EXPERIENCE SCIENCE TECHNOLOGY FUTURE

THE BULLETIN

OF THE SILESIAN UNIVERSITY OF TECHNOLOGY

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LIFE CHANGES SCIENCE

Silesian University of Technology

RESEARCH UNIVERSITY EXCELLENCE INITIATIVE

IGRY GAMES 2024

Photos: ***Przemysław Bratkowski***

FROM THE EDITOR

The latest issue of the Silesian University of Technology Bulletin is full of reports of important events in the life of our academic community. Some of them show the enormous strength of the scientific potential of one of the ten research universities in the country, others the impressive activity of various university community groups, and still others the youthful joy, enthusiasm, and inventiveness of students. Altogether, they are proof of the great diversity of activities of the Silesian University of Technology, a university with great traditions and ambitions implementation of which builds its growing position in the country and the world. In the June issue of our magazine, readers will also find articles showing the Silesian University of Technology after hours and the beautiful initiatives of its graduates, who are still connected with their Alma Mater by "blood ties." They will find poignant and touching human stories in which the university plays an important role, inspiring and motivating people to act for the good of others.

Counting on your faithful presence, on behalf of the editorial office, I wish you a pleasant reading.

Iwona Flanczewska

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On the cover: **Aviation Week**

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Edited by Martin Huć
photo: Karolina Marszał

THE SILESIAN UNIVERSITY OF TECHNOLOGY HAS BEEN ADMITTED TO THE EUROPEAN UNIVERSITY FOUNDATION (EUF). MEMBERSHIP IN THIS PRESTIGIOUS ORGANIZATION OPENS NEW OPPORTUNITIES FOR OUR UNIVERSITY.

The European University Foundation (EUF) is one of Europe's most prestigious and influential networks. Its primary mission is to create a modern, strong, and competitive European Higher Education Area and to promote a significant increase in student mobility quantity and quality. EUF members are public universities that share a culture of academic excellence.

The EUF was initiated in the late 1990s when Helmut Kohl, Chancellor of Germany, proposed the creation of a European space for deep academic cooperation. From 2004-2014, the organization was under the patronage of the Grand Duchy of Luxembourg. Since 2014, the European Commission has directly financed the network under the Erasmus+ program.

The organization has extensive experience in policy innovation and a rich history of supporting the development of the Erasmus+ program. EUF's activities are organized under five pillars that aim to contribute to the growth and internationalization of its members and the knowledge-based society.

More information can be found at: www.uni-foundation.eu

EUF ACTIVITIES ARE ORGANIZED WITHIN FIVE PILLARS:

1. High-quality mobility

From the beginning, the EUF network has advocated for high-quality student mobility, aiming to strengthen the competences acquired during studies abroad and increase understanding between European cultures. Since then, most of the high-quality mobility features pioneered by the network have been incorporated into Erasmus+.

Projects:

- NORM
- Teach with Erasmus+
- DocMob
- eQuaTIC

2. Employability and entrepreneurship of graduates

It is sometimes complicated for young graduates to find a job after graduating, so providing students with the appropriate education and skill set is necessary. EUF has developed Knowledge Alliances to give practical training to students and academics and build closer links with potential employers.

Projects:

- ErasmusJobs
- PhD Hub, Knowledge
- Alliance
- POWER, Knowledge Alliance

3. Digital higher education for both learning/teaching and management

The digital revolution has profoundly impacted learning and teaching and the management of universities. EUF is committed to accelerating the development and expansion of digital tools that can help European universities fulfil their core missions.

Projects:

- Erasmus+ App
- Erasmus without paper
- European digital student
- Digital services infrastructure for students
- MyAcademicID
- Agreement on program of online classes

4. Political innovations

EUF is the leading European think/do tank in higher education. It strongly emphasizes policy innovation and experimentation based on ongoing dialogue with members and other stakeholders. The network also has a multi-year framework agreement with the European Commission to conduct such activities.

Achievements:

- Erasmus program overview
- The position of European universities
- Automatic recognition document

5. Active citizenship

Human rights and active citizenship are fundamental values that cannot be taken for granted. EUF provides a platform for discussing and exchanging good practices on these critical issues.

Projects:

- SIEM
- GreenErasmus
- Erasmus Skills
- SocialErasmus+
- Coop4Edu

EUF EUROPEAN UNIVERSITY FOUNDATION
Associate Member

197 REASONS TO CELEBRATE

Edited by Jolanta Skwaradowska
photos: Jan Szady

ON MAY 25, 2024, THE SILESIAN UNIVERSITY OF TECHNOLOGY EDUCATIONAL AND CONGRESS CENTRE HOSTED A SOLEMN DOCTORAL AND HABILITATION PROMOTION. DEGREES OF HABILITATED DOCTOR AND DOCTOR WERE AWARDED TO THOSE WHO OBTAINED THESE DEGREES IN 2023. THE EVENT WAS ENHANCED BY THE AWARD OF THE TITLE OF THE HONORARY PROFESSOR OF THE SILESIAN UNIVERSITY OF TECHNOLOGY TO PROFESSOR ZBIGNIEW DĄBROWSKI.

In 2023, 19 people received the degree of habilitated doctor at the Silesian University of Technology, and 178 people received the degree of doctor.

– It is with great joy and a sense of great satisfaction that I welcome you to a unique event in the life of our University, which is the ceremony of doctoral and habilitation promotions, which honour the research achievements and scientific advancement of another community of young scientists – said the Rector of the Silesian University of Technology, Prof. Arkadiusz Mężyk.

– We have 197 great reasons to celebrate today. This is how many doctoral dissertations and habilitation proceedings ended with a great success in 2023. This is an excellent testimony to your knowledge, competences and qualifications and a huge strengthening of the

scientific potential of our Alma Mater, which is on the threshold of its 80th anniversary - said the Rector.

The ceremony of awarding doctoral and habilitation promotions is a great celebration of science – emphasized the Rector. Science that asks bold questions, forms breakthrough hypotheses, science based on vision, determination, perseverance and passion, without which scientific research cannot be conducted.

We have 197 great reasons to celebrate today. This is how many doctoral dissertations and habilitation proceedings ended with a great success in 2023. This is an excellent testimony to your knowledge, competences and qualifications, as well as a huge strengthening of the scientific potential of our Alma Mater, which is on the threshold of its 80th anniversary - said the Rector of the Silesian University of Technology, Prof. Arkadiusz Mężyk.

– The world stands at a crossroads today. Global threats cause a loss of sense of meaning, severing interpersonal bonds, weakening the importance of community and the fall of authorities. These phenomena do not bypass the academic environment, and universities must face them while looking for solutions in the spirit of sustainable development and social responsibility. The role of the university is growing, understood both as a source of inspiration and beneficial economic and social changes, as well as a place that restores a sense of security and provides the prospect of stable and satisfactory functioning in a changing reality - emphasized the Rector.

During the doctoral and habilitation promotions, the title of Honorary Professor of the Silesian University of Technology was also awarded. This year it was awarded to Professor Zbigniew Dąbrowski, a scientific authority, co-creator of the field of knowledge of technical diagnostics, a valued academic teacher, distinguished for

the scientific development of employees of the Silesian University of Technology.

The ceremony of awarding the diploma of the Honorary Professor of the Silesian University of Technology was led by the Rector-Elect, Prof. Marek Pawełczyk.

– Professor Zbigniew Dąbrowski is an outstanding Polish scientist specializing in mechanics and the construction and operation of machines. He achieved significant successes in solving the problems of quietness of machines and technical diagnostics, and created an original scientific school devoted to nonlinear problems in the construction and diagnosis of machines. Professor Zbigniew Dąbrowski promoted eleven doctors, and three of them subsequently obtained habilitation degrees. He is the author or co-author of approximately 280 scientific publications, including eighty monographs. It is worth emphasizing the professor's involvement in organizing the teaching process - he made, among other things, a lasting contribution to the teaching methodology in the field of machine construction and operation - said Prof. Pawełczyk.

After awarding the Honorary Diploma of the Professor of the Silesian University of Technology, there were solemn promotions, which were conducted by Prof. Bogusław Łazarz, Vice-Rector for General Affairs.

– Dear Doctors, when you are awarded the honorary academic degree of doctor, you assume certain obligations, but above all, the rights and privileges associated with this dignity. Doctoral diplomas will be given to you as the confirmation of granting this dignity. The ceremony of awarding the diplomas will be performed by the Rector, Prof Arkadiusz Mężyk – said during the ceremony Prof. Bogusław Łazarz, Vice-Rector for General Affairs.

The ceremonial doctoral and habilitation promotions ended with a short performance by the Silesian University of Technology Choir. ■

THIS IS THE PLACE WHERE EXCELLENT STAFF IS MADE

text: *Katarzyna Siwczyk*
photo: *Maciej Mutwil*

THE FACULTY OF AUTOMATIC CONTROL, ELECTRONICS, AND COMPUTER SCIENCE HAS BEEN OPERATING FOR 60 YEARS. ON THIS OCCASION, ON JUNE 6, CELEBRATIONS WERE HELD WITH THE PARTICIPATION OF THE RECTOR'S AND DEAN'S AUTHORITIES, FORMER AND CURRENT EMPLOYEES, AND STUDENTS. THE REPRESENTATIVES OF COMPANIES THAT HAD SUCCESSFULLY COOPERATED WITH THE FACULTY FOR YEARS WERE ALSO PRESENT.

There was a cake, artistic performances, and memories. The 60th anniversary of the Faculty of Automatic Control, Electronics, and Computer Science was an opportunity to summarize and congratulate. The authorities of the Silesian University of Technology do not doubt that it is one of the most dynamically operating faculties at the University.

- The most significant number of students study at this Faculty. Currently, over 2,700 students are studying in all fields. It is a factory of excellent staff for companies in the region.

– The Faculty has always been the foundation of Silesia's development in introducing new technologies into the economy. We are currently playing an important role in the region's restructuring process. We educate experts needed on the labour market in the automation of industrial and medical processes,

It is worth recalling that the Faculty was established in 1964 by the order of the Minister of Higher Education. It was the first independent Faculty of Automation in Poland.

This also means the most significant number of employees and the largest budget - emphasized the Rector of the Silesian University of Technology, Prof. Dr Eng. Arkadiusz Mężyk. – The Faculty operates in the area of the latest technologies. Therefore, the visibility of the results of the work of scientists from this unit is essential and discussed, which is an excellent promotion for fields related to the modern technologies industry, artificial intelligence or automation and electronics – he added.

as well as specialists in microinformatics - said Prof. Dariusz Kania, Dean of the Faculty of Automatic Control, Electronics, and Computer Science.

These specializations are valuable in the current labour market, as evidenced by the Faculty's extensive cooperation with Polish and global corporations. Representatives of companies with which the Faculty cooperates daily expressed their gratitude yesterday for their joint activities.

- We are proud to cooperate with the Faculty and the Silesian University of Technology. In addition to basic activities that have a common goal - good education for students, we are happy that we can organize additional training for them. We know that the students who participate in them are already interested in a specific specialization, and we can offer them a particular job within the company's structures - said Adam Juretko, managing director of the ALSTOM branch in Katowice.

Entrepreneurs at the anniversary unanimously admitted that most of their staff are graduates of the so-called "magicians' tower," the opportunity to participate in meetings of the Dean's Council allows them to report the needs of employers and industry.

It is worth noting that the Faculty has recently been trusted by the global corporation Intel, which wants to train staff at the Silesian University of Technology for the newly built factory in Wrocław.

The Rector-Elect, Prof.Marek Pawełczyk, also argued that studies at the Faculty of Automatic Control, Electronics, and Computer Science are a springboard to an excellent career. Prof. Marek Pawełczyk has been associated with this unit since his professional career.

- I am proud to be a graduate of this Faculty. My entire scientific career is connected with this place. I started working while still a student. I was well taken care of, and, honestly, I never wanted to change my place of work - admitted Prof. Pawełczyk. - It has always been a very ambitious Faculty that set high goals for itself. Despite difficult housing conditions, we have provided excellent education here, and I believe this will not change, added the Rector-Elect.

Currently, over 2,700 students are studying in all fields. It is a factory of excellent staff for companies in the region.

It is worth recalling that the Faculty was established in 1964 by order of the Minister of Higher Education. It was the first independent Faculty of Automation in Poland. The Faculty of Automation comprises 7 Departments: Department of Industrial Electronics, Department of Regulation Theory, Department of Industrial Measurement, Department of Automation Devices, Department of Industrial Process Automation, Department of Signal Transmission Theory, and Department of Automation Devices Design. The first dean was Prof. Tadeusz Zagajewski. The classes were held in the Faculty of Electrical Engineering building at Wincenty Pstrowski Street (currently Akademicka 10) and at Marcin Strzoda Street, where the Dean's Office was also located. Construction of the new building began in 1967 and was completed in 1973.

The Faculty is developing dynamically in its new location. The laboratories are equipped with modern equipment, and the interest in the studies is so great that in addition to the branch in Gliwice, the Faculty also has a branch in Katowice.

To commemorate the history of the Faculty, a commemorative plaque to Prof. Zdzisław Trybalski, an outstanding scientist of this unit and one of the founders of the Faculty, was unveiled during the jubilee. This is another commemorative plaque in this place. The unveiling was performed personally by the professor's son.

– I am very touched. When I remember my father's work, it took place in another place, at the Faculty of Electrical Engineering in the so-called attic. Dad was very absorbed in his scientific work; it was vital to him, so he was often absent from home, but when he could, he made up for it and spoiled his family - recalled Piotr Trybalski.

Thursday's anniversary was an opportunity to recall many memories. Many graduates attended the ceremony.

– In 1972, I came to study in Gliwice, a small town. Initially, it was a difficult time for me, but I started studying in a field related to medicine, and I hoped for a good job. I recalled an M.Sc. Elżbieta Ibrom. – It was the first course in which twenty girls studied. It was an extraordinary event at the time. When we entered a room, students made a row for us, Elżbieta recalled with sentiment.

In the 1970s, Dr Lesław Socha also graduated from this Faculty.

- It was an exceptional Faculty. The first one was in Poland, where people led by Professor Węgrzyn came up with the idea of education in the automation field. And thanks to this, I was already learning about artificial intelligence, adding Dr Hab. Socha.

The Faculty graduates approximately 750 students each year. ■

The Dean of the Faculty, Prof. Dr Hab. Eng. Dariusz Kania

LIFE CHANGES SCIENCE

text: ***Anna Świderska***
cooperation: ***Katarzyna Siwczyk***
photos: ***Maciej Mutwil, Jan Szady***

DISCUSSIONS, WORKSHOPS, POSTER SESSIONS, NETWORKING MEETINGS, AND MANY CONVERSATIONS ABOUT SCIENCE, RESEARCH POTENTIAL, AND COOPERATION - THE EUROSCIENCE OPEN FORUM WAS HOSTED IN KATOWICE. THIS CONFERENCE IS ONE OF THE MOST IMPORTANT INTERNATIONAL CONFERENCES INFLUENCING THE TRANSFORMATION OF SCIENCE AND THE WORLD. IT HAS BEEN HELD SINCE 2004 IN SUBSEQUENT CITIES AND HAS BEEN HONOURED WITH THE TITLE OF EUROPEAN CITY OF SCIENCE.

From the left: Prof. Marcin Lutyński, Silesian University of Technology; Prof. Adam Smoliński, Central Mining Institute; Dr Eng. Sebastian Waniczek, Energoprojekt-Katowice SA; Lukas Adamek from Gravitricity (UK)

While conducting workshops, Dr Hab. Eng. Paweł Kasprowski, Prof. SUT

Katowice is the first city in Central and Eastern Europe to receive this prestigious title, as emphasized by Dr. Marcin Krupa, the mayor of the town, during the opening ceremony. He added that this achievement rewards the hard work we put into transforming our post-industrial region, which is associated with science today.

– Our region is also changing positively thanks to various universities that practice technical, humanistic, medical, artistic, and economic sciences – said Prof. Dr Hab. Eng. Arkadiusz Mężyk, the Silesian University of Technology Rector. – It gives us a broader perspective on the world.

The EuroScience Open Forum conference, which takes place every two years, aims to explore the connections between science and society, the conditions for conducting scientific

research, and its impact on society. It aims to stimulate debate on science-related changes and analyse the social, cultural, and economic consequences of breakthrough scientific discoveries at the regional, national, European, and global levels. In the face of global challenges, this year's edition was guided by the slogan "Life changes science."

