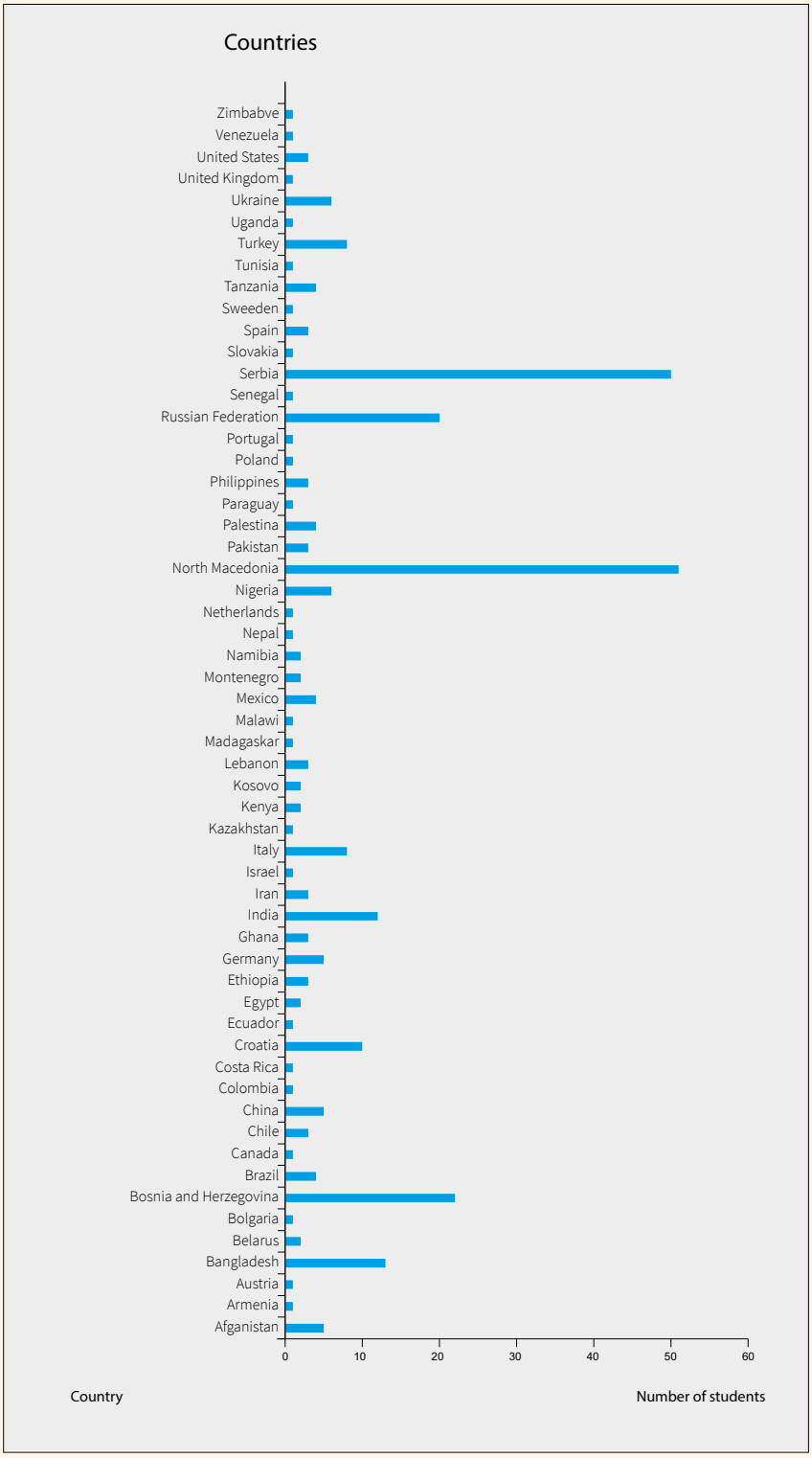



The number of foreign students at the University increased in 2023/2024 compared to 2022/2023, and the percentage of foreign students in relation to the total number of students at the University in the observed period is also higher, i.e. 63%.

The majority of the foreign students in academic year 2022/2023 study on the master's study programmes, in particular on the School of Humanities.



In the academic year 2023/2024 the foreign students come from 57 different countries:



# International and Project Office

## Head of Office: Aljaž Rener

The activity of the International and Project Office is intended for the management and organization of international activities and the coordination of international (and domestic) UNG projects.

The office supports students, professors, researchers and other employees who participate in mobility activities. It takes care of incoming and outgoing mobility under the Erasmus + program, under Ceepus, Bilateral Scholarships and of mobility carried out under various interinstitutional agreements or arrangements. It also provides support in concluding inter-institutional agreements.

The office provides administrative support to applications of project proposals to open calls and the implementation of international projects. The office provides support to researchers and other employees in preparing applications for tenders, primarily from a financial, administrative and legal-formal point of view. For ongoing projects, the office ensures the preparation of financial reports for international research projects and provides support and advice in the implementation of projects.

The office employs four people (Head of the Office, Project Coordinator, Mobility Coordinator and Professional Associate).

Mobility project implemented in 2023:

- Erasmus+ 2023, Visokošolsko izobraževanje med programskimi državami (2023-2025)
- Erasmus+ 2023, Visokošolsko izobraževanje med programskimi in partnerskimi državami (2023-2026)
- Erasmus+ 2022, Visokošolsko izobraževanje med programskimi državami (2022-2024)
- Erasmus+ 2022, Visokošolsko izobraževanje med programskimi in partnerskimi državami (2022-2025)
- Erasmus+ 2021, Visokošolsko izobraževanje med programskimi državami (2021-2023)
- Erasmus+ 2020, Visokošolsko izobraževanje med programskimi in partnerskimi državami (2020-2023)
- Erasmus+ 2020, Visokošolsko izobraževanje med državami programa (2020-2023)
- Multidisciplinary Approach to Education and Research in the Field of Digital Media Production, CEEPUS (2022-2023)
- Advanced Trends in Education and Research of Biochemistry, Biophysics and Biotechnology of Macromolecules – Umbrella, CEEPUS (2022-2023)
- Food Safety for Healthy Living, CEEPUS (2022-2023)
- Women Writers in History – Umbrella, CEEPUS (2022-2023)
- ADRIART.CE, CEEPUS (2022-2023)
- Education of Modern Analytical and Bioanalytical Methods, CEEPUS (2022-2023)
- Research and Education in the Field of Graphic Engineering and Design, CEEPUS (2022-2023)

200 exchanges of students, young graduates and staff were realized in the 2022/2023 academic year.

The Office provided support in concluding inter-institutional agreements and took care of the promotion of programs and projects and their results. Office organized several informative presentations of mobility projects for both staff and students. It also participated in virtual Info Days of the University, promotional campaigns organized by the University.
The work in the office in 2023 in the field of international research projects was mainly focused to support the implementation of ongoing projects.

In 2023, the International and Project Office provided administrative and financial support in the implementation of the following projects and in the preparation of financial reports:

- DIMAG - Electrically controlled ferromagnetism in 2-dimensional semiconductor (FLAG ERA JTC)
- PROSPECT PatteRned cOatings based on 2D materials benzoxazine reSin hybrids for broad range Pressure detection (FLAG ERA JTC)
- REGINNA 4.0 - REGional INNovAtive learning for society 4.0 (EIT HEI Initiative)
- URBINAT – Healthy corridors as drivers of social housing neighbourhoods for the co-creation of social, environmental and marketable NBS (Horizont 2020)
- NEP - Nanoscience Foundries and Fine Analysis – Europe PILOT (Horizon Europe)
- SAAERO - SArajevo AEROsol Experiment: Composition, Sources and Health Effects of Atmospheric Aerosol (H2020 MSCA IF)
- COFsensor - Novel COF-based sensors for detecting organic agents in water (H2020 MSCA WF)
- SMASH – Machine Learning for Sciences and Humanities (Horizon MSCA COFUND)
- WeBaSoop - Research Reinforcing in the Western Balkans in Offline and Online Monitoring and Source Identification of Atmospheric Particles (Horizon Europe WIDERA)
- SRC-EDIH - Smart, Resilient, and Sustainable Communities – European Digital Innovation Hub (Horizon Europe)
- RE-VALUE – Re-Valuing Urban Quality & Climate Neutrality in European Waterfront Cities (Horizon Europe)
- CRESCENTO - CiRcular Economy Skills enhancement NeTwOrk (INTERREG ADRION Programme)
- AGRTOUR + - Kraški lokalni produkti in turizem (INTERREG VI-A Italija - Slovenija)
- Uncorking rural heritage: indigenous production of fermented beverages for local cultural and environmental sustainability (NFM Fund for regional cooperation)
- OpMetBat - Operando metrology for energy storage materials (The European Partnership on Metrology EURAMET)

# Career Center

(Head: Nives Štefančič)


Activities in 2023:

Activities in the context of practical training; coordination and assistance of students in finding companies for practical training and participation in online presentations of interim reports of the practical training of students of School of Engineering and Management in companies Tosla, d. o. o., Business Solutions, d. o. o., Saop, d. o. o., RLS, d. o. o., Instrimentation Technologies, d. d. Incom, d. o. o. and Goap, d. o. o.

Contacts with employers; meetings with employers from companies Mahle Electric Drivers Slovenija, d. o. o., Business Solutions, d. o. o., Saop, d. o. o., Instrimentation Technologies, d. d., Incom, d. o. o. and Goap, d. o. o., where we discussed the possibilities of cooperation with individual fschools in the framework of practical training, student work and other possibilities of cooperation. Publication of vacancies of different companies.

Meetings at the Ljudska univerza Ajdovščina regarding agreements of cooperation within the framework of "Weeks of Lifelong Learning 2023" and InCastra 2023. Meetings at the Institute for Youth Policy in Ajdovščina and at the Ljudska univerza Nova Gorica regarding job shadowing of students of Postojna, Vipava, Ajdovščina, Ilirska Bistrica, Nova Gorica and Idrija gymnasiums, in UNG units. Meeting with the Primorski Technological Park regarding the participation of UNG students in the Popri competition.

Informing students and graduates of suitable job vacancies, internships, current events, tenders; published arround 190 job vacancies, which correspond to profiles of UNG graduates.

Periodically checking the employability of graduates six months and one year after graduation; in January, March, May, July, September and November 2023 (graduates from 2019 to 2023).

Organization and/or participation at events with the aim of promoting the University and the Career Center:

- business meeting with organizers of Informativa 2023 - preparation for coordination of Informativa 2023;
- organization and coordination of the team at Informativa in January 2023;
- meeting with organizers of Informativa - exchange of impressions and suggestions regarding improvements for Informativa 2024;
- coordination of internships for 4th-year students of the Slovenian lyceum pole from Gorica in the units of the University;
- participation in intermediate presentations of School of Ingeneering and Management students on the course of practical training;
- organization and coordination of lecture "The changing night sky" and a tour of laboratories for elementary schools - app. 70 students from Šturje Elementary School, 7 students from Col Elementary School and two students with special needs;
- organization and coordination of lecture "Birth of Stars" and a tour of laboratories for high school students - 20 students from Ajdovščina Gymnasium;
- organization and coordination of the UNG presentation at the "Learning Parade 2023", organized by the Ljudska Univerza Ajdovščina;
- coordination of the ONA VE event;
- participation in the Council of the School of Engineering and Management;
- participation at the final presentations of School of Ingeneering and Management students of the course of practical training;
- participation at the Knowledge Stands 2023 organized by LUNG;
- organization of the projection of the film "Earth beneath a dark lid" and a discussion with the authors of the film after the screening as part of the project "Noč ima svojo moč" and "InCastra 2023" in Ajdovščina - attended by 90 students of the Ajdovščina Gymnasium, 50 students Nova Gorica secondary traffic and woodworking schools, 15 students from Šturje elementary school and two students with special needs;
- participation in the working group to support the activities of the Eurograduate project of the Rector's Conference of the Republic of Slovenia;
- participation in the Inclusion project;
- "CV and motivation letter" workshop for students of the School of Engineering and Management;
- coordinating, students in finding companies for practical trainings;
- organization a round table with graduates of the School of Environmental Sciences and School of Viticulture and Enology;
- organization a round table "Practical training - an excellent opportunity to enter the business world", during the UNG week at the School of Ingeneering and Management;
- organization a round table with graduates of the School of Science;
- participation and coordination students at the career fair in Maribor (vocational and education fair for high school students);
- participation and coordination students at the career fair in Nova Gorica;
- participation and coordination students at the career fair in Novo mesto;
- participation and coordination students at the career fair in Celje;
- organization of the ceremony of the University of Nova Gorica Foundation;
- coordination of the exhibition "Artists for Caritas" in the Lanthieri mansion;
- cooperation in the preparation of the application for the ACROSS project.

Participation of the Career Center in working meetings and trainings:

- online education on the topic of "Process Visualization";
- participation in a three-day training and education for working with special groups of students at FUDŠ;
- online training on personal data protection;
- participation in education/training in the field of inclusion - The Inclusion ACAdemy;
- participation in education/training for confidential persons at UNG;
- participation in Erasmus+ training for employees at the University of Trás-os-Montes and Alto Douro (UTAD) Villa Real in Portugal;
- participation in a lecture on sexual and other forms of harassment.

**Employability in 2023**

With the academic year 2021/2022, we started with a new way of monitoring employability of graduates. We follow the percentage of graduates who:

- are employed in the profession,
- are employed,
- are UNEMPLOYED,
- continue their studies,
- we fail to verify them or they refuse to provide information - grey area.

The tables present the employability of UNG graduates for all programs together and separately by Schools for 6 months and 12 months after graduation. Data from the UNG Career Center are from November 2023 and include graduates of the last three years.

Employability of UNG graduates, all together and separately by School, 6 months after graduation (data covers graduates from 2019 onwards):

| School average in % | 6 months % employed in the profession | 6 months % employed | 6 months % unemployed | 6 months % continue with studies | 6m % grey area |
|---|---|---|---|---|---|
| **University of Nova Gorica - together** | 58,73 | 65,87 | 9,52 | 17,86 | 6,75 |
| **School of Engineering and Management** | 72,50 | 77,50 | 6,25 | 11,25 | 5,00 |
| **School of Environmental Sciences** | 48,28 | 48,28 | 6,90 | 37,93 | 6,90 |
| **School of Humanities** | 28,57 | 50,00 | 14,29 | 21,43 | 14,29 |
| **School of Sciences** | 21,43 | 21,43 | 14,29 | 64,29 | 0,00 |
| **School of Viticulture and Enology** | 45,45 | 81,82 | 9,09 | 9,09 | 0,00 |
| **School of Arts** | 48,57 | 57,14 | 14,29 | 25,71 | 2,86 |
| **MAG ARH** | 0,00 | 0,00 | 0,00 | 0,00 | 100,00 |
| **Graduate School - TOGETHER** | 81,13 | 83,02 | 9,43 | 0,00 | 7,55 |