– We traditionally think that science changes life, but here we say that life changes science – explained Prof. Marek Pawełczyk, Rector-Elect of the Silesian University of Technology, vice-chairman of the ESOF2024 Program Committee. – Life is full of challenges, as we have seen in recent years during the COVID-19 pandemic and when the war broke out in Ukraine. It was then necessary to switch to more specific thinking, one that serves to solve current goals and problems. These challenges may be surprising; therefore, science must be ready to respond on an ongoing basis to what life brings.

Leading European and global representatives of science, academic researchers, representatives of public and non-public institutions supporting science, representatives of business and media, and people interested in the role of science in the modern world came to Katowice. Scientists from the Silesian University of Technology showed the University's research potential during panels and workshops and at the university stand, where informal networking meetings have been held since the morning.

From the left: Dr Anna Budzanowska, University of Silesia; Prof. Celina Olszak, the Rector of the University of Economics in Katowice; Prof. Ryszard Koziołek, the Rector of the University of Silesia; Prof. Grzegorz Hańderek, the Rector of the Academy of Fine Arts in Katowice; Grzegorz Juras, the Rector of the Jerzy Kukuczka Academy of Physical Education in Katowice Prof. Tomasz Szczepański MD, the Rector of the Medical University of Silesia, Prof. Władysław Szymański, the Rector of the Karol Szymanowski Academy of Music In Katowice, Prof. Arkadiusz Mężyk, the Rector of the Silesian University of Technology.

– During this conference, we present our Priority Research Areas and key scientific areas of which we are very proud – emphasized Dr. Hab. Eng. Alicja Kazek-Kęsik, Prof. SUT, coordinator of POB 3 Materials of the Future. – There is a lot of interest in our research, and many people ask me about the topics related to biomaterials, organic materials, and coatings, which I deal with. Establishing cooperation and good communication, especially in the international arena, is vital.

The ESOF 2024 conference program is based on six main areas that are the most important challenges of science: energy transformation, sustainable environment, cultural identity, social transformations, changes in scientific excellence, healthy society, and digital transformation.

As part of the thematic area of digital transformation, during the first day of the conference, a panel was organized by the Silesian University of Technology and the Katowice Special Economic Zone: "The latest digital solutions supporting SME processes."

– Today, companies are undergoing digital transformation; they need new technologies and knowledge of how to implement them, what the costs will be, and how to move from focusing

Dr Eng. Alina Brzęczek-Szafran, Faculty of Chemistry of the Silesian University of Technology

on the regional environment to viewing things on a global scale – said Dr Hab. Eng. Dariusz Mrozek, prof. SUT, vice-dean for cooperation and development of the Faculty of Automatic Control, Electronics and Computer Science of the Silesian University of Technology, who moderated the discussion. – Today, companies are increasingly reaching for scientific achievements by cooperating with universities and reaching for grants, which significantly support them in implementing innovations.

The guests on the panel were Dr Hab. Rafał Żelazny, president of the Katowice Special Economic Zone, Prof. of the University of Economics in Katowice; Dr Erich Wimmer, scientific director of Materials Design; Prof. Shahid Mumtaz from the Department of Applied Informatics of the Silesian University of Technology; Dr Eng. Artur Pollak, president of APA Group, and Dr Eng. Karol Jędrasiak from the WSB Academy.

Dr Erich Wimmer, scientific director of Materials Design, says that small and medium-sized enterprises are characterized by flexibility and dynamics, which allows them to adapt to changes often faster than large organizations. This company creates software in the field of materials research. – When discussing digital solutions and new technologies in the context of enterprises, we must remember two aspects. He added that some companies are users of new technologies, but this group also includes active players and creators.

EuroScience Open Forum is an excellent opportunity for young scientists to present their scientific passions and research. – I appreciate such events, mainly because of the opportunity to gain new contacts, exchange experiences, and the interest of people from all over the world in our research – said Konrad Kołodziej, a PhD student at the Silesian University of Technology – the most important thing is inspiration, sometimes a small thing leads to an avalanche of valuable experiences.

The ESOF 2024 program includes many activities aimed at young people, especially as part of the second edition of the European Talent Fair, which takes place simultaneously. This initiative aims to create a space for students, PhD students, and young scientists to meet and discuss with science, higher education representatives, and the research and development sector.

– This is an excellent opportunity to talk about future competences. Since we are at the “talent fair,” we should discuss a new understanding of talent. Today, young people must consider the engineering industry when thinking about success. Today, technological and digital competences are not only valued but also necessary, - said Dr Hab. Małgorzata Dobrowolska, Prof. SUT, director of the Business School of the Silesian University of Technology.

Dr Hab. Eng. Marcin Kaczmarek, Prof. SUT, director of the European HealthTech Innovation Centre (EHTIC) in Zabrze, emphasized that a scientific career in modern technologies is also associated with creativity.

– We encourage young people to create start-ups, make a career in international corporations, and develop their discoveries and projects in universities and colleges. According to Prof. Kaczmarek, the scientific path and commercial activity can perfectly combine with the technology industry.

Scientists of the Silesian University of Technology presented a wide range of activities in all thematic areas of the conference during workshops, presentations, and poster sessions.

Dr Hab. Eng. Paweł Kasprowski, Prof. SUT, led a workshop on discovering the artificial intelligence ecosystem. – The idea of this workshop is to show people that there is no such thing as one artificial intelligence that we turn on and will do everything for us but that many different architectures, algorithms, and methods make up what we colloquially call artificial intelligence. I tried to discuss the principles of operation of each neural network, their different types and applications - said Prof. Kasprowski. In turn, Prof. Marcin Lutyński from the Faculty of Mining, Safety Engineering, and Industrial Automation led a discussion on the possibility of using mining infrastructure for energy storage. – This post-mining infrastructure is very well researched in geological terms; it is not ballast but, on the contrary, a resource. We talked about the various technologies we are working on and what constitutes a barrier to their implementation - said Prof. Lutyński.

During the EuroScience Open Forum 2024, discussions took place on the future of European universities and the possibilities of obtaining grants under the Horizon Europe program. The Silesian University of Technology is one of the leading beneficiaries, and the projects mainly implemented concern green energy.

We all traditionally think that science changes life. Still, here we say that life changes science - explained Prof. Marek Pawełczyk, Rector-Elect of the Silesian University of Technology vice-chairman of the ESOF2024 Program Committee. – Life is full of challenges, as we have seen in recent years during the COVID-19 pandemic and when the war broke out in Ukraine. It was then necessary to switch to more specific thinking, one that serves to solve current goals and problems. These challenges may be surprising; therefore, science must be ready to respond on an ongoing basis to what life brings.

– We play an essential role in the energy and digital transformation in the region, as these projects are proof of – said Prof. Sebastian Werle, from the Faculty of Energy and Environmental Engineering, coordinator of POB Climate and Environmental Protection, Modern Energy. He added that they are concerned, among others, with recycling waste composite materials and low-emission combustion systems.

The ESOF 2024 conference was the culmination of celebrating the honourable title of European City of Science awarded to Katowice. It showed the richness of Silesian science and brought it closer to both foreign guests and residents of the region. ■

From the left: Dr Eng. Karol Jędrasiak, WSB Academy; Prof. Shahid Mumtaz, Silesian University of Technology; Prof. Rafał Żelazny, president of KSEE; Dr Eng. Artur Pollak, APA Group; Dr Erich Wimmer, Materials Design; Dr Hab. Eng. Dariusz Mrozek, Prof. SUT, vice-dean for cooperation and development of the Faculty of Automatic Control, Electronics and Computer Science of the Silesian University of Technology.

THE SILESIAN UNIVERSITY OF TECHNOLOGY FLIES HIGH

Edited by Jolanta Skwaradowska
photos: Maciej Mutwil, Jan Szady

AIR SHOWS, GLIDER ACROBATICS, PRESENTATIONS OF AIRCRAFT MODELS, AS WELL AS POPULAR SCIENCE CONFERENCES WITH THE PARTICIPATION OF REPRESENTATIVES OF THE GOVERNMENT, THE AUTHORITIES OF THE SILESIAN UNIVERSITY OF TECHNOLOGY, AVIATION INDUSTRY EXPERTS, AND SCIENTISTS - THE AVIATION WEEK WAS HELD AT THE SILESIAN UNIVERSITY OF TECHNOLOGY. THE EVENT, ORGANIZED AS PART OF THE EUROPEAN CITY OF SCIENCE KATOWICE 2024 CELEBRATIONS, WAS VERY POPULAR.

The Aviation Week began on May 27, 2024, with the Aviation Industry Day. At the Faculty of Transport and Aviation Engineering, there was a famous scientific conference, a job fair for aviation companies, and a competition for secondary schools. The Silesian University of Technology has also signed a cooperation agreement with Boeing.

– Aviation Week is one of the 50 weeks of the European City of Science Katowice 2024, and the Silesian University of Technology coordinates eleven of them. Aviation Week is an extraordinary opportunity to show our potential and experience in this area and what industrial partners we have – said the Rector of the Silesian University of Technology, Prof. Arkadiusz Mężyk.

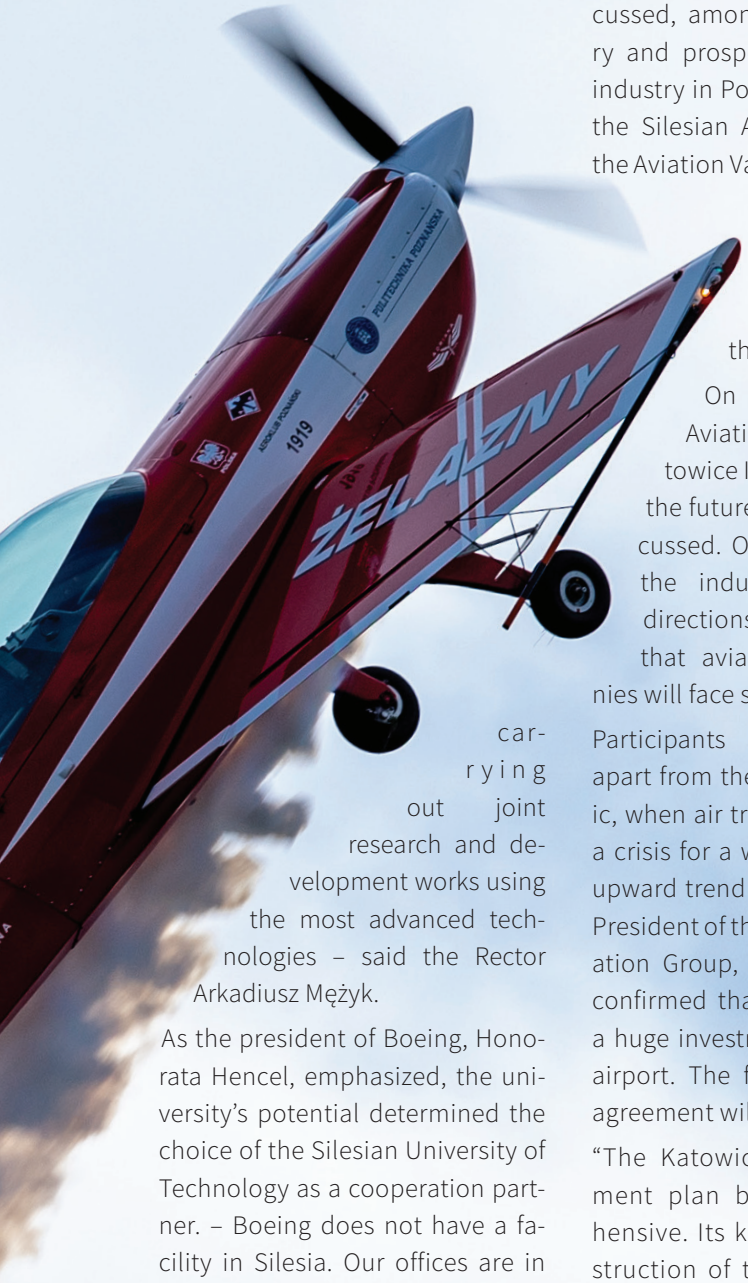
As added by the coordinator of Aviation Week, Dr Hab. Eng. Jarosław Kozuba, Prof. SUT, the event is also an opportunity to present the courses our students are taught. – One of the tasks of the Silesian University of Technology is to meet the needs of society and popularize its achievements. During Aviation Week, we can show our potential and familiarize the public with our educational offerings in aviation and other fields at the university because other faculties are also present here, as noted by Prof. Kozuba.

Prof. Marek Gzik, Deputy Minister of Science and Higher Education, present at the inauguration of Aviation Week, emphasized that despite its short aviation education experience, the Silesian University of Technology can boast many successes and achievements.

"Aviation Week is a significant event. As a government representative, I am glad I can participate and see how grandly this event is organized. Not only university authorities and people representing the environment of the Faculty of Transport and Aviation Engineering, but also young people are involved here. Air transport is vital; we are glad it is developing dynamically. Polish universities are becoming increasingly involved in training pilots, air traffic controllers, and mechanics. This process is vital because we cannot forget about the threat growing beyond our eastern border." - emphasized Prof. Marek Gzik.

During the inauguration of Aviation Week, the Silesian University of Technology signed a cooperation agreement with Boeing.

– The agreement opens the door to full cooperation, not only in educating students or undergoing professional internships and practical training at Boeing but, above all, in



carrying out joint research and development works using the most advanced technologies – said the Rector Arkadiusz Mężyk.

As the president of Boeing, Honorata Hencel, emphasized, the university's potential determined the choice of the Silesian University of Technology as a cooperation partner. – Boeing does not have a facility in Silesia. Our offices are in Gdańsk, Warsaw, and Rzeszów, so the choice was related to the university's potential. The knowledge, the richness of topics covered by the Silesian University of Technology, the excellent infrastructure, the teaching staff, the potential of students, and the research on aviation materials and engineering issues that are conducted here determined our choice - said the President Honorata Hencel.

As part of the Aviation Industry Day, a popular science conference was also held with the participation of scientists and students, during which participants discussed, among others, the history and prospects of the aviation industry in Poland and the region; the Silesian Aviation Cluster and the Aviation Valley were presented. Visitors had the opportunity to learn about the aviation companies' offers at the Job Fair.

On the second day of Aviation Week at the Katowice International Airport, the future of aviation was discussed. On Air Transport Day, the industry's development directions and the challenges that aviation sector companies will face soon were discussed.

Participants emphasized that apart from the COVID-19 pandemic, when air transport experienced a crisis for a while, we can see an upward trend in this industry. The President of the Upper Silesian Aviation Group, Artur Tomasik, also confirmed that they are planning a huge investment to develop the airport. The first implementation agreement will be signed this year.

"The Katowice Airport development plan by 2028 is comprehensive. Its key point is the construction of the main passenger terminal and the associated new road system. Equally important is the expansion of off-road parking, multi-level parking, and the creation of a transfer centre – announced President Tomasik added that the entire investment will generate passenger traffic of 7.5 million passengers per year by 2028. What is most important for the development of the industry – thanks to this investment, about eight thousand new jobs will be created.

– We meet these expectations. The Silesian University of Technology knows forecasts that aviation will develop very quickly in the coming years, up to 10%, on an annual basis. We offer studies specializing in aircraft mechanics and air navigation in the transport field. Education takes place in close cooperation with companies where students can work. Such cooperation also allows students to obtain appropriate qualifications and certificates already during their studies – explained Prof. Dr Hab. Eng. Bogusław Łazarz, Vice-Rector for General Affairs of the Silesian University of Technology.

During the conference, it was emphasized that such a dynamic development of aviation in the region would not have been possible without Poland in the European Union. Students of aviation faculties and specializations at the Silesian University of Technology listened to discussions on the future of aviation.

The third day of Aviation Week was marked by unmanned aerial systems (UAS). At the Silesian Planetarium, specialists from the world of science, business, and civil and

Aviation Week is an extraordinary opportunity to show our potential and experience in this area and what industrial partners we have – said the Rector of the Silesian University of Technology, Prof. Arkadiusz Mężyk.

Deputy Minister of Science and Higher Education Prof. Marek Gzik

military services talked about the broad applications of drones and bold prospects for developing drone technologies during a popular science conference.

- My company provides drones to municipalities that use them, for example, to monitor air quality or to create maps or inventory – says Tomasz Siwy, a graduate of the Silesian University of Technology, once one of the founders of the student science club High Flyers, and today the owner of the company Prodron, which deals with drone technologies. – The possibilities of drones are enormous – he added.

The use of drones in military aviation was also discussed during the conference. Specialists emphasized that time is a significant issue when using unmanned aerial systems - drones enable rapid detection of a target, its identification, and, if necessary, destruction.