| 6 months - % employability of the Graduate School (GS) separately by doctoral programmes | | | | | | % of graduates from GS |
|---|---|---|---|---|---|---|
| **Environmental Sciences** | 83,33 | 91,67 | 0,00 | 0,00 | 8,33 | 22,64 |
| **Physics** | 66,67 | 66,67 | 22,22 | 0,00 | 11,11 | 33,96 |
| **Karstology** | 100,00 | 100,00 | 0,00 | 0,00 | 0,00 | 15,09 |
| **Humanities** | 100,00 | 100,00 | 0,00 | 0,00 | 0,00 | 5,66 |
| **Cultural Heritage Studies** | 100,00 | 100,00 | 0,00 | 0,00 | 0,00 | 7,55 |
| **Molecular Genetics and Biotechnology** | 80,00 | 80,00 | 0,00 | 0,00 | 20,00 | 9,43 |
| **Cognitive Science of Language** | 0,00 | 0,00 | 100,00 | 0,00 | 0,00 | 1,89 |
| **Materials** | 100,00 | 100,00 | 0,00 | 0,00 | 0,00 | 3,77 |

Employability of UNG graduates, all together and separately by School, 12 months after graduation (data covers graduates from 2019 onwards):

| School average in % | 12 months % employed in the profession | 12 months % employed | 12 months % unemployed | 12 months % continue with studies | 12 months % grey area |
|---|---|---|---|---|---|
| **University of Nova Gorica - together** | 62,29 | 70,76 | 1,69 | 19,92 | 7,63 |
| **School of Engineering and Management** | 72,60 | 80,82 | 1,37 | 13,70 | 4,11 |
| **School of Environmental Sciences** | 53,57 | 57,14 | 3,57 | 35,71 | 3,57 |
| **School of Humanities** | 29,63 | 51,85 | 0,00 | 29,63 | 18,52 |
| **School of Sciences** | 35,71 | 35,71 | 0,00 | 64,29 | 0,00 |
| **School of Viticulture and Enology** | 50,00 | 70,00 | 10,00 | 20,00 | 0,00 |
| **School of Arts** | 51,52 | 66,67 | 0,00 | 24,24 | 9,09 |
| **MAG ARH** | 0,00 | 0,00 | 0,00 | 0,00 | 100,00 |
| **Graduate School - TOGETHER** | 89,80 | 89,80 | 2,04 | 0,00 | 8,16 |

| 12 months - % employability of the Graduate School (GS) separately by doctoral programmes | | | | | | % of graduates from GS |
|---|---|---|---|---|---|---|
| **Environmental Sciences** | 83,33 | 91,67 | 0,00 | 0,00 | 8,33 | 24,49 |
| **Physics** | 87,50 | 87,50 | 6,25 | 0,00 | 6,25 | 32,65 |
| **Karstology** | 100,00 | 100,00 | 0,00 | 0,00 | 0,00 | 16,33 |
| **Humanities** | 100,00 | 100,00 | 0,00 | 0,00 | 0,00 | 6,12 |
| **Cultural Heritage Studies** | 100,00 | 100,00 | 0,00 | 0,00 | 0,00 | 8,16 |
| **Molecular Genetics and Biotechnology** | 80,00 | 80,00 | 0,00 | 0,00 | 20,00 | 10,20 |
| **Cognitive Science of Language** | 0,00 | 0,00 | 0,00 | 0,00 | 100,00 | 2,04 |
| **Materials** | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 |

# Alumni Club

## Head: Nives Štefančič

Photo from the awarding of diplomas, master's degrees and the promotion of doctors of science at UNG.

Alumni Club of the University of Nova Gorica in 2023 continued with activities to increase connection between University and Alumni:

- we upgraded informations about Alumni and informed them about activities of Alumni Club;
- we invited them to become promotors within their schools, at variety promotional events;
- we informed Alumni about scholarships, competitions, opportunities for postgraduate studies at home and abroad;
- we informed them about job vacancies and other events suitable for individual profiles of graduates;
- we invited them to different events of the University of Nova Gorica (scientific evenings, information days, semester and annual exhibitions, etc.);
- Alumni participated at round tables at the School of Science, School of Environmental Sciences and the School of Viticulture and Enology.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