– Most of our systems have dual uses – said Remigiusz Wilk from the WB Group, a Polish concern specializing in designing and producing technologically advanced solutions, both in the defence and civilian sectors. – For example, the Fly Eye system introduced to the army is used to defend borders, and equipped with a thermal imaging head, it can support extinguishing fires. Such a device can detect the source of fire even below the ground surface. We had a situation where neither firefighters nor a human-crewed plane could reach a peat fire in one of the national parks. Systems of this type are also used to search for people, often saving and protecting lives.

– At the Silesian University of Technology, we educate students in drone technologies, consider them future-proof, and invite all interested people to study – emphasized DrHab. Eng. Marek Marcisz, Prof. of the Silesian University of Technology from the Faculty of Transport and Aviation Engineering at SUT – Drones are the future of aviation. There is talk about autonomous transport, but not only about vehicles; it is already known that one day, we will fly planes without a pilot.

During the Drone Day, you could test your predispositions on flying simulators and the state of knowledge about the safety of UAV operations. A competition for secondary school pupils was also held during Aviation Week. In addition to safety knowledge, primary and secondary school pupils could show off their programming and piloting skills. As part of Aviation Week at the Faculty of Transport and Aviation Engineering of the Silesian University of Technology, there were also eliminations to the Junior Droniada finals. The teams had to fly through the obstacle course as quickly as possible and program the transport of the object to a hard-to-reach place.

- The competition aims to popularize drone technologies, inspire children and young people, and

Aviation Week is a significant event. As a government representative, I am glad I can participate and see how grandly this event is organized. Not only are the university authorities and people representing the Faculty of Transport and Aviation Engineering involved here, but also young people - emphasized the Deputy Minister of Science and Higher Education, Prof. Marek Gzik.

develop their interests in this direction from an early age - said Dr Eng. Aldona Rosner from the Continuing Education Centre, a Silesian University of Technology branch in Rybnik. - Both students and teachers were delighted with the atmosphere that prevailed during the competition; we are glad that teams came to us, even from Przemyśl or Warsaw.

Talks on aviation education, education, and training could not be missed during Aviation Week. On Friday, May 31, the "Aviation Education in Poland and the World" conference was organized at the Faculty of Transport and Aviation Engineering in Katowice.

The conference brought together representatives of universities offering aviation education in Poland and abroad, civil services, as well as from the business world.

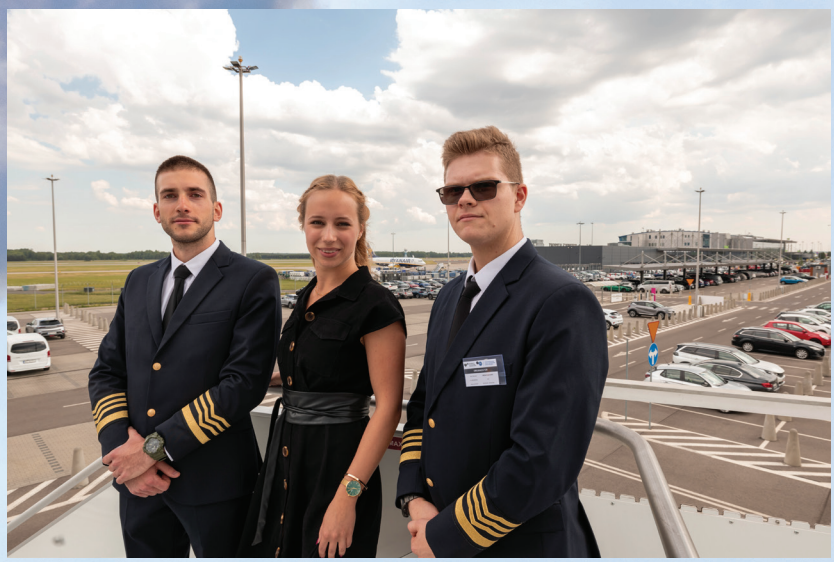
"We have several graduates who work in aviation companies, but most importantly, they stayed at our university. This fact should guarantee the fluidity of training at the Silesian University of Technology" - said DrHab. Eng. Jarosław Kozuba, Prof. of the Silesian University of Technology, director of the Civil Aviation Personnel Training Centre of Central and Eastern Europe at the Silesian University of Technology. "Our task is to show young people the right patterns and ways of doing things, both when performing aviation activities and in everyday life, because aviation safety, which we put first, depends on a person's everyday lifestyle. There is no place for tricksters in the aviation environment. Therefore, we need to examine whether these people can continue to be trained."

The discussion panels did not lack discussions about aviation law regulations concerning the training of aviation specialists. The quality of education as a determinant of flight safety was also discussed, among others, with psychological aspects in mind. The speakers emphasized the importance of educating responsible people.

"To ensure safety at the right level, we must first ensure the quality of education, and we can do this, among other things, by standardizing the rules. It is important that instructors and lecturers, regardless of the location of the training centre, transfer their knowledge in such a way that a student who meets with their peers from the industry from the other end of the world can talk to them in the same language and aviation slang at the highest level." - explained Tomasz Pietrzak MSc, Eng, member of the National Commission for investigation of Aviation Accidents.

– Today, aviation is based on uniform regulations. The basis for aviation cooperation is defined very clearly. As a university educating primarily for military aviation and more broadly for state aviation, we use cooperation with the Silesian University of Technology," said General Brig. Dr Eng. Ryszard Hać from the Polish Air Force Academy in Dęblin. – "Although the Silesian University of Technology has been conducting aviation training recently, it takes place with very experienced staff and exchange of experiences, also through such

The president of the Boeing Company, Honorata Hencel, and the Rector of the Silesian University of Technology, Prof. Arkadiusz Mężyk



Students of the Faculty of Transport and Aviation Engineering

Prof. Jarosław Kozuba

conferences, which is very necessary."

The conference was also attended by representatives of the Technical University in Kosice, with which the Silesian University of Technology has been cooperating for four years. The university from Slovakia has been educating aviation professionals for 65 years.

- "Cooperation with the Silesian University of Technology is very important for us" - said Docent Eng. Robert Rozenberg, PhD, Eng. Paed. IGIP, head of the aviation department of the Technical University of Kosice. – "I'm glad I could take part in this conference. We are in the European Union, so our lecturers teach according to the same principles as at the Silesian University of Technology. We try our best to prepare professional pilots and air traffic controllers."

On Saturday, June 1, unmanned aerial vehicle demonstrations occurred at the airport in Katowice Muchowiec. Viewers could admire flying models and, in the evening, a night drone show.

– "We are glad that such an important event for aviation enthusiasts occurs here. We are proud that at this facility, which is one of the oldest airports in the country, with the oldest operating aeroclub in Poland, models are shown, which is something that for those interested in aviation may have been unknown so far." - said Michał Tomanek, President of the Silesian Aeroclub.

The aerobatic teams, which presented the possibilities of the models, were preparing for this performance with outstanding commitment. The shows attracted a lot of aviation enthusiasts to the airport. Regardless of age, the audience admired with bated breath the acrobatics performed by the machines in the air.

– "Sometimes we work on one project for several years. Besides, the cost of making such a model is very high. The engine itself costs two or even three thousand euros," said Tomasz Bartela, a member of the Sports Modelling Club in Bobrowniki.

Visitors to the Katowice airport could learn not only about model clubs but also about associations from the region and uniformed services that use the capabilities of uncrewed aerial vehicles daily in their activities. These include the Polish Armed Forces, which encouraged young people to join the army and develop competences in this area on Saturday. Firefighters also showed their work.

– Today, we are showing equipment that supports firefighters in operational activities. It is the only command and communications vehicle equipped with such advanced equipment. We use the capabilities of drones here, including their ongoing monitoring systems. All data collected by drones can be quickly analysed by the equipment in this vehicle and provided

- We have many graduates who work in aviation companies, but - most importantly - they also stay at our university. This should guarantee the fluidity of training at the Silesian University of Technology in the future - said Dr Hab. Eng. Jarosław Kozuba, Prof. SUT, Director of the Civil Aviation Personnel Education Centre of Central and Eastern Europe.

to the participants of the operation.” - explained Wojciech Górecki from the Niegoszowice Volunteer Fire Department, where, together with his fellow firefighters; they founded a company and produced a fire truck for particular tasks.

In addition to professionals, among the many people and stands that could be visited on Saturday to expand knowledge about crewless aerial vehicles, there were also members of the Student Science Clubs of the Silesian University of Technology and representatives of schools that offer education in aviation classes.

The Aviation Week ended with the Air Picnic on June 2 at the airport in Gliwice. As part of the event, demonstrations of glider acrobatics, parachute jumps, and show flights of airplanes were prepared.

Sunday’s event was attended by the Deputy Minister of Science and Higher Education, the authorities of the Silesian University of Technology, the authorities of the City of Gliwice, students, and residents of the region.

– “We end Aviation Week at the Gliwice airport, providing practical training for pilots, aircraft mechanics, and air traffic controllers. We are glad that there are so many aviation enthusiasts here who can admire air shows, learn about beautiful aviation traditions, and learn about the educational offer at our university,” - said the Rector Arkadiusz Mężyk.

- “I think that during Aviation Week, we managed to show what aviation looks like not only at the Silesian University of Technology but also in the region” - added Prof Bogusław Łazarz.

Deputy Minister of Science and Higher Education Prof. Marek Gzik stressed that such events as Aviation Week show the great potential of Polish science. –“Aviation Week is a good opportunity to present the scientific potential of Silesia. The event was one of 50 Science Weeks, which take place as part of the celebration of the European City of Science Katowice 2024,” - said the Deputy Minister. Professor Gzik also stressed the importance of the university’s cooperation with business and local government. – “Cooperation at the interface of science, local government, and business has a great chance to drive our country’s economy.”– he added.

– “Today’s event is another example of the fact that cooperation between the City of Gliwice and the Silesian University of Technology has enormous potential,” – emphasized the mayor of Gliwice, Katarzyna Kuczyńska-Budka. – “All aviation-related investments, as well as events such as today, where we promote aviation, show how valuable it is. That is why we want to develop it. The city should be proud of the Silesian University of Technology and use its potential to develop the university and the city,” added the mayor.

During the picnic, in addition to air shows and glider acrobatics, participants could admire the training aircraft of the Silesian University of Technology and even a racing car constructed by university students. Aviation mechanics demonstrated diagnostic work on a helicopter, and aviation students talked about their passion. – “For some, aviation is a lifelong passion; for others, it is a way of life, and for others, it is an unfulfilled dream. The Aviation Week was an excellent opportunity to present the state of our aviation in the global, European, and regional context” – concluded Dr Eng. Robert Wieszała from the Department of Air Transport at the Silesian University of Technology.

The Aviation Week was held from May 27 to June 2, 2024. ■

Jolanta Skwaradowska prepared the text. Anna Świderska, Katarzyna Siwczyk, Martin Huć, and Jolanta Skwaradowska reported the events.

The event was financed by the EU. The views and opinions expressed are solely those of the author(s) and do not necessarily reflect those of the European Union or the European Research Executive Agency (REA). The European Union and the REA are not responsible for them.

The Silesian Voivodeship - Co-organizer of the European City of Science Katowice 2024 also co-financed the event.

TO TRUST THE AI

text: Martin Huć
photos: Martin Huć

FOR TWO DAYS AT THE CONFERENCE AND BUSINESS CENTRE OF THE SILESIAN STADIUM IN CHORZÓW, TWENTY-FIVE SPEAKERS TALKED ABOUT ROBOTIC ROAD, RAIL, SEA, AND AIR MOBILITY CHALLENGES DURING THE SECOND DRONIADA TECH BY SILESIAN UNIVERSITY OF TECHNOLOGY CONFERENCE. THE EVENT TOOK PLACE AS PART OF THE 11TH EDITION OF DRONIADA, WHICH OUR UNIVERSITY CO-ORGANIZED FOR THE THIRD TIME.

The act on artificial intelligence, approved by the Council of the European Union, is to be published at the end of June. The act is a breakthrough attempt to regulate AI. This topic began the entire conference and was presented in more detail by Dr Aleksandra Auleytner from the DZP law firm.

– The Artificial Intelligence Act is intended to ensure that the

In the Droniada Challenge tournament, students from the Silesian University of Technology High Flyers Science Club took third place in two competitions

There could be more such meetings; they should be more work-oriented. We should listen to the voices of residents and people from the socio-economic environment.

AI systems we already encounter and whose development is progressing will be safe and transparent – explains Dr Aleksandra Auleytner. – When interacting, the consumer must be convinced that such a system will not manipulate him or take his data to use it later. These issues are currently not fully regulated. Standardizing the rules among the European Union member states is necessary. In addition, systems produced outside the European Union but used in member states will also be subject to this act. This is to help users and increase social trust in artificial intelligence.

This year, the main topic of the Droniada Tech by the Silesian University of Technology conference was robotic mobility, which was tackled by, among others, scientists from our University and people from the socio-economic environment. Participants also wondered how to eliminate social fears related to the development of these technologies.

– During the conference, concerns about public approval came up many times. They are often justified because, for example, during the Droniada Challenge tournament, teams sometimes had drones fall to the ground from a great height. Artificial intelligence will soon be present in every area of life, and we must get used to it and use it skilfully, as well as secure systems so that it does not get out of control. Dissemination of information related to this is crucial, says Dr Hab. Eng. Roman Czyba, prof. SUT and co-organizer of the conference.

– Residents had concerns about the Blees autonomous bus driving around the Silesian Park. They mentioned many dangerous situations that could happen. However, we are trying to burden the artificial intelligence with our problems. We expect everything from it - we want it to replace our shortcomings in thinking. Meanwhile, four tram lines intersect in the centre of Katowice, and there are plenty of people and vehicles, with virtually no collisions. This is not only due to the driver's attention but also because people are careful. Artificial intelligence will not protect us from our mistakes, - says Marcin Dziekański, representative of the Upper Silesian-Zagłębie Metropolis for unmanned technologies.

For two days, the speakers debated, among others, about the social, psychological, and

DRONIADA CHALLENGE TOURNAMENT

As part of Droniada GZM 2024, the traditional Droniada Challenge tournament was also held, in which, as always, the High Flyers science club of the Silesian University of Technology fought for the top place, taking third place twice in the Relay and Martian Mines competitions. Moreover, the Droniada Junior competition took place for the first time. There, pupils of the Academic Secondary Comprehensive School of the Silesian University of Technology in Gliwice did great, taking first and second place in the secondary school category.

Four teams from the Academic Secondary Comprehensive School of the Silesian University of Technology in Gliwice took part in the Droniada Junior tournament. In the photo with the teacher Dr Małgorzata Szymaszek.

For two days, the speakers debated, among other issues, on the social, psychological and economic challenges of autonomous transport.

economic challenges of autonomous transport and the future of drone technology for public safety, drone market development scenarios, and technical challenges. Representatives of the Silesian University of Technology were among the speakers.

– "This is a great and necessary conference. People from very different backgrounds met here. Such an exchange of opinions opens the eyes, allows you to look at the subject from a different angle," – says Dr Eng. Marcin Gorski, prof. SUT – "I wanted to highlight issues related to road infrastructure - the problems that arise there and the level of advancement we are at. There could be more such meetings, and they should be more work-oriented. We should listen to the voices of residents and people from the socio-economic environment."

– "Artificial intelligence plays a key role in transforming various transport sectors. An autonomous Blees bus drove around the Silesian Park. At the same time, the vehicle, constructed by Renault, was driving between the parking lot and the stadium during the Roland Garros tennis tournament in Paris. We are slowly moving out of the experimental phase into the operational phase. Let us also remember that the point is not for the robot to replace humans in work, but to support them." - explains Sławomir Kosieliński, president of the Mikromakro Institute Foundation and the originator of Droniada. ■

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The Silesian Voivodeship - Co-organizer of the European City of Science Katowice 2024 also co-financed the event.

SILENT DRONES

text: Martin Huć
photos: Photos from the SKN Aerospace Engineering archive

STUDENTS FROM SKN AEROSPACE ENGINEERING, A SCIENCE CLUB OF THE SILESIAN UNIVERSITY OF TECHNOLOGY, HAVE DESIGNED A TOROIDAL PROPELLER FOR DRONES, WHICH IS MORE ECOLOGICAL, LESS NOISY, AND SAFER THAN CLASSIC PROPELLERS. THEY ALSO INDEPENDENTLY BUILT A STAND TO MEASURE THE DRIVE'S NOISE LEVEL. THEIR IDEA HAS ALREADY GAINED RECOGNITION.

SKN Aerospace Engineering is a science club of the Silesian University of Technology, operating since November 2022 with twenty-five members. The Club's supervisor is Dr Hab. Eng. Wojciech Skarka, Prof. SUT. The students say they build various types of drones and aircraft parts daily.

– The idea to design toroidal propellers arose from the need to improve fuel efficiency and reduce noise in aviation – says Wiktoria Solorz from SKN Aerospace Engineering, a Faculty of Transport and Aviation Engineering student at the Silesian University of Technology. – The inspiration was research conducted by MIT Lincoln Laboratory in the United States, which showed the potential of this technology in increasing the efficiency and stability of drones.

Toroidal propellers have a significantly different structure compared to classic propellers. Favourable performance and parameters are related to their geometry. Their shape and ef-

Toroidal propellers have a significantly different structure compared to a classic propeller.

Thanks to their unique geometry, the propellers generate much less noise, which is beneficial in urban applications and close to people. Better airflow distribution around the blades increases thrust at lower engine speeds, translating into fuel savings. The rounded edges of the blades reduce the risk of damage due to collisions with various elements and are safer in a collision with a person.

ficiency mean that they can be used in many areas.

The Silesian University of Technology students created this type of propeller for drones. They are made of PLA filaments using FDM 3D printing technology, enabling the creation of complex structures. PLA is a type of plastic, "bioplastic". It is made from plant raw materials such as corn or cassava, which makes it relatively readily biodegradable.

The project's authors printed prototypes of various types of propellers, which were tested on a stand for measuring thrust and noise levels. Interestingly, the students built a stand as a cage due to the need to test.

– The most challenging aspects were balancing energy consumption, rotational speed, and generated noise – says Wiktoria Solorz.

Toroidal propellers were tested in various blade configurations - two, three, and four, or with torus-shaped blade geometry. In the case of our students' idea, the propeller blades are in

Students from SKN Aerospace Engineering under Dr Hab. Eng. Wojciech Skarka, Prof. SUT, created toroidal propellers for drones. Their idea was awarded at the EPAE conference.

the shape of overlapping rings, which reduces the final vortices and induced drag.

The concept of the authors of this project has many advantages. They reduced noise by approximately 10 dB in the high-frequency range (2 kHz to 8 kHz). The generated thrust was 254.78 g at maximum revolutions (7600 rpm) compared to 327.8 g for a conventional propeller.

– Thanks to their unique geometry, the propellers generate much less noise, which is beneficial in urban applications and close to people – says Adrian Dawid. – Better airflow distribution around the blades increases thrust at lower engine speeds, translating into fuel savings. The rounded edges of the blades reduce the risk of damage due to collisions with various elements and are also safer in the event of, for example, a collision with a person. Less noise and greater energy efficiency contribute to sustainability by reducing the negative impact on the environment.

To test different types of propellers, the students built a station for measuring draft and noise levels in the form of a cage.

Their idea was recognized during the Environmental Protection and Energy Conference, which took place in December last year in Gliwice. Students from SKN Aerospace Engineering were winners in the competition for an ecological solution for their presentation, "Modern propeller systems with low noise emissions."

Toroidal propellers used in the construction of drones can, therefore, replace conventional propellers, optimizing noise.

The prototype was created with the participation of Wiktoria Solorz, Wiktoria Michalak, Adrian Dawid, Maciej Sikorski (all from the Faculty of Transport and Aviation Engineering of the Silesian University of Technology), Wiktor Smołka (Faculty of Electrical Engineering) and Cherif Hamrani (Faculty of Mechanical Engineering). It was carried out as part of the PBL project and will be continued.

These are not the only exciting initiatives developed by SKN Aerospace Engineering.

– Our other project is an ornithopter drone that moves its wings based on the movement of birds' wings. The next one is a cyclopter. This innovative propulsion system uses multi-blade wings to rotate around a closed wheel. The blades change their pitch as they rotate, generating thrust by accelerating the air downward, according to the principles of Newtonian mechanics, which allows for vertical take-off and increased manoeuvrability. We also have a project to make a miniature chair from natural composites. The goal is to create an item that is fully biodegradable and whose strength properties do not differ from those of glass fibre or carbon fibre. We are also working on a drone with photovoltaic panels, so announce the group members. ■

ROBODOG HELPS CHILDREN

text: *Katarzyna Siwczyk*
photos: *Tomasz Stokłosa, Jan Szady*

IT DOES NOT BITE AND LOOKS ALMOST LIKE A REGULAR DOG - BUT REXIO FROM THE SILESIAN UNIVERSITY OF TECHNOLOGY CAN DO MUCH MORE THAN ITS FOUR-LEGGED FRIENDS. THIS EXTRAORDINARY ROBOT MAY SOON REVOLUTIONIZE THERAPY AND REHABILITATION, ESPECIALLY FOR CHILDREN.

It looks like an ordinary dog, although ReXio is anything but ordinary. The dog robot is a four-legged Unitree Go1 Edu walking platform.

Robodog is a very advanced platform for the research and development of autonomous systems in robot-human interaction, SLAM, and transportation. It has numerous sensors, including cameras, lidars, and paw pressure sensors. The robot can navigate complex environments, avoid obstacles, and perform complex tasks. Its design enables easy installation of additional accessories, which allows Robodog to be adapted to experiments, projects, and therapy with children. ReXio is also programmable, which helps develop algorithms and applications in areas such as robotics or artificial intelligence.

The leader of the project developing the possibilities of using a robot dog is Eng. Julia Nowak, a student of the Faculty of Mechanical Engineering.

– We have already established cooperation with the Special Educational Centre in Dąbrowa Górnicza, where we tested how children react to the robot dogs and what effects it brings – explains Julia.

– The therapy involves bringing the ReXio platform to children and demonstrating their skills. Children can freely touch it and play with it. We also offer individual classes. Then, the children enter the office for a specific time, and their reaction and type of contact with the Robodog are checked - adds the student.

Robotherapy is therapy using various types of robots, cobots, and walking platforms, an innovative approach to rehabilitation and therapeutic activities. Such therapy can support patients in their treatment and improve motor, cognitive, and emotional functions. Robots can be used in various fields of medicine, such as physiotherapy, occupational therapy, neurorehabilitation, and the treatment of children with autism, offering precise, controlled, and repeatable exercises and interactive therapeutic sessions tailored to the patient's needs.

– Conducting the research allowed us to determine the positive impact of using the ReXio Robodog in the therapy of children with disabilities, which has been confirmed in each of the previous cases of individual and group work with children – assures the project leader and confirms the continuation of work on the development of this field.

The project's supervisor dealing with the development of the walking platform is Prof. Piotr Przystałka. The entire adventure with ReXio in the central role began in 2022. Robodog was purchased with funds obtained from the Rector's Small Grant. The possibility of using this unusual robot has appeared over time. Today, SKN AI-METH Science Club members are expanding research in robotherapy with new ideas.

As part of the IDUB funds, an additional project was undertaken: in cooperation with ForControl Automatyka Przemysłowa, the topic "Robotherapy - the use of modern technologies in the therapy of children with disabilities, construction of a prototype of a station with a cobot robot" was submitted.

The students do not doubt that it was a bull's-eye project.

– The project's main goal was to design a developmental educational station applicable to working with children. Learning robotics using a prototype of an educational station would involve familiarizing children with the basic mechanisms of operation of a robot or manipulator, which would positively impact the child's adaptation to participation in rehabilitation in which support robots are used - explains a PhD student, M.Sc. Łukasz Gałeczka who also participates in a research project on robotherapy.

– The goal we want to achieve this way would be to use this platform to eliminate fear and barriers to visiting offices and examination rooms. We show equipment similar to what children may encounter during dental visits, hospitals, and health centres; this way, we familiarize them with this equipment. It is often the case that for children to seek help from a dentist, they must be given sedatives, numbing drugs, and painkillers, not to mention cases where children must be restrained, and the procedures can only be performed under complete anaesthesia. Thanks to robotherapy, fear can be tamed - explains Łukasz Gałeczka.

Companies in the medical sector have already become interested in the project because modern robotic therapy can change the face of rehabilitation. However, investors are needed to develop research in this project. Students Julia and Łukasz invest their time and energy in robot therapy to help children. ■

You can hear more about robotherapy in the podcast "Let's talk about science."

M.Sc. Łukasz Gałeczka and Eng. Julia Nowak

TO SEE THE LIGHT

text: *Anna Świderska*
photos: *archive of the Silesian University of Technology, materials FEJJ, Anna Świderska*

JERZY JUZOŃ, A SILESIAN UNIVERSITY OF TECHNOLOGY GRADUATE, ESTABLISHED A FOUNDATION FINANCIALLY SUPPORTING FIRST-YEAR STUDENTS. THANKS TO THE SCHOLARSHIP, HE MANAGED TO FINISH HIS STUDIES IN THE DIFFICULT 1950S, SO AFTER ACHIEVING PROFESSIONAL SUCCESS, HE DECIDED TO SHARE HIS FORTUNE. THE JERZY JUZOŃ EDUCATIONAL FOUNDATION (FEJJ) HAS ALREADY HELPED OVER 5,000 YOUNG PEOPLE DURING 12 YEARS OF OPERATION, AND THE FOUNDER'S STORY INSPIRES ACTION.

In October 1951, the Silesian University of Technology in Gliwice inaugurated its seventh academic year. The University already had five faculties; a year earlier, a Mining Faculty was established in addition to Chemical, Electrical, Engineering and Construction, and Mechanical Faculties. More buildings were built in the university district; the press reported scientists' research successes and the number of students was constantly growing. A 19-year-old Jerzy Juzoń from Skarżysko-Kamienna and nearly 500 students started studying at the Faculty of Chemistry. Like his peers, he was affected by painful experiences from the recently ended World War II. Higher education was a ticket to a better life for his generation, which they wanted to build anew after war trauma. Despite the difficult 1950s, when there was a shortage of everything, there was enthusiasm and hunger for knowledge among students, which Lviv professors were trying to sat-

isfy. The young student Jerzy had classes with, among others, an outstanding chemist, Prof. Wiktor Jakób.

– He was a professor who was very strict and demanding; it was tough to pass his exam, and most of us took it several times – recalls Jerzy Juzoń. – Once, my friend Czarek and I were 2 minutes late. In the building at Strzody Street, there was a long corridor divided by a door that was shut in our faces. My friend was very resourceful; he talked me into trying to get inside through the window, and that's what we did. We waited nervously outside the professor's room. After fifteen minutes, a surprised professor appeared in the doorway. When he started taking the exam, he didn't see us. We admitted to both being late and the way we entered. The professor took our course books and gave us credit for the subject without examination, saying that students were afraid to come to him through the door, so if we came through the window, we had to be well prepared.

We are talking in Warsaw at the headquarters of the Jerzy Juzoń Educational Foundation, which our graduate founded in 2012 to support financially - exclusively from private wealth - poor students from rural areas and small towns. Mr. Jerzy, who will be ninety-two this year, impresses with his fitness, friendliness, excellent memory and positive energy. It is hard to believe how he experienced a difficult life years ago.

– I was born into a family doing well, but the war ruined everything. My father belonged to the White Eagle Association, the first underground military organization. In early 1940, he was arrested and shot. We were thrown out of the apartment and placed in a barracks with no water, no sewage system, nothing. As a little boy, I sometimes went to school barefoot in the winter, and there was probably no day when I wasn't hungry. I managed to finish primary school and later pass my secondary school leaving exam thanks to the help of my family. These difficult living conditions made me determined to complete my studies, which allowed me to live differently.

He chose chemical technology at the Silesian University of Technology in Gliwice because he wanted to work in the chemical industry. Studying came quickly to him, but it was difficult for him to make ends meet; he had to work physically reloading coal and other goods. After the first year, he received a scholarship to continue his studies. Then, the idea of repaying the opportunity in the future began to emerge.

Jerzy Juzoń with the foundation team. Aleksandra Sierakowska stands in the middle, and Julia Sierakowska is the first from the right.

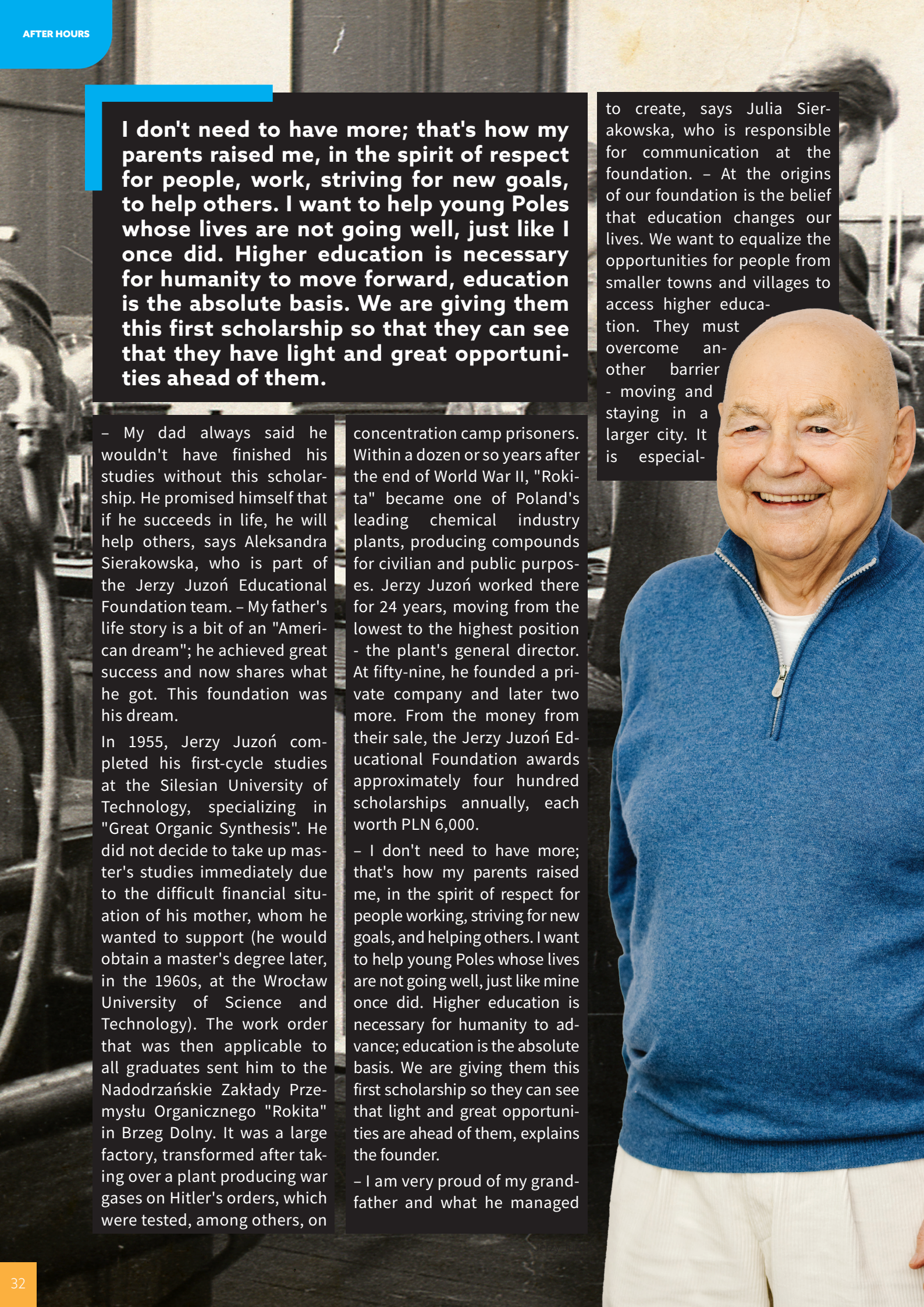
I don't need to have more; that's how my parents raised me, in the spirit of respect for people, work, striving for new goals, to help others. I want to help young Poles whose lives are not going well, just like I once did. Higher education is necessary for humanity to move forward, education is the absolute basis. We are giving them this first scholarship so that they can see that they have light and great opportunities ahead of them.

– My dad always said he wouldn't have finished his studies without this scholarship. He promised himself that if he succeeds in life, he will help others, says Aleksandra Sierakowska, who is part of the Jerzy Juzoń Educational Foundation team. – My father's life story is a bit of an "American dream"; he achieved great success and now shares what he got. This foundation was his dream.

In 1955, Jerzy Juzoń completed his first-cycle studies at the Silesian University of Technology, specializing in "Great Organic Synthesis". He did not decide to take up master's studies immediately due to the difficult financial situation of his mother, whom he wanted to support (he would obtain a master's degree later, in the 1960s, at the Wrocław University of Science and Technology). The work order that was then applicable to all graduates sent him to the Nadodrzańskie Zakłady Przemysłu Organicznego "Rokita" in Brzeg Dolny. It was a large factory, transformed after taking over a plant producing war gases on Hitler's orders, which were tested, among others, on concentration camp prisoners. Within a dozen or so years after the end of World War II, "Rokita" became one of Poland's leading chemical industry plants, producing compounds for civilian and public purposes. Jerzy Juzoń worked there for 24 years, moving from the lowest to the highest position - the plant's general director. At fifty-nine, he founded a private company and later two more. From the money from their sale, the Jerzy Juzoń Educational Foundation awards approximately four hundred scholarships annually, each worth PLN 6,000.

– I don't need to have more; that's how my parents raised me, in the spirit of respect for people working, striving for new goals, and helping others. I want to help young Poles whose lives are not going well, just like mine once did. Higher education is necessary for humanity to advance; education is the absolute basis. We are giving them this first scholarship so they can see that light and great opportunities are ahead of them, explains the founder.

– I am very proud of my grandfather and what he managed to create, says Julia Sierakowska, who is responsible for communication at the foundation. – At the origins of our foundation is the belief that education changes our lives. We want to equalize the opportunities for people from smaller towns and villages to access higher education. They must overcome another barrier - moving and staying in a larger city. It is especial-



Classes at the chemistry faculty, 1950s of the 20th century

ly difficult for them in the first year of their studies when they start a different way of learning. Our scholarship allows them to remove the financial burden and focus on their studies.

– I don't feel like a philanthropist, but I get great satisfaction, and thanks to meetings with our scholarship recipients, I know that we have genuinely remarkable young people. Our financial support will not cover everything; it's just a fishing rod - says Mr. Jerzy.

The Jerzy Juzoń Educational Foundation tries to maintain constant contact with its scholarship holders. They meet twice a year, share their successes and pains, and learn about Mr. Jerzy's story. His attitude makes a significant impression on young people, as evidenced by letters and moving entries in commemorative albums.

– Our scholarship recipients tell us that my dad is a role model for them, and they write thanks. This is very moving, especially in times of lack of authority, says Aleksandra Sierakowska. – After a few years, one of them paid PLN 10,000 to the foundation's account, writing in the transfer title that he once received support from us, and now he wants to transfer it to others.

Scholarship holders of the Jerzy Juzoń Educational Foundation also include students and graduates of the Silesian University of Technology. Everyone agrees that the scholarship made it easier to adapt to the first year of studies, allowing them to worry less about bills and focus more on learning. One of the students wrote that, inspired by Mr. Jerzy's story, he understood how important it is to share success and help others to build a better future together. ■

More information about scholarships you can apply for from July 1

INTARG 2024 - FULL OF PRIZES FOR THE SCIENTISTS OF THE SILESIAN UNIVERSITY OF TECHNOLOGY

text: Jolanta Skwaradowska
photos: Martin Huć

A PLATINUM MEDAL, FOUR GOLD, ONE SILVER, AND ONE BRONZE, AS WELL AS NUMEROUS NOTABLE AWARDS, INCLUDING THE JURY CHAIRMAN'S AWARD IN RECOGNITION OF THE WORK OF STUDENTS - INVENTIONS OF SCIENTISTS FROM THE SILESIAN UNIVERSITY OF TECHNOLOGY WERE AWARDED AT THE INTERNATIONAL FAIR OF INVENTIONS AND INNOVATIONS INTARG® 2024. TWENTY-ONE COUNTRIES TOOK PART IN THIS YEAR'S 17TH EDITION OF THE EVENT. THE SUBSTANTIVE PARTNER OF THE EVENT WAS THE SILESIAN UNIVERSITY OF TECHNOLOGY.

Official opening of the International Fair of Inventions and Innovations Intarg® 2024 with the participation of Prof. Marek Pawełczyk

INTARG® is an event presenting and promoting inventions and innovations. It explains the potential and achievements of technological thought and science - inventions, technologies, and services addressed to industry. The Silesian University of Technology submitted seven inventions to the competition; each received an award, and some received additional distinctions. In addition, our University received a unique diploma from the Minister of Science for the presentation and promotion of inventions in 2023.

– Participation in fairs gives scientists great motivation. If our work gains recognition and is also used, e.g., in industry, it is incredibly uplifting and inspiring. It is also an encouragement for other scientists, PhD students, and students of our University - said Prof. Marek Pawełczyk, Vice-Rector for Science and Development of the Silesian University of Technology.

The Rector's words are confirmed by the scientists present at the Fair.

– Participation in such an event cannot be overestimated. It is not only a chance to present one's idea but also to confront other inventors. We can exchange our ideas and be humble before the experience of other scientists - said Dr Eng. Witold Janik entered the competition with a laboratory stand to test and support the multi-point calibration of temperature sensors.

Participation in such an event cannot be overestimated. It is not only a chance to present your idea but also to confront other inventors. We can exchange our ideas and be humble before the experience of other scientists

INVENTIONS SUBMITTED BY SCIENTISTS OF THE SILESIAN UNIVERSITY OF TECHNOLOGY AND THE AWARDS THEY RECEIVED

1. Manual vehicle for children with physical disabilities - platinum medal and award of Polish Chamber of Patent Attorneys

Faculty of Mechanical Engineering

Aleksandra Mikulíková – PhD student at the Silesian University of Technology; Dr Hab. Eng. Marek Wyleżoł, prof. SUT, Dr Eng. Małgorzata Muzalewska; M.Sc. Andrzej Jałowiecki

2. A device for measuring the distribution of foot pressure on the ground and for measuring the moment of forces rotating the lower limb - gold medal and WIPO (World Intellectual Property Organization) award

Faculty of Biomedical Engineering

Prof. Dr Hab. Eng Robert Michnik; Dr Eng. Miłosz Chrzan; Dr Eng. Piotr Wodarski; Prof.Dr Hab. Eng. Andrzej Mitas; Prof. Dr Hab. Eng. Andrzej Myśliwiec

3. Device for extinguishing and cooling the batteries of electric cars – gold medal and award from the Polish Chamber of Ecology

Faculty of Transport and Aviation Engineering

M.Sc. Bartłomiej Urbański; M.Sc. Eng. Krzysztof Adamczyk; Dr Eng. Paweł Fabiś

4. "The Housing Estate Game" – gold medal and the Jury Chairman's Award

Faculty of Architecture

Dr hab. Eng. arch. Tomasz Bradecki, prof. SUT, Daria Bal, Aleksandra Barańska, Monika Brol, Natalia Dymarska, Marta Klekotka, Katarzyna Kotarska, Marta Sanigórska, Julia Stachura, Małgorzata Wasik, Karolina Wąsińska, Igor Gdula, Izabela Mularczyk, Justyna Nowak, Oskar Rosikoń, Paulina Siudyka, Błażej Mól and Magdalena Sikora

5. Integrated technology of targeted conversion of wood-based materials into new functionalized construction materials with increased durability (functionalized wood) - gold medal and award of the Association for the Promotion of Polish Science, Technology, and Innovation

Faculty of Civil Engineering, Faculty of Chemistry, Faculty of Mechanical Engineering

Dr Eng. Stefan Pradelok; Dr Hab. Eng. Krzysztof Piotrowski, Prof. SUT; Dr Eng. Piotr Sakiewicz

6. The Method and installation for the separation of shredded two-component waste – silver medal

Faculty of Energy and Environmental Engineering

Dr Hab. Eng. Tomasz Jaworski, Prof. SUT, Dr Eng. Wojciech Hryb

7. Laboratory station for testing and supporting multi-point calibration of temperature sensors – bronze medal

Faculty of Mechanical Engineering

Dr Eng. Witold Janik

but also to confront other inventors. We can exchange our ideas and humble ourselves to the experience of other scientists. I am curious about how others evaluate my work, whether they see potential in it, and the possibility of application, for example, in industry - said Dr Eng. Witold Janik entered the competition with a laboratory stand to test and support the multi-point calibration of temperature sensors.

– The Fair is not only an opportunity to present one's work to a broader audience but also the opportunity to discuss with experts, which is very important in the context of the development of my invention – added Aleksandra Mikulíková, a PhD student at the Silesian University of Technology, who presented a manual vehicle for children with physical disabilities.

The event was attended by representatives of twenty-one countries - inventors, entrepreneurs, and experts. The event took place at the International Congress Centre in Katowice.

– This is a perfect place to promote what scientists are working on, especially since Katowice is the European Capital of Science this year. Here, teams of scientists present themselves, creating exciting solutions that can then be implemented in industry. Therefore, the event shows what new scientists have made and what businesses and industries can benefit from, emphasized Barbara Haller, President of Eurobusiness-Haller, the event organizer.

The Silesian University of Technology was the Content Partner of the Fair. Participation in the event was coordinated by the Centre for Incubation and Technology Transfer of the Silesian University of Technology, which organized a conference entitled "Technology Transfer in Universities" this year. Green Transformation of Silesia." The meeting, an accompanying event, was attended by representatives of Silesian universities associated with the Academic Consortium Katowice - City of Science, dealing with technology transfer.

Additionally, during the two days of the Fair, the Centre for Incubation and Technology Transfer organized games of its board game called "Science is the business of tomorrow!" presenting in an accessible form the technology transfer process, from idea to implementation.

– At the conference, we discussed the development of our voivodeship in the context of transferring knowledge and technology to the economy. These are significant and financially demanding issues. The meeting was an opportunity to exchange experiences and views between universities and present their potential in this area - said Dr Eng. Magdalena Letun-Łątka, director of the Centre for Incubation and Technology Transfer of the Silesian University of Technology.

Participating in fairs gives scientists great motivation. If our work gains recognition and is also used, e.g., in industry, it is incredibly uplifting and inspiring. It is also an encouragement for other scientists, PhD students, and students of our University - said Prof. Marek Pawełczyk, Vice-Rector for Science and Development of the Silesian University of Technology.

A device for measuring the distribution of foot pressure on the ground and the torque of forces rotating the lower limb.

The stand of the Silesian University of Technology at the Fair

During the INTARG® 2024 Fair, students from scientific clubs operating at our University also presented their inventions.

– This event is an excellent opportunity to present our project, but also to meet people who deal with similar issues, get their opinions on our inventions, and perhaps win some awards – said Karol Wilk from the AI-METH Science Club, which presented their invention "Integral Senso," an interactive device for disabled children.

This year, the International Fair of Ecology and Environmental Protection INTARG® EKO 2024 was held in parallel with the INTARG® fair. The event allowed experts to discuss the energy transformation and the pursuit of climate neutrality and friendly living conditions. ■

PROJECTS ARE THE KEY TO DEVELOPMENT

text: *Jolanta Skwaradowska*
photos: *Maciej Mutwil*

OVER 150 REPRESENTATIVES FROM TWENTY UNIVERSITIES FROM ALL OVER POLAND PARTICIPATED IN THE CONFERENCE "PROJECTS AS AN OPPORTUNITY FOR UNIVERSITY DEVELOPMENT." THE EVENT TOOK PLACE AT THE EDUCATION AND CONGRESS CENTRE OF THE SILESIAN UNIVERSITY OF TECHNOLOGY.

During the two days of the meeting, participants discussed project management, its functionality, and its impact on the university's activities. The Rector-Elect, Professor Marek Pawełczyk, inaugurated the conference.

– Today, universities can no longer function without projects because, on the one hand, they are an essential source of financing the university's activities and, on the other, an essential element in the development of scientists' careers. Projects motivate them to think about the topics they want to work on, make new contacts, declare specific goals, and settle them. However, implementing these plans must fit into a particular formal and legal system. Therefore, a well-organized administrative service is necessary, facing various problems related to changing law. These conferences are needed because you can share your concerns, conclusions, and comments and work on common topics here. It is also an opportunity to establish broader cooperation, which will then spread to scientists - said Prof. Marek Pawełczyk.

Participants of the Conference "Projects as an opportunity for university development."

As emphasized by Prof. Anna Chrobok, Vice-Rector-Elect, people employed in Project Management Centres support research and teaching staff, inspire and help in acquiring and implementing projects. – There would be no such modern, highly specialized education and innovative scientific research at the Silesian University of Technology if it were not for the projects – noted Prof. Chrobok.

Implementing projects is one of the critical aspects of university activities, mainly in the research, teaching, and infra-

Today, universities can no longer function without projects because, on the one hand, they are an essential source of financing the university's activities. On the other, a very important element in developing scientists' careers - said the Rector-Elect, Prof. Marek Pawełczyk

structure dimensions. Moreover, due to the method of financing higher education, the demand for projects funded by external sources is increasing, and their number and quality affect the amount of funding and the university's image.

– During the conference, we discussed how projects translate into university activities, their benefits, and why we should obtain them. Since administrators and managers of these projects attended the meeting, there were also topics related to our daily struggles. For example, one of the panels concerned personnel costs in projects - said Katarzyna Markiewicz-Śliwa, head of the International Projects Office at the Project Management Centre at the Silesian University of Technology.

– We want people who deal with university administrative projects to be more visible and their voice to be more heard, especially since it is a substantive voice – said Dr Hab. Katarzyna Górak-Sosnowska, Prof. SGH, president of the Academic Administration Forum. – The scientist is usually the project manager. The people who deal with administration, formal preparations, or budget management may be invisible, and their work is not always appreciated, added Prof. Górak-Sosnowska.

There was great interest in the conference; representatives of twenty universities from all over Poland participated. While it is natural to hold meetings and seminars for research and teaching staff on the art of project management, there are no similar initiatives for staff involved in the management and operation of these projects at universities; if anything, these are training courses on specific programs or sources of financing. Meanwhile, project management employees face a broad range of issues and problems. – These are changing financing conditions, changing requirements for projects, and therefore knowledge on how to prepare funding applications and implement them to meet these requirements – said Lidia Tomaszewska from the Academic Administration Forum.

The conference was also attended by universities associated with European Universities, similar to the EURECA-PRO consortium, of which the Silesian University of Technology is a member. – European universities are still pioneering in this type of project. Each consortium develops its policy. The European Commission has not given us guidelines, so everyone goes their way. We want to gather all this experience here and discuss how to transform the power of these consortiums into solutions across Europe. According to Dr Eng, these are issues related to a European Degree or Student Card. Marcin Gorski, Prof. SUT, director of the Project Management Centre.

The organizers of the conference "Projects as an Opportunity for University Development" were the Project Management Centre of the Silesian University of Technology, Academic Administration Forum (FAA), and Forum of Technical University Project Management Offices (TUPMO Forum). ■

Rector-Elect, Prof. Marek Pawełczyk

SCIENTIFIC COMMUNICATION PLATFORMS. PROJECTS IMPLEMENTED AT THE SILESIAN UNIVERSITY OF TECHNOLOGY

text: Renata Frączek
photo: Przemysław Bratkowski

IN THE ERA OF DIGITALIZATION AND GLOBALIZATION, SCIENCE IS NO LONGER CONFINED WITHIN THE WALLS OF UNIVERSITIES AND LABORATORIES. CONTEMPORARY RESEARCHERS ARE INCREASINGLY TURNING TO DIGITAL TOOLS TO SHARE DISCOVERIES, COLLABORATE, BUILD RESEARCH GROUPS, AND REACH A WIDE AUDIENCE. THESE TOOLS ARE SCIENCE COMMUNICATION PLATFORMS.

A science communication platform is a tool or environment that enables scientists, researchers, and other professionals to share research results, publications, data, and knowledge with others in the scientific community. These platforms can provide access to scientific publications – articles, scientific journals, data, science blogs, collaboration tools, and much more. Such solutions aim to facilitate the exchange of information, support open science, and contribute to the development of science and the exchange of thoughts and ideas. In short, these virtual spaces facilitate the exchange of information, data, and ideas. The contemporary challenge of scientific communication platforms is openness, enabling scientific dialogue and reviewing ideas and texts at every stage of their creation.

The various available scientific communication platforms, depending on their functions,

include (among others) repositories of scientific works, social platforms for scientists, videoconferencing and webinar tools, and pre-print publication platforms. Many other platforms and tools support science communication. These include research project management platforms, data analysis tools, online learning platforms, and specialized discussion forums. Platforms make science more open, accessible, and collaborative, accelerating progress and opening up new opportunities for researchers worldwide.

SCIENTIFIC COMMUNICATION PLATFORM AS AN OPEN RESEARCH INFRASTRUCTURE (PLON) AND PLATFORM FOR SUPPORT FOR SCIENCE AND RESEARCH (PWNIB)

In December 2023, the Silesian University of Technology obtained funding for two projects to create an innovative scientific communication platform. These are projects financed by the Ministry of Science and Higher Education under the Social Responsibility of Science program. The first project is the Scientific Communication Platform as an open research infrastructure, and the second is called The Science and Research Support Platform. The project manager and leading originator are Prof. Dr Hab. Eng. Marek Niezgódka, Director of the Centre for Computational Technologies and Sciences, and the team implementing the projects includes representatives of the world of science, not only from the Silesian University of Technology but from other research and scientific centres.

The basic assumption of the projects is to provide publications, data, reviews, and assessments that indicate the impact of the shared content on the development of science, as well as the interoperability of resources made available via the publishing platform with international scientific communication systems, in particular with systems created under the patronage of the European Union. Interoperability concerns the possibility of exchanging content resources and all other functionalities, i.e., data, programming, and other documentation tools. The set of interoperability standards for the complete cycle of digital operations will be determined by the recommendations of the EOSC (European Open Science Cloud) EOSC Initiative.

The designed system assumes the introduction of centralized management of metadata resources while decentralizing complete content resources. The distributed management model will be based on a central hub performing management functions and enabling remote node data replication. The platform will allow for the integration of resources from existing national publishing and repository systems without any restrictions regarding their operating models. The only requirement is to adapt these systems to the data infrastructure standards introduced by the European Commission as part of EOSC (European Open Science Cloud), ensuring their operability at the FAIR (Findable, Accessible, Interoperable, Reusable) level.

The repository systems existing in Poland do not include the functionality of substantive assessment, and publications available in digital form have not adopted a consistent Open Peer Review formula, which constitutes an entirely innovative dimension of the solutions proposed by the developed projects, the fundamental attribute of which is the openness of resources. ■

You can hear more about open science in the podcast "Let's Talk about Science."

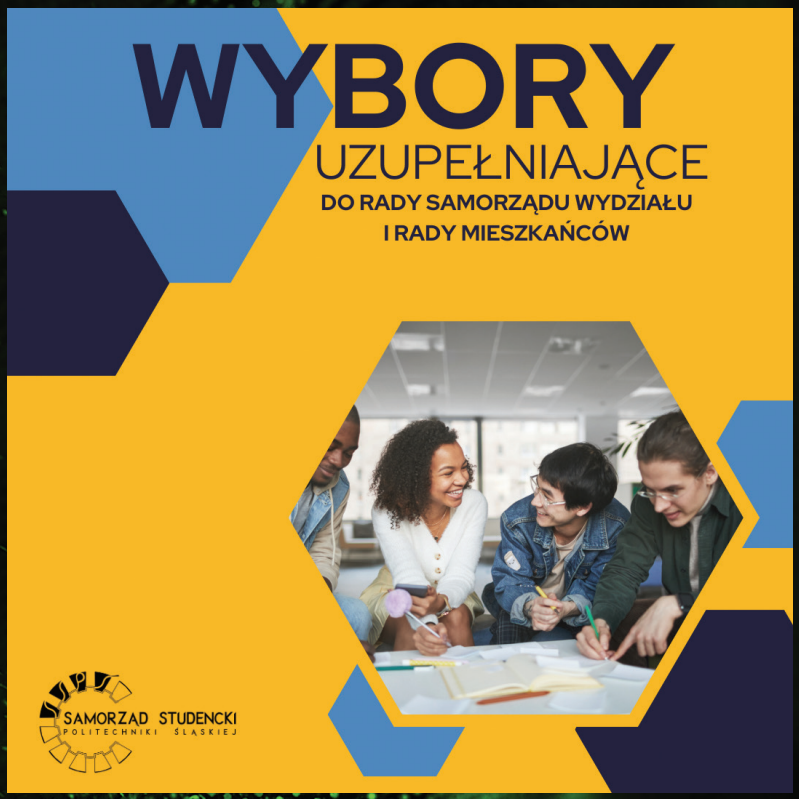
THE VOICE OF THE STUDENT COUNCIL

SUPPLEMENTARY ELECTIONS TO THE STUDENT SELF-GOVERNMENT BODIES

On May 29, 2024, by-elections to the bodies of the Student Self-Government of the Silesian University of Technology were held. Students had the opportunity to join the Faculty Self-Government Council, and residents of student residence halls also had the chance to join the Residents' Council. Several dozen students took part in the elections, and as a result of the voting, some of them will be involved in the activities of the Student Self-Government.

The newly elected members of the Student Self-Government will be responsible for representing students' interests, organizing events, and supporting initiatives to improve the University's quality of life. The new members include people from various fields of study, which ensures broad representation and diversity of perspectives. Thanks to this, the Student Self-Government will be able to respond more effectively to the needs and expectations of the entire academic community.

By-elections are an essential element of the functioning of the Student Self-Government, enabling continuous refreshment of the composition of local government bodies and engaging new people in activities for the University. We wish all newly elected members fruitful work and success in achieving their goals. ■



"BECOME A BONE MARROW DONOR" CAMPAIGN

On May 21 and 23, 2024, a "Become a bone marrow donor" campaign occurred. Students had the opportunity to join the group of bone marrow donors through registration kept by volunteers from DKMS. Volunteer stands were located in Gliwice at the Faculty of Civil Engineering and in Zabrze at the Faculty of Biomedical Engineering.

Before registering, talking to volunteers who answered all questions and helped register people was possible. Thanks to their support, students were able to learn about the registration process and what the requirements for potential donors are.

We can become a hero for someone who needs a bone marrow transplant. Registering as a donor is a simple but crucial step to save a life. The campaign attracted great interest, and many students expressed their willingness to help and show solidarity with the sick.

Initiatives like this show how important it is to build a community ready to help. Joint actions can significantly save many people's lives and health. Thanks to the involvement of volunteers and participants, the "Become a bone marrow donor" campaign was a success, and the number of potential donors increased, giving hope for a new life to those in need. ■

Text: Błażej Brudny

Contact via student self-government social media or by e-mail to **biuro@samorzad.polsl.pl**.

IGRY GAMES TOOK OVER GLIWICE

text: Katarzyna Siwczyk
photos: Przemysław Bratkowski, Katarzyna Siwczyk

IGRY GAMES 2024 HAVE ALREADY BECOME HISTORY. THE SILESIAN UNIVERSITY OF TECHNOLOGY STUDENTS' LARGEST CELEBRATION DURING THE ACADEMIC YEAR OCCURRED AFTER YEARS OF BREAK AT THE SO-CALLED IGRY MEADOW ON THE UNIVERSITY CAMPUS. THE HIGHLIGHT WAS THE COLOURFUL MARCH THROUGH THE STREETS OF GLIWICE.

Since October, Silesian University of Technology students have been waiting for these few days for almost a year. Every year, the GAMES are an excellent opportunity to have fun together and recharge the batteries, which will be helpful during the exam session.

– We have been preparing for this celebration. You can see it in our outfits. As befits an engineer, I designed a car that even has wheels and runs - said M.Sc. Krzysztof Kocot, one of the pageant participants, dressed as a toy car.

Before the students set off through the city streets to present themselves to the residents and start the fun, the keys to the gates of Gliwice were handed over to them by the mayor of the city, Katarzyna Kuczyńs-

ka-Budka, accompanied by the Rector of the Silesian University of Technology - Prof. Arkadiusz Mężyk and the Rector-Elect Prof. Marek Pawełczyk.

– I once lived at Zwycięstwa Street, and from the balcony, I watched students of the Silesian University of Technology marching through the city streets. Even as a child, I liked watching it. Even though I was later a student of the University of Silesia, as an inhabitant of Gliwice, I willingly participated in these events - recalled the mayor of Gliwice and added that she wanted the city to remain student-friendly and for young people to want to stay here after graduation to work. And develop the city.

Prof. Marek Pawełczyk also shared his memories from his student days.

– I remember much longer GAMES from my student period. We started celebrating on Wednesday and had Thursday and Friday off from classes. Even though we didn't have the infrastructure and opportunities we have today, we had just as much fun, recalled the Rector-Elect.

Prof. Marek Gzik, Deputy Minister of Science, also wished the students good fun.

– I was an exemplary student, but I remember most fondly my study time and my free time, including GAMES. Let's not forget that after a well-worked day or semester, a person also needs to rest - added Prof. Gzik.

There was plenty of fun in Gliwice before the upcoming exam session. Students had fun outdoors during a big barbecue and participated in film screenings. As usual, the concerts were the most popular. This year, the stage featured, among others, Flame, Lej Mi Pół, Bez Pokory, Wilki, and Organek. ■

The Mayor of Gliwice, Katarzyna Kuczyńska-Budka, symbolically hands the students the key to the city gates.

TRENDS. TECHNOLOGIES. TACTICS. TALKS ABOUT COMMUNICATION IN THE EUROPEAN CITY OF SCIENCE KATOWICE

text: Anna Świderska
photo: Jan Szady

THIS WAS THE MOTTO OF THE 36TH CONFERENCE OF THE PR AND PROMOTION OF POLISH UNIVERSITIES ASSOCIATION "PROM." EXPERTS, PRACTITIONERS, GOVERNMENT REPRESENTATIVES, AND AGENCIES DISCUSSED THE INTERNATIONALIZATION OF POLISH UNIVERSITIES AND THE PROMOTION OF THE EDUCATION AND COMMUNICATION SYSTEM AT THE SILESIAN UNIVERSITY OF TECHNOLOGY AND THE EUROPEAN CITY OF SCIENCE KATOWICE.

They were intense two days filled with substantive workshops, panels, and case studies, which are an inspiration for us to take action - summed up Anna Kiryjow-Radzka, president of the PR and Promotion of Polish Universities Association "PRom," which organized the conference for the 36th time. – Our network of experts brings together people who work at Polish public and private universities. She added that it is the only space where we find mutual understanding, motivation, and support to act sensibly and reasonably.

This cyclical event is an excellent opportunity to exchange experiences and knowledge about university promotion, build relationships, and establish cooperation.

– Communication is critical, and I am glad such meetings are taking place, said Prof. Dr Hab Eng. Marek Gzik, Deputy Minister of Science and Higher Education, during the opening session. – The Ministry of Science and Higher Education returned to our country's ministries map only half a year ago. We must combine our energy to promote science, which is crucial in economic development and defence. This will determine how society treats science.

During the conference, the perspectives on the internationalization of Polish universities and the promotion of research and education offers abroad were widely discussed.

– We work for the common good, and Polish science deserves more, said Dr Dawid Kostecki, director of the National Agency for Academic Exchange. – There is a need to create a common vector for internationalization, hence the idea of creating a strategy based on broad environmental consultations. We want this debate to be inter-ministerial.

Participants of the 36th Conference of the PR and Promotion of Polish Universities Association "PRom"

Prof. Gzik, Deputy Minister of Science and Higher Education, assured the conference participants that his ministry was open to recommendations and conclusions.

The conference was also the result of the Association of PR and Promotion of Polish Universities competition, "PRom," which rewards the best, most creative, and effective communication and promotional activities in the Polish higher education sector.

We invite you to watch the broadcast from the opening panel of the conference "Creating the image of universities and science in the digital era - promoting Polish universities internationally," in which the following participants took part:

Prof. Dr Hab. Eng. Arkadiusz Mężyk, the Rector of the Silesian University of Technology, Dr Hab. Aleksandra Ziembińska-Buczyńska, prof. of the Silesian University of Technology; Dr Dawid Kostecki – director of the National Agency for Academic Exchange; Mirosław Marczewski – general director of the Foundation for the Development of the Education System; Edyta Lachowicz-Santos – director of the Internationalization Office of the University of Economics in Katowice / EAIE; Julia Łysik – Study in Poland / Perspektywy Educational Foundation. ■

The Silesian Voivodeship - Co-organizer of the European City of Science Katowice 2024 co-financed the event.

List of competition winners

"XXXVI Conference of the Association of PR and Promotion of Polish Universities "PRom" - broadcast of the opening panel.

TECHNOLOGY REVEALS THE SECRETS OF THE INCAS

text: *Anna Świderska*
photos: *Jan Szady, Dominika Sieczkowska-Jacyna, Dagmara Socha*

SCIENTISTS FROM THE SILESIAN UNIVERSITY OF TECHNOLOGY DEALING WITH RADIOCARBON DATING ARE PART OF THE TEAM RESEARCHING THE INCA PERIOD IN THE ANDES. THE RESULTS OF THE SCIENTISTS' WORK SO FAR WERE PRESENTED AT THE EXHIBITION "CAPACOCHA, FOLLOWING THE INCA GODS" AT THE CENTRE OF NEW TECHNOLOGIES OF THE SILESIAN UNIVERSITY OF TECHNOLOGY. THE EXHIBITION PRESENTED, AMONG OTHERS, PHOTOS OF THE WORLD-FAMOUS MUMMY FROM AMPATO, WHOSE FACE WAS RECENTLY RECONSTRUCTED.

Dr Dagmara Socha

Capacocha is the name of a ritual during which the Incas sacrificed children and young women to their most important deities. People selected as victims had to be beautiful, of appropriate social origin, and maintain virginity. In the 1990s, well-preserved frozen mummies and grave goods were discovered on the mountain peaks of southern Peru. Technological progress has prompted scientists to repeat their expertise and deepen their knowledge about the ritual and its victims. The results of the latest research on mummies, artifacts, and high-mountain sites carried out by a Polish-Peruvian team of scientists were presented at the Silesian University of Technology.

– The exhibition is a summary of the research that we have been conducting in Peru since 2017 and is an example of how different research disciplines can be combined: - not only archaeology but also physics, biochemical research, or 3D modelling related to reconstruction– explains Dr Dominika Sieczkowska-Jacyna, an archaeologist associated with the University of Warsaw and recently employed at the Institute of Physics, Centre for Science and Education at the Silesian University of Technology. – Archaeology is no longer just about working with a brush on a site. New technologies and laboratory tests are entering this field. Thanks

Facial reconstruction of the Ampato mummy

Ampato mummy in the laboratory

"Capacocha, Following the Inca Gods" Exhibition

to cooperation with the Silesian University of Technology, I am dealing with radiocarbon dating of the Inca period in the Andes - she adds.

Dr Dominika Sieczkowska-Jacyna, together with Dr Dagmara Socha from the Centre for Andean Studies at the University of Warsaw, presented papers on radiocarbon and isotopic research of burials related to the capacocha ritual. They are also co-authors of the reconstruction of the face of the famous lady from Ampato. The mummy of a young girl sacrificed to the Inca gods was found on the slope of the Ampato volcano in the Andes by the famous American archaeologist and anthropologist Dr Johan Reinhard in 1995. Scientists performed repeated computer tomography scans of all the found mummies, and based on them, a scan of the skull of the Lady of Ampato, also known as Juanita, was performed. Then Dr Socha teamed up with Oscar Nilsson, a Swedish artist and archaeologist, a prominent specialist who reconstructed the mummy's face. The researchers took care of every detail, such as skin tone, the way of combing, or even hand-sewn textiles, which are faithful copies of those worn by a young girl who was sacrificed.

I try to translate into archaeological language what physicists do and vice versa – says Dr Dominika Sieczkowska-Jacyna. – She adds that we strive to pave new paths in methodology and set ourselves more and more ambitious challenges and complicated research questions, which I hope we will successfully solve soon.

– Mummies have always ignited the imagination and attracted great interest. Therefore, we decided that the attempt to reconstruct Juanita's face would be a step that would allow us to look at her not only as a mu-

Dr Dominika Sieczkowska-Jacyna

seum object but also restore her identity and perhaps enable visitors to look at the story from a different angle," says Dr Dagmara Socha.

The result is impressive - Juanita looks alive. Her mummy has been preserved in perfect condition due to the favourable high-altitude weather conditions.

– She probably fell out of the burial place due to the eruption of a nearby volcano and just lay on the surface. We were surprised that we could look into her face - recalled the discoverer of the mummies, Dr Johan Reinhard, who connected with the participants online during the exhibition's opening. – Honestly, I thought I would never know what she looked like when she was alive, but after almost 30 years, it happened thanks to this perfect reconstruction. Scientists have studied Juanita for years, and now you can admire her. As technology develops, we will know even more - added the scientist.

– Some victims of Inca rituals were naturally mummified due to freezing and constitute an incredible source of data, not only for us as archaeologists. Thanks to DNA testing and the study of ancient diseases, we can obtain detailed information unheard of in the case of standard archaeological sources, as added Dr Dagmara Socha.

Knowledge of the Incas, their rituals, culture, and history, mainly from the chronicles of the Spanish conquistadors, has been developed thanks to the cooperation of researchers representing various scientific fields.

– I try to translate into archaeological language what physicists do and vice versa – says Dr Dominika Sieczkowska-Jacyna. – She adds that we strive to pave new paths in methodology and set ourselves more and more ambitious challenges and complicated research questions, which I hope we will successfully solve shortly.

Dr Sieczkowska-Jacyna and Prof. Andrzej Rakowski from the Silesian University of Technology, specializing in radiocarbon dating, will research Peru in the coming weeks.

– In today's scientific world, one cannot limit oneself to one strict discipline; such cooperation as ours is necessary – says Prof. Dr Hab. Eng. Andrzej Rakowski, from the Institute of Physics, Centre for Science and Education at the Silesian University of Technology. – This exhibition is also to get to know scientists from other faculties who may help in our research. We are now striving to be able to specify dates more precisely, so we are going to Peru to collect wood samples to develop a new dendrochronological curve and a calibration curve for the radiocarbon method.

The researchers will conduct high-altitude searches on volcano peaks in southern Peru, and in the Cuzco region, they will look for the roots of the Inca culture.

prof. Andrzej Rakowski

AROUND THE WORLD WITH A TABLE TENNIS RACKET

text: Martin Huć
photos: archiwum prywatne

HE IS 55 YEARS OLD AND STILL PLAYS IN THE LEAGUE AS A PLAYER. HE HAS BEEN A TEACHER AT THE SPORTS CENTRE OF THE SILESIAN UNIVERSITY OF TECHNOLOGY AND A SUPERVISOR OF THE TABLE TENNIS SECTION FOR OVER THIRTY YEARS. THANKS TO THIS SPORT, PIOTR ZEMŁA FULFILS HIS DREAMS OF COMPETING WITH LEGENDS IN THIS DISCIPLINE AND DISCOVERS HIS PASSION FOR TRAVELING.

A CHAMPION ASSIGNED BY FATE

2018, Las Vegas, Nevada, the USA. Sports fans do not associate this city with table tennis. However, the Ping-Pong Veterans World Championships were held there. Among the several thousand participants was a Pole and a Silesian University of Technology employee, Piotr Zemła, born and living in Gliwice. He was happy because fate assigned him a match with the German Jörg Rosskopf, once the world's leading tennis player and two-time Olympic medallist.

In his senior career, the Gliwice native would have no chance in such a match. He has been competing in the Veterans' championship since 2009. He decided to make his dreams come true with his savings. The game with the German player is a reward and the crowning achievement of a career he started at twelve.

HE CHOSE TO COMPETE AT THE TABLE TENNIS TABLE

Piotr Zemła started playing table tennis when he was twelve.

– At my request, my dad took me to my first training session at AZS Gliwice in 1981 – says Piotr. – Back then, in Poland, it was one of the strongest clubs in this sport. And although I showed talent in many disciplines, table tennis forever fascinated me.

While in the United States, Piotr Zemła fulfilled his dreams and took a helicopter ride to the Grand Canyon of Colorado for the first time.

In the colours of AZS Gliwice, he took part in his first local competition and achieved his first success when, as a fifteen-year-old, he won gold in doubles at the National Youth Spartakiad. Due to his talent and hard work, he also debuted in senior competitions. With AZS Gliwice, he played in the then-strongest Polish league, where he faced the country's representatives, such as Lucjan Błaszczyk and Leszek Kucharski.

After graduating from the Academy of Physical Education in Katowice in 1993, he started working at the Sports Centre of the Silesian University of Technology, where he continues to work as a teacher and supervisor of the table tennis section. He had the opportunity to represent our university in the Polish Championship of Teachers and Educational Workers in table tennis, winning the gold medal four times and representing Poland in the International Teachers' Spartakiad, where he won the gold medal twice. He has also been a table tennis player for KTS Gliwice for many years and still plays at the third league level in Poland.

IN THE WORLD'S TOP SIXTEEN

The love for the table tennis racket helped Piotr develop another passion.

Since the beginning of my participation in veterans' competitions, I have enjoyed a tradition of giving my opponent a small gift after each match - these are various gadgets related to the Silesian University of Technology and Gliwice.

– When I turned forty, I could participate in the European Veterans Championships held in Croatia for the first time. In these events, the age categories change every five years, so this year, in July, I will compete in the 55-59 age category in the Masters World Championships - from this year's edition, they will be held for the first time under a new name.

A year after the tournament in Croatia, Piotr fulfilled his dream and went to China - the Mecca of table tennis - for the first time to the World Masters Championships.

– It was the adventure of a lifetime. We competed in the city of Hohhot on the border with Mongolia. The tournament lasted about seven days, so I tried to use any free time to visit nearby places, or sometimes I extended my stay. So I saw the Great Wall of China, a Buddhist monastery, Beijing, and the Forbidden City.

Piotr Zemła has already taken part in ten championships for veterans, and in July, he will take part in the eleventh world championship, which will be held in Rome.

– This will be the most significant event in the history of table tennis – approximately 6,100 players will take part– announces the 55-year-old. – Matches will be played simultaneously at approximately two hundred tables, and approximately forty tables must be prepared for players to warm up. Organizationally, it is a huge undertaking.

Mr. Piotr Zemła's best result was achieved in an event for veterans in 2023 in Muscat, the capital of Oman, when he was among the best sixteen in the world in the 50-55 age category. He also made it to the top sixteen of the European Championships in Rimini, Italy, a year earlier. Piotr did even better in doubles when he reached the quarterfinals twice at the European Championships and was one match away from winning a medal.

– There are a lot of former national team players playing there, so the level is very high. I'm happy with every match I play, he says.

SPORT, TOURISM, AND PEOPLE

Mr. Piotr Zemła emphasizes that his passion for traveling was inspired by his parents, with whom he visited Siberia and the so-called "Siberian Sea," i.e., the deepest lake in the world - Lake Baikal. Thanks to his love for table tennis, he could do many things for the first time, such as a helicopter flight over the Grand Canyon.

– Three things are important to me on my trips: sports, tourism, and people. I met many wonderful people with whom I am still in contact today. I saw casinos in Las Vegas, walked the Walk of Fame in Hollywood, and learned about different cultures in China and Oman, where charming people live. I visited Scandinavia twice and also Budapest.

However, Piotr does not hide that the biggest reward for his years of playing was the duel with the German Jörg Rosskopf.

– The level of his play was colossal, utterly inaccessible to me, and I must admit that he was one hundred percent in charge of what was happening at the table. It was an excellent experience for me, says the player. – I took a photo with him and left him a gift. Since the beginning of my participation in veterans' competitions, I have had a tradition of giving my opponent a small gift after each match - these are various gadgets related to the Silesian University of Technology and Gliwice. ■

In the World and European Masters Championships, Piotr Zemła faced a German, Jörg Rosskopf, an outstanding table tennis player.

EVENTS

RECRUITMENT FOR THE SILESIAN UNIVERSITY OF TECHNOLOGY HAS STARTED

Recruitment for the Silesian University of Technology has begun. Over fifty first-cycle and twenty-one second-cycle majors are waiting for candidates. You can register until July 15th, 2024. More information at: https://rekrutacja.polsl.pl/

CHOOSE POSTGRADUATE STUDIES AT THE SILESIAN UNIVERSITY OF TECHNOLOGY

Recruitment for postgraduate studies at the Silesian University of Technology has started. We invite you to familiarize yourselves with the offer, thanks to which you will quickly expand your competences or acquire new professional qualifications.

Until August 25th, 2024, you can register for postgraduate studies at the Silesian University of Technology. Among the fields of study, candidates can choose from specializations currently sought after on the market and valued by employers. Postgraduate education usually lasts one year.

SCIENTIFIC COMMUNICATION AND POPULARIZATION OF SCIENCE - THE ONLY SUCH POSTGRADUATE STUDIES IN POLAND

Recruitment for postgraduate studies in "Scientific communication and popularization of science" has started. In the winter semester of 2024/2025, students will be educated in this field in a hybrid formula – during on-site classes in Gliwice and online meetings.

Postgraduate studies "Scientific Communication and Popularization of Science" will be carried out over two semesters, during which students will participate in weekend workshops and project classes. Thirteen subjects will be held in a hybrid form – as on-site meetings at the Silesian University of Technology in Gliwice and online. The first round of recruitment will last until August 25th, 2024.

INTERNATIONAL SCIENTIFIC AND TECHNICAL CONFERENCE IN RYBNIK

For the ninth time, the International Scientific and Technical Conference "Energy, environment, exploitation of minerals - management and sustainable development" was held at CKU Rybnik, a Silesian University of Technology branch in Rybnik. The Minister of Industry, Marzena Czarnecka, and the Silesian University of Technology authorities, scientists, and experts from Poland and abroad attended the event.

photo: Jolanta Skwaradowska

During the three days of the meeting, participants discussed how to obtain energy and broadly understood environmental protection and issues related to energy, mining, education, health care, and occupational health and safety. The conference also aimed to integrate industry, universities, and local government.

MEETING OF UNIVERSITY AUTHORITIES OF THE EUROPEAN CITY OF SCIENCE KATOWICE 2024 CONSORTIUM WITH PARLIAMENTARIANS AT THE SILESIAN UNIVERSITY OF TECHNOLOGY

photo: Maciej Mutwil

Krystyna Szumilas M.P, Chairwoman of the Sejm Education, Science and Youth Committee, and Prof. Dr Hab. Eng. Marek Gzik, Deputy Minister of Science and Higher Education, met with the authorities of Silesian universities in the Senate Hall of the Silesian University of Technology. There were discussions about current issues concerning the higher education system and programs for the Silesian Voivodeship. The MP assured that parliamentarians will regularly talk to representatives of the academic community and consult proposed changes to the education system.

16TH CONFERENCE ON BASIC PROBLEMS OF METROLOGY 2024 AT THE FACULTY OF ELECTRICAL ENGINEERING

On June 5-7, 2024, the 16th Conference on Basic Problems

of Metrology 2024 (PPM'24) was held at the Faculty of Electrical Engineering of the Silesian University of Technology in Gliwice, under the honorary patronage of His Magnificence the Rector of the Silesian University of Technology, Prof. Dr Hab. Eng. Arkadiusz Mężyk and the Polish Metrological Union.

photo: Jan Szady

The conference topics covered fundamental metrological issues common to all measurements: technical, technological, theoretical, didactic, organizational, and legal. People for whom modern metrology is important were invited to participate in the conference: industry workers dealing with the metrology of industrial production processes, employees of measurement services, research and calibration laboratories, and employees of research centres and universities. Papers on innovative industrial technologies and scientific research were particularly welcome. ■

THE SILESIAN UNIVERSITY OF TECHNOLOGY IS A PARTNER IN THE "UNIVERSITIES OF THE FUTURE" PROJECT.

The Silesian University of Technology has been selected as a partner of the National Centre for Research and Development for the joint implementation of the project entitled "Universities of the Future" under Measure 5.1 Social Innovations, Axis V Social Innovations under the European Funds for Social Development (FERS).

The National Centre for Research and Development and twelve partners, including the Silesian University of Technology, will implement an innovative education model based on students' original projects.

The project will be implemented in 2024-2028 with the support of the European Funds for Social Development program, and 360 students will test the developed model.

THE SILESIAN UNIVERSITY OF TECHNOLOGY IS A PARTNER IN THE NEW HORIZON – PHOENIX PROJECT.

As part of the EURECA-PRO initiative of the European University, a consortium was established. It awarded a three-year grant under the Horizon Europe Framework Program (HORIZON) - "Sustainable, secure and competitive energy supply". One hundred and one applications were submitted to the competition, but only nine received funding.

The consortium's leader is Belgium's Interuniversity Microelectronics Centre (IMEC). The consortium brings together materials engineering, chemistry, energy, and hydrogen technologies specialists. The Silesian University of Technology project team is headed by Prof. Dr Hab. Eng. Janusz Kotowicz (substantive manager of the project) and Dr Eng. Mateusz Brzęczek (Deputy Technical Manager) will be responsible for modelling reactors, their validation, and detailed economic analyses with the LCA. ■

A MODERN LABORATORY OF INDUSTRIAL AUTOMATION OPENED AT THE FACULTY OF ELECTRICAL ENGINEERING.

The innovative laboratory of industrial automation is the result of cooperation between the Silesian University of Technology and Eaton, the patron of the laboratory, a world leader in products, systems, and services related to electricity management. The laboratory has the most modern equipment to help future automaton engineers acquire practical and critical skills.

The new laboratory has eight workstations and installed the latest Eaton equipment. This equipment will help future automation engineers in programming PLC controllers, creating visualizations for HMI operator panels, and learning industrial communication protocols. The stations have been prepared in such a way as to enable their expansion with new functions in the future. ■

DELEGATION OF SILESIAN UNIVERSITY OF TECHNOLOGY AT YANSHAN UNIVERSITY

photo: Silesian University of Technology

A Silesian University of Technology delegation visited Yanshan University and SCISE (Silesian College of Intelligent Science and Engineering at Yanshan University) in Qinhangdao, China. The Silesian University of Technology was represented by representatives of the Faculty of Mechanical Engineering: Vice-Dean for Education Dr Hab. Eng. Marek Płaczek, Prof. SUT, and Co-ordinator for cooperation with Yanshan University, Anna Kiljan. Currently, the Silesian University of Technology conducts two projects with Yanshan Uni-

versity: "Overseas" and "4+0", which include joint training of first-cycle students.

SILESIAN UNIVERSITY OF TECHNOLOGY IN SERBIA. SCIENCE COMMUNICATION WORKSHOPS AT EDUCONS UNIVERSITY

Scientific communication, modern forms of science popularization, and camera work. In these areas, scientists and students of the Serbian University of Educons trained during workshops with the Science Popularization Centre of the Silesian University of Technology.

The Science Popularization Centre of the Silesian University of Technology was invited to cooperate by Prof. Dr Gordana Racic, Vice-Rector for Teaching and Quality of the Educational process of the University of Educons, a scientist and a representative of the project:" GREENland Microplastic – free environment." Dr Hab. Aleksandra Ziembińska-Buczyńska, Prof. SUT, conducted workshops on "Communication for environmental sciences - are microplastics 'catchy' enough to attract media attention?"

XIX INTERNATIONAL INTERDISCIPLINARY CONFERENCE OF TECHNICAL UNIVERSITIES INTERTECHDOC2024

The 19th International Interdisciplinary Conference of Technical Universities InterTechDoc2024 took place in May. The participants presented the results of their research in nine lecture sessions - in Polish and English.

The summary of the event and the award ceremony took place with the participation of Prof. Dr Hab. Eng. Wojciech Szkliniarz, Vice-Rector for Student Affairs and Education, Prof. Dr Hab. Eng. Bożena Skolud – Director of the Doctoral School, Grażyna Maszniew, Director of the Studies Service Centre and Małgorzata Sołtyńska-Rąb, Head of the Student Career Office. The winners were PhD students of the Wrocław University of Technology, the Silesian University of Technology, foreign doctoral students, and students conducting research within PBL projects. Over one hundred people attended the conference.

"LET'S CHANGE POLAND" - A DEBATE AT THE SILESIAN UNIVERSITY OF TECHNOLOGY

The "Our Ombudsman" initiative, the NieOdkładalni Foundation from Gliwice, and the Silesian University of Technology are the organizers of the debate promoting the idea of creating a network of changing places (comforts) in Poland, i.e., fully adapted toilets with couches and lifts for people with disabilities and older people.

The initiative "Let's change" Poland" is a social action, thanks to which it was possible to organize fifty comforts in Poland in three years. Gliwice stands out from other cities – there are seven comforts here, including one with a lift. However, this is a drop in the ocean of needs. It is estimated that approximately 150,000 people have special needs when performing hygiene and sanitary activities.

TRE VOCI SANG FOR THE SILESIAN UNIVERSITY OF TECHNOLOGY.

This year's Spring Concert of the Silesian University of Technology ended with standing ovations. Nearly two thousand people, together with the President of Zabrze and the Rector authorities of the university, applauded the bravado performance of three young tenors, who under the name Tre Voci, are making a sensation on national and international music stages.

The university's annual birthday concert was attended by current and former employees of the Silesian University of Technology and friends of the university. Many guests were greeted by Prof. Arkadiusz Mężyk, the Rector of the Silesian University of Technology, who reminded us that spring concerts with a long tradition always take place on the university's birthday, and this year it celebrates its 79th anniversary.

photo: Tomasz Stokłosa

ECOLOGICAL PROJECTS OF ALO PUPILS WITHIN THE FRAMEWORK OF ERASMUS+

On June 3rd, in the Academic Secondary Comprehensive School of the Silesian University of Technology in Gliwice, the Ecology Day with ERASMUS+ took place, summarizing the educational project "We are Green Europe," implemented by young people and secondary school teachers this school year.

As the name of the project suggests, the topic of the pupils' activities was broadly understood ecology, which translates into a conscious and sustainable lifestyle consistent with the 5 Rs philosophy - Refuse, Reduce, Reuse, Repurpose, Recycle, and Recycle. Each school has prepared its mobility, focusing on one of these ecological slogans.

SUT-INNOVATIVE DAY

The stimulation of innovation and dissemination of scientific achievements of students and doctoral students of the Silesian University of Technology, as well as the idea of commercialization of scientific research results, are the main objectives of the SUT-INNOVATIVE DAY competition. The event took place at the Centre for Incubation and Technology Transfer of the Silesian University of Technology. This year's winner was M.Sc. Eng. Michał Gocki.

SUCCESSES

THREE PROJECTS OF SCIENCE CLUBS RECEIVED FUNDING

Three projects of Student Science Clubs from the Silesian University of Technology were among the winners of the competition "Student Science Clubs Create Innovations" organized by the Ministry of Education and Science. Two of the awarded projects belong to the Student Science Club of Chemists and one to the Student Science Club of Engineering and Systems Biology.

DR ENG. MARCELINA JURECZKO IS THE WINNER OF FAMELAB POLAND

Dr Eng. Marcelina Jureczko from the Biotechnology Centre of the Silesian University of Technology is the winner of the 10th edition of FameLab Poland - a competition popularizing science. In the autumn, she will represent Poland at the international finals in the UK!

The FameLab Science Communication Competition is an initiative addressed to doctoral students and young researchers who will present a selected scientific issue in 3 minutes.

SKN UNMANNED WINS HACKATHON

Nearly 600 participants, 24 hours for a project, dozens of innovative ideas, and a sleepless weekend – the AviaTech Challenge hackathon took place in Mielec. The Silesian University of Technology students associated with the UNMANNED Student Science Club took part in the event, winning first place.

photo: Konrad Piórkowski

The team composed of Rafał Solecki, Patrycja Ołubek, Konrad Piórkowski, Szymon Dulak, Maja Foryciarz, Mateusz Mucha, Adam Piłat and Mateusz Pietraszko - developed a solar-powered drone project, which ensured them winning and a prize of PLN 5,000 in the Air Transport Ecology category. The young innovators were supported by their irreplaceable mentors - Konrad Foryciarz and Krzysztof Targosz.

START SCHOLARSHIP FOR YOUNG SCIENTISTS OF THE SILESIAN UNIVERSITY OF TECHNOLOGY

Representatives of the Silesian University of Technology with exceptional distinction. The results of the next edition of the START Scholarship competition of the Foundation for Polish Science - awarded to the best young scientists representing all fields of science - were announced. The winners were Dr Eng. Daria Katla-Milewska and M.Sc. Eng. Jakub Ochmann from the Faculty of Energy and Environmental Engineering.

GIULIO MILAZZO AWARD FOR PROF. SERGE COSNIER

Professor Serge Cosnier, a researcher at the Centre for Organic and Nanohybrid Electronics of the Silesian University of Technology, is the winner of the Giulio Milazzo Award – given to outstanding members of the Bio-electrochemical Society who have demonstrated scientific excellence and contributed to the development of bioelectrochemistry. The award ceremony occurred during the XXVIII International Symposium on Bioelectrochemistry and Bioenergetics of the Bio-electrochemical Society in Alcala de Henares, Spain.

SILESIAN GREENPOWER VICTORY!

The first and second place, as well as the special Ford Engineering Award for the bolide telemetry system, is the result of the excellent performance of the students of the Silesian University of Technology from the Silesian Greenpower team in the F24+ competition, which took place on tracks in Great Britain.

photo: Andrzej Baier

Let us remind you that Silesian Greenpower takes part in the F24+ races. Starting in this category, the driver can be up to 26 years old. All cars are built with the same engines, powered by 240 W DC. They also have the same 36 Ah batteries. The race lasts 60 minutes. The team that completes the most laps within that time wins. ■

STUDENTS OF THE SILESIAN UNIVERSITY OF TECHNOLOGY IN THE FINALS OF THE NATIONAL ENGLISH LANGUAGE OLYMPIAD OF TECHNICAL UNIVERSITIES

Four students of the Silesian University of Technology made it to the final top ten of the National English Language Olympiad of Technical Universities. They are: Kamil Bublij, Paweł Szostok, Magdalena Michalak and Bartosz Faruga. The event took place in Poznań. This is an annual, two-stage event in which first--, second-, and third–cycle students from all over Poland compete in their English skills. ■

photo: Justyna Schneider

PROJECTS

RECRUITMENT FOR PROJECTS CARRIED OUT WITH SECONDARY SCHOOL PUPILS

Recruitment for the fourth open competition for financing projects implemented with secondary school pupils under the Excellence Initiative - Research University program is starting. Applications should be sent electronically to the e-mail address of the College of Studies - rjo3@polsl.pl. The application deadline is the 9th of September 2024. The projects will be implemented in the academic year 2024/2025.

OPEN RECRUITMENT FOR JOINT RESEARCH PROJECTS – POLAND-FRANCE

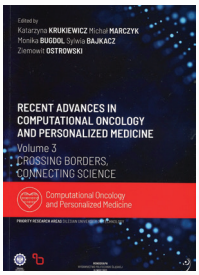
An open call for applications for joint research projects between the Republic of Poland and the French Republic (PHC Polonium 2024): support for the mobility of scientists conducting research in the Polish-French partnership has been announced. Projects representing any field of science are eligible to participate in the competition. Particular attention will be paid to those topics corresponding to the priorities of the Strategic Partnership between the French Republic and the Republic of Poland and the European Union framework program Horizon Europe. The call for applications lasts until the 17th of July 2024 at 15:00. Details of the recruitment are available at www.nawa.gov.pl

PROJECT WITH EU FUNDING

The Silesian University of Technology is implementing the project "Staff support in intensifying scientific activities in the field of transport transformation towards a green and digital economy" worth PLN 1,302,600, which received funding from the European Union for PLN 1,172,340.00. #EUFunds #EuropeanFunds. ■

Fundusze Europejskie dla Śląskiego
Rzeczpospolita Polska
Dofinansowane przez Unię Europejską
Województwo Śląskie

PUBLISHING NEWS



Recent advances in computational oncology and personalized medicine. Vol. 3 Crossing borders, connecting science

Collective work edited by Katarzyna KRUKIEWICZ, Michał MARCZYK, Monika BUDGOL, Sylwia BAJKACZ, Ziemowit OSTROWSKI

Ed. I, 2023, PLN 35.70, p. 231

The third volume of the Advances in Computational Oncology and Personalized Medicine series explores the latest research and practical solutions within the Priority Research Area 1 (POB1) of the Silesian University of Technology. Sixteen chapters present innovative research results by a consortium of scientists, students, and cooperating partners from the academic and socio-economic environments, which were most often created in response to the practical needs of doctors and biologists. The monograph covers bioinformatics, numerical modelling, biomaterials engineering, and public health issues.

The evolution of dystopia. A woman and a man a few decades later

Maria BANAŚ

Ed. I, 2024, PLN 45.15, p. 312

The research analysis presents the evolution of the literary form dystopia, especially in the social space. The broadly understood women's issue, considered on several levels, is prioritized in this perspective. The author refers to the genre's most influential and outstanding works created in the 20th century: George Orwell's 1984 (1949) and Aldous Huxley's Brave New World (1932).

Mathematics. Tasks, answers, and their implementation in Mathematica

Marcin ADAM, Radosław GRZYMKOWSKI, Jakub Jan LUDEW, Marek MORAWIAK, Mariusz PLESZCZYŃSKI, Adrian SMUDA, Roman WITUŁA

Ed. I, 2024, PLN 24.15, p. 224

The book is a collection of tasks from several branches of mathematics. It is intended for students in each university course's first and second semesters, during which basic mathematics classes are conducted. All tasks are provided with answers, some with hints on potentially solving them. An additional attractive aspect of the book is solving tasks with the help of a computer!

The Politechnika Project Competition is for projects implemented with secondary school pupils as part of the Initiative of Excellence - Research University program.

Collective work edited by Anna Chrobok and Agnieszka Siewniak

Ed. I, 2024, p. 56

The work summarizes the competition's first edition for projects conducted with secondary school pupils. It aims to present the research topics and the excellent achievements of students and their guardians. It proves that outstanding young people are educated in secondary schools in the Silesian Voivodeship and that the Silesian University of Technology creates a friendly and extraordinary environment for their development and continuing education in the fields offered.

Edited by **Małgorzata Mizera**

POSITIONS, DEGREES, AND ACADEMIC TITLES

AWARDED PH.D. DEGREES

Dr Eng. Rafał DWULAT
Silesian University of Technology – PhD student. Supervisor: Dr Hab. Eng. Krzysztof Janerka, Prof. SUT. Thesis topic: "The influence of charge structure and secondary modification on the metallurgical quality of cast iron intended for automotive castings." Conferring the degree of Doctor of Engineering and Technical Sciences with distinction. Discipline - materials engineering. Resolution of the Materials Engineering Discipline Council of April 24, 2024.

Dr Eng. Agnieszka KOCOT
Silesian University of Technology – PhD student. Supervisor: Dr Hab. Eng. Tomasz Ponikiewski, Prof. SUT Thesis topic: "Possibility of alternative use of plastic waste as aggregate in composites with cement or geopolymer binder." Conferring the degree of Doctor of Engineering and Technical Sciences. Discipline – civil engineering, geodesy, and transport. Resolution of the Civil Engineering, Geodesy, and Transport Discipline Council of April 25, 2024.

Dr Eng. Mariusz NOGA
Supervisor: Prof. Dr hab. Eng Stanisław Borkowski. Auxiliary supervisor - Dr Eng. Michał Molenda.
Thesis topic: "Application of Toyota Principles to Identify Activities to Improve the Production Process in a Meat Processing Enterprise." Conferring the degree of Doctor of Engineering and Technical Sciences. Discipline - mechanical engineering. Resolution of the Mechanical Engineering Discipline Council of May 22, 2024.

Dr Eng. Jakub PISKOZUB
Lodz University of Technology, Supervisor: Prof. Dr Hab. Eng. Paweł Strumiłło. Thesis topic: "A data glove with a reduced number of sensors for the recognition of Polish Sign Language letters." Conferring the degree of Doctor of Engineering and Technical Sciences. Discipline - biomedical engineering. Resolution of the Biomedical Engineering Discipline Council of May 16, 2024.

Dr Welisson DE PONTES SILVA
Silesian University of Technology – PhD student. Supervisor: Prof. Dr Hab. Eng. Mieczysław Łapkowski. Auxiliary supervisor - Dr Eng. Radosław Motyka. Thesis topic: "Design, synthesis, and investigation of the photophysical and electrochemical properties of selected conjugated molecules belonging to various classes of compounds." Conferring the degree of Doctor of Exact and Natural Sciences. Discipline – chemical sciences. Resolution of the Chemical Sciences Discipline Council of May 22, 2024.

Dr Eng. Michał WALCZAK
Grupa Azoty Zakłady Azotowe "Puławy" SA Supervisor: Dr Hab. Eng. Robert Kubica, Prof. SUT Thesis topic: "Optimization of process parameters of selected nodes of high-pressure installations for melamine production." Conferring the degree of Doctor of Engineering and Technical Sciences. Discipline – chemical engineering. Resolution of the Chemical Engineering Discipline Council of May 15, 2024.

AWARDED DEGREES OF HABILITATED DOCTOR

Dr Hab. Eng. Roman JAKSIK
Silesian University of Technology Faculty of Automatic Control, Electronics and Computer Science - assistant professor. Resolution of the Biomedical Engineering Discipline Council. Discipline - biomedical engineering 16/05/2024.

Dr Hab. Eng. Piotr KRAUZE
Silesian University of Technology Faculty of Automatic Control, Electronics and Computer Science - assistant professor. Resolution of the Automation, Electronics, Electrical Engineering and Space Technologies Discipline Council Discipline – automation, electronics, electrical engineering and space technologies on 21/05/2024

Dr Hab. Eng. Andrzej KUBIK
Silesian University of Technology, Faculty of Transport and Aviation Engineering – assistant professor. Resolution of the Civil Engineering, Geodesy, and Transport Discipline Council. Discipline – civil engineering, geodesy, and transport. April 25, 2024.

Dr Hab. Eng. Michał MARCZYK
Silesian University of Technology Faculty of Automatic Control, Electronics and Computer Science - assistant professor. Resolution of the Biomedical Engineering Discipline Council. Discipline - biomedical engineering 16/05/2024.

Dr Hab. Eng. Katarzyna TUROŃ
Silesian University of Technology, Faculty of Transport and Aviation Engineering – assistant professor. Resolution of the Civil Engineering, Geodesy, and Transport Discipline Council. Discipline – civil engineering, geodesy, and transport. April 25, 2024.

Dr Hab. Eng. Wiktor MATYSIAK
Silesian University of Technology Faculty of Mechanical Engineering - assistant. Resolution of the Materials Engineering Discipline Council Discipline - materials engineering on 24/04/2024

Dr Hab. Eng. Renata ŻYŁŁA
Łukasiewicz Research Network – Łódź Institute of Technology. Resolution of the Environmental Engineering, Mining and Energy Discipline Council Discipline - environmental engineering, mining and energy. April 25, 2024.

AWARDING THE ACADEMIC TITLE OF PROFESSOR

Prof. Dr Hab. Eng. Piotr DYDO
A graduate of the Faculty of Chemistry of the Silesian University of Technology. Dr – 22/09/2004, Dr Hab. – May 22, 2013. Position of university professor from October 1, 2014. Employment at the Silesian University of Technology from November 1, 2004. Title of professor of engineering and technical sciences from May 15, 2024.

Prof. Dr Hab. Eng Damian GRZECHCA
Graduate of the Faculty of Automatic Control, Electronics and Computer Science of the Silesian University of Technology. Dr – 13/05/2003, Dr Hab. – March 5, 2013. Position of university professor from December 1, 2018. Employment at the Silesian University of Technology from June 1, 2003. Title of professor of engineering and technical sciences from May 15, 2024.

Prof. Dr Hab. Eng Dariusz MROZEK
Graduate of the Faculty of Automatic Control, Electronics and Computer Science of the Silesian University of Technology. Dr – 19/12/2006, Dr Hab. – February 28, 2017. Position of university professor from May 1, 2019. Employment at the Silesian University of Technology from December 20, 2006. Title of professor of engineering and technical sciences from May 15, 2024.

Edited by **Katarzyna Mryka**

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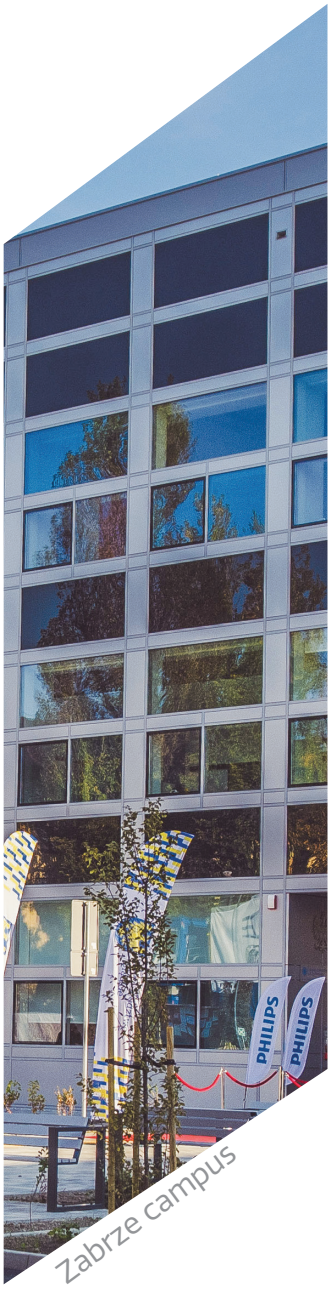

